Field guide to sedge species of the Rocky Mountain Region



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This guide describes all the 131 species of *Carex* known to occur in Wyoming, Colorado, and western portions of Kansas, Nebraska, and South Dakota. A dichotomous key is provided for identification in the field. Each species is described, with diagrams of the plant, head, pistillate scale, and perigynium. A distribution map appears for each species, as well as a table of characteristics and index.



Carex comosa (longhair sedge), a large, broad-leaf sedge of plains wetlands and sloughs. “Reprinted with permission from North American Cariceae by Kenneth K. Mackenzie, illustrations by Harry C. Creutzburg, copyright, 1940. The New York Botanical Garden Press.”

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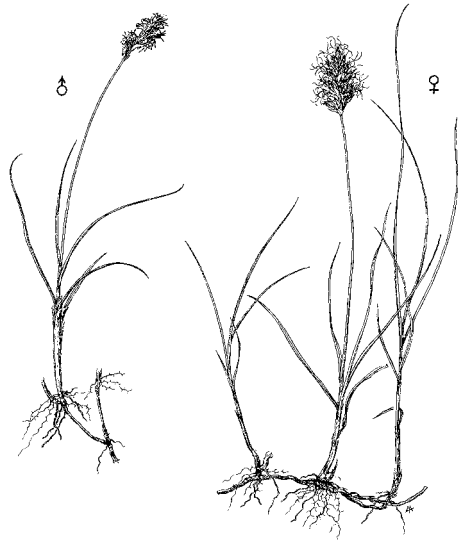
Cover: *Carex utriculata* (beaked sedge) in a typical habitat. On slightly drier microsites around this one, there are also *Carex lanuginosa* (woolly sedge) and *Carex aquatilis* (water sedge).

Field guide to sedge species of the Rocky Mountain Region

The genus *Carex* in Colorado, Wyoming, western South Dakota, western Nebraska, and western Kansas

Barry C. Johnston

Publication R2-RR-01-03



Carex douglasii, a rhizomatous, dry-site sedge, often dioecious. From Hermann, Frederick J. 1970. Manual of the Carices of the Rocky Mountains and Colorado Basin. Agriculture Handbook No. 374, 397 pp. Washington, DC: USDA Forest Service.

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Erschallet, ihr Himmel, erfreue dich, Erde,
Lobsinge dem Höchsten, du glaubende Schar!
– J. S. Bach, *Cantata 134* (1724)

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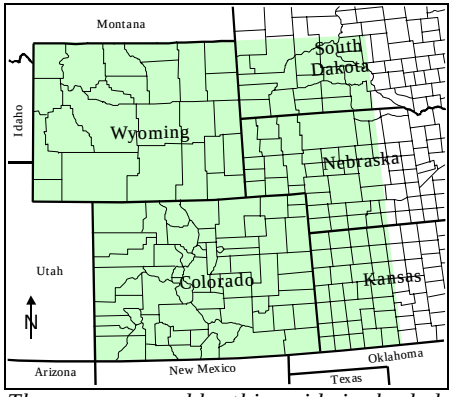
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Chapter 1. Introduction

This book describes the sedge species (*Carex* species) of Wyoming, Colorado, and western parts of South Dakota, Nebraska, and Kansas. The purpose of the book is to provide field people with information in one book that is sufficient for identification and description of all sedge species of the Region.



The area covered by this guide is shaded.

Sedges are important components of many ecosystems of the Rocky Mountains and Great Plains. There are a number of wet[1] sedges whose identification and understanding is critical to correctly inventory, evaluate, and assess riparian areas and wetlands. Their functions in these water-dominated ecosystems include water holding, bank binding, and soil binding – and so these sedges are economically valuable way beyond their mere scientific research potentials. Maintenance of key populations of wet sedges is, in turn, a very important part of maintenance and protection of water sources.

Dry sedges and moist sedges are important components of forests, grasslands, and alpine tundra. They often act as soil binders and slope holders. Alpine ecosystems – that will come under increased pressure in years to come – are often dominated by sedges. In this Region, grasses tend to have less cover under shade of trees, and sedges can be among the only plants in those situations.

You cannot understand the function of sedges in ecosystems, or their ecosystem values, or economic values, without correct identification and research study. The botanical community has a critical part to play – local experts, scientists, professional and research organizations. College and university herbaria desperately need our support, for they are the principal data sources for identification.

Two trends will make these concerns more important in future years: increased population pressures on public and private land, and warming of the climate. Managers and land owners alike will have to pay much more attention to sedge identification – and other similar concerns – as we move ahead.

Some of the most important people in this endeavor are the interested volunteer “non-professionals” – they often are more committed and professional than the “professionals!” Two of the major scientists working on sedges, without whom this work would be considerably poorer, were from the honored ranks of volunteers: Kenneth K. Mackenzie, who was a banker, and Miriam Colson Fritts, who was a school teacher. These all deserve our support, for without them we would know much less about sedges.

[1] Terminology described in the Glossary, Chapter 2.

References Used

Albee, Beverly J., Leila M. Schulz, and Sherel Goodrich. 1988. Atlas of the vascular plants of Utah. Salt Lake City, UT: Utah Museum of Natural History. http://www.nr.usu.edu/Geography-Department/utgeog/utvatlas, accessed March 9, 1999.

Cayouette, J., and P. M. Catling. 1992. Hybridization in the genus *Carex* with special reference to North America. Botanical Review 58(4):351-440.

Creutzburg, Harry C. 1940. Illustrations, in Mackenzie's North American Cariceae. http://www.csdl.tamu.edu/FLORA/carex/carexout.htm, last updated October 30, 1997, downloaded May-August, 2000.

Correll, Donavan S., and Helen B. Correll. 1972. Aquatic and wetland plants of southwestern United States. Publication 16030-DNL-01/72, 1777 pp. Washington, DC: Environmental Protection Agency, Research and Monitoring.

Cronquist, Arthur. 1969. Cyperaceae. Pp. 219-383 *in* Hitchcock, C. Leo, Arthur Cronquist, and Marion Ownbey. Vascular plants of the Pacific Northwest, Part I: Vascular cryptogams, gymnosperms, and monocotyledons. Seattle, WA: University of Washington Press, 914 pp.

Cronquist, Arthur. 1977. Cyperaceae. Pp. 67-175 *in* Cronquist, Arthur, Arthur H. Holmgren, Noel H. Holmgren, James L. Reveal, and Patricia K. Holmgren. Intermountain flora: Vascular plants of the intermountain west, U. S. A., Volume 6: The Monocotyledons. New York, NY: New York Botanical Garden and Columbia University Press. 584 pp.

Dayton, W. A. 1950. Glossary of botanical terms commonly used in range research, Revised Edition. Miscellaneous Publication No. 110, 41 pp. Washington, DC: U. S. Department of Agriculture.

Dorn, Robert D. 1977. Flora of the Black Hills. Cheyenne, WY: Authors, 377 pp.

Dorn, Robert D. 1992. Vascular plants of Wyoming, Second Edition. Cheyenne, WY: Mountain West Publishing, 340 pp.

Dorn, Robert D. 1997. Rocky Mountain Region willow identification field guide. R2-RR-97-01, 107 pp. Denver, CO: USDA Forest Service, Renewable Resources.

Egorova, T. V. [Егорова, Т. В.]. 1999. The sedges (*Carex* L.) of Russia and adjacent states (within the limits of the former USSR). Осоки (*Carex* L.) Поссии и сопредельных государств (в пределах бывшего СССР). St. Louis, MO: Missouri Botanical Garden. Санкт-Петербург: Санкт-Петербургская годударственная академия. 772 pp. Parts translated into English.

Fritts, Miriam Colson. 1996. *Carex* L. Pp. 155-167 *in* Weber, William A., and Ronald C. Wittmann. Colorado flora: Western Slope, Second Edition. Niwot, CO: University Press of Colorado, 496 pp.

Fritts, Miriam Colson and Harold C. Fritts. 1998. Program Carex: A random access key for the genus *Carex* in 11 western U. S. states. Version 4.1, 1 floppy disk, dated September 13, 1998.

Great Plains Flora Association. 1977. Atlas of the flora of the Great Plains. Ames, IA: Iowa State University Press, 600 pp.

Great Plains Flora Association. 1986. Flora of the Great Plains. Lawrence, KS: University Press of Kansas, 1392 pp.

Hermann, Frederick J. 1970. Manual of the Carices of the Rocky Mountains and Colorado Basin. Agriculture Handbook No. 374, 397 pp. Washington, DC: USDA Forest Service.

Hitchcock, C. Leo, and Arthur Cronquist. 1973. Flora of the Pacific Northwest: An illustrated manual. Seattle, WA: University of Washington Press, 730 pp.

Hultén, Eric. 1968. Flora of Alaska and neighboring territories. Stanford, CA; Stanford University Press. 1008 pp.

Hurd, Emerenciana G., Nancy L. Shaw, Joy Mastrogiuseppe, Lynda C. Smithman, and Sherel Goodrich. 1998. Field guide to intermountain sedges. General Technical Report RMRS-GTR-10, 283 pp. Ogden, UT: USDA Forest Service, Rocky Mountain Research Station.

Johnson, W. M. 1964. Field key to the sedges of Wyoming. Bulletin [No.] 419, 239 pp. Laramie, WY: University of Wyoming, Agricultural Experiment Station.

Lewis, Mont E. 1958. Carex – Its distribution and importance in Utah. Science Bulletin, Biological Series 1(2):1-43 + foldout page. Provo, UT: Brigham Young University.

Löve, Áskell, and Doris Löve. 1965. Taxonomic remarks on some North American alpine plants. University of Colorado Studies, Series in Biology 17:1-43.

Mackenzie, Kenneth K. 1940. North American Cariceae. New York, NY: New York Botanical Garden, 2 volumes, 547 pp.

Nickerson, Mona F., Glen E. Brink, and Charles Feddema. 1976. Principal range plants of the Central and Southern Rocky Mountains: Names and symbols. General Technical Report RM-20, 122 pp. Fort Collins, CO: USDA Forest Service, Rocky Mountain Forest and Range Experiment Station.

Stacey, J. W. 1937. Notes on *Carex* – VIII. Leaflets of Western Botany 11(1):13-15.

Starr, Julian R., Randall J. Bayer, and Bruce A. Ford. 1999. The phylogenetic position of *Carex* section *Phyllostachys* and its implications for phylogeny and subgeneric circumscription in *Carex* (Cyperaceae). American Journal of Botany 86(4):563-577.

USDA, NRCS. 1999. The PLANTS database. (http://plants.usda.gov). Baton Rouge, LA: U. S. Department of Agriculture, National Resources Conservation Service, National Plant Data Center (NPDC). Mail to USDA NRCS, NPDC, Baton Rouge, LA 70874-4490. Downloaded May 24, 1999.

Weber, William A., and Ronald C. Wittmann. 1996a. Colorado flora: Western Slope, Second Edition. Niwot, CO: University Press of Colorado, 496 pp.

Weber, William A., and Ronald C. Wittmann. 1996b. Colorado flora: Eastern Slope, Second Edition. Niwot, CO: University Press of Colorado, 524 pp.

Weber, William A., and Ronald C. Wittmann. 2000. Catalog of the Colorado flora: A biodiversity baseline. http://www.colorado.edu/CUMUSEUM/research/botany/Catalog /Vascular%20Plants.PDF, version of March 11, 2000, downloaded April 17, 2000.

Welsh, Stanley L., N. Duane Atwood, Sherel Goodrich, and Larry C. Higgins, Editors. 1993. A Utah flora, Second Edition. Provo, UT: Brigham Young University. 986 pp.

Chapter 2. Terminology and Glossary

In the following discussion, terms are *italicized* when they are first mentioned, if there is an entry in the Glossary that follows.

Growth Form

Sedges are grasslike plants, in that they have relatively narrow leaves, the *inflorescence* is attached to flowering stems (called *culms*),* the flowers are grouped into *spikes*, and the flowers are wind-pollinated, not bright-colored, and of obscure form – that is, they are not obviously flowers. They differ from grasses in that they usually have solid stems. They also differ from grasses in their flower structure, discussed later. Often, sedges are brighter green than grasses.

In this Region, sedges are all perennial herbs, and have several vegetative growth forms. Some species spread by means of long *rhizomes* – "long" in this case meaning averaging over 10 cm long. Some species have no rhizomes at all, but appear clearly in *bunches*, which in taxonomic terminology is called the *cespitose* growth form. Many species appear bunched, but upon closer investigation, short rhizomes (< 10 cm long) can be found; sometimes these plants appear to be *mat-forming*. There are several species, too, that apparently are bunched, but have long rhizomes between the bunches! Careful field investigation is usually required here – but the good news is that often a few quick looks will suffice.

Leaves

Sedge leaves are a lot like grass leaves. Sedge leaves are often *basal*, with a few, smaller ones sometimes on the culm. Like grasses, there sometimes is a *ligule* at the top of the *sheath*, at the collar, where the sheath meets the leaf blade. Sometimes *auricles* are also present there.

Leaves and leaf sheaths can be *pubescent* or *puberulent*; and they can be *glaucous* or have various kinds of colorations, markings, or *nerves*.

Culm

Sedges usually have solid culms that appear heavier than grass culms. Sedges sometimes (not always) have triangular or winged culms, hence the not-quite-reliable saying, "Sedges have edges."

A culm is termed either *phyllopodic* or *aphyllopodic*, depending on the leaf sheaths at the base of the culm. If the leaf sheath has a leaf blade attached to it, it is called phyllopodic; but if it has no blade – it is just a bladeless sheath – then it is called aphyllopodic.

Most sedges have culms that are self-supporting, erect to *ascending*, but some sedges have very weak stems. These are usually difficult to see, since they are supported by and intertwined with adjacent vegetation.

Bract

In sedges, the word *bract* is used in a restricted sense, to mean only the one (or rarely more) bract that occurs on the culm just below the inflorescence. This bract apparently is a modified leaf, and as such may be leaf-like and have a sheath – or it may not look much like a leaf. Or it may be missing altogether.

In some sedges, the bract is *long-sheathing*, which means that it has a sheath (just like a normal leaf's sheath) longer than 3 mm. Rarely, this sheath is missing the blade.

Head

The *head*, also called the inflorescence, is the group of spikes inserted on the culm, usually at the upper end of the culm. In a few sedge species, there is a spike

* The glossary defines the singular, for terms first presented in plural form.

on a long *peduncle* attached at the base of the culm – that can be an important key for identification.

The head can take a wide variety of forms; the spikes can be very close together, or somewhat separated, or widely separated. The overall shape of the head can be short, long, or very long; the spikes can be different from one another, or they can be the same. In some sedges, they appear to be the same but aren't, so careful observation is important here. Sometimes there is just one solitary spike on each culm.

Spikes

Spikes are of four general types, depending on what kind of flowers are present and how they are arranged:

Pistillate – only pistillate (*carpellate*) flowers are present – only flowers that have ovaries that potentially can develop into fruit.
Staminate – only staminate flowers are present – only flowers that have stamens potentially bearing pollen.
Gynaecandrous – a bisexual spike in which the pistillate flowers are above, and the staminate flowers are below.
Androgynous – a bisexual spike in which the staminate flowers are above, and the pistillate flowers are below.

In sedges, individual flowers are rarely bisexual "perfect" (), but often they are either staminate () or pistillate ().

Dissection of a spike is rarely necessary, since pistillate and staminate flowers can often be easily distinguished. On staminate flowers can be seen the stamens hanging out, at least early in the season, or the remains of them later in the season. Also, staminate flowers fade later in the season, and do not expand with the growing fruit.

On pistillate flowers, the *stigmas* hanging out early in the season, and later the flowers will grow with the expanding fruit.

Spikes can be arranged in many different ways, which is important in distinguishing one sedge species from another.

Fruit

The fruit of sedges is an *achene*, but rarely is the achene seen in the field. This is because in sedges the achene is completely enclosed in a small sac called a *perigynium* (plural is "perigynia"). The shape and size of the perigynium is very important in distinguishing different sedge species.

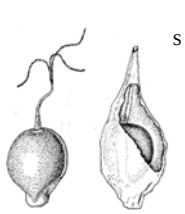
Subtending each flower (staminate or pistillate) is a small part called a *scale*. Usually the word *scale* by itself means the pistillate scale, the scale next to the perigynium. Color and shape of the scale is important, especially whether the scale covers the perigynium.

Glossary

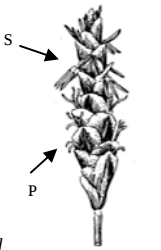
Achene*. "A small dry 1-seeded, 1-celled indehiscent fruit; the fruit of sedges, buttercups, composites, etc." (Dayton 1950).

Alpine Zone. The area of mountains above the upper treeline, above timberline.

Androgynous*. Describing a spike in which the staminate flowers are above the pistillate flowers. See *gynaecandrous*.



Achene visible inside the dissected perigynium



Androgynous (Staminate over Pistillate)

_____
*. Definition with an illustration.

Aphyllopodic. In *Carex*, a flowering culm in which the lower leaf sheaths do not have leaf blades. “Having the lower leaf sheaths bladeless or nearly so” (Fritts and Fritts 1998).

Ascending*. Not strictly erect, but at an angle of < 45° from the vertical. See *reflexed*.

Auricle*. “A flap-like appendage at the base of an inflorescence bract” (Fritts and Fritts 1998).

Ball-like. See *globose*.

Basal. At the lower end of the part, or at the lower part of the plant.

Beak*. “A prominent, firm, slender tip” (Fritts and Fritts 1998). In *Carex*, the upper, narrower extension of a perigynium.

Bidentate*. With two teeth. See illustration for *lanceolate*.

Blunt. See *obtuse*.

Bract*. “A leaf-like or scale-like appendage subtending the inflorescence or the individual spikes” (Fritts and Fritts 1998).

Bunch. “Growing in clumps” (Fritts and Fritts 1998, definition of *caespitose*). A habit of sedges in which the culms and basal leaves of an individual plant arise from the same, relatively small root crown. *Cespitose* is a synonym. Also see *rhizome*.

Carpellate. See *pistillate*.

Cespitose (or caespitose). See *bunch*.

Ciliate. “Hair fringed; provided with eyelash-like hairs on the edge or margin” (Dayton 1950).

Cross-rugulose. “Wrinkled across the lower leaf sheaths” (Fritts and Fritts 1998).

Culm. In sedges and grasses, the flowering stem.

Dioecious*. “Having staminate and pistillate flowers on different plants” (Hermann 1970)

Dorsal. “Pertaining to the back, or outer surface” (Dayton 1950, Hermann 1970).

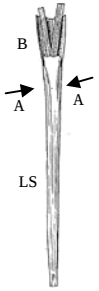
Elliptic. “With the form of an ellipse, nearly oblong but widest in the center and with curving sides” (Fritts and Fritts 1998). With the form of a flattened circle, pointed at both ends. Also see *obovate*.

Fibrillose. Breaking up into small fibers in age, as a leaf.

Filamentose. “Breaking up into threads, often forming a ‘ladder’ on the [in]side of the lower leaf sheaths” (Fritts and Fritts 1998).



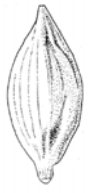
Bract, longer than the Inflorescence



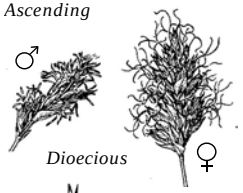
Auricle, Bract, Long Sheath



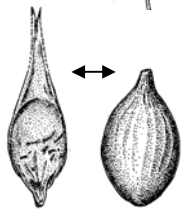
Ascending



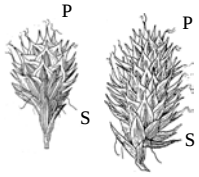
Elliptic



Dioecious



Beak, long and short



Gynaecandrous (Pistillate over Staminate)

Flexuous. Said of a culm that is not stiffly erect, but rather arcing or easily bent by a small breeze.

Foothills. The low hills, mesas, and other landforms at the bases of mountains.

Glabrous. Without hairs. See *pubescent*.

Glaucous. "With a bluish or whitish, waxy covering" (Fritts and Fritts 1998), "that may be removed by friction or heat and tends more or less to reduce transpiration" (Dayton 1950).

Globose*. Said of a head or spike that is approximately spherical in shape.

Grass. A member of the family Poaceae (Gramineae).

Gynaecandrous*. Describing a spike in which the pistillate flowers are above the staminate flowers. See *androgynous*.

Habit. "Manner of growth" of a plant (Dayton 1950).

Head*. A group of spikes on one culm, could be relatively tight or longer or narrower. See *inflorescence* and *spike*.

Hyaline. "Thin and translucent" (Dayton 1950).

Inflorescence. The group of spikes on a culm, whether they are in a tight cluster, loose cluster, or widely separated. See *head* and *spike*.

Interrupted*. "Not continuous; not uniform" (Dayton 1950). See illustration for *moniliform*.

Lanceolate. "Narrow and tapering to the apex, broadest near the base" (Hermann 1970).

Lenticular. "Lens-shaped" (Fritts and Fritts 1998).

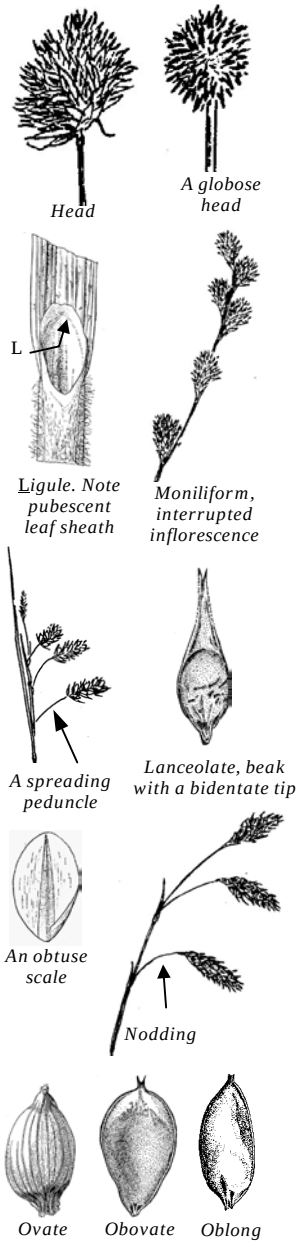
Ligule*. An extension upward of the leaf sheath, as in grasses.

Long-pedunculate. Describing a spike with a long stalk (*peduncle*).

Long-sheathing*. In *Carex*, usually describing the sheath of the lower bract just below the inflorescence, that it is > 3 mm. See illustration for *auricle*.

Mat-forming. Describing a plant that spreads by short rhizomes or offshoots to form a small flat growth habit.

Meadow. Usually a flat area, often with deeper soil as a result of alluvial (or colluvial) deposition, usually at least moist, sometimes wet.



Head

A globose head

Ligule. Note pubescent leaf sheath

Moniliform, interrupted inflorescence

A spreading peduncle

Lanceolate, beak with a bidentate tip

An obtuse scale

Nodding

Ovate

Obovate

Oblong

Moist. Describing a site that has significantly more moisture than surrounding areas, but does not normally have standing water or water table within 5 cm of the surface in any season. See *wet*.

Moniliform*. An inflorescence in which the individual spikes are separated, on opposite sides of the culm, “like a string of beads” (Dayton 1950).

Montane Zone . A broad, macroclimatic zone on the lower slopes of mountains, characterized by dominance by one or more of the trees: ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*) in southwestern Colorado, or white spruce (*Picea glauca*) in the Black Hills.

Nerves. Raised lines on a surface. See illustration for *ovate*.

Nodding*. Hanging down, such as a spike or its peduncle.

Oblong*. With more or less parallel sides.

Obovate*. Like *elliptic* but round instead of pointed at the upper end. “Egg-shaped, broadest above the middle (a two dimensional concept)” (Fritts and Fritts 1998). Contrast with *ovate*.

Obovoid. “Broadest above the middle (a three dimensional concept)” (Fritts and Fritts 1998). Contrast with *ovoid*.

Obtuse*. Blunt or rounded at the tip.

Orbicular. Round or nearly so. See *suborbicular*.

Ovate*. “Egg-shaped, broadest near the base (a two dimensional concept)” (Fritts and Fritts 1998). Contrast with *obovate*.

Ovoid. “Egg-shaped, broadest near the base (a three-dimensional concept)” (Fritts and Fritts 1998). Contrast with *obovoid*.

Peduncle. In *Carex*, the stalk of a spike, sometimes missing.

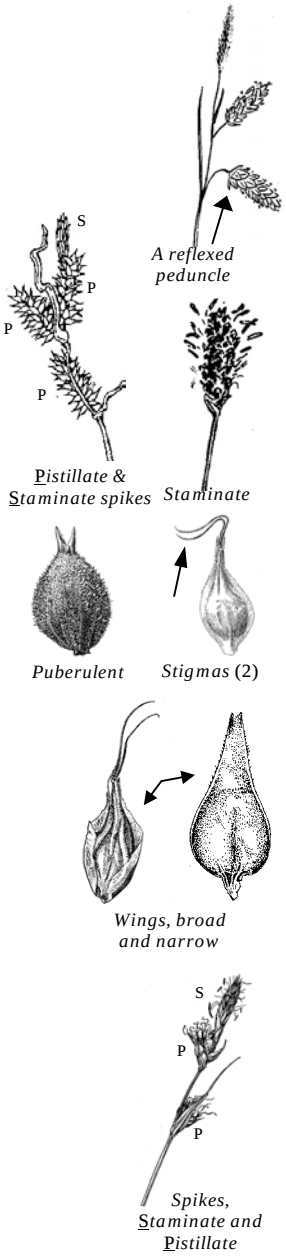
Peduncled. The same as *pedunculate*.

Pedunculate. “Having a stalk” (Fritts and Fritts 1997).

Perigynium*. In *Carex* and some related genera, the sac enclosing the fruit (achene). In *Carex*, the perigynium is closed, with only the stigmas protruding, but in other genera the perigynium may be open or partially open. Plural is “perigynia.” See illustration for *achene*.

Phyllopodic. “Having the lower leaf sheaths with well-developed blades” (Fritts and Fritts 1998). See *aphyllopodic*.

Pistillate*. “Female flowers consisting of a stigma, style and ovary. These are surrounded by the perigynium in *Carex*” (Fritts and Fritts 1998, definition of *carpellate*, a synonym). Also see illustrations for *androgynous* and *gynaecandrous*.



Plano-convex. “Flat on one surface, rounded on the other” (Fritts and Fritts 1998).

Puberulent*. With short hairs on the surface. “Minutely pubescent” (Fritts and Fritts 1998).

Pubescent*. With hairs of any kind on the surface. See illustration for *ligule*.

Punctate. “Dotted, especially with small holes or minute depressions” (Dayton 1950).

Rachilla. “The axis of a spike” (Dayton 1950).

Rachis. “The axis of a spike” (Dayton 1950), the stem between the flowers within a spike.

Reflexed*. “Bent abruptly backward” (Dayton 1950).

Rhizomatous. Having rhizomes.

Rhizome. A horizontal underground stem, rooting at the nodes. A mode of vegetative reproduction.

Riparian Area. The area of ground water influence adjacent to a wetland, stream, lake, or other body of water. Characteristic vegetation is dominant in this area, at least potentially.

Scabrous. “Rough or harsh to the touch” (Dayton 1950).

Scale. “An appendage that subtends the carpellate or staminate flowers” (Fritts and Fritts 1998).

Serrate. With sharp-pointed teeth along the margin.

Serrulate. Diminutive of *serrate*, meaning with small teeth along the margin.

Sessile*. Without a stalk, but attached directly.

Setaceous. “Bristle-like” (Dayton 1950, Fritts and Fritts 1998).

Sheath. “The tubular basal part of a leaf [or bract] that encloses the stem” (Hermann 1970). See illustrations for *auricle* and *ligule*.



Stipe *Sessile spikes*



Suborbicular; abruptly narrowed beaks



Zig-zag culm; globose spikes

Spike*. In *Carex*, a group of flowers that form a unit on the culm. Usually the stem is not visible between the flowers within a spike without dissection.

Spreading. Arcing outward at an angle >45° but <90°. See illustration for *peduncle*. Contrast with *reflexed*.

Stamen*. The pollen-bearing organ of a flower.

Staminate*. Describing a flower that has stamens only. See *pistillate*. Also see illustrations for *androgynous* and *gynaecandrous*.

Stigma*. “The part of the style that is receptive to pollen (in *Carex* two, three, or four stigmas protrude from the perigynium)” (Fritts and Fritts 1998). See illustrations for *androgynous*, *spike*, and *gynaecandrous*.

Stipe*. The stalk of an individual flower. In *Carex*, usually missing or very short.

Stipitate. With a stipe.

Striate. With lines. See *nerves*.

Subalpine Zone. A broad, macroclimatic, forested zone on the upper slopes of mountains, characterized by dominance by one or more of the trees: subalpine fir (*Abies bifolia*), Engelmann spruce (*Picea engelmannii*), or hybrid spruce (*Picea engelmannii* × *glauca*) in northwestern Wyoming.

Suborbicular*. Nearly round. See *orbicular*.

Subtending. Describing two parts that are adjacent.

Terete. "Elongated and round in cross section; cylindrical, except that terete may also be tapered" (Dayton 1950)

Terminal. At the upper end.

Transverse. At right angles to another feature, for example transverse nerves on a perigynium.

Tufted. See *cespitose*.

Unisexual. Said of a flower that is only staminate or only pistillate, as most flowers of *Carex*.

Ventral. "Pertaining to the inner face of an organ, as opposed to *dorsal*" (Hermann 1970).

Wet. Describing a site that has much more moisture than surrounding areas, such that there normally is standing water or water table within 5 cm of the surface in some season. See *moist*.

Wing*. A flat, thin band around the outer edges of a perigynium or culm. See illustrations for *lanceolate*, *stigma*, and *stipe*.

Zig-zag culm*. A culm that bends sharply back and forth, usually between the spikes.

Symbols

♀ Female (pistillate) flowers or plants.

♂ Male (staminate) flowers or plants.

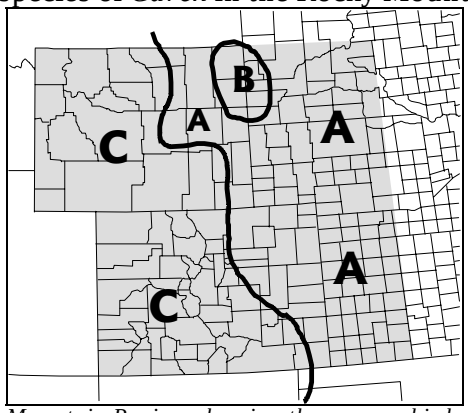
⚥ Bisexual flowers or plants.

Units of Measure

Abbreviations are uncapitalized, with no period after them.

cm	Centimeter(s) = 10 mm = 0.01 m
dm	Decimeter(s) = 10 cm = 0.1 m
ft	Foot (feet) = 12 in = 0.3048 m
in	Inch(es) = 2.5400 cm
km	Kilometer(s) = 1,000 m = 0.6214 mi
m	Meter(s) = 100 cm = 3.2808 ft
mi	Mile(s) = 5,280 ft = 1.6093 km

Chapter 3.
Key to the species of *Carex* in the Rocky Mountain Region



Map of the Rocky Mountain Region, showing the geographic location of the three keys used below. The area covered by this guide is shaded.

1 Plants of the Great Plains, east of the mountain front, but not including the Black Hills.....**KEY A (page 11)**
1 Plants from west of the eastern base of the mountains, or from the Black Hills ..... (2)

2 [1] Plants of the Black Hills and surrounding foothills, in northeastern Wyoming and westcentral-southwestern South Dakota..... **KEY B (page 19)**
2 Plants from west of the eastern base of the mountains. Includes the Laramie Hills and Laramie Peak areas in southeastern Wyoming, and Mesa de Maya and surrounding hills in southeastern Colorado. Also includes intermountain "plains," parks, and valleys in western Wyoming and western Colorado ....**KEY C (page 26)**

KEY A

1 Some leaves 12 mm wide or wider; scale awned ..... (2)
1 No leaves 12 mm wide or wider; scale awned or not..... (4)

2 [1] Wetland plants, in areas near open water or with a high water table at some season; long rhizomes present; lower leaf sheaths shredding in age; leaves sometimes glaucous; beak or awn of scale short, up to 1/3 of scale length ....57. *C. lacustris*
2 Plants of wetlands, drylands, or moist places; always bunched, no long rhizomes present; lower leaf sheaths shredding in age; leaves usually not glaucous; scale short- or long-awned..... (3)

3 [2] Plants of dry to moist sites; 1–30 pistillate flowers per spike; perigynium 3–4½ mm long, not bidentate or very shortly so at tip; scale body short, fiddle-shaped..... 18. *C. blanda*
3 Wetland plants; culms winged; > 50 pistillate flowers per spike; perigynium 5–8 mm long, bidentate with teeth up to 2 mm long; scale body long and narrow..... ..... 25. *C. comosa*

4 [1] Some leaves > 6 mm wide..... (5)
4 No leaves > 6 mm wide .....(19)

5 [4] Plants of wet sites, in areas near open water or with a high water table at some season..... (6)
5 Plants of dry to moist sites, water table always low .....(16)

6 [5] Leaf sheaths with long, soft hairs; leaf ligule longer than wide; perigynium > 6½ mm long.....9. *C. atherodes*
6 Leaf sheaths without long, soft hairs, usually glabrous; perigynium <8 mm long.. .....(7)

7 [6] Culms winged; no long rhizomes..... (8)
7 Culms sharply triangular to bluntly triangular, not winged; plants often with long rhizomes .....(10)

8 [7] Scale with a long, serrulate awn; perigynium 5–8 mm long, not winged, bidentate with teeth up to 2 mm long ..... 25. *C. comosa*
8 Scale acute to acuminate, not awned; perigynium 3½–5½ mm long, at least the beak winged, bidentate with short teeth up to ½ mm long .....(9)

9 [8] Culms slightly winged, the sides not concave; spikes all androgynous; perigynium triangular, tapered from almost the base, the beak sometimes narrowly winged..... 116. *C. stipata*
9 Culms triangular with winged edges and concave sides; spikes all gynaecandrous; perigynium ovate to lanceolate, widest about the middle, the whole perigynium winged to the base..... 124. *C. tribuloides*

10 [7] Lowest spike on a long peduncle > 1 × length of the spike ..... (11)
10 Lowest spike sessile or on a short peduncle up to ½ × length of the spike .....(12)

11 [10] Long rhizomes present; leaves often glaucous; bract not long-sheathing, 1–1½ × inflorescence; scale body wider than perigynium, ovate, short-awned; perigynium with a short beak.....57. *C. lacustris*
11 Long rhizomes absent; leaves seldom glaucous; bract long-sheathing, 2–3 × inflorescence; scale narrower than perigynium and the body considerably shorter, *charango*-shaped, long-awned; perigynium with a long beak about ½ the length of the perigynium ..... 52. *C. hystericina*

12 [10] Scales dark-colored (with a lighter midrib) and perigynium lighter, so spike appearing bicolored .....(13)
12 Scales light-colored (sometimes with a darker midrib), the spike never bicolored. .....(14)

13 [12] Perigynium strongly several-ribbed; leaves often glaucous; pistillate spikes plump, long-ovoid in shape; common in plains wetlands and riparian areas..... .....76. *C. nebrascensis*
13 Perigynium not ribbed or nerved; leaves seldom glaucous; pistillate spikes long and narrow, cylindrical in shape; doubtfully present on the plains, records are likely misidentifications.....7. *C. aquatilis*

14 [12] Lowest pistillate spike widely-separated, on a long peduncle at midstem or lower; perigynium small, 3–4 mm long, beakless or very short-beaked; leaves often glaucous; bract long-sheathing, red-dotted..... 47. *C. granularis*
14 Lowest pistillate spike separated by ½–1 × length of spike, sessile or nearly so; perigynium large, 6–11 mm long, conspicuously beaked; leaves seldom glaucous; bract not long-sheathing.....(15)

15 [14] Perigynium beak bidentate with long, spreading teeth 1–3 mm long; scale with a serrulate awn; common in sloughs.....9. *C. atherodes*
15 Perigynium beak bidentate with short, straight teeth up to 1½ mm long; scale acuminate, not awned; uncommon on the Great Plains.....125. *C. utriculata*

16 [5] All spikes androgynous, appearing the same; bract not long-sheathing; perigynium beak serrulate..... 48. *C. gravida*
16 Terminal spike staminate or androgynous, lower spikes pistillate, appearing different; bract long-sheathing.....(17)

17 [16] Long rhizomes present; scale short-awned <1½ mm .....70. *C. meadii*
17 Long rhizomes absent, plants always bunched; scale long-awned 1–2 mm .....(18)

18 [17] Lowest spike long-pedunculate (> 2 × length of spike) and at about mid-stem; scale fiddle-shaped; perigynium with a curved, bent, non-symmetric beak.. ..... 18. *C. blanda*
18 Lowest spike on a shorter peduncle (< 2 × length of spike); scale body ovate, with a long awn; perigynium symmetric ..... 5. *C. amphibola*

19 [4] Some mature leaves < ½ mm wide; all leaves < 1 mm wide; dry sites..... (20)
19 No mature leaves < ½ mm wide; some leaves > 1 mm wide; dry, moist, or wet sites ..... (21)

20 [19] Plants appearing to be bunched but there are actually long slender rhizomes between the bunches; bract with no blade, but long-sheathing; spikes 2–5 per culm, the lower spike on a long peduncle; terminal spike usually entirely staminate; perigynium dark green to dark brown ..... 37. *C. eburnea*
20 Plants never with long rhizomes; bract none or scale-like, not long-sheathing; spikes solitary, 1 to a culm, androgynous; perigynium light to medium color..... ..... 43. *C. filifolia*

21 [19] Plants of wet sites, in areas near open water or with a high water table at some season ..... (22)
21 Plants of dry to moist sites, always with a low water table ..... (48)

22 [21] Perigynium > 6½ mm long, beak with teeth > 1 mm long..... (23)
22 Perigynium < 6½ mm long, beak with teeth < 1 mm long ..... (24)

23 [22] Perigynium beak with spreading teeth > 2 mm long; lower leaf sheaths pubescent with long soft hairs ..... 9. *C. atherodes*
23 Perigynium beak with short teeth that are not spreading; lower leaf sheaths usually glabrous, uncommonly pubescent, but never with long soft hairs ..... (24)

24 [22,23] Lower spike pistillate or androgynous; upper spike staminate ..... (25)
24 Lower spike not pistillate ..... (40)

25 [24] Perigynium > 5 mm long..... (26)
25 Perigynium < 5 mm long, usually < 4 mm long ..... (27)

26 [25] Lower perigynium widely spreading to horizontal in the spike; lower spikes on a short peduncle ½–1 × length of spike, dangling or drooping when mature; scale long-awned > 2 mm ..... 52. *C. hystericina*
26 Lower perigynium ascending to spreading, never horizontal in the spike; lower spikes sessile or nearly so, ascending when mature; scale acuminate to short-awned..... 125. *C. utriculata*

27 [25] Lowest spike basal, on a long peduncle; perigynium often yellow or orange, inflated; scales light green; culms < 40 cm tall ..... 13. *C. aurea*
27 Lowest spike never basal, sometimes on a long peduncle; perigynium never yellow or orange, sometimes inflated; scales seldom light green; culms often > 40 cm tall ..... (28)

28 [27] Upper and lower spikes appear the same; lower spikes androgynous, seldom pistillate; scales acute; perigynium usually spreading in the spike ..... (29)
28 Upper and lower spikes appear different; lower spikes pistillate or rarely androgynous; scales acute, acuminate, or awned ..... (31)

29 [28] Scale lanceolate, covering perigynium; heads compound, with more than one spike at a node on the culm; bunch habit; leaf sheaths pubescent and red-dotted..... 30. *C. cusickii*
29 Scale ovate to elliptic, shorter and narrower than perigynium; leaf sheaths neither pubescent nor red-dotted..... (30)

30 [29] Plants with long rhizomes; spikes cylindrical in shape, with 10–30 pistillate flowers; perigynium light to medium color; leaf ligule conspicuously tubular in shape..... 106. *C. sartwellii*
30 Plants bunched or with short rhizomes, no long rhizomes present; spikes ovate to globose in shape, with 1–10 pistillate flowers; perigynium medium to dark color ..... 54. *C. interior*

31 [28] Perigynium pubescent on faces; culm scabrous below inflorescence, sharply triangular; lower leaf sheaths tinged with purple..... 59. *C. lanuginosa*
31 Perigynium glabrous on faces, sometimes serrulate or ciliate on margins..... (32)

32 [31] Lower spike on a long peduncle > 2 × length of spike, attached at halfway on the culm or below; bract long-sheathing.....(33)
32 Lower spike sessile or on a short peduncle up to ½ × length of spike, attached above halfway on the culm; bract rarely long-sheathing..... (34)

33 [32] Lowest spike basal; scale medium red-brown with two lighter midribs; pistillate flowers 1–20 per spike..... 28. *C. crawei*
33 Lowest spike attached about near middle of the culm; scale light-colored, hyaline with a darker midrib; leaves sometimes glaucous; pistillate flowers 10–50 per spike..... 47. *C. granularis*

34 [32] Upper spikes gynaecandrous or staminate, appearing the same as lower spikes.....(35)
34 Upper spikes always staminate, appearing different from lower spikes; perigynium usually not spreading, light to medium colored..... (36)

35 [34] Spikes few-flowered (< 10), about as long as wide; perigynium spreading in the spike, dark colored, 1½–3½ mm long; scale acute, shorter than the perigynium ..... 54. *C. interior*
35 Spikes with > 10 flowers, cylindrical; perigynium ascending to somewhat spreading in the spike, light to medium colored; scale awned, as long as or longer than the perigynium.....21. *C. buxbaumii*

36 [34] Bract long-sheathing; long rhizomes absent; pistillate flowers 1–30 per spike; perigynium beakless or with a small doubly-curved beak .... 121. *C. tetanica*
36 Bract not long-sheathing; long rhizomes present; pistillate flowers > 20 per spike; perigynium usually abruptly beaked (the beak long or short), never with a doubly-curved beak.....(37)

37 [36] Perigynium 3½–8 mm long, with a long, gradually-tapering beak, about ½ × perigynium length.....125. *C. utriculata*
37 Perigynium < 4 mm long, abruptly tapered to a short or very short beak..... (38)

38 [37] Perigynium strongly several-ribbed; leaves usually glaucous76. *C. nebrascensis*
38 Perigynium without ribs, sometimes with a few light nerves; leaves usually not glaucous..... (39)

39 [38] Perigynium ovoid (broadest in lower $^1/_3$), often with a few light nerves on the faces; leaf sheaths sometimes fibrous in age .....40. *C. emoryi*
39 Perigynium obovoid or elliptic (broadest in upper $^1/_3$ or middle $^1/_3$), usually nerveless; leaf sheaths usually not fibrous in age; doubtfully present on the plains, records are likely misidentifications.....7. *C. aquatilis*

40 [24] Perigynium > 4 mm long, often winged; bunch or short rhizomes.....(41)
40 Perigynium < 4 mm long, seldom winged..... (44)

41 [40] Bract much longer than the inflorescence, 2–3 × it; perigynium very long and narrow; scale acuminate to short-awned; all spikes gynaecandrous ....118. *C. sychnocephala*
41 Bract shorter than the inflorescence, rarely equal to it; perigynium not so long and narrow; scale acute to acuminate ..... (42)

42 [41] All spikes androgynous; perigynium body usually not winged, the beak sometimes serrulate; perigynium tapering from almost the base, triangular in shape, the base straight, widest near the base; head a tight, cylindrical cluster of many spikes; leaves 2–12 mm wide ..... 116. *C. stipata*
42 All spikes gynaecandrous; perigynium serrulate and winged from beak to base; perigynium ovoid or lanceolate, the base making a V-shape; head looser, the individual spikes usually visually discernible; leaves < 7 mm wide ..... (43)

43 [42] Culms winged, cross-section sharply triangular with concave sides; perigynium broadest in the middle 1/3; leaves mostly 2½–7 mm wide (2–10 mm) ..... 124. *C. tribuloides*
43 Culms not winged, cross-section triangular with flat sides; perigynium broadest in the lower 1/3; leaves mostly 1–3 mm wide (1–4 mm)..... 109. *C. scoparia*

44 [40] Leaf sheaths pubescent and red-dotted; head compound (with more than one spike per node on the culm); lowest spike on a short peduncle . 30. *C. cusickii*
44 Leaf sheaths glabrous, sometimes red-dotted; head simple (only one spike per node); lowest spike sessile or nearly so ..... (45)

45 [44] Perigynium conspicuously winged, 3½–5½ mm long; culm winged, cross-section sharply triangular with concave sides ..... 124. *C. tribuloides*
45 Perigynium not winged, except sometimes narrowly winged at the junction of beak and body, 2–4 mm long; culm not winged, cross-section usually triangular with plane sides ..... (46)

46 [45] Scale conspicuously awned, sometimes awn 3 mm, narrower and longer than the perigynium ..... 130. *C. vulpinoidea*
46 Scale acute to acuminate ..... (47)

47 [46] Long rhizomes present; scale narrower and shorter than the perigynium; perigynium abruptly beaked ..... 106. *C. sartwellii*
47 Long rhizomes absent; scale covering perigynium; perigynium gradually tapered to the beak ..... 97. *C. prairea*

48 [21] Long rhizomes present; lowest spike usually pistillate ..... (49)
48 Long rhizomes absent ..... (64)

49 [48] Lowest spike basal, on a long peduncle; perigynium often yellow or orange, inflated; scales light green; culms < 40 cm tall ..... 13. *C. aurea*
49 Lowest spike never basal, sometimes on a long peduncle; perigynium usually not yellow or orange, sometimes inflated; scales seldom light green; culms often > 40 cm tall ..... (50)

50 [49] Lowest spike widely separated from the rest, on a long peduncle, attached below the middle of the culm; scale dark colored; plants never dioecious ..... 70. *C. meadii*
50 Lowest spike sessile or nearly so; scale dark, medium, or light colored; plants sometimes dioecious ..... (51)

51 [50] Perigynium faces uniformly puberulent; perigynium body inflated, about as long as wide, abruptly short-beaked; plants never dioecious .. 90. *C. pensylvanica*
51 Perigynium faces glabrous, sometimes serrulate or ciliate on the margins; perigynium body usually not inflated, usually longer than wide; plants sometimes dioecious ..... (52)

52 [51] Spikes all pistillate or all staminate, and so plant dioecious ..... (53)
52 Both staminate and pistillate flowers on the same plant ..... (56)

53 [52] Spikes few-flowered, close to one another or slightly separated ..... 114. *C. stenophylla*
53 Spikes with > 10 flowers, sometimes close to one another ..... (54)

54 [53] Spikes in a fairly tight, round head 1½–2½ cm broad; plants often dioecious.....35. *C. douglasii*
54 Spikes in a loose cluster, slightly to fairly widely separated; plants sometimes dioecious.....(55)

55 [54] Scale blunt-tipped, covering perigynium and enclosing it; perigynium broadest in lower 1/3, gradually tapering to a beak about as long as the body..... .....96. *C. praegracilis*
55 Scale acute, sometimes covering perigynium but never enclosing it; perigynium broadest in upper or middle 1/3, abruptly tapering to a short beak ....87. *C. parryana*

56 [52] Spikes few-flowered, close to one another or slightly separated .... 114. *C. stenophylla*
56 Spikes with > 10 flowers, sometimes close to one another.....(57)

57 [56] Spikes in a fairly tight, round head 1½–2½ cm broad; plants often dioecious.....35. *C. douglasii*
57 Spikes in a loose cluster, slightly to fairly widely separated; plants sometimes dioecious..... (58)

58 [57] Spike solitary, gynaecandrous.....87. *C. parryana*
58 More than one spike to a culm .....(59)

59 [58] Terminal spike gynaecandrous..... (60)
59 Terminal spike androgynous or staminate.....(61)

60 [59] Scale tip blunt; terminal spike appearing different from lower spikes ....87. *C. parryana*
60 Scale acuminate, usually awned; all spikes appear similar .....21. *C. buxbaumii*

61 [59] Spikes in a fairly tight, round head 1½–2½ cm broad; plants often dioecious; scale acuminate to short-awned .....35. *C. douglasii*
61 Spikes in a loose cluster, slightly to fairly widely separated..... (62)

62 [62] Perigynium broadest in the upper or middle 1/3; terminal spike usually apparently different from lower spikes .....87. *C. parryana*
62 Perigynium broadest in the lower 1/3; terminal spike usually appears the same as lower spikes..... (63)

63 [63] Scale covering perigynium and enclosing it; perigynium 3–4½ mm long..... .....96. *C. praegracilis*
63 Scale covering perigynium but not enclosing it; perigynium 2–3½ mm long .... 114. *C. stenophylla*

64 [48] Scale leaf-like, much longer than perigynium and covering it; lowest spike basal, widely separated, long-peduncled, nearly hidden in the basal leaves .... 14. *C. backii*
64 Scale never leaf-like, from shorter than to a bit longer than perigynium; lowest spike on the culm not widely-separated, sometimes on a long peduncle .....(65)

65 [64] Lowest spike pistillate; upper spike often staminate; bract sometimes long-sheathing..... (66)
65 Lowest spike gynaecandrous or androgynous; upper spike seldom staminate; bract never long-sheathing.....(77)

66 [65] Some leaves > 4 mm wide; lowest spike sessile or long-peduncled .....(67)
66 No leaves > 4 mm wide; lowest spike sessile or short-peduncled..... (70)

67 [66] Lowest spike on a long peduncle, > 2 × length of spike..... (68)
67 Lowest spike sessile or on a peduncle < 2 × length of spike..... (69)

68 [67] Leaves 3–16 mm wide; perigynium with a short, thick, bent beak; perigynium usually strongly nerved; lowest spike separate, at about mid-stem; scale fiddle-shaped, long-awned ..... 18. *C. blanda*
68 Leaves 2–6 mm wide; perigynium abruptly narrowed to a long, thin, bent beak; lowest spike somewhat separate, above midstem; scale acute to acuminate ..... 113. *C. sprengelii*

69 [67] Perigynium uniformly puberulent, abruptly short-beaked; scale acute to acuminate; open areas ..... 90. *C. pensylvanica*
69 Perigynium glabrous, beakless or very short-beaked; strongly many-nerved; scale awned ..... 5. *C. amphibola*

70 [66] All leaves < 1 mm wide; lowest spike long-peduncled; appears to be bunched but actually slender rhizomes between the bunches; bract with no blade, but long-sheathing ..... 37. *C. eburnea*
70 Some leaves > 1 mm wide; lowest spike sessile or short-peduncled; bunched or short-rhizomatous; bract not long-sheathing ..... (71)

71 [70] Perigynium dark-colored, spreading in the spike; spikes few-flowered, < 10 pistillate flowers per spike; upper and lower spikes appearing similar ..... 54. *C. interior*
71 Perigynium dark- to light-colored, ascending; spikes few- to many-flowered, 1–100 flowers per spike; upper and lower spikes usually appear different ..... (72)

72 [71] Perigynium uniformly pubescent ..... (73)
72 Perigynium glabrous ..... (75)

73 [72] Scale much shorter than perigynium; bract usually longer than inflorescence; perigynium body usually longer than wide ..... 88. *C. peckii*
73 Scale covering perigynium, longer than perigynium or equal to it; bract usually shorter than inflorescence ..... (74)

74 Perigynium body about twice as long as wide ..... 102. *C. richardsonii*
74 Perigynium body usually with length equaling width ..... 90. *C. pensylvanica*

75 [72] Lowest spike on a long peduncle (> 2 × length of spike); scale acute to acuminate; perigynium with an abrupt, long, thin, curved beak .. 113. *C. sprengelii*
75 Lowest spike sessile or on a short peduncle up to ½ × length of spike; scale blunt-obtuse to mucronate; perigynium beakless or short-beaked; sometimes dioecious, in which case all spikes would be pistillate ..... (76)

76 [75] Perigynium not inflated, with two prominent ribs, body length 1½–3 × width ..... 87. *C. parryana*
76 Perigynium plump, inflated, filled by the expanding achene, with many nerves, body length 1–1½ × width ..... 123. *C. torreyi*

77 [65] All leaves < 1 mm wide; spike solitary, few-flowered (< 10) ..... 43. *C. filifolia*
77 Some leaves > 1 mm wide; spike rarely solitary, sometimes few-flowered ..... (78)

78 [77] Scale leaf-like, much longer than perigynium and covering it; lowest spike basal, widely separated, long-peduncled, nearly hidden in the basal leaves ..... 14. *C. backii*
78 Scale never leaf-like, from shorter to slightly longer than perigynium, sometimes covering it; lower spike sessile or on a short peduncle < ½ × length of spike .. (79)

79 [77] All spikes gynaecandrous; upper and lower spikes appear the same; perigynium winged ..... (80)
79 At least the lower spike androgynous, or all spikes unisexual and plant dioecious; upper and lower spikes sometimes appear different; perigynium winged or not ..... (98)

80 [79] Lowest spike closely adjacent to next-lowest spike ..... (81)
80 Lowest spike separated from next-lowest spike by ¼–3 × length of spike ..... (83)

81 [80] Plants of dry partially-shaded sites, usually under pines; bracts and perigynium often yellowish-green, light to medium colored; scale usually covering perigynium or slightly narrower and shorter..... 131. *C. xerantica*
81 Plants of moist open sites; bracts and perigynium not yellowish, perigynium sometimes dark colored; scale clearly narrower and shorter than perigynium.(82)

82 [81] Perigynium dark brownish black; spike ovoid, usually longer than wide; perigynium beak tip slender and terete (round in cross-section); perigynium 3–5½ mm long..... 72. *C. microptera*
82 Perigynium medium to light colored; spike broadly ovoid, usually about as long as wide; perigynium beak tip flat, serrulate, and winged; perigynium 2½–4 mm long..... 15. *C. bebbii*

83 [80] Perigynium > 5½ mm long ..... (84)
83 Perigynium < 5½ mm long ..... (86)

84 [83] Perigynium long and narrow, 3–4 × longer than wide.....109. *C. scoparia*
84 Perigynium 1–2½ × longer than wide ..... (85)

85 [84] Leaf sheaths glabrous; scale usually covering perigynium or slightly narrower and shorter; bracts and perigynium often yellowish-green, light to medium colored ..... 131. *C. xerantica*
85 Leaf sheaths pubescent; scale noticeably narrower than perigynium, usually shorter as well; bracts and perigynium usually not yellowish.....17. *C. bicknellii*

86 [83] Perigynium > 4½ mm long .....(87)
86 Perigynium < 4½ mm long .....(91)

87 [86] Lowest spike closely adjacent to next-lowest spike ..... (88)
87 Lowest spike separated from next-lowest spike by ¼–1 × length of spike..... (89)

88 [87] Perigynium dark brownish-black; perigynium beak tip slender and terete (round in cross-section), tinged with darker color ..... 72. *C. microptera*
88 Perigynium medium to light yellowish-green; perigynium beak tip flat, serrulate, and winged, usually the same color as rest of perigynium ..... 131. *C. xerantica*

89 [87] Perigynium long and narrow, 3–4 × longer than wide.....109. *C. scoparia*
89 Perigynium 1–2½ × longer than wide ..... (90)

90 [89] Scale noticeably narrower than perigynium, often shorter as well; perigynium body about as wide as long, broadly winged; open or shaded sites; perigynium medium to light colored, usually not yellowish ..... 19. *C. brevior*
90 Scale covering perigynium or slightly shorter and narrower; perigynium body about twice as long as wide, narrowly winged; shaded sites; perigynium medium to light colored yellowish-green ..... 131. *C. xerantica*

91 [86] Perigynium long and narrow, 3–4 × longer than wide.....109. *C. scoparia*
91 Perigynium 1–2½ × longer than wide ..... (92)

92 [91] Scale covering perigynium or slightly shorter and narrower; perigynium body narrowly winged; shaded sites; scale medium to light colored yellowish-green ..... 131. *C. xerantica*
92 Scale noticeably narrower than perigynium, usually shorter as well; perigynium body narrowly or broadly winged; scale dark, medium, or light colored, usually not yellowish ..... (93)

93 [92] Scale dark brownish-black; perigynium beak tip slender and terete (round in cross-section), tinged with darker color..... 72. *C. microptera*
93 Scale light- to medium-colored; perigynium beak tip flat, serrulate, and winged, usually the same color as the rest of perigynium ..... (94)

94 [93] Spikes ovate, about twice as long as wide, broadest near the tip; perigynium body about as long as wide; perigynium 3½–5½ mm long and 2½–3½ mm wide.....19. *C. brevior*
94 Spikes ovate to broadly ovate, mostly 1–1½ × as long as wide, broadest near the middle or base; perigynium body 1–2 × as long as wide; perigynium 2½–4½ mm long and 1–3 mm wide..... (95)

95 [94] Head broadly ovate, about twice as long as spike; spike broadest near base... .....74. *C. molesta*
95 Head ovate or interrupted-cylindrical, 3–5 × as long as spike; spike broadest in middle or near base..... (96)

96 [95] Spike broadest in middle; spikes usually 7–8 (2–20)..... (97)
96 Spike broadest near base; spikes usually about 5 (2–10) .....119. *C. tenera*

97 [96] Leaf sheaths green- and white-mottled; perigynium often with cross-nerves ("cross-rugulose")..... 80. *C. normalis*
97 Leaf sheaths green, not mottled, although they may be hyaline at margins; perigynium not cross-rugulose .....15. *C. bebbii*

98 [79] Perigynium not winged at all; lower spikes sometimes not androgynous; scale rounded-obtuse to acute, sometimes short-mucronate..... (99)
98 Perigynium beak narrowly winged, body usually wingless; all spikes androgynous, appearing the same; scale acute to acuminate to long-awned . (100)

99 Lower spike not androgynous; upper spike androgynous (solitary or not) or staminate or pistillate and lower spikes (if any) pistillate, or spikes 1–4, all spikes unisexual and plants dioecious; if more than one spike, lower spikes appear different from upper ones, with 10–100 pistillate flowers ..... 87. *C. parryana*
99 Spikes 2–10, all androgynous; lower spikes appear the same as upper ones, often few-flowered, with 1–20 pistillate flowers .....103. *C. rosea*

100 [98] Head long-cylindrical, 3–10 cm long; scale conspicuously long-awned, awn > 3 mm long; moist to wet sites.....130. *C. vulpinoidea*
100 Head cylindrical or interrupted, usually < 5 cm long; scale acute, acuminate, or short-awned.....(101)

101 [100] Scale acute to obtuse, shorter than perigynium but about the same width ... . 2. *C. aggregata*
101 Scale acuminate to short-awned, narrower than perigynium, shorter than or equal to it..... (102)

102 [101] Lowest spike separated from next-lowest spike by 1–3 × length of spike ....75. *C. muehlenbergii*
102 Lowest spike shortly separated by ¼–1 × length of spike..... 48. *C. gravida*

KEY B

1 Wetland plants, in areas near open water or with a high water table at some season ..... (2)
1 Plants of dry to moist sites, water table always low ..... (29)

2 [1] Upper spike usually staminate, lower spike usually pistillate, appearing different; never all spikes gynaecandrous, never all spikes androgynous..... (3)
2 Upper and lower spikes appearing the same, usually all androgynous or all gynaecandrous.....(16)

3 [2] Perigynium > 5 mm long, long-beaked with conspicuous teeth ..... (4)
3 Perigynium < 5 mm long, long-beaked or short-beaked ..... (7)

4 [3] Lower perigynium widely spreading or horizontal or reflexed in the spike; perigynium beak teeth < ½ mm long; bract > 2 × longer than inflorescence .....(5)
4 Lower perigynium ascending to spreading in the spike; perigynium beak teeth often > ½ mm long; bract 1–1½ × longer than inflorescence .....(6)

5 [4] Lower spikes dangling or hanging on a long peduncle when mature; bract 2–3 × longer than inflorescence; lower perigynium widely spreading to horizontal in the spike; perigynium 5–7½ mm long and 1–2½ mm wide .. 52. *C. hystericina*
5 Lower spikes sessile, stiffly ascending to spreading when mature; bract 3–4 × longer than inflorescence; lower perigynium widely spreading to reflexed in the spike; perigynium 6½–10 mm long and 2–3½ mm wide .....101. *C. retrorsa*

6 [4] Perigynium beak teeth 1–3 mm long, widely divergent; perigynium 6½–11 mm long and 1½–2½ mm wide .....9. *C. atherodes*
6 Perigynium beak teeth < 1 mm long, usually < ½ mm long; perigynium 3½–8 mm long and 2–3½ mm wide.....125. *C. utriculata*

7 [3] Lowest spike on a long or moderate peduncle > 1 × length of spike; bract long-sheathing > 3 mm..... (8)
7 Lowest spike sessile or on a peduncle < 1 × length of spike; bract sometimes long-sheathing.....(10)

8 [7] Peduncles and culms weak, peduncles usually hanging, the whole upper plant often supported by adjacent vegetation; scale with rounded-obtuse hyaline tip; perigynium gradually tapered to a short beak ..... 23. *C. capillaris*
8 Peduncles and culms erect to ascending; scale acute to acuminate to short-awned; perigynium abruptly tapered, beakless or very short-beaked .....(9)

9 [8] Lowest spike basal, long-peduncled, often hidden among the basal leaves; scale whitish-green; perigynium often orange or yellow-green .....13. *C. aurea*
9 Lowest spike on a long peduncle at about midstem; scale white-hyaline with a darker midrib; perigynium medium colored, never orange or yellowish .... 47. *C. granularis*

10 [7] Perigynium densely pubescent, abruptly short-beaked and deeply bidentate; culm scabrous below inflorescence ..... 59. *C. lanuginosa*
10 Perigynium glabrous, long-beaked or short-beaked, not deeply bidentate ..... (11)

11 [10] Spikes few-flowered (< 10); perigynium dark colored; leaves ½–4 mm wide ..... 54. *C. interior*
11 Spikes with more flowers (10–150); perigynium light to medium colored; leaves 1–12 mm wide .....(12)

12 [11] Perigynium > 3½ mm long .....(13)
12 Perigynium < 3½ mm long .....(14)

13 [12] Perigynium abruptly short-beaked, strongly several-ribbed; leaves strongly glaucous; bract usually shorter than inflorescence.....76. *C. nebrascensis*
13 Perigynium gradually tapered to a long beak about as long as the body, strongly 7–9–nerved; bract usually 1–1½ × inflorescence.....125. *C. utriculata*

14 [12] Perigynium spreading in the spike; spikes relatively few-flowered, with 10–30 pistillate flowers; scale light to medium color; leaves 1–4 mm wide; perigynium shortly tapered to a short beak .....129. *C. viridula*
14 Perigynium ascending in the spike; spikes many-flowered, with 30–150 pistillate flowers; scale dark colored, at least the margins; leaves 2–12 mm wide; perigynium abruptly tapered to a short or very short beak.....(15)

15 [14] Pistillate spikes plump, with 30–100 flowers; perigynium abruptly short-beaked, strongly several-ribbed; leaves strongly glaucous; bract usually shorter than inflorescence; scale dark with a narrow, lighter midrib ... 76. *C. nebrascensis*
15 Pistillate spikes long and narrow, with 50–150 flowers; perigynium abruptly very short-beaked, not ribbed; leaves usually not glaucous; bract equaling or longer than inflorescence; scale with a light midrib as wide as the outer dark stripes ..... 40. *C. emoryi*

16 [2] Upper and lower spikes usually appearing different; lowest spike on a long peduncle, dangling or drooping at maturity; scale body very short, with a very long awn up to 5 mm long; lower perigynium widely spreading to horizontal in the spike; bract 2–3 × inflorescence ..... 52. *C. hystericina*
16 Upper and lower spikes appearing the same; lowest spike sessile or nearly so, usually ascending or spreading; scale body larger, never with an awn that long; lower perigynium rarely horizontal in the spike; bract shorter than to 2 × longer than inflorescence ..... (17)

17 [16] Lower spike always androgynous; upper spike usually androgynous, rarely staminate ..... (18)
17 All spikes gynaecandrous ..... (22)

18 [17] Inflorescence a dense cylindrical head, appearing like a pincushion because of the spreading beaks, individual spikes usually not discernible; perigynium stiffly spreading; perigynium triangle-shaped, tapering from the base, the base straight ..... 116. *C. stipata*
18 Inflorescence not dense, sometimes cylindrical, at least one spike discernible; perigynium not spreading; perigynium base V-shaped ..... (19)

19 [18] Spikes few-flowered, with 1–10 pistillate flowers per spike; lowest spike widely separated from next-lowest spike by 3–5 × length of spike; leaves ½–4 mm wide ..... 34. *C. disperma*
19 Spikes with more flowers (10–50); lowest spike closely adjacent or separated < 3 × length of spike; leaves 2–6 mm wide ..... (20)

20 [19] Scale awned; leaf ligule not tubular; long rhizomes absent ..... (21)
20 Scale acute; leaf ligule conspicuously tubular; long rhizomes conspicuous ..... 106. *C. sartwellii*

21 [20] Head long-cylindrical, 3–10 cm long; scale long-awned, awn > 3 mm long; culm not winged ..... 130. *C. vulpinoidea*
21 Head short-cylindrical, < 3 cm long; scale awned, awn < 2 mm long; culm flattened and winged ..... 4. *C. alopecoidea*

22 [17] Perigynium > 4 mm long ..... (23)
22 Perigynium < 4 mm long ..... (26)

23 [22] Upper spike distinctly different from lower spikes; lower perigynium widely spreading or reflexed in the spike ..... 101. *C. retrorsa*
23 Upper and lower spikes appear the same; perigynium ascending to somewhat spreading ..... (24)

24 [23] Culm winged, sharply triangular with curved sides in cross-section; perigynium jointed at junction of body and beak, the beaks spreading in the spike ..... 29. *C. cristatella*
24 Culm not winged; perigynium flat, not jointed ..... (25)

25 [24] Bracts several, very long, several to many times longer than inflorescence; inflorescence a tight head; perigynium long-lanceolate, narrow, tapered from almost the base, ½–1½ mm wide ..... 118. *C. sychnocephala*
25 Bract one, shorter than the inflorescence; inflorescence interrupted, with the lowest spike shortly separated and clearly distinguishable; perigynium shorter-lanceolate or ovoid, 1–2½ mm wide ..... 109. *C. scoparia*

26 [22] Culm winged, sharply triangular with curved sides in cross-section; perigynium winged, jointed at junction of body and beak, the beaks spreading in the spike ..... 29. *C. cristatella*
26 Culm not winged; perigynium not jointed, not winged .....(27)

27 [26] Perigynium rounded at tip, beak none or very short, orange or yellowish-green; long rhizomes present .....13. *C. aurea*
27 Perigynium acute, tapered to a short beak, light to medium to dark colored, usually not orange or yellowish; long rhizomes absent ..... (28)

28 [27] Perigynium widely spreading in the spike; spikes few-flowered (< 10); perigynium dark colored..... 54. *C. interior*
28 Perigynium ascending to slightly spreading in the spike; spikes relatively many-flowered (10–30); perigynium light colored..... 22. *C. canescens*

29 [1] Some mature leaves < ½ mm wide; all leaves < 1 mm wide; dry sites..... (30)
29 No mature leaves < ½ mm wide; some leaves > 1 mm wide; dry or moist sites ....(31)

30 [29,72] Plants appearing to be bunched but there are actually long slender rhizomes between the bunches; bract with no blade, but long-sheathing; spikes 2–5 per culm, the lower spike on a long peduncle; terminal spike usually entirely staminate; perigynium dark green to dark brown ..... 37. *C. eburnea*
30 Plants never with long rhizomes; bract none or scale-like, not long-sheathing; spikes solitary, 1 to a culm, androgynous; perigynium light to medium color ....43. *C. filifolia*

31 [29] Long rhizomes present..... (32)
31 Long rhizomes absent ..... (44)

32 [31] Lowest spike widely separated, basal, long-pedunculate; moist or wet sites; perigynium greenish-yellow to orange.....13. *C. aurea*
32 Lowest spike sessile or nearly so, or spike solitary; perigynium rarely yellowish, never orange.....(33)

33 [32] Spike solitary, androgynous, few-flowered (< 10 pistillate flowers); scale with conspicuous hyaline margins; dry open slopes..... 83. *C. obtusata*
33 Spikes usually more than one, if spike solitary then not androgynous, sometimes few-flowered; dry or moist sites ..... (34)

34 [33] All spikes androgynous; upper and lower spikes appearing the same .....(35)
34 Lower spike not androgynous, upper spike rarely androgynous; spike sometimes solitary.....(37)

35 [34] Dry, open sites; lowest spike close to next-lowest spike or shortly separated by ¼–1 × length of spike; scale covering perigynium ..... (36)
35 Moist to wet, shaded forests and stream banks; lowest spike well-separated by 3–5 × length of spike; scale narrower and shorter than perigynium . 34. *C. disperma*

36 [35,39] Scale covering perigynium and closely enclosing it; perigynium 3–4½ mm long, usually slightly winged at junction of beak and body..... .....96. *C. praegracilis*
36 Scale covering perigynium but free from it, not enclosing it; perigynium 2–3½ mm long, not winged ..... 114. *C. stenophylla*

37 [34] Spike solitary, gynaecandrous or pistillate or staminate; scale rounded-obtuse, very-short mucronate.....87. *C. parryana*
37 Spikes more than one..... (38)

38 [37] Upper and lower spikes appear different ..... (39)
38 Upper and lower spikes appear the same.....(41)

39 [38] All spikes pistillate or all spikes staminate, plants dioecious..... (40)
39 Both pistillate and staminate flowers on the same plant.....(41)

40 [39] Perigynium broadest in middle to upper 1/3, abruptly short-beaked; scale rounded-obtuse, very-short mucronate..... 87. *C. parryana*
40 Perigynium broadest in lower 1/3, tapered to a short beak; scale acute, with hyaline margins ..... (36)

41 [38] Upper and lower spikes appear different; upper spike usually staminate, lower spike usually pistillate; perigynium abruptly short-beaked, not winged (42)
41 Upper and lower spikes appear the same; upper spike gynaecandrous or androgynous ..... (43)

42 [41] Perigynium uniformly puberulent on faces, body nearly orbicular and about as long as wide; scale acute to acuminate to short-awned..... 90. *C. pensylvanica*
42 Perigynium faces glabrous (may be serrulate on margins), body obovoid and longer than wide; scale rounded-obtuse, very-short mucronate... 87. *C. parryana*

43 [41] Perigynium not winged, except slightly winged at junction of beak and body; scale covering perigynium and closely enclosing it; perigynium 3–4½ mm long; dry open sites..... 96. *C. praegracilis*
43 Perigynium narrowly winged to base; scale narrower than perigynium, sometimes shorter as well; perigynium 3–6 mm long; dry shaded sites ....44. *C. foenea*

44 [31] All spikes androgynous or one solitary androgynous spike; upper and lower spikes appear the same ..... (46)
44 Lower spike not androgynous; upper and lower spikes appear the same or different ..... (45)

45 [44] All spikes gynaecandrous or one solitary gynaecandrous spike; upper and lower spikes appear the same ..... (55)
45 Upper spike not gynaecandrous; upper and lower spikes appear different..... (73)

46 [44] Lowest spike basal, widely separated, long-peduncled, nearly hidden in the basal leaves ..... (47)
46 Lowest spike sessile or nearly so, attached at midstem or above .....(48)

47 [46] Scale leaf-like, much longer than perigynium and covering it; culm usually much shorter than the basal leaves; perigynium glabrous, ovoid, broadest in lower or middle 1/3, short- or long-beaked .....14. *C. backii*
47 Scale not leaf-like, somewhat longer than perigynium and covering it; culm usually equal to or taller than the basal leaves; perigynium puberulent, obovoid, broadest in upper 1/3, minutely beaked .....89. *C. pedunculata*

48 [46] Culm flattened and winged; loose cylindrical head; scale short-awned..... .....4. *C. alopecoidea*
48 Culm triangular or round in cross-section, not flattened, not winged ..... (49)

49 [48] Head long-cylindrical, 3–10 cm long; scale long-awned, awn > 3 mm long.... .....130. *C. vulpinoidea*
49 Head interrupted or dense, if cylindrical then < 5 cm long; scale acute, acuminate, or short-awned (awn < 1 mm long) .....(50)

50 [49] Lowest spike widely separated from next-lowest spike by 3–5 × length of spike.....(51)
50 Lowest spike closely adjacent to next-lowest spike or shortly separated by ¼–3 × length of spike ..... (52)

51 [50] Perigynium tapered to a flattened, serrulate beak ¼–½ × perigynium length; perigynium not strongly nerved; culms ascending, not weak; dry or moist sites .....103. *C. rosea*
51 Perigynium abruptly narrowed to a conical beak < ¼ × perigynium length; perigynium usually nerved; culms very slender and weak; wet or moist sites..... .....34. *C. disperma*

52 [50] Perigynium tapered to a flattened beak ¼–½ × perigynium length ..... (53)
52 Perigynium tapered to a terete or conical beak < ¼ × perigynium length ..... (54)

53 [52] Head dense, ovate, < 2 cm long, the separation between spikes often not discernible; perigynium beak deeply bidentate ..... 51. *C. hoodii*
53 Head interrupted, often > 2 cm long, the lowest spike clearly separate; perigynium beak shallowly bidentate..... 103. *C. rosea*

54 [52] Scale acute, shorter than perigynium but about as wide; perigynium concavo-convex ..... 126. *C. vallicola*
54 Scale acuminate or short-awned, narrower and shorter than perigynium; perigynium plano-convex or suborbicular ..... 48. *C. gravida*

55 [45] Lowest spike on a moderately-long peduncle 1–2 × length of spike, nodding or hanging; scale dark, purplish brown to purplish black, with narrow hyaline margins, contrasting with the light colored perigynia; spikes conspicuously bicolored; bract long-sheathing; few sites, southern Black Hills ..... 16. *C. bella*
55 Lowest spike sessile or on a short peduncle < ½ × length of spike, sometimes nodding or hanging; scales light to medium colored; spikes usually not bicolored; bract not sheathing or sheath < 3 mm .....(56)

56 [55] Lowest spike well-separated from next lowest spike by 1–3 × length of spike .....(57)
56 Lowest spike closely adjacent to next spike or separated by < 1 × length of spike; perigynium winged ..... (62)

57 [56] Perigynium body not winged, tapered to a flattened beak somewhat less than half as long as the perigynium; perigynium beak sometimes narrowly winged; spikes short and few-flowered to cylindrical, moderately few-flowered (1–20 pistillate flowers per spike) ..... 31. *C. deweyana*
57 Perigynium body winged to the base, tapered to a winged beak; spikes ovoid or obovoid, with 10–100 pistillate flowers per spike ..... (58)

58 [57] Scale covering perigynium, never shorter than perigynium, sometimes narrower.....1. *C. aenea*
58 Scale shorter and narrower than perigynium .....(59)

59 [58] Upper culm zig-zag between the spikes, the inflorescence “moniliform;” leaves ½–4 mm wide.....119. *C. tenera*
59 Upper culm straight between the spikes; leaves 2–10 mm wide..... (60)

60 [59] Culm winged, sharply triangular with curved sides in cross-section; perigynium jointed at junction of beak and body, the beaks spreading in the spike; scale acuminate to short-awned ..... 29. *C. cristatella*
60 Culm not winged, sometimes bluntly triangular in cross-section; perigynium not jointed; scale acute.....(61)

61 [60] Perigynium 3–4½ mm long and 1½–2½ mm wide; leaf sheaths green-and-white mottled .....80. *C. normalis*
61 Perigynium 5–8½ mm long and 2½–5 mm wide; leaf sheaths sometimes pubescent .....17. *C. bicknellii*

62 [56] Culm winged, sharply triangular with curved sides in cross-section; perigynium jointed at junction of beak and body, the beaks spreading in the spike; scale acuminate to short-awned ..... 29. *C. cristatella*
62 Culm not winged, sometimes triangular in cross-section; perigynium not jointed ..... (63)

63 [62[Scale covering perigynium..... (64)
63 Scale narrower or shorter than perigynium, or both ..... (66)

64 [63] Upper margins of perigynium straight, so inverted-V shape ...92. *C. petasata*
64 Upper margins of perigynium curved inward.....(65)

65 [64] Perigynium beak tip flat, winged, and serrulate to apex; scale and perigynium often yellowish ..... 131. *C. xerantica*
65 Perigynium beak tip terete; scale and perigynium seldom yellowish ..... 98. *C. praticola*

66 [63] Head broadly ovate, about as long as wide or length up to 1½ × width .... (67)
66 Head more narrowly ovate or cylindrical, length > 1½ × width ..... (68)

67 [66] Perigynium beak tip terete (round in cross-section), often darker color than rest of perigynium; scale dark brownish black; perigynium narrowly winged, length > 2 × width ..... 72. *C. microptera*
67 Perigynium beak flat, winged, and serrulate to the apex, the same color as rest of perigynium; scale light to medium color ..... 74. *C. molesta*

68 [66] Scale mostly covering perigynium, slightly shorter and narrower ..... 131. *C. xerantica*
68 Scale clearly narrower than perigynium, often shorter as well..... (69)

69 [68] Perigynium body orbicular, about as long as wide, abruptly narrowed to short beak, 3½–8½ mm long ..... (70)
69 Perigynium body ovate, longer than wide, usually gradually narrowed to a short or medium-length beak, 2½–4½ mm long ..... (71)

70 [69] Perigynium 3½–5½ mm long and 2½–3½ mm wide; leaf sheaths glabrous ..... 19. *C. brevior*
70 Perigynium 5–8½ mm long and 2½–5 mm wide; leaf sheaths sometimes pubescent ..... 17. *C. bicknellii*

71 [69] Leaves mostly 3–6 mm wide (2–8 mm wide); perigynium cross-nerved ("cross-rugulose") on face ..... 80. *C. normalis*
71 Leaves mostly 2–3 mm wide (1–6 mm wide); perigynium not cross-nerved ... (72)

72 [71] Spikes broadly ovate, widest in lower 1/3, 1–1½ × longer than wide ..... 74. *C. molesta*
72 Spikes ovate, widest in middle 1/3, 1½–2 × longer than wide ..... 15. *C. bebbii*

73 [45] Some leaves > 4 mm wide, leaf width ranging 3–16 mm; lowest spike long-peduncled, attached at about middle of culm; perigynium with a bent beak; scale fiddle shaped, awned; bract long-sheathing > 3 mm ..... 18. *C. blanda*
73 Most leaves < 4 mm wide, no leaves > 6 mm wide; if lowest spike long-peduncled then attached either at the base of the culm or well above middle of culm; perigynium beak usually straight; scale not fiddle shaped, awned or not; bract sometimes long-sheathing ..... (74)

74 [73] Some leaves < ½ mm wide, all leaves < 1 mm wide..... (30)
74 No leaves < ½ mm wide, some leaves > 1 mm wide ..... (75)

75 [74] Spike solitary..... (76)
75 Spikes more than one ..... (77)

76 [75] Spike androgynous, very narrow, the upper staminate portion about as wide as the culm; scale acute ..... 63. *C. leptalea*
76 Spike gynaecandrous or unisexual (and the plant dioecious), several times broader than the culm ..... 87. *C. parryana*

77 [75] Spikes all staminate or all pistillate; plant dioecious ..... 87. *C. parryana*
77 Both staminate and pistillate flowers on the same culm; terminal spike usually staminate, lowest spike usually pistillate ..... (78)

78 [77] Lowest spike basal, widely separated, long-peduncled, nearly hidden in the basal leaves; perigynium pubescent or puberulent; scale awned ..... (79)
78 Lowest spike attached well above middle of culm, may be long-peduncled ..... (80)

79 [78] Scale covering perigynium; beak very short, not bidentate ..... 89. *C. pedunculata*
79 Scale shorter than perigynium, about as wide; beak short to ½ length of perigynium, shallowly bidentate ..... 104. *C. rossii*

80 [78] Lowest spike on a long peduncle > ½ × length of spike ..... (81)
80 Lowest spike sessile or on a short peduncle < ½ × length of spike ..... (83)

81 [80] Lowest spike on a long peduncle > 2 × length of spike, drooping when mature; perigynium glabrous, abruptly tapered to a very long, thin, terete beak; scale without conspicuous hyaline margins ..... 113. *C. sprengelii*
81 Lowest spike on a peduncle ½–2 × length of spike; perigynium pubescent, abruptly or gradually tapered to a very short beak; scale with conspicuous hyaline margins ..... (82)

82 [80] Spike relatively few-flowered, with 1–20 pistillate flowers per spike; scale obtuse, ciliate on upper margin, puberulent, about half the length of perigynium. ..... 26. *C. concinna*
82 Spike relatively many-flowered, with 20–30 pistillate flowers per spike; scale acute, glabrous, longer than perigynium and covering it ..... 102. *C. richardsonii*

83 [80] Perigynium uniformly pubescent or puberulent ..... (84)
83 Perigynium glabrous on the faces ..... (85)

84 [83] Scale covering perigynium; perigynium body globose, about as long as wide; bract usually shorter than inflorescence ..... 90. *C. pensylvanica*
84 Scale much shorter than perigynium; perigynium body obovoid, 1½–2 × as long as wide; bract usually longer than inflorescence ..... 88. *C. peckii*

85 [83] Spike short, few-flowered, with 1–10 pistillate flowers per spike; perigynium spreading in the spike; perigynium dark colored; scale medium to light colored ... . 54. *C. interior*
85 Spike longer, usually many-flowered, with 10–100 pistillate flowers per spike; perigynium ascending in the spike; perigynium light to medium colored, may be purple-tinged above; scale dark, medium, or light colored ..... (86)

86 [85] Scale body ovate; scale covering perigynium or nearly so, with very thin hyaline margins; perigynium not strongly nerved ..... 87. *C. parryana*
86 Scale body orbicular; scale clearly shorter than perigynium, just as wide, with broad hyaline margins; perigynium strongly many-nerved ..... 123. *C. torreyi*

KEY C

1 Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*) ..... (2)
1 Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons ..... (111)

High Mountains (Alpine and Subalpine)

2 [1] Plants of wet sites, in areas near water (flowing or standing) or with a high water table at some season ..... (3)
2 Plants of dry to moist sites, water table always low ..... (55)

High Mountains, Wet sites

3 [2] Spike solitary on each culm; bract none or shorter than inflorescence ..... (7)
3 Spikes more than one on each culm ..... (4)

4 [3] All spikes androgynous; lower spike sessile or nearly so ..... (13)
4 At least the lowest spike not androgynous ..... (5)

5 [4] All spikes gynaecandrous ..... (16)
5 At least the terminal spike not androgynous..... (6)

6 [5] Upper spike staminate, lower spike pistillate..... (19)
6 Either upper spike not staminate, or lower spike not pistillate; or all spikes staminate or all spikes pistillate and plant dioecious ..... (45)

HIGH MOUNTAINS, WET SITES, SPIKE SOLITARY

7 [3] Scale dark colored and perigynium dark to medium colored, so spike appearing uniformly dark ..... (8)
7 Scale medium to light colored, perigynium light, medium, or rarely dark colored. ..... (10)

8 [7] Perigynium pubescent; spike androgynous, pistillate, or staminate; plants sometimes dioecious; spike narrow, cylindrical..... 108. *C. scirpoidea*
8 Perigynium glabrous; spike androgynous, pistillate, or staminate; spike ovate, broader at the base ..... (9)

9 [8] Lower perigynium spreading or reflexed; head narrowly ovate; scale shorter than perigynium and about as wide; perigynium body narrow, ½–1½ mm wide, long-beaked; plants sometimes dioecious; long rhizomes present 79. *C. nigricans*
9 Lower perigynium at most horizontal; head broadly ovate, almost triangular; scale covering perigynium or nearly so, slightly shorter and narrower; perigynium body broad, 1–2½ mm wide, abruptly narrowed to a short beak; no long rhizomes ..... 24. *C. capitata*

10 [7] Lower perigynium sharply spreading or reflexed; leaves very narrow, ½–1 mm wide; plant sometimes dioecious ..... (11)
10 Lower perigynium ascending to horizontally reflexed; leaves sometimes wider, ½–4 mm wide; plant never dioecious..... (12)

11 [10] Perigynium all reflexed at maturity; perigynium long and narrow, ½–1 mm wide, with a hooked rachilla protruding from the beak; scale much shorter than perigynium and much wider, deciduous (falling off before perigynium)..... 71. *C. microglochin*
11 Upper perigynium spreading, lower reflexed; perigynium wider, 1½–2 mm wide, conspicuously nerved; scale somewhat shorter than perigynium and just as wide; plant sometimes dioecious..... 33. *C. dioica*

12 [10] Spike ovate, broadest about the middle, many-flowered (with 20–30 pistillate flowers per spike); scale clearly shorter than perigynium, about the same width..... 56. *C. lachenalii*
12 Spike broadly triangular, broadest near the base, few-flowered (with 1–20 pistillate flowers per spike); scale usually covering perigynium or almost covering, slightly shorter or narrower ..... 24. *C. capitata*

HIGH MOUNTAINS, WET SITES, ALL SPIKES ANDROGYNOUS

13 [4] Lowest spike well-separated by 3–5 × length of spike; head interrupted; perigynium abruptly narrowed to a minute conical beak; scale narrower than perigynium, with conspicuous hyaline margins; culms slender and weak ..... 34. *C. disperma*
13 Lowest spike closely adjacent to next-lowest spike or slightly separated < 1 × length of spike; head close or tight; perigynium tapered to an obvious beak; scale as wide as or wider than perigynium; culms erect to ascending ..... (14)

14 [13] Spikes aggregated into a tight, cylindrical head, individual spikes not easily discernible; perigynium 3–4½ mm long ..... 78. *C. neurophora*
14 Spikes in a somewhat looser head. individual spikes usually easily discernible; perigynium 1½–3½ mm long ..... (15)

15 [14] Scale covering perigynium; long rhizomes present; head usually ovate ....111. *C. simulata*
15 Scale shorter than perigynium but just as wide, exposing the perigynium's beak; head usually cylindrical ..... 32. *C. diandra*

HIGH MOUNTAINS, WET SITES, ALL SPIKES GYNAECANDROUS

16 [4] Culms very thin and weak; scale light colored, hyaline with a thin green midrib, often covering perigynium; perigynium with a very short beak..... .....120. *C. tenuiflora*
16 Culms stronger, erect to ascending; scale medium or dark colored, if hyaline then with a broad green center, shorter than perigynium; perigynium with a short to long beak ..... (17)

17 [16] Scale and perigynium both dark colored, so spike also appears dark colored; lower spike closely adjacent to next lowest spike; spike relatively few-flowered, with 1–20 pistillate flowers.....53. *C. illota*
17 Scale light to medium colored, perigynium medium to light colored, so spike never appears dark colored; lower spike shortly separated by ¼–1 × length of spike; spike with 10–30 pistillate flowers .....(18)

18 [17] Scale and perigynium both medium colored; scale with narrow hyaline margins; perigynium usually without nerves.....56. *C. lachenalii*
18 Scale and perigynium both light colored; scale with broad hyaline margins; perigynium apparently nerved ..... 22. *C. canescens*

HIGH MOUNTAINS, WET SITES, UPPER SPIKE STAMINATE, LOWER PISTILLATE

19 [6] Perigynium > 5½ mm long, 2–3½ mm wide, bidentate with long teeth ... (20)
19 Perigynium < 5½ mm long, < 2½ mm wide ..... (22)

20 [19] Most leaves > 6 mm wide, ranging 4–12 mm wide .....125. *C. utriculata*
20 Most leaves < 6 mm wide, ranging 2–8 mm wide .....(21)

21 [20] Perigynium long and narrow, 7–10 mm long, length 3½–5 × width, tapered from lower ¼ .....42. *C. exsiccata*
21 Perigynium shorter and wider, 3½–10 mm long, length 2–3½ × width, tapered from about the middle of the body.....128. *C. vesicaria*

22 [19] Lowest spike on a long peduncle > 2 × length of spike; culms very slender and weak, the whole upper plant often hanging on adjacent vegetation; bract long-sheathing > 3 mm; scale and perigynium both light colored. 23. *C. capillaris*
22 Lowest spike sessile or on a peduncle < 2 × length of spike; culms usually stout, erect to ascending; bract sometimes long-sheathing; often either scale or perigynium medium to light colored..... (23)

23 [22] Leaves average > 6 mm wide; some leaves > 8 mm wide..... (24)
23 Leaves average < 6 mm wide, no leaves > 8 mm wide .....(27)

24 [23] Scale dark purplish-brown to purplish-black, contrasting with the light green to yellow-green perigynium.....(25)
24 Scale light to medium colored, not sharply contrasting with the medium to light perigynium; perigynium conspicuously nerved..... (26)

25 [24] Perigynium not nerved or ribbed, abruptly tapered to a short beak, not serrulate.....7. *C. aquatilis*
25 Perigynium conspicuously nerved, gradually tapered to a longer beak, serrulate; northwestern Wyoming ..... 66. *C. luzulina*

26 [24] Lowest spike shortly separated by ¼–1 × length of spike; spike many-flowered, often with > 50 pistillate flowers; scale clearly narrower than perigynium .....125. *C. utriculata*
26 Lowest spike well-separated by 1–5 × length of spike; spike shorter, with fewer flowers, 20–50 pistillate flowers; scale the same width as perigynium or slightly narrower; northwestern Wyoming..... 66. *C. luzulina*

27 [23] Some leaves > 4 mm wide ..... (28)
27 No leaves > 4 mm wide ..... (29)

28 [27] No leaves < 4 mm wide; perigynium 3½–8 mm long.....125. *C. utriculata*
28 Some leaves < 4 mm wide ..... (29)

29 [27,28] Scale dark purple-black, upper part of perigynium dark purple-black, so spike appearing uniformly very dark; lower spike short-peduncled; perigynium upper surface blunt or straight, abruptly narrowed to a very short beak; open, unshaded sites, Alpine Zone and upper Subalpine Zone .....110. *C. scopulorum*
29 Scale sometimes dark but perigynium light to medium colored, so spike appearing bicolored dark-and-light or uniformly medium to light colored; lower spike sessile or short-peduncled; perigynium often gradually tapered to beak..... ..... (30)

30 [29] Lowest spike on an obvious peduncle ½–2 × length of spike .....(31)
30 Lowest spike sessile or on a very short peduncle < ½ × length of spike..... (36)

31 [30] Lowest spike on a weak peduncle, nodding or drooping when mature; perigynium abruptly narrowed to a minute or short beak..... (32)
31 Lowest spike on a stronger peduncle, ascending when mature..... (34)

32 [31] Lower spike < 13 mm long, with 1–20 pistillate flowers; scale longer and narrower than perigynium; no long rhizomes present ..... 68. *C. magellanica*
32 Lower spike > 13 mm long, sometimes with > 20 pistillate flowers; scale various shapes, not both longer and narrower than perigynium; long rhizomes present.... ..... (33)

33 [32] Scale covering perigynium or nearly so, about as long and wide as perigynium, medium to dark colored .....64. *C. limosa*
33 Scale clearly shorter and narrower than perigynium, very dark colored .... 107. *C. saxatilis*

34 [31] Scale much shorter than perigynium, so largely exposing the top ½ of the spreading perigynium; bract longer than inflorescence, sometimes reflexed ....129. *C. viridula*
34 Scale shorter than perigynium, but covering the perigynium's body; bract shorter or longer than in inflorescence, usually not reflexed ..... (35)

35 [34] Scale medium to dark, purplish-brown to purplish-black, contrasting with the light colored perigynium; leaves 2–14 mm wide; no long rhizomes present; lowest spike with 20–50 flowers; bract rarely long-sheathing; northwestern Wyoming..... 66. *C. luzulina*
35 Scale light to medium in color, not sharply contrasting with the light colored perigynium; leaves 1–4 mm wide; long rhizomes present; lowest spike with 1–20 flowers..... 65. *C. livida*

36 [30] Scale dark colored, contrasting with the light to medium colored perigynium ..... (37)
36 Scale light to medium in color, not sharply contrasting with the light colored perigynium..... (42)

37 [36] Perigynium uniformly pubescent, deeply bidentate to shallowly bidentate .... (38)
37 Perigynium glabrous, not bidentate to minutely bidentate ..... (39)

38 [37,42] Leaves often narrow (< 2 mm wide, ranging 1–4 mm), involutely rolled, with long hairlike tips; culms obtusely triangular in cross-section; scale acute to acuminate .....60. *C. lasiocarpa*
38 Leaves wider (2–6 mm wide), mostly flat, with narrow tips but not hairlike; culms sharply triangular in cross-section; scale acuminate to short-awned .... 59. *C. lanuginosa*

39 [37] Head close, ovate; lowest spike sessile or nearly so, very shortly separated; scale covering perigynium; always with long rhizomes, never bunched; perigynium narrowly winged at junction of beak and body .....111. *C. simulata*
39 Head longer, usually interrupted; lowest spike often on a short peduncle, usually well-separated; scale narrower and shorter than perigynium; sometimes bunched; perigynium not winged at all..... (40)

40 [39] Lowest spike ovate to short-cylindrical, with 1–30 flowers; perigynium minutely bidentate .....81. *C. norvegica*
40 Lowest spike long-cylindrical, with 20–100 flowers; perigynium not bidentate .... (41)

41 [40] Perigynium conspicuously nerved; leaves 1–4 mm wide; long rhizomes not present.....61. *C. lenticularis*
41 Perigynium not nerved; leaves 2–10 mm wide; long rhizomes sometimes present .....7. *C. aquatilis*

42 [36] Perigynium uniformly pubescent, deeply bidentate to shallowly bidentate .... (38)
42 Perigynium glabrous, not bidentate to minutely bidentate..... (43)

43 [42] Scale much shorter than perigynium, so largely exposing the top ½ of the spreading perigynium; bract sometimes reflexed.....129. *C. viridula*
43 Scale longer or somewhat shorter than perigynium, covering it or most of it; bract not reflexed ..... (44)

44 [43] Head close, ovate; lowest spike very shortly separated; scale covering perigynium; always with long rhizomes, never bunched; perigynium narrowly winged at junction of beak and body.....111. *C. simulata*
44 Head longer, usually interrupted; lowest spike usually well-separated; scale narrower and shorter than perigynium; never with long rhizomes; perigynium not winged at all .....128. *C. vesicaria*

HIGH MOUNTAINS, WET SITES, SPIKES VARIOUS

45 [6] Scale dark purple-black, upper part of perigynium dark purple-black, so spike appearing uniformly very dark; lower spike short-peduncled; perigynium upper surface blunt or straight, abruptly narrowed to a very short beak; open, unshaded sites, Alpine Zone and upper Subalpine Zone.....110. *C. scopulorum*
45 Scale sometimes dark but perigynium light to medium colored, so spike appearing bicolored dark-and-light or uniformly medium to light colored; perigynium sometimes gradually tapered to beak..... (46)

46 [45] Spikes all staminate or all pistillate, plant dioecious; perigynium narrowly winged at junction of beak and body; scale covering perigynium...111. *C. simulata*
46 Both staminate and pistillate flowers on the same culm .....(47)

47 [46] Upper spike gynaecandrous, lower spike pistillate..... (48)
47 Upper spike not gynaecandrous .....(53)

48 [47] Lowest spike dangling or drooping when mature ..... (49)
48 Lowest spike ascending, not dangling or drooping..... (50)

49 [48] Scale longer and narrower than perigynium; perigynium beakless or with a minute beak..... 68. *C. magellanica*
49 Scale shorter and narrower than perigynium; perigynium abruptly narrowed to a short beak .....81. *C. norvegica*

50 [48] Scale dark colored, often contrasting with the light to medium colored perigynium; perigynium beak not doubly-curved ..... (51)
50 Scale and perigynium both light to medium colored, not usually contrasting; perigynium with a short doubly-curved beak .....65. *C. livida*

51 [50] Scale as long as or longer than perigynium, covering it; scale short-awned .... 21. *C. buxbaumii*
51 Scale shorter and narrower than perigynium; scale blunt to acute ..... (52)

52 [51] Perigynium broadest near the middle, not conspicuously nerved or ribbed; scale acute to acuminate ..... 81. *C. norvegica*
52 Perigynium broadest in the lower 1/3, conspicuously nerved; scale blunt to bluntly acute ..... 61. *C. lenticularis*

53 [47] Some leaves > 4 mm wide ..... (54)
53 Leaves 1–4 mm wide; scale shorter than perigynium but about the same width .... 56. *C. lachenalii*

54 [53] Terminal spike androgynous; lowest spike pistillate, short, with 20–50 flowers; northwestern Wyoming ..... 66. *C. luzulina*
54 Terminal spike staminate; lower spike androgynous, long-cylindrical, with 20–100 flowers ..... 7. *C. aquatilis*

HIGH MOUNTAINS, DRY TO MOIST SITES

55 [2] Spikes solitary; bract none to much shorter than inflorescence ..... (59)
55 More than one spike to a culm ..... (56)

56 [55] All spikes androgynous ..... (65)
56 Upper spike not androgynous ..... (57)

57 [56] All spikes gynaecandrous ..... (69)
57 Lowest spike pistillate ..... (58)

58 [57] Terminal spike staminate ..... (93)
58 Terminal spike not staminate ..... (99)

HIGH MOUNTAINS, DRY TO MOIST SITES, SPIKE SOLITARY

59 [55] Spike pistillate or staminate; plant dioecious; leaf sheaths pubescent, sometimes filamentose at base; culm strongly purplish-tinged at base; perigynium 2–3½ mm long..... 108. *C. scirpoidea*
59 Spike androgynous; leaf sheaths neither pubescent nor filamentose; perigynium 2½–6½ mm long..... (60)

60 [59] Spike very narrow, the upper staminate portion about as wide as the culm; perigynium beakless or a bluntly-bidentate stub; culm sometimes nodding ..... 63. *C. leptalea*
60 Spike several times broader than the culm; perigynium usually beaked, not bidentate; culm not nodding..... (61)

61 [60] Perigynium broadest in upper or middle 1/3, abruptly short-beaked..... (62)
61 Perigynium broadest in lower 1/3, tapered to a moderately long beak ..... (64)

62 [61] Scale covering perigynium, with conspicuous hyaline margins; leaves ½–2 mm wide; perigynium 2½–4½ mm long ..... (63)
62 Scale narrower and shorter than perigynium; leaves very narrow, ½–1 mm wide; perigynium 4–6½ mm long..... 50. *C. hepburnii*

63 Bunched to mat-forming; scale acute to acuminate; leaves very narrow, ½–1 mm wide; perigynium faces slightly puberulent at base of beak ..... 39. *C. elynoides*
63 Short rhizomes or long rhizomes; scale blunt; leaves 1–4 mm wide; perigynium faces glabrous ..... 105. *C. rupestris*

64 [61] Perigynium ovoid to elliptic, flattened but not winged, broadest in the middle 1/3..... 117. *C. subnigricans*
64 Perigynium lanceolate, not flattened, not winged, broadest in the lower 1/3 ..... 27. *C. crandallii*

HIGH MOUNTAINS, DRY TO MOIST SITES, ALL SPIKES ANDROGYNOUS

65 [56] Head interrupted; lowest spike well-separated from next lowest spike; culm slender and weak, often supported on adjacent vegetation ..... 34. *C. disperma*
65 Head close or tight, the individual spikes very close and often not discernible; culm not slender nor weak, sometimes bending downward with the weight of the head ..... (66)

66 [65] Head spherical (globose), about as long as wide; scale obovate to oblanceolate, broadest in upper ¼, dark colored above, with lighter lower portion and midrib, covering perigynium .....127. *C. vernacula*
66 Head ovoid or cylindrical, longer than wide; scale ovate, broadest in lower 1/3, light to medium colored, covering perigynium or not .....(67)

67 [66] Scale covering perigynium; perigynium body about as long as wide; leaf tips often curled and drying; Alpine Zone and upper Subalpine Zone, central and southwestern Colorado .....91. *C. perglobosa*
67 Scale narrower than perigynium, shorter or longer; perigynium body longer than wide; leaf tips usually not drying or curling; Subalpine Zone and Montane Zone of Wyoming, western South Dakota, and northern Colorado ..... (68)

68 [67] Scale shorter and broader than perigynium, covering the perigynium body and leaving the beaks exposed; head tight, cylindrical; perigynium medium colored, not bidentate or very shallowly so.....78. *C. neurophora*
68 Scale shorter and narrower than perigynium, partially exposing the perigynium body; head looser, ovate; perigynium dark glossy brown with a green margin..... ..... 51. *C. hoodii*

HIGH MOUNTAINS, DRY TO MOIST SITES, ALL SPIKES GYNAECANDROUS

69 [57] Lowest spike on a long peduncle 1–2 × length of spike, drooping or dangling when mature; culms nodding when mature; bract long-sheathing > 3 mm; scale dark colored, perigynium light green; spike usually conspicuously bicolored .... 16. *C. bella*
69 Lowest spike sessile or nearly so; culms erect, ascending, or nodding; bract not long-sheathing..... (70)

70 [69] Leaves averaging < 2 mm wide; some leaves < 1 mm wide ..... (71)
70 Leaves averaging > 2 mm wide, ranging 1–6 mm wide; no leaves < 1 mm wide..... .....(73)

71 [70] Spikes few-flowered, with 5–10 pistillate flowers per spike; lowest spike well-separated by 1–5 × length of spike; scale white-hyaline with a thin green midrib, obtuse, shorter than perigynium .....20. *C. brunnescens*
71 Spikes moderately many-flowered, with 10–30 pistillate flowers per spike; lowest spike shortly separated by ¼–1 × length of spike; scale medium to dark colored, acute, usually covering perigynium body.....(72)

72 [71] Perigynium 4–5½ mm long, narrowly winged to base; Alpine Zone and Subalpine Zone, western Colorado, southeastern and northwestern Wyoming ....93. *C. phaeocephala*
72 Perigynium 1½–3½ mm long, not winged; Subalpine Zone and Montane Zone, northwestern Wyoming .....62. *C. leporinella*

73 [70] Perigynium < 3 mm long; scale narrower and shorter than perigynium...(74)
73 Perigynium > 3 mm long, winged .....(76)

74 [73] Spikes few-flowered, with 5–10 pistillate flowers per spike; lowest spike well-separated by 1–5 × length of spike; scale white-hyaline with a thin green midrib, obtuse .....20. *C. brunnescens*
74 Spikes many-flowered, with 20–50 pistillate flowers per spike; lowest spike shortly separated by ¼–1 × length of spike, usually acute; scale medium to dark, sometimes hyaline-margined, acute to obtuse.....(75)

75 [74] Perigynium 2½–4 mm long, winged; mountains of western Colorado and north-central Wyoming, rare in northwestern Wyoming ..... 15. *C. bebbii*
75 Perigynium 1½–2½ mm long, not winged; mountains of northwestern Wyoming ..... 94. *C. praeceptorum*

76 [73] Both scale and perigynium dark, so spike appearing uniformly dark; scale shorter than perigynium and about as wide, mostly covering perigynium body; perigynium tip slender and terete..... (77)
76 Spike appearing at last partially medium to light colored ..... (79)

77 [76] Perigynium long and narrower, > 3 × as long as wide, 4½–7 mm long, tapering from the lower ¼; common in the Subalpine Zone of western Colorado and southeastern Wyoming, scattered in northwestern Wyoming .... 36. *C. ebenea*
77 Perigynium not as long or narrow, about 2½ × as long as wide, 3½–5 mm long, tapering from the second ¼ from the bottom; Subalpine Zone and Montane Zone of northwestern Wyoming, scattered to locally common in western Colorado and southeastern Wyoming ..... (78)

78 [77] Spikes broad, usually 1–1½ × as long as wide, with 30–100 pistillate flowers; perigynium narrowly winged to base; culm often stiffly erect..... ..... 86. *C. pachystachya*
78 Spikes narrower, usually 1½–2½ × as long as wide, with 20–50 pistillate flowers; perigynium broadly or narrowly winged to base; culm often arcing downward when mature ..... 67. *C. macloviana*

79 [76] Scale dark colored, usually contrasting with the medium to light colored perigynium..... (80)
79 Scale light to medium colored..... (85)

80 [79] Head often about as long as wide; plants of the Alpine Zone or upper Subalpine Zone; perigynium 4–6½ mm long..... 49. *C. haydeniana*
80 Head usually longer than wide; plants of the Subalpine Zone or upper Montane Zone; perigynium 3–5½ mm long ..... (81)

81 [80] Head narrow-ovate or cylindrical, > 2 × longer than wide; scale covering perigynium; plants of northwestern (not north-central) Wyoming .... 94. *C. platylepis*
81 Head broad-ovate, < 1½ × longer than wide; scale shorter than perigynium, sometimes covering the perigynium body; plants of western Colorado, southeastern Wyoming, northwestern Wyoming, or north-central Wyoming . (82)

82 [81] Scale covering perigynium body, shorter than whole perigynium length and about as wide, always dark colored; perigynium medium to dark colored .... 86. *C. pachystachya*
82 Scale narrower and shorter than perigynium, not covering perigynium body, dark to medium colored; perigynium light to medium colored ..... (83)

83 [82] Spikes short and narrow, about 1½ × as long as wide, with 10–30 pistillate flowers per spike; spikes relatively few, 2–5; northwestern Wyoming only .... 99. *C. preslii*
83 Spikes longer and broader, < 1½ × as long as wide, with 20–50 pistillate flowers per spike; spikes sometimes more, 2–20; high mountains throughout Region .... (84)

84 [83] On dry to moist tundra of the Alpine Zone or upper Subalpine Zone; perigynium 4–6½ mm long..... 49. *C. haydeniana*
84 Moist meadows, moist margins of wetlands, and open slopes of the Subalpine Zone and upper Montane Zone; perigynium 3–5½ mm long..... 72. *C. microptera*

85 [79] Perigynium < 4 mm long; scale narrower and shorter than perigynium .. (86)
85 Perigynium > 4 mm long; dry to moist sites ..... (87)

86 [85] Head relatively long, usually 1½–2 × longer than wide; perigynium broadly or narrowly winged, the beak flat, winged, and serrulate to apex; scale medium colored; scattered in the western 2/3 of Colorado and northcentral and northeastern Wyoming, uncommon in northwestern Wyoming ..... 15. *C. bebbii*
86 Head shorter, usually < 1½ × longer than wide; perigynium narrowly winged, the beak tip terete or flat; scale medium to dark colored; northwestern Wyoming ..... 99. *C. preslii*

87 [85] Perigynium > 6 mm long ..... (88)
87 Perigynium < 6 mm long ..... (89)

88 [87] Plants of the Subalpine Zone or Montane Zone of western Colorado or southeastern Wyoming; scale narrower and shorter than perigynium, acute to acuminate; perigynium wing with crinkled margins; perigynium beak tip flat, winged, and serrulate to apex.....38. *C. egglestonii*
88 Different combination of distribution and characters; if plants from the Subalpine or Montane Zone of western Colorado or southeastern Wyoming, then the scale covering the perigynium and the perigynium beak tip slender and terete ..... (89)

89 [87,88] Spike relatively long and narrow, > 2 × longer than wide; both scale and perigynium with straight sides above (inverse V-shaped); scale covering perigynium; Subalpine and Montane Zones .....92. *C. petasata*
89 Spike relatively shorter, < 2 × longer than wide; perigynium with concave sides above; scale covering perigynium, or shorter and narrower ..... (90)

90 [89] Scale narrower and shorter than perigynium; perigynium 3–4½ mm long; northwestern Wyoming ..... 99. *C. preslii*
90 Scale covering perigynium; perigynium 4–7 mm long; high mountains throughout the Region .....(91)

91 [90] Head relatively long-ovate, > 2 × longer than wide; perigynium beak tip slender and terete; Subalpine or Montane Zones of Colorado or Wyoming..... (92)
91 Head short-ovate, more compact, often < 1½ × longer than wide; perigynium beak tip flat, winged, and serrulate to apex; Alpine Zone or upper Subalpine Zone of Colorado ..... 8. *C. arapahoensis*

92 [91] Perigynium light green or whitish-green, 4½–7 mm long; head usually > 2½ × longer than wide; bract with broad hyaline margins and lower part, and a darker broad middle above, acute .....98. *C. praticola*
92 Perigynium medium colored, 4–5 mm long; head usually < 2½ × longer than wide; bract with narrow hyaline margins, lower part medium to dark, acute to blunt .....94. *C. platylepis*

HIGH MOUNTAINS, DRY TO MOIST SITES, TERMINAL SPIKE STAMINATE

93 [58] Perigynium faces uniformly pubescent or puberulent; forested sites..... (94)
93 Perigynium faces glabrous, margins may be serrulate .....(95)

94 [93] Lowest spike very close to next-lowest spike, sessile or on a peduncle up to 2 × length of spike; scale blunt-obtuse, ciliate, puberulent above, with conspicuous hyaline margins; beak very short to minute, < ¼ × perigynium length; few sites in moist forests; bract sometimes long-sheathing > 3 mm .....26. *C. concinna*
94 Lowest spike widely separated, long-peduncled, basal, nearly hidden in the basal leaves; scale acute to awn-tipped, not ciliate, glabrous, with very narrow hyaline margins; beak short to long, ¼–½ × perigynium length; common in dry forests; bract not long-sheathing.....104. *C. rossii*

95 [93] Perigynium dark colored in upper half, scale all dark purple-black, so spikes appearing uniformly very dark .....110. *C. scopulorum*
95 Perigynium light to medium colored, scale dark to medium, so spikes appearing bicolored or uniformly medium colored ..... (96)

96 [95] Upper margins of perigynium concave, perigynium tapered to a beak ¼–½ × perigynium length; leaves 2–14 mm wide; scale as wide as or slightly narrower than perigynium; northwestern Wyoming ..... 66. *C. luzulina*
96 Upper margins of perigynium convex, perigynium abruptly narrowed to a short or very short beak < ¼ × perigynium length; leaves 2–8 mm wide; scale as wide as to clearly narrower than perigynium; sheath sometimes with dark colored auricles; high mountains of Colorado, southeastern Wyoming, and northwestern Wyoming..... (97)

97 [96] Lowest spike on a short peduncle < ½ × length of spike; leaves 1–4 mm wide; scale uniformly dark ..... 81. *C. norvegica*
97 Lowest spike on a longer peduncle ½–1 × length of spike; leaves 2–8 mm wide; scale dark to medium colored, with narrow hyaline margins.....(98)

98 [97] Scale covering perigynium or slightly narrower and shorter; scale dark colored .....122. *C. tolmiei*
98 Scale narrower and shorter than perigynium, short-awned; scale medium to dark colored ..... 112. *C. spectabilis*

HIGH MOUNTAINS, DRY TO MOIST SITES, TERMINAL SPIKE NOT STAMINATE

99 [58] Upper spike androgynous .....(100)
99 Upper spike gynaecandrous..... (102)

100 [99] Upper margins of perigynium convex; perigynium dark colored in upper half, scale all dark purple-black, so spikes appearing uniformly very dark .....(101)
100 Upper margins of perigynium concave; Perigynium light colored, scale dark to medium, so spikes usually appearing bicolored..... 66. *C. luzulina*

101 [100] Scale dark reddish-brown .....122. *C. tolmiei*
101 Scale dark purplish-brown to purplish-black.....110. *C. scopulorum*

102 [99] Scale light to medium colored, perigynium light-margined with a darker middle; perigynium beak winged, the body not winged; deeply bidentate; spike about as long as wide, often few-flowered (1–20)..... 6. *C. angustior*
102 Scale dark colored, perigynium light to medium to dark; perigynium beak rarely winged, the body not winged; spike sometimes few-flowered (1–100)..... (103)

103 [102] Scale and perigynium (at least the upper part) both dark colored, so spike appearing uniformly dark ..... (104)
103 Scale dark colored, perigynium medium to light colored ..... (106)

104 [103] Head broadly ovate, about as long as wide; lower spike broadly ovate, about 1½ × longer than wide, with 30–100 pistillate flowers..... 82. *C. nova*
104 Head ovate, about twice as long as wide; lower spike more narrowly ovate, 2–3 × longer than wide, with 5–50 pistillate flowers ..... (105)

105 [104] Scale with narrow hyaline margins above, covering perigynium or nearly so; lowest spike about 3 × longer than wide, with 5–20 flowers....3. *C. albo-nigra*
105 Scale uniformly dark purple-black, narrower and shorter than perigynium; lowest spike 4–5 × longer than wide, with 10–50 flowers.....110. *C. scopulorum*

106 [103]Head broadly ovate, 1–2 × as long as wide; lower spike very close to other spikes, sessile or nearly so; culm erect to nodding.....(107)
106 Head ovate, 2–3 × as long as wide; lower spike shortly separated, ¼–2 × length of spike, often on a short peduncle; culm often nodding..... (108)

107 [106] Perigynium body orbicular, about as long as wide or slightly longer; lowest spike with 30–100 flowers..... 82. *C. nova*
107 Perigynium body elliptic, about twice as long as wide; lowest spike with 10–50 flowers..... 77. *C. nelsonii*

108 [106] Lower spike on a drooping peduncle when mature; upper margins of perigynium concave; perigynium long and narrow, 4–6 × longer than wide; perigynium beak about ½ × perigynium length ..... 73. *C. misandra*
108 Lower spike ascending with respect to the culm, but the culms themselves are often nodding or drooping; upper margins of perigynium convex; perigynium 1½–2 × longer than wide; perigynium beak < ¼ × perigynium length ..... (109)

109 [108] Lowest spike slender, < 6 mm wide, with 5–30 flowers ..... 81. *C. norvegica*
109 Lowest spike somewhat broader, > 6 mm wide, with 10–100 flowers ..... (110)

110 [109] Perigynium about 2½ × longer than wide, slightly inflated, the upper margins acute; lowest spike with 10–50 flowers ..... 12. *C. atrosquama*
110 Perigynium 1¼–2 × longer than wide, flat, not inflated, the upper margins rounded ..... 11. *C. atrata*

LOWER MOUNTAINS, FOOTHILLS, VALLEYS, INTERMOUNTAIN PLAINS

111 [1] Plants of wet sites, in areas near water (flowing or standing) or with a high water table at some season; leaves sometimes > 6 mm wide ..... (112)
111 Plants of dry to moist sites, water table always low; leaves < 6 mm wide ..... (162)

LOWER MOUNTAINS, FOOTHILLS, VALLEYS, INTERMOUNTAIN PLAINS: WET SITES

112 [111] All spikes androgynous ..... (115)
112 At least the upper spike not androgynous ..... (113)

113 [112] All spikes gynaecandrous; leaves 1–6 mm wide; scale narrower and shorter than perigynium ..... (123)
113 At least the lowest spike not gynaecandrous ..... (114)

114 [113] Terminal spike staminate, lowest spike pistillate ..... (125)
114 Terminal spike not staminate or lowest spike not pistillate ..... (149)

LOWER MOUNTAINS, FOOTHILLS, VALLEYS, INTERMOUNTAIN PLAINS: WET SITES
ALL SPIKES ANDROGYNOUS

115 [112] Perigynium > 4 mm long ..... (116)
115 Perigynium < 4 mm long ..... (117)

116 [115] Head very dense, like a pincushion; perigynium triangular, the base straight; perigynium stiffly spreading; leaves 2–12 mm wide; swamps, wet woods, and wet swales in the foothills and lower mountain valleys . 116. *C. stipata*
116 Head loose or dense, but not like a pincushion; perigynium base curved or V-shaped; leaves ½–6 mm wide ..... (117)

117 [115,116] Lowest spike separated from next-lowest spike by 1–5 × length of spike ..... (118)
117 Lowest spike closely adjacent to next-lowest spike or separated by < 1 × length of spike ..... (120)

118 [117] Head simple, one spike to a node on the culm, narrow and inconspicuous; culm slender and weak, often supported on adjacent vegetation; perigynium beak small or a minute knob, not bidentate; scale narrower than perigynium; common in moist to wet, shaded sites on mountains ..... 34. *C. disperma*
118 Head compound, more than one spike to a node on the culm, long-cylindrical, usually obvious; culm usually erect to ascending; perigynium tapered to a serrulate beak that is sometimes winged; scale as long as or longer than perigynium; scattered in a few places in wet to moist, open sites in foothills or valleys between mountains ..... (119)

119 [118] Scale long awned (the awn > 3 mm long), narrower and longer than perigynium, hyaline with a darker midrib; lower spike with 20–50 pistillate flowers ..... 130. *C. vulpinoidea*
119 Scale acute, covering perigynium, medium to dark with narrow hyaline margins; lower spike with 5–20 pistillate flowers ..... 30. *C. cusickii*

120 [117] Spikes in a tight, cylindrical head, the individual spikes usually not discernible; scale obviously shorter and wider than perigynium; perigynium tapered from almost the base.....78. *C. neurophora*
120 Spikes in a looser head, the individual spikes usually discernible; scale not simultaneously shorter and wider than perigynium; perigynium tapered from lower 1/3 .....(121)

121 [120] Scale long-awned (awn > 3 mm long), longer and narrower than perigynium; head a long cylinder 3–10 cm long; long rhizomes absent.....130. *C. vulpinoidea*
121 Scale acute, not both longer and narrower than perigynium; head shorter; long rhizomes present .....(122)

122 [121] Scale covering perigynium ..... 111. *C. simulata*
122 Scale shorter and narrower then perigynium; leaf ligule conspicuously tubular and hyaline .....106. *C. sartwellii*

LOWER MOUNTAINS, FOOTHILLS, VALLEYS, INTERMOUNTAIN PLAINS: WET SITES
ALL SPIKES GYNAECANDROUS

123 [113] Culms shorter than basal leaves; bracts several, leaf-like, 3–5 × longer than inflorescence; head tight; lowest spike not separated; perigynium > 4 × longer than wide, winged, with a very long, narrow beak .....118. *C. sychnocephala*
123 Culms taller than or equal to basal leaves; bract none or shorter than inflorescence; perigynium < 3 × longer than wide, winged or not, with a short to moderately long beak .....(124)

124 [123] Leaves not glaucous; perigynium 4–6½ mm long, winged to base; spike ovate, with 30–100 pistillate flowers; moist forests and gulches, northeastern Colorado ..... 109. *C. scoparia*
124 Leaves glaucous; perigynium 1½–3½ mm long, wingless; spike cylindrical, with 10–30 pistillate flowers; scattered in the Montane Zone and Subalpine Zone of the mountains of Colorado, Wyoming, and South Dakota ..... 22. *C. canescens*

LOWER MOUNTAINS, FOOTHILLS, VALLEYS, INTERMOUNTAIN PLAINS: WET SITES
TERMINAL SPIKE STAMINATE, LOWEST SPIKE PISTILLATE

125 [114] Perigynium > 5 mm long; perigynium beak bidentate .....(126)
125 Perigynium < 5 mm long.....(132)

126 [125] Bract shorter than inflorescence; perigynium bidentate with teeth < ½ mm long; lowest spike well-separated by 1–5 × length of spike, on a short peduncle; perigynium 3–5½ mm long; scale often dark colored, contrasting with the light colored perigynium; wet or moist sites in mountains of northwestern Wyoming... ..... 66. *C. luzulina*
126 Bract longer than inflorescence; perigynium bidentate with teeth > ½ mm long; lowest spike shortly separated by ¼–3 × length of spike, sessile or on a short peduncle; perigynium 3½–11 mm long; scale light to medium colored; wet to very wet sites .....(127)

127 [126] Leaf sheaths pubescent with long, soft hairs; leaf ligule longer than wide; perigynium beak bidentate with very long, spreading teeth > 2 mm long; scale awned; scattered in foothills and plains wetlands ..... 9. *C. atherodes*
127 Leaf sheaths glabrous; perigynium beak bidentate with teeth < 2 mm long; scale awned or not..... (128)

128 [127] Bract > 2 × longer than inflorescence .....(129)
128 Bract < 2 × longer than inflorescence; scale acute to acuminate ..... (130)

129 [128] Bract 2–3 × inflorescence; scale with a very short body but a very long awn > 2 mm long (about ¾ × scale length); lower spike dangling or hanging on a peduncle; lower perigynium spreading horizontally giving it a bottlebrush appearance ..... 52. *C. hystericina*
129 Bract 3–4 × inflorescence; scale acute, not awned; lower spike ascending, sessile or nearly so; lower perigynium usually reflexed .....101. *C. retrorsa*

130 [128] Lower leaf sheaths filamentose; leaves stiff or lax, 2–8 mm wide; perigynium < 10 mm long..... (131)
130 Lower leaf sheaths not filamentose; leaves stiff, folded, 4–12 mm wide; perigynium < 8 mm long; commonly dominant in Montane and upper foothills wetlands .....125. *C. utriculata*

131 [130] Perigynium long-tapered from almost the base, > 3½ × longer than wide; few sites in northwestern Colorado .....42. *C. exsiccata*
131 Perigynium short-tapered, < 3½ × longer than wide; locally common in the mountains of western Colorado, southeastern Wyoming, northwestern Wyoming, and north-central Wyoming .....128. *C. vesicaria*

132 [125] Lowest spike basal, long-peduncled, often hidden among the basal leaves; plant < 40 cm tall; perigynium often orange or yellow-green.....13. *C. aurea*
132 Lowest spike attached above midstem; plant often > 40 cm tall; perigynium seldom orange or yellow .....(133)

133 [132] Mature leaves average > 4 mm wide.....(134)
133 Mature leaves average < 4 mm wide .....(139)

134 [133] Scale dark colored, sharply contrasting with the light green perigynium, creating a bicolored head.....(135)
134 Scale light to medium colored, not sharply contrasting with the perigynium. (137)

135 [134] Leaves strongly glaucous; spike plump.....76. *C. nebrascensis*
135 Leaves not glaucous; spike short or narrow.....(136)

136 [135] Lower spike long and narrow, with 20–100 flowers, shortly separated by ¼–1 × length of spike; very common in Subalpine Zone, just entering the upper Montane Zone in mountains throughout western Colorado and the western ¾ of Wyoming .....7. *C. aquatilis*
136 Lower spike short, with 20–50 flowers, well-separated by 1–5 × length of spike; mountains of northwestern Wyoming ..... 66. *C. luzulina*

137 [134] Perigynium narrow, 1–1½ mm wide; scale medium to dark colored, contrasting with the light colored perigynium; wet or moist sites in mountains of northwestern Wyoming ..... 66. *C. luzulina*
137 Perigynium 2–3½ mm wide; scale medium to light colored, not contrasting with the medium to light colored perigynium; very wet sites.....(138)

138 [137] Leaves usually < 6 mm wide, ranging 2–8 mm wide; locally common in scattered locations in mountains of western Colorado and the western ¾ of Wyoming .....128. *C. vesicaria*
138 Leaves usually > 6 mm wide, ranging 4–12 mm wide; commonly dominant in Montane and upper foothills wetlands.....125. *C. utriculata*

139 [133] Lowest spike on a long peduncle > 2 × length of spike; bract long-sheathing > 3 mm .....(140)
139 Lowest spike sessile or on a short peduncle < ½ × length of spike; bract not long-sheathing ..... (141)

140 [139] Lowest spike attached above midstem; peduncles and culms weak, peduncles usually hanging, the whole upper plant often supported by adjacent vegetation; scale light colored, with rounded-obtuse hyaline tip... 23. *C. capillaris*
140 Lowest spike nearly basal on the culm, nearly hidden in the basal leaves; culms not weak, spikes usually ascending; scale acuminate to short-awned. medium colored ..... 28. *C. crawei*

141 [139] Perigynium dark, contrasting with the light to medium colored scale; lower spike short, about as long as wide, few-flowered, with 1–10 flowers; perigynium 1½–3½ mm long ..... 54. *C. interior*
141 Perigynium medium to light colored, usually not contrasting with the scale; lower spike clearly longer than wide, often with > 10 flowers; perigynium 1½–5 mm long ..... (142)

142 [141] Head ovate, about 1½ × as long as wide; lower spike with 5–30 flowers ..... (143)
142 Head longer, usually interrupted; lower spike with 5–151 flowers ..... (144)

143 [142] Scale covering perigynium; perigynium beak narrowly winged at junction of beak and body, not bidentate; long rhizomes present ..... 111. *C. simulata*
143 Scale narrower and shorter than perigynium; perigynium not winged, usually bidentate ..... (144)

144 [142] Perigynium faces uniformly pubescent ..... (145)
144 Perigynium faces glabrous ..... (146)

145 [144] Leaves often narrow (< 2 mm wide, ranging 1–4 mm), involutely rolled, with long hairlike tips; culms obtusely triangular in cross-section; scale acute to acuminate ..... 60. *C. lasiocarpa*
145 Leaves wider (2–6 mm wide), mostly flat, with narrow tips but not hairlike; culms sharply triangular in cross-section; scale acuminate to short-awned ..... 59. *C. lanuginosa*

146 [144] Lower spike long and narrow-cylindrical, 3–10 × as long as wide ..... (148)
146 Lower spike shorter, ovate to cylindrical, 2–3 × as long as wide ..... (147)

147 [146] Scale > ½ × perigynium length, revealing the perigynium's beak and sides; scale dark colored, sometimes contrasting with the medium colored perigynium; bract longer or shorter than inflorescence, not long-sheathing .... 81. *C. norvegica*
147 Scale about ½ × perigynium length, revealing the top half of the perigynium body; scale and perigynium light to medium colored, not contrasting; bract longer than inflorescence, long-sheathing > 3 mm, often reflexed .129. *C. viridula*

148 [146] Long rhizomes present; scale vertically three-striped, with dark outside stripes and an equally broad lighter middle stripe, so tip is light-colored; foothills, plains, and bases of mountains ..... 40. *C. emoryi*
148 Long rhizomes absent; scale not vertically striped, but with dark margins, dark tip, and lighter lower-midrib; Subalpine Zone or upper Montane Zone of mountains ..... 61. *C. lenticularis*

LOWER MOUNTAINS, FOOTHILLS, VALLEYS, INTERMOUNTAIN PLAINS: WET SITES
TERMINAL SPIKE NOT STAMINATE OR LOWEST SPIKE NOT PISTILLATE

149 [114] Spikes all staminate or all pistillate; plant dioecious; head ovate, about 1½ × as long as wide; scale covering perigynium; wet meadows and swamps, Subalpine Zone and Montane Zone of mountains of Colorado and the western ¾ of Wyoming ..... 111. *C. simulata*
149 Staminate and pistillate flowers on the same culm ..... (150)

150 [149] Upper spike staminate, lower spikes androgynous ..... (152)
150 Upper spike not staminate, lower spikes pistillate ..... (151)

151 [150] Upper spike gynaecandrous, lower spikes pistillate ..... (156)
151 Upper spike androgynous, lower spikes pistillate ..... (161)

152 [150] Some leaves > 5 mm wide ..... (153)
152 No leaves > 5 mm wide ..... (154)

153 [152] Long rhizomes present or absent; leaves 2–10 mm wide, stiff, folded; upper perigynium margins rounded-convex, beak short to very short, not bidentate; perigynium 1½–4 mm long, nerveless; very common in Subalpine Zone, just entering the upper Montane Zone in mountains throughout western Colorado and the western ¾ of Wyoming .....7. *C. aquatilis*

153 Long rhizomes present; leaves 2–12 mm long, flat, lax; upper perigynium margins concave, beak long, bidentate with very long, spreading teeth 1–3 mm long; perigynium 6½–11 mm long, conspicuously nerved; scattered in foothills and lower mountain valleys, rare in the western ¾ of Wyoming ....9. *C. atherodes*

154 [152] Long rhizomes present; head simple (one spike to a node on the culm); leaf sheaths glabrous; lower spike with 10–151 flowers .....(155)

154 Long rhizomes absent; head compound (more than one spike to the lower culm nodes); leaf sheaths pubescent, red-dotted or red-banded near the top; lower spike with 5–20 flowers..... 30. *C. cusickii*

155 [154] Leaf ligule conspicuously tubular and hyaline; scale ± uniformly medium colored, shorter and narrower than perigynium; lower spike with 10–30 flowers . ..... 106. *C. sartwellii*

155 Leaf ligule not tubular; scale vertically striped, dark outside stripes and an equally broad lighter midrib, longer and narrower than perigynium; lower spike with 50–151 flowers ..... 4. *C. emoryi*

156 [151] Plant < 40 cm tall; long rhizomes present; lowest spike basal, long-peduncled, often hidden among the basal leaves; perigynium often orange or yellow-green .....13. *C. aurea*

156 Plant usually > 40 cm tall; long rhizomes usually absent, sometimes present; lowest spike attached above midstem; perigynium never orange, seldom yellow... ..... (157)

157 [156] Long rhizomes present; scale as long or longer than perigynium, ± covering it, awned, dark colored with a lighter narrow midrib, usually contrasting with the medium to light colored perigynium; perigynium beak minute to very small; moist to wet aspen stands and wet meadows, Subalpine Zone and upper Montane Zone, northwestern Colorado and the western ¼ of Wyoming ....21. *C. buxbaumii*

157 Long rhizomes absent; scale shorter and narrower than perigynium, sometimes dark colored and contrasting; perigynium beak small to long.....(158)

158 [157] Some leaves > 4 mm wide; bract 3–4 × inflorescence; perigynium 6½–10 mm long, long-beaked (± ½ × perigynium length); lower perigynium reflexed at maturity.....101. *C. retrorsa*

158 Leaves all < 4 mm wide; bract shorter than to slightly longer than inflorescence .....(159)

159 [158] Basal leaf sheaths filamentose; lowest spike ovate to short-cylindrical, 2–3 × longer than wide; perigynium broadest in middle or upper 1/3...81. *C. norvegica*

159 Basal leaf sheaths not filamentose; lowest spike very short and < 1½ × longer than wide, or long-cylindrical and > 3 × longer than wide; perigynium broadest in lower 1/3 .....(160)

160 [159] Lowest spike short, about as long as wide; perigynium dark colored, contrasting with the medium to light scale, gradually tapered to a short beak..... ..... 54. *C. interior*

160 Lowest spike long-cylindrical, 3–8 × longer than wide; scale dark colored, contrasting with the light to medium colored perigynium; perigynium abruptly narrowed to a very short beak .....61. *C. lenticularis*

161 [151] Leaves 2–10 mm wide; lowest spike on a dangling peduncle when mature; lowest perigynium spreading at right angles; scale body very short, with a very long awn about ¾ × length of perigynium; scale and perigynium medium to light colored; wet to very wet sloughs, swamps, and ditches in foothills and bases of mountains, uncommon in northwestern Wyoming ..... 52. *C. hystericina*
161 Leaves 2–14 mm wide; lowest spike on an ascending peduncle; lowest perigynium ascending; scale acute, medium to dark colored, usually contrasting with the light colored perigynium; wet to moist areas, mountains of northwestern Wyoming ..... 66. *C. luzulina*

LOWER MOUNTAINS, FOOTHILLS, VALLEYS, INTERMOUNTAIN PLAINS: DRY TO MOIST SITES

162 [111] Long rhizomes present .....(163)
162 No long rhizomes present ..... (182)

(LONG RHIZOMES)

163 [162] Leaves averaging < 2 mm wide; some leaves < 1 mm wide; spikes few-flowered, < 10 pistillate flowers per spike; scale with conspicuous hyaline margins ..... (164)
163 Leaves averaging 2–6 mm wide; no leaves < 1 mm wide..... (166)

(LONG RHIZOMES, NARROW LEAVES)

164 [163] Culms very slender and weak; lowest spike well-separated by 3–5 × length of spike; both scale and perigynium light to medium colored, so spike inconspicuous; perigynium beak very short or a minute knob; moist to wet, shaded sites .....34. *C. disperma*
164 Culms stronger, erect to ascending; spike solitary or lowest spike closely adjacent to next-lowest spike; either scale or perigynium medium to dark colored; perigynium beak short; dry, open sites .....(165)

165 Dry, open sites in foothills, plains, and Montane Zone on lower mountains; spikes several, all appearing the same; perigynium beak short, < ¼ × perigynium length ..... 114. *C. stenophylla*
165 Dry, open sites on colder sites, in the Subalpine Zone and upper Montane Zone; spike solitary, androgynous; perigynium beak about ¼ × perigynium length..... ..... 83. *C. obtusata*

(LONG RHIZOMES, NOT NARROW LEAVES)

166 [163] Plant < 40 cm tall; lowest spike basal, long-peduncled, often hidden among the basal leaves; perigynium often orange or yellow-green..... 13. *C. aurea*
166 Plant often > 40 cm tall; lowest spike attached above midstem; perigynium seldom orange or yellow.....(167)

167 [166] Plants of moist sites ..... (168)
167 Plants of dry sites .....(175)

168 [167] Plants of shaded sites, mostly forests..... (169)
168 Plants of open sites; leaves 1–4 mm wide .....(172)

169 [168] Culms very slender and weak; lowest spike well-separated by 3–5 × length of spike; moist to wet, shaded sites.....34. *C. disperma*
169 Culms stronger, erect to ascending; spike solitary or lowest spike shortly separated from next-lowest spike; dry, shaded sites .....(170)

170 [169] Leaves stiff, sharply folded, V-shaped in cross-section, overwintering and curling and drying at tips; spikes 1–5, head usually “flagged;” terminal spike staminate, lower spike pistillate; pistillate spikes with 1–3 flowers; common in cold sites in the Subalpine Zone throughout Region except the southern ¼ of Colorado, much less common in Montane Zone, not in Alpine ..... 46. *C. geyeri*

170 Leaves lax, flat or slightly folded, not curling and drying at tips; spikes 2–10, all appearing the same; terminal spike gynaecandrous, lowest spike pistillate, with 3–50 flowers; Montane, Subalpine, and Alpine Zones of mountains of the western 2/3 of Colorado, and the four corners of Wyoming .....(171)

171 [170] Plants common in dry to slightly moist conifer forests of the western 2/3 of Colorado and southeastern Wyoming; leaves 1–4 mm wide; perigynium 3–6 mm long, winged and conspicuously beaked; upper perigynium margins concave; lower spikes with 3–20 flowers; scale acute, medium colored, narrower and shorter than perigynium ..... 44. *C. foenea*

171 Plants occasional to locally common in moist to moist aspen stands of north-central Colorado and northwestern Wyoming; Leaves 1–6 mm wide; perigynium 2½–4½ mm long, wingless, beakless or very short-beaked; upper perigynium margins convex; lower spikes with 10–50 flowers; scale awned, dark colored, ± covering perigynium .....21. *C. buxbaumii*

172 [168] Leaves rolled, involute; dry to rarely moist flats and slopes in foothills, plains, flats, and lower Montane Zone; often dioecious (with all staminate spikes or all pistillate spikes); head broadly ovate, 1½–2½ cm wide .....35. *C. douglasii*

172 Leaves flat or folded, not rolled or involute; moist to dry sites in foothills, plains, flats, Montane Zone, and Subalpine Zone; rarely dioecious (in *C. parryana*); head either narrow or not as broad ..... (173)

173 [172] Culm > 2 × basal leaves; leaves mostly basal; head a tight, dense cylindrical cluster, the individual spikes not discernible; plant not dioecious; spikes all androgynous, few-flowered, with 3–10 pistillate flowers per spike; moist meadows of the Subalpine Zone and Upper Montane Zone, scattered in the mountains of northwestern and central-western Colorado, southeastern and northwestern Wyoming ..... 55. *C. jonesii*

173 Culm < 2 × basal leaves; leaves not usually mostly basal; head looser, the individual spikes discernible; spike solitary, or upper and lower spikes appear different; spike with 10–100 pistillate flowers; moist to dry sites throughout Region..... (174)

174 [173] Culm about equal to basal leaves or slightly taller than basal leaves; scale covering perigynium and enclosing it; spikes 5–20, all appearing alike; terminal spike androgynous, or all spikes pistillate or staminate and plant dioecious; upper margins of perigynium concave; common in dry to moist, open sites throughout Region .....96. *C. praegracilis*

174 Culm 1½–2 × basal leaves; scale covering perigynium or somewhat smaller, flat and not enclosing perigynium; spikes 1–5, upper and lower spikes appearing different; if spike solitary then gynaecandrous, or staminate or pistillate and plant dioecious; if spikes several then sometimes all spikes staminate or pistillate and plant dioecious; upper margins of perigynium rounded, convex; scattered throughout the Region, rare in northwestern Wyoming .....87. *C. parryana*

175 [167] Plants of shaded sites, mostly forests..... (176)

175 Plants of open sites; leaves 1–4 mm wide ..... (177)

176 [175] Leaves stiff, sharply folded, V-shaped in cross-section, overwintering and curling and drying at tips, dark green; spikes 1–5, head usually "flagged;" terminal spike staminate, lower spike pistillate; pistillate spikes with 1–3 flowers; common in cold sites in the Subalpine Zone throughout Region except the southern ¼ of Colorado, much less common in Montane Zone, not in Alpine ..... 46. *C. geyeri*

176 Leaves lax, flat or slightly folded, not curling and drying at tips, medium green; spikes 2–10, all appearing the same; terminal spike gynaecandrous, lowest spike pistillate, with 3–20 flowers; foothills, Montane, Subalpine, and Alpine Zones of mountains of the western 2/3 of Colorado, and the eastern ¼ of Wyoming..... .....44. *C. foenea*

177 [175] Culm about equal to basal leaves or slightly taller than basal leaves; scale well covering perigynium; spikes 2–20, appearing alike or different; sometimes all spikes pistillate or staminate and plant dioecious; upper margins of perigynium concave; common in dry to moist, open sites throughout Region..... .....(178)

177 Culm 1½–2 × basal leaves; scale covering perigynium or somewhat smaller; spikes 1–5, upper and lower spikes appearing different; if spike solitary then gynaecandrous, or staminate or pistillate and plant dioecious; if spikes several then sometimes all spikes staminate or pistillate and plant dioecious; upper margins of perigynium rounded, convex; scattered throughout the Region, rare in northwestern Wyoming ..... 87. *C. parryana*

178 [177] Lower leaf sheaths shredding (filamentose) in age; perigynium faces uniformly puberulent; perigynium body spherical or nearly so; spikes 2–5; upper and lower spikes appearing different; terminal spike staminate or androgynous, lower spike pistillate; dry, open sites; clearly an eastern slope species, not crossing the Big Horn Mountains, Laramie Range, or Front Range, but crossing over to the deep rainshadow climates on the western slope in south-central Colorado ..... 90. *C. pensylvanica*

178 Lower leaf sheaths not shredding in age; perigynium faces glabrous (may be serrulate on margins); perigynium body not spherical; spikes 2–20; all spikes appearing alike; terminal spike androgynous, or all spikes pistillate or staminate and plant dioecious .....(179)

179 [178] Leaves involute-rolled.....(180)

179 Leaves folded or flat .....(181)

180 [179] Head broadly ovate, 1½–2½ cm wide; usually dioecious; scale acuminate; uncommon in the northern ¼ of Wyoming, not in Black Hills..... 35. *C. douglasii*

180 Head narrower and smaller; sometimes dioecious; scale acute to blunt .....(181)

181 [179,180] Dry to moist sites, somewhat moister than the next species; leaves usually 2–3 mm wide, ranging 1–4 mm wide; scale covering perigynium and enclosing it; spikes 5–20, sometimes dioecious, or terminal spike androgynous and lower spike androgynous or pistillate; perigynium narrowly winged at the junction of beak and body; throughout Region except ..... 96. *C. praegracilis*

181 Dry sites; leaves usually 1–2 mm wide, ranging ½–4 mm wide, involute-rolled; scale covering perigynium but not enclosing it; spikes 2–10, sometimes dioecious, or all spikes androgynous; perigynium not winged; throughout Region except the western ¼ of Colorado, southeastern Colorado, and the southern 2/3 of Kansas..... 114. *C. stenophylla*

(NO LONG RHIZOMES)

182 [162] Some leaves > 6 mm wide ..... (185)

182 No leaves > 6 mm wide ..... (183)

183 [182] Some leaves < ½ mm wide, all leaves < 1 mm wide; dry, open sites; spikes solitary, androgynous; perigynium light to medium color .....43. *C. filifolia*

183 No leaves < ½ mm wide, some leaves > 1 mm wide..... (184)

184 [183] Leaves average < 2 mm wide; no leaves > 4 mm wide.....(188)
184 Leaves average 2–6 mm wide.....(199)

(NO LONG RHIZOMES, VERY NARROW LEAVES)

185 [182] Leaf sheaths shredding (filamentose) in age; leaves 2–14 mm wide; wet to moist areas in the mountains of northwestern Wyoming; bract rarely long-sheathing ..... 66. *C. luzulina*
185 Leaf sheaths not shredding in age; leaves 2–8 mm wide; moist, shaded sites in mountains, foothills, and plains generally distributed, including northwestern Wyoming; bract sometimes long-sheathing > 3 mm.....(186)

186 [185] Culms nodding when mature; bract long-sheathing > 3 mm; lowest spike on a long peduncle 1–2 × length of spike, drooping or dangling when mature; scale dark colored, perigynium light green; spike usually conspicuously bicolored ..... 16. *C. bella*
186 Culm not nodding when mature, erect to ascending; bract not long-sheathing; lowest spike sessile or on a short peduncle < 1 × length of spike, not dangling or drooping; scale dark, medium, or light colored, spike bicolored or not .....(187)

187 [186] Subalpine Zone and Montane Zone of the mountains of northwestern Colorado and the western $^{2}/_{3}$ of Wyoming; terminal spike staminate, lower spike pistillate; scale acute, black; perigynium medium to light green, spikes usually conspicuously bicolored.....100. *C. raynoldsii*
187 Foothills and mesas in southeastern Colorado; spikes all androgynous; scale awned, medium to light colored, spikes not bicolored ..... 48. *C. gravida*

188 [184] All leaves < 2 mm wide.....(189)
188 Some leaves > 2 mm wide..... (191)

189 [188] Culm stiffly erect, scabrous below the spike; dry, open grasslands of the foothills and Montane Zone on the east side of the mountains in north-central Colorado, southeastern Wyoming, and central Colorado; spike solitary, with 20–100 pistillate flowers; lowest scale usually awned ..... 85. *C. oreocharis*
189 Culm ascending to weak and nodding; wet to moist, shaded sites in lower mountains; or dry to moist, open sites in Subalpine Zone and upper Montane Zone of northwestern Wyoming.....(190)

190 [189] Culm weak and nodding; few sites in wet to moist, shaded sites in mountains at various elevations, in central and north-central Colorado and northwestern Wyoming; spike solitary, androgynous, tiny, the staminate portion about the same width as the culm, with 3–10 pistillate flowers.....63. *C. leptalea*
190 Culm stronger, ascending; locally common on dry to moist, open slopes and meadows in northwestern Wyoming; spikes several, all gynaecandrous, with 10–30 pistillate flowers..... 62. *C. leporinella*

191 [188] Culm slender and weak, often supported on adjacent vegetation; head green narrow and inconspicuous; perigynium beak very small or a minute knob, not bidentate; common in moist to wet, shaded sites on mountains34. *C. disperma*
191 Culm not weak, usually supporting itself; head usually not inconspicuous; perigynium beak small to long, usually clearly visible, often bidentate.....(192)

192 [191] Lowest spike pistillate, basal, long-peduncled, nearly hidden in the basal leaves; perigynium faces pubescent or puberulent, the body nearly spherical; upper spike staminate, lower spike pistillate.....(193)
192 Lowest spike attached above the middle of the culm .....(194)

193 [192,201,212] Warmer, drier (precipitation) sites than the next species, scattered to locally common in partially shaded foothills shrublands in Colorado; upper pistillate spikes with 1–3 flowers.....45. *C. geophila*
193 A little cooler to cold, slightly moister (precipitation) sites, common in dry pine and other conifer forests on the mountains of north-central and central Colorado, and the mountains of Wyoming and South Dakota; upper pistillate spikes with 3–20 flowers ..... 104. *C. rossii*

194 [192] Lower leaf sheaths shredding (filamentose) in age; perigynium faces uniformly puberulent; perigynium body spherical or nearly so; spikes 2–5; upper and lower spikes appearing different; terminal spike staminate or androgynous, lower spike pistillate; dry, open sites; an eastern slope species, not crossing Big Horn Mts., Laramie Range, or Front Range, but crossing over to deep rainshadow climates, western slope in south-central Colorado90. *C. pensylvanica*
194 Lower leaf sheaths not shredding in age; perigynium faces glabrous (the margins may be scabrous).....(195)

195 [194] Culms scabrous on the edges; upper culm obviously zig-zag between the spikes; spikes all gynaecandrous, spherical, with 30–100 pistillate flowers; perigynium spreading in the spike, so spikes resemble a little bur; culm sometimes nodding; local in the Black Hills, in Area C in two widely separate locations in dry to moist, open to shaded foothills and Montane Zone of northern or western Wyoming .....119. *C. tenera*
195 Culms not scabrous on the edges; upper culm usually not zig-zag between the spikes or obscurely so; lower spike pistillate, androgynous, or gynaecandrous; perigynium may be spreading in the spike, but then spikes with < 20 flowers(196)

196 [195] Scale blunt, ovate, mostly hyaline with a thin green midrib; spikes all gynaecandrous.....20. *C. brunnescens*
196 Scale acute, not mostly hyaline; lowest spike androgynous or pistillate.....(197)

197 [196] Lowest spike pistillate, with 1–20 flowers; perigynium spreading in the spike; perigynium plano-convex in cross-section, or concavo-convex with sharp angles; moist to wet meadows and forests, not very common in western Wyoming..... (198)
197 All spikes androgynous, with 1–10 pistillate flowers; perigynium ascending; perigynium concavo-convex in cross-section, rounded-ribbed on the angles; common on dry hillsides or in dense shrublands, foothills and Montane Zone in the western 2/3 of Wyoming, scattered in eastern Wyoming and Colorado..... .....126. *C. vallicola*

198 [197] Perigynium beak 1/3 to ½ × perigynium length, deeply bidentate, narrowly winged; perigynium 2–5 mm long..... 6. *C. angustior*
198 Perigynium beak < 1/3 perigynium length, shallowly bidentate, not winged; perigynium 1½–3½ mm long .....54. *C. interior*

(NO LONG RHIZOMES, MODERATE WIDTH LEAVES)

199 [184] Dry sites .....(200)
199 Moist sites..... (257)

(NO LONG RHIZOMES, MODERATE WIDTH LEAVES, DRY SITES)

200 [199] Shaded by trees or dense shrubs ..... (201)
200 Open sites, not shaded .....(230)

(NO LONG RHIZOMES, MODERATE WIDTH LEAVES, DRY SHADED SITES)

201 [200] Lowest spike pistillate, basal, long-peduncled, nearly hidden in the basal leaves; perigynium faces pubescent or puberulent, the body nearly spherical; upper spike staminate, lower spike pistillate .....(193)
201 Lowest spike attached above the middle of the culm.....(202)

202 [201] Lower leaf sheaths shredding (filamentose) in age; perigynium faces uniformly puberulent; perigynium body spherical or nearly so; spikes 2–5; upper and lower spikes appearing different; terminal spike staminate or androgynous, lower spike pistillate; dry, open sites; an eastern slope species, not crossing the Big Horn Mts., Laramie Range, or Front Range, but crossing over to deep rainshadow climates on the western slope in south-central Colorado..... ..... 90. *C. pensylvanica*
202 Lower leaf sheaths not shredding in age; perigynium faces glabrous (the margins may be scabrous).....(203)

203 [202] Leaves glaucous; culms slender and weak, usually nodding ..... 31. *C. deweyana*
203 Leaves not glaucous ..... (204)

204 [203] Leaves pubescent with long, soft hairs (pilose); common, dry woods, Black Hills; few sites in north-central Colorado and northeastern Wyoming ..... 123. *C. torreyi*
204 Leaves glabrous ..... (205)

205 [204] Culms nodding ..... (206)
205 Culms not nodding ..... (210)

206 [205] Culms scabrous on the edges; upper culm obviously zig-zag between the spikes; spikes all gynaecandrous, spherical, with 30–100 pistillate flowers; perigynium spreading in the spike, so spikes resemble a little bur; culm sometimes nodding; local in the Black Hills, in Area C in two widely separate locations in dry to moist, open to shaded foothills and Montane Zone of northern or western Wyoming ..... 119. *C. tenera*
206 Culms not scabrous on the edges; upper culm usually not zig-zag between the spikes or obscurely so; lower spike pistillate, androgynous, or gynaecandrous; perigynium may be spreading in the spike, but then spikes with < 20 flowers (207)

207 [206] Scale blunt, ovate, mostly hyaline with a thin green midrib; spikes few-flowered, with 5–10 pistillate flowers per spike; perigynium tapered to a short beak ± ½ × perigynium length ..... 20. *C. brunnescens*
207 Scale acute or awned, not mostly hyaline; spikes with 5–50 pistillate flowers per spike; perigynium abruptly narrowed to a short beak, or tapered to a long beak ... (208)

208 [207] Spikes all gynaecandrous; perigynium tapered to a long beak ± ½ × length of perigynium ..... (209)
208 Upper spike staminate, lowest spike pistillate; perigynium abruptly narrowed to a short beak; scale short-awned ..... 112. *C. spectabilis*

209 [208] Perigynium body and beak winged; scale medium to dark colored, covering perigynium; spike with 20–50 pistillate flowers; perigynium beaks ascending in the spike; culm sometimes nodding; dry to moist meadows, woods, and slopes, northwestern Wyoming ..... 94. *C. platylepis*
209 Perigynium body not winged, beak sometimes narrowly winged; scale light to medium colored, covering the perigynium body but shorter than the beak; perigynium beaks somewhat spreading in the spike; dry to moist wooded gulches in the lower Montane Zone and adjacent foothills, Black Hills and the Front Range of north-central Colorado; scattered and less common in western Colorado and northwestern Wyoming ..... 31. *C. deweyana*

210 [205] Upper spike androgynous or staminate, lower spike pistillate, appearing different ..... (212)
210 Upper and lower spikes the same makeup and look ..... (211)

211 [210] All spikes androgynous; scale and perigynium light to medium colored ..... (214)
211 All spikes gynaecandrous ..... (216)

212 [210] Lowest spike pistillate, basal, long-peduncled, nearly hidden in the basal leaves; perigynium faces pubescent or puberulent, the body nearly spherical; lower leaf sheaths shredding in age ..... (193)
212 Lowest spike attached above the middle of the culm; perigynium faces glabrous (the margins may be serrulate) ..... (213)

213 [212] Leaves pubescent with long, soft hairs (pilose); perigynium plump, nearly spherical; scale body orbicular, short-awned; common, dry woods, Black Hills; a few sites in north-central Colorado and northeastern Wyoming ..... 123. *C. torreyi*
213 Leaves glabrous; perigynium flattened, ovate; scale body ovate, short-awned; moist areas in mountains of north-central Colorado and northwestern Wyoming. ..... 112. *C. spectabilis*

214 [211] Head short, ovate, the spikes close together; perigynium deeply bidentate, sometimes winged; common in dry to moist forest openings in the Montane Zone and Subalpine Zone of Wyoming, western South Dakota, and northwestern Colorado ..... 51. *C. hoodii*
214 Head longer, cylindrical, at least the lowest spike shortly separated; perigynium shallowly bidentate, not winged ..... (215)

215 [214] Scale covering perigynium; perigynium plano-convex in cross-section; common in dry to moist forests of foothills, Montane Zone, and lower Subalpine Zone of the western 2/3 of Colorado and southeastern Colorado; scattered in southeastern and northwestern Wyoming ..... 84. *C. occidentalis*
215 Scale shorter than perigynium, about the same width; common on dry hillsides or in dense shrublands, foothills and Montane Zone in the western 2/3 of Wyoming, scattered in eastern Wyoming and Colorado..... 126. *C. vallicola*

216 [211] Perigynium < 3 mm long; spikes few-flowered, with 5–10 pistillate flowers per spike..... 20. *C. brunnescens*
216 Perigynium > 3 mm long; spikes sometimes many-flowered, with 3–100 pistillate flowers per spike ..... (217)

217 [216] Scale dark brown to blackish brown; perigynium medium to dark colored; perigynium winged to base ..... 86. *C. pachystachya*
217 Scale light to medium colored; perigynium light to medium colored ..... (219)

218 [217] Perigynium > 4½ mm long ..... (219)
218 Perigynium < 4½ mm long..... (224)

219 [218] Head ovate, close; perigynium 4½–6 mm long, narrowly winged; scale shorter than perigynium; a few scattered sites in dry Montane forests ..... 115. *C. stenoptila*
219 Head longer, interrupted or cylindrical, at least the lowest spike separated; perigynium 3½–8 mm long, winged or not; scale covering perigynium or shorter than it..... (220)

220 [219] Perigynium body not winged, the beak sometimes narrowly winged; scale covering the perigynium body, but shorter than its beak, sometimes awned; perigynium 3½–5½ mm long; dry to moist wooded gulches in the lower Montane Zone and adjacent foothills, Black Hills and the Front Range of north-central Colorado; scattered and less common in western Colorado and northwestern Wyoming ..... 31. *C. deweyana*
220 Perigynium body winged; scale usually about as long as perigynium, often covering it, not awned; perigynium 3½–8 mm long..... (221)

221 [220] Perigynium body orbicular, about as long as wide, broadly winged; scale about as long as perigynium but narrower than it, not covering it; scattered on east slopes of mountain ranges, north-central Colorado and north-central Wyoming, not usually in shaded sites in Area C ..... 19. *C. brevior*
221 Perigynium body ovate or elliptic, obviously longer than wide, narrowly winged; scale covering perigynium..... (222)

222 [221] Upper margins of perigynium straight, forming sides of a triangle; perigynium 5–8 mm long; spike slender, usually > 3 × as long as wide; moderately common to scattered in moist to dry sites of the mountains of the western ½ of Colorado and throughout Wyoming ..... 92. *C. petasata*
222 Upper margins of perigynium concave; perigynium 4–6½ mm long; spike wider, usually < 2½ × as long as wide..... (223)

223 [222] Perigynium beak tip slender and terete; perigynium medium colored, not usually yellowish; common to occasional in dry to moist forests in northwestern Wyoming ..... 94. *C. platylepis*

223 Perigynium beak tip flat, winged, and serrulate to apex; perigynium medium green to golden-yellow; dry sites under pines, foothills and Montane Zone, scattered in western ½ of Colorado and southern Wyoming, uncommon in northwestern Wyoming ..... 131. *C. xerantica*

224 [218] Culms scabrous on the edges; upper culm obviously zig-zag between the spikes; spikes spherical, with 30–100 pistillate flowers; perigynium spreading in the spike, so spikes resemble a little bur; culm sometimes nodding; local in the Black Hills, in Area C in two widely separate locations in dry to moist, open to shaded foothills and Montane Zone of northern or western Wyoming ..... 119. *C. tenera*

224 Culms not scabrous on the edges; upper culm usually not zig-zag between the spikes or obscurely so; spikes usually not spherical (if so then spikes with < 30 pistillate flowers); perigynium usually not spreading in the spike ..... (225)

225 [224] Perigynium body not winged, the beak sometimes narrowly winged; scale covering the perigynium body, but shorter than its beak, sometimes awned; perigynium 3½–5½ mm long; dry to moist wooded gulches in the lower Montane Zone and adjacent foothills, Black Hills and the Front Range of north-central Colorado; scattered and less common in western Colorado and northwestern Wyoming ..... 31. *C. deweyana*

225 Perigynium body winged; scale sometimes covering perigynium, not awned; perigynium 2½–6½ mm long ..... (226)

226 [225] Scale covering perigynium ..... (227)

226 Scale narrower than perigynium, often shorter as well ..... (228)

227 [226] Perigynium beak tip slender and terete; perigynium medium colored, not usually yellowish; common to occasional in dry to moist forests in northwestern Wyoming ..... 94. *C. platylepis*

227 Perigynium beak tip flat, winged, and serrulate to apex; perigynium medium green to golden-yellow; dry sites under pines, foothills and Montane Zone, scattered in western ½ of Colorado and southern Wyoming, uncommon in northwestern Wyoming ..... 131. *C. xerantica*

228 [226] Spike obovoid, broadest near the tip; perigynium body orbicular, about as long as wide, broadly winged; scattered on east slopes of mountain ranges, north-central Colorado and north-central Wyoming, not usually in shaded sites in Area C ..... 19. *C. brevior*

228 Spike ovate, broadest near the base; perigynium somewhat longer than wide, narrowly winged; in Area C only in far southeastern Colorado and far northwestern Wyoming ..... (229)

229 [228] Far northwestern Wyoming; spike longer than wide; leaf sheaths not mottled; dry to moist forests and openings ..... 99. *C. preslii*

229 Far southeastern Colorado; spike about as long as wide; leaf sheaths mottled green-and-white; dry to moist woodlands, foothills, and canyons ... 74. *C. molesta*

(NO LONG RHIZOMES, MODERATE WIDTH LEAVES, DRY OPEN SITES)

230 [200] Lowest spike pistillate, basal, long-peduncled, nearly hidden in the basal leaves; warm, dry sites, scattered to locally common in partially shaded foothills shrublands in Colorado; upper pistillate spikes with 1–3 flowers ... 45. *C. geophila*

230 Lowest spike not long-peduncled, not basal, attached well above midstem.... (231)

231 [230] Lower leaf sheaths shredding (filamentose) in age; perigynium faces uniformly puberulent; perigynium body spherical or nearly so; spikes 2–5; upper and lower spikes appearing different; terminal spike staminate or androgynous, lower spike pistillate; clearly an eastern slope species, not crossing the Big Horn Mountains, Laramie Range, or Front Range, but crossing over to the deep rainshadow climates on the western slope in south-central Colorado ..... 90. *C. pensylvanica*
231 Lower leaf sheaths not shredding in age; perigynium faces glabrous (margins may be scabrous) ..... (232)

232 [231] Leaves pubescent with long, soft hairs (pilose); terminal spike staminate, lower spike pistillate; common in dry sites in the Black Hills, a few sites in north-central Colorado and northeastern Wyoming ..... 123. *C. torreyi*
232 Leaves glabrous ..... (233)

233 [232] Spike solitary and gynaecandrous, or pistillate or staminate and plant dioecious; perigynium obovate (broadest near tip), abruptly narrowed to a short beak, not winged; scale blunt to mucronate ..... 87. *C. parryana*
233 Spikes more than one ..... (234)

234 [233] All spikes staminate or pistillate and plant dioecious; perigynium obovate (broadest near tip), abruptly narrowed to a short beak, not winged; scale blunt to mucronate ..... 87. *C. parryana*
234 Both staminate and pistillate flowers on the same culm ..... (235)

235 [234] Upper spike staminate, lower spike pistillate, usually appearing different; perigynium not winged, abruptly narrowed to a short beak; bract often dark colored ..... (237)
235 Upper and lower spikes the same in makeup and appearance ..... (236)

236 [235] All spikes gynaecandrous; perigynium winged ..... (241)
236 All spikes androgynous; scale shorter than perigynium ..... (239)

237 [235] Scale black with a narrow lighter colored midrib; perigynium plump, usually only a little flattened; dry to moist mountains meadows in the Subalpine Zone and upper Montane Zone ..... 100. *C. raynoldsii*
237 Scale medium to dark, never black; perigynium flattened on at least one face ..... (238)

238 [237] Perigynium obovate, broadest in upper $^{1}/_{3}$, 2–4 mm long; scale obtuse-rounded, not awned; culm erect to ascending; scattered through Area C, not common in northwestern Wyoming ..... 87. *C. parryana*
238 Perigynium ovate or elliptic, broadest in lower $^{2}/_{3}$, 3½–5 mm long; scale acute, awned; culm sometimes nodding; Subalpine Zone or upper Montane Zone in mountains of north-central Colorado and northwestern Wyoming ..... 112. *C. spectabilis*

239 [236] Head short, ovate, the spikes close together; perigynium deeply bidentate; common in dry to moist forest openings, Montane Zone and Subalpine Zone of Wyoming, western South Dakota, and northwestern Colorado ..... 51. *C. hoodii*
239 Head longer, cylindrical, at least the lowest spike shortly separated; perigynium shallowly bidentate ..... (240)

240 [239] Perigynium not winged, concavo-convex with rounded, ribbed edges; spike few-flowered, with 1–10 pistillate flowers; common in western 2/3 of Wyoming, scattered in eastern Wyoming and western Colorado; uncommon in southeastern Colorado ..... 126. *C. vallicola*
240 Perigynium narrowly winged, plano-convex; spike moderately many-flowered, with 10–30 pistillate flowers; entering Area C only in far southeastern Colorado ..... 75. *C. muehlenbergii*

241 [236] Perigynium > 5 mm long ..... (242)
241 Perigynium < 5 mm long ..... (247)

242 [241] Head close, broadly ovate; lowest spike usually very close to next-lowest spike; scale shorter than perigynium ..... (243)
242 Head longer, interrupted or narrowly ovate; lowest spike noticeably separate from next-lowest spike; scale about as long as perigynium, sometimes covering it ..... (245)

243 [242] Perigynium 6–8 mm long; margins of perigynium wing crinkled; perigynium beak tip flat, winged, and serrulate to apex; dry open meadows in Subalpine Zone or upper Montane Zone in the western ½ of Colorado and southeastern Wyoming ..... 38. *C. egglestonii*
243 Perigynium 3–6 mm long; margins of perigynium wing flat; perigynium beak tip slender and terete; moist to dry open slopes and meadows, Subalpine Zone or Montane Zone on mountains throughout the Region, including northwestern Wyoming ..... (244)

244 [243] Scale dark brownish black, often contrasting with the light to medium colored perigynium ..... 72. *C. microptera*
244 Scale pale to medium chestnut-brown, usually not contrasting with the medium colored perigynium ..... 115. *C. stenoptila*

245 [242] Perigynium body orbicular, about as long as wide, broadly winged; scale about as long as perigynium but narrower than it, not covering it; scattered on east slopes of mountain ranges, north-central Colorado and north-central Wyoming, not usually in shaded sites in Area C ..... 19. *C. brevior*
245 Perigynium body ovate or elliptic, obviously longer than wide, narrowly winged; scale covering perigynium ..... (246)

246 [245] Upper margins of perigynium straight, forming sides of a triangle; perigynium 5–8 mm long; spike slender, usually > 3 × as long as wide..... ..... 92. *C. petasata*
246 Upper margins of perigynium concave; perigynium 4½–7 mm long; spike wider, usually < 2½ × as long as wide ..... 98. *C. praticola*

247 [241] Bract greater than inflorescence ..... 10. *C. athrostachya*
247 Bract shorter than inflorescence, rarely as long as inflorescence ..... (248)

248 [247] Perigynium body orbicular, about as long as wide, broadly winged; scale about as long as perigynium but narrower than it, not covering it; scattered on east slopes of mountain ranges, north-central Colorado and north-central Wyoming, not usually in shaded sites in Area C ..... 19. *C. brevior*
248 Perigynium body ovate or elliptic, obviously longer than wide, narrowly winged; scale covering perigynium ..... (249)

249 [248] Head close, broadly ovate; lowest spike usually very close to next-lowest spike; scale shorter than perigynium, sometimes covering it ..... (250)
249 Head longer, interrupted or narrowly ovate; lowest spike noticeably separate from next-lowest spike; scale about as long as perigynium, covering it ..... (256)

250 [249] Scale dark colored, sometimes contrasting with the medium to light perigynium ..... (251)
250 Scale medium to light colored, usually not contrasting with perigynium..... (254)

251 [250] Scale as wide as perigynium and slightly shorter than it, covering perigynium body; perigynium 3–5½ mm long; Subalpine to upper Montane Zones, mountains of Colorado and Wyoming..... (252)
251 Scale narrower and shorter than perigynium; perigynium 3–4½ mm long; far northwestern Wyoming ..... 99. *C. preslii*

252 [251] Spike broad, < 1½ × as long as wide, usually broadest in the lower 1/3, with 30–100 pistillate flowers ..... 86. *C. pachystachya*
252 Spike narrower, > ½ × as long as wide, usually broadest in the upper 2/3, with 20–50 pistillate flowers ..... (253)

253 [252] Perigynium dark colored ..... 67. *C. macloviana*
253 Perigynium light to medium colored ..... 72. *C. microptera*

254 [250] Perigynium 4½–6 mm long; scale light to medium colored, shorter than perigynium and about the same width ..... 115. *C. stenoptila*
254 Perigynium 3–4½ mm long; scale medium to dark colored ..... (255)

255 [254] Perigynium dark colored; mountains of Colorado and Wyoming ..... 67. *C. macloviana*
255 Perigynium light to medium colored; far northwestern Wyoming ..... 99. *C. preslii*

256 [249] Scale medium colored, with conspicuous hyaline margins and base; perigynium light green or whitish green; mountains of Colorado and Wyoming..... 98. *C. praticola*
256 Scale medium or dark colored, with narrow hyaline margins and dark base; perigynium medium colored; mountains of northwestern Wyoming..... 94. *C. platylepis*

(NO LONG RHIZOMES, MODERATE WIDTH LEAVES, MOIST SITES)

257 [199] Shaded by trees or dense shrubs ..... (258)
257 Open sites, not shaded ..... (301)

(NO LONG RHIZOMES, MODERATE WIDTH LEAVES, MOIST SHADED SITES)

258 [257] Leaves pubescent with long, soft hairs (pilose); perigynium plump, nearly spherical; scale body orbicular, short-awned; common in dry woods, Black Hills; a few sites in north-central Colorado and northeastern Wyoming .. 123. *C. torreyi*
258 Leaves glabrous ..... (259)

259 [258] Culms scabrous on the edges; upper culm obviously zig-zag between the spikes; spikes all gynaecandrous, spherical, with 30–100 pistillate flowers; perigynium spreading in the spike, so spikes resemble a little bur; culm sometimes nodding; local in the Black Hills, in Area C in two widely separate locations in dry to moist, open to shaded foothills and Montane Zone of northern or western Wyoming .....119. *C. tenera*
259 Culms not scabrous on the edges; upper culm usually not zig-zag between the spikes or obscurely so; perigynium may be spreading in the spike, but then spikes with < 20 flowers.....(260)

260 [259] Leaves average > 4 mm wide; often some leaves > 8 mm wide; scale dark to medium colored, usually strongly contrasting with the light green perigynium; moist to wet sites, northwestern Wyoming ..... 66. *C. luzulina*
260 Leaves average < 4 mm wide; no leaves > 8 mm wide; scale sometimes dark and contrasting with the perigynium.....(261)

261 [260] Bract leaf-like, long-sheathing > 3 mm; scale often dark and contrasting with light perigynium.....(262)
261 Bract none or leaf-like, not long-sheathing.....(264)

262 [261] Bract about as long as inflorescence; lower spike on a long, nodding peduncle 1–2 × length of spike; moist open slopes, Montane Zone and lower Subalpine Zone, western $^{2}/_{3}$ of Colorado ..... 16. *C. bella*
262 Bract none or shorter than inflorescence; lower spike sessile or on a short peduncle < 1 × length of spike .....(263)

263 [262] Perigynium uniformly pubescent, with a very short beak; scale obtuse, ciliate on margins, puberulent above, about ½ the length of perigynium; perigynium medium red-brown; few sites in the mountains of central Colorado and northwestern Wyoming ..... 26. *C. concinna*
263 Perigynium faces glabrous (margins may be serrulate), with a longer beak about $^{1}/_{3}$ × perigynium length; perigynium light green; mountains of northwestern Wyoming..... 66. *C. luzulina*

264 [261] Culms weak and nodding ..... (265)
264 Culms erect to ascending, not weak and nodding..... (271)

265 [264] Spikes all androgynous, few-flowered, with 1–10 pistillate flowers, scattered along the culm; scale and perigynium light to medium colored and spikes inconspicuous ..... 34. *C. disperma*
265 Lowest spike pistillate or gynaecandrous..... (266)

266 [265] Spikes all gynaecandrous .....(267)
266 Lowest spike pistillate..... (269)

267 [266] Spike long-ovate, about 2 × longer than wide, with 20–50 pistillate flowers; scale with narrow hyaline margins, medium to dark, covering perigynium; dry to moist forests in northwestern Wyoming .....94. *C. platylepis*
267 Spike < 2 × longer than wide, with 5–20 pistillate flowers; scale mostly hyaline, light to medium colored, shorter than perigynium; dry to moist sites, western Colorado and Wyoming ..... (268)

268 [267] Perigynium 1½–3 mm long; scale blunt, white-hyaline with a thin green midrib; beak about ½ × perigynium length; spike with 5–10 pistillate flowers .... 20. *C. brunnescens*
268 Perigynium 3½–5½ mm long; scale acute to awned, white-hyaline with a thick medium colored midrib; beak about ¼ × perigynium length; spike with 5–20 pistillate flowers ..... 31. *C. deweyana*

269 [266] Lowest spike short, about as long as wide, with 1–10 flowers; upper margins of perigynium concave, tapered to a short beak; scale hyaline with a light brown midrib; lowest spike widely separated by 3–5 × length of spike; rare to occasional, few sites in northwestern Wyoming and northwestern Colorado..... ..... 58. *C. laeviculmis*
269 Lowest spike ovate or cylindrical, 2–3 × as long as wide, with 5–30 flowers; upper margins of perigynium convex, abruptly narrowed to a slender, short beak; scale medium to dark, usually contrasting with the lighter perigynium; lowest spike shortly separated by ¼–3 × length of spike; common to scattered in western 2/3 of Colorado, southeastern and northwestern Wyoming ..... (270)

270 [269] Scale dark colored, without hyaline margins, acute to acuminate; perigynium beak very short, about 1/8 × length of perigynium.....81. *C. norvegica*
270 Scale medium to dark colored, with narrow hyaline margins, awned; perigynium beak short, about ¼ × length of perigynium ..... 112. *C. spectabilis*

271 [264] Perigynium < 3½ mm long .....(272)
271 Perigynium < 3½ mm long ..... (283)

272 [271] All spikes androgynous.....(274)
272 No spikes androgynous.....(273)

273 [272] All spikes gynaecandrous ..... (278)
273 Lower spike pistillate .....(281)

274 [272] Head close, ovoid or cylindrical, usually 1½–2 × longer than wide; scale not hyaline, uniformly medium colored; Subalpine Zone and Montane Zone on mountains .....(275)
274 Head longer and more interrupted, usually 3–10 × longer than wide; at least some part of scale hyaline and lighter colored; foothills, plains, or mountains, uncommon in northwestern Wyoming .....(276)

275 [274,285] Scale uniformly medium colored, not hyaline, shorter and wider than perigynium; head tight, cylindrical; perigynium medium colored, shallowly bidentate; occasional in wet to moist meadows, north-central Colorado, southeastern and northwestern Wyoming ..... 78. *C. neurophora*

275 Scale hyaline-margined, shorter and narrower than perigynium; head close, ovoid; perigynium dark colored, glossy, deeply bidentate; common in moist to dry forests, mountains of western Colorado, Wyoming, and western South Dakota ..... 51. *C. hoodii*

276 [274] Head compound (more than one spike to a node on the culm), long-cylindrical, 3–10 cm long, with 5–30 spikes; spike with 20–50 pistillate flowers; perigynium 2–3½ mm long; scale conspicuously long-awned, the awn > 2 mm long; wet to moist foothill valleys and plains, eastern slope of the Big Horns, Laramie Range, and Laramie Hills in Wyoming; scattered in a few sites in north-central, southeastern and southwestern Colorado; not in western Wyoming ..... 130. *C. vulpinoidea*

276 Head simple (one spike to a node on the culm), shorter-cylindrical, usually < 3 cm long, with 2–20 spikes; spike with 1–20 pistillate flowers; perigynium 3–6 mm long; scale acute to short-awned ..... (277)

277 [276] Scale acute, covering perigynium body or nearly so, sometimes slightly shorter than perigynium, with hyaline margins; leaves 1–4 mm wide; common to occasional in dry to moist forests of foothills, Montane and Subalpine Zones throughout Colorado, including southeastern Colorado; scattered and uncommon in southeastern and northwestern Wyoming ..... 84. *C. occidentalis*

277 Scale awned, narrower and shorter than perigynium, hyaline with narrow darker midrib; leaves 2–8 mm wide; in Area C only in moist foothills and mesas in southeastern Colorado ..... 48. *C. gravida*

278 [273] Lowest spike small, with 5–10 pistillate flowers, separated by 1–5 × length of spike; head interrupted; perigynium not winged; scale blunt; scattered moist or dry shaded sites in the mountains of Colorado and the western ¾ of Wyoming ..... 20. *C. brunnescens*

278 Lowest spike larger, with 10–30 pistillate flowers, closely adjacent to next-lowest spike or shortly separated by < 1 × length of spike; perigynium body winged; scale blunt, acute, or acuminate ..... (279)

279 [278] Perigynium beak tip slender and terete; scale medium to dark colored; dry to moist sites in mountains in far northwestern Wyoming ..... 99. *C. preslii*

279 Perigynium beak tip flat, winged, and serrulate to apex; rare in northwestern Wyoming ..... (280)

280 [279] Spike nearly spherical, the length about equaling the width, ovate, broadest near the base; in Area C only in dry to moist woodlands, foothills, and canyons in southeastern Colorado ..... 74. *C. molesta*

280 Spike obovoid, longer than wide, broadest in the middle; scattered in mountains of Colorado and the eastern ½ of Wyoming, rare in northwestern Wyoming ..... 15. *C. bebbii*

281 [273] Perigynium faces uniformly pubescent; bract leaf-like, usually longer than inflorescence; wet to moist woods, thickets, and shaded ravines, common in the Black Hills, a few sites in north-central Colorado and north-central Wyoming ..... 88. *C. peckii*

281 Perigynium faces glabrous (but margins usually scabrous); bract none, scale-like, or leaf-like, usually shorter than inflorescence; wet to moist sites in or near mountains of Colorado and Wyoming ..... (282)

282 [281] Upper margins of perigynium convex-rounded, abruptly narrowed to a very short beak < ¼ × length of perigynium; scale dark colored, contrasting with the medium colored perigynium; perigynium ascending in spike; lowest spike usually cylindrical, with up to 30 flowers; mountains from upper Montane upward, not in the Black Hills ..... 81. *C. norvegica*
282 Upper margins of perigynium concave, tapering to a short beak > ¼ × length of perigynium; scale medium to light colored, contrasting with the dark colored perigynium; perigynium spreading in spike; lowest spike spherical, with 1–10 flowers; mountains and adjacent foothills in Colorado, Wyoming, and the Black Hills ..... 54. *C. interior*

283 [271] All spikes androgynous ..... (285)
283 No spikes androgynous ..... (284)

284 [283] All spikes gynaecandrous ..... (287)
284 Lower spike pistillate ..... (299)

285 [283] Head close, ovoid or cylindrical, usually 1½–2 × longer than wide; scale not hyaline, uniformly medium colored; Subalpine Zone and Montane Zone on mountains ..... (275)
285 Head longer and more interrupted, usually 3–10 × longer than wide; at least some part of scale hyaline and lighter colored; foothills, plains, or mountains, uncommon in northwestern Wyoming ..... (286)

286 [285] Scale acute, covering perigynium body or nearly so, sometimes slightly shorter than perigynium, with hyaline margins; leaves 1–4 mm wide; common to occasional in dry to moist forests of foothills, Montane and Subalpine Zones throughout Colorado, including southeastern Colorado; scattered and uncommon in southeastern and northwestern Wyoming ..... 84. *C. occidentalis*
286 Scale awned, narrower and shorter than perigynium, hyaline with narrow darker midrib; leaves 2–8 mm wide; in Area C only in moist foothills and mesas in southeastern Colorado ..... 48. *C. gravida*

287 [284] Scale dark brown to blackish brown ..... (288)
287 Scale light to medium colored ..... (290)

288 [287] Scale shorter and narrower than perigynium; perigynium 3–4½ mm long; mountains of far northwestern Wyoming ..... 99. *C. preslii*
288 Scale covering perigynium, sometimes slightly shorter than it; perigynium 3½–5 mm long; mountains of Colorado and Wyoming ..... (289)

289 [288] Head broadly ovoid, < 1½ × longer than wide; perigynium medium to dark colored; dry to moist meadows, woods, and slopes in mountains of western Colorado and the western ¾ of Wyoming ..... 86. *C. pachystachya*
289 Head interrupted, longer, usually > 2 × longer than wide; perigynium medium colored; dry to moist meadows, woods, and slopes in mountains of northwestern Wyoming ..... 94. *C. platylepis*

290 [287] Perigynium > 5 mm long ..... (291)
290 Perigynium < 5 mm long ..... (293)

291 [290] Perigynium body orbicular, about as long as wide, broadly winged; scale about as long as perigynium but narrower than it, not covering it; scattered on east slopes of mountain ranges, north-central Colorado and north-central Wyoming, not usually in shaded sites in Area C ..... 19. *C. brevior*
291 Perigynium body ovate or elliptic, obviously longer than wide, narrowly winged; scale covering perigynium ..... (292)

292 [291] Upper margins of perigynium straight, forming sides of a triangle; perigynium 5–8 mm long; spike slender, usually > 3 × as long as wide; moderately common to scattered in moist to dry sites of the mountains of the western ½ of Colorado and throughout Wyoming ..... 92. *C. petasata*
292 Upper margins of perigynium concave; perigynium 4–6½ mm long; spike wider, usually < 2½ × as long as wide; rare to occasional in a few sites in moist or wet sites, lower mountains and foothills, north-central Colorado ..... 109. *C. scoparia*

293 [290] Head short, ovoid, < 1½ × as long as wide ..... (294)
293 Head longer, ovoid, cylindrical, or interrupted, > 2 × as long as wide..... (296)

294 [293] Far northwestern Wyoming, in Yellowstone National Park; perigynium often with beak tip slender and terete ..... 99. *C. preslii*
294 Central and north-central Colorado and northwestern Wyoming, missing from the far northwestern corner of Wyoming ..... (295)

295 [294] Spike nearly spherical, the length about equaling the width, ovate, broadest near the base; in Area C only in dry to moist woodlands, foothills, and canyons in southeastern Colorado .....74. *C. molesta*
295 Spike obovoid, longer than wide, broadest in the middle; scattered in mountains of Colorado and the eastern ½ of Wyoming, rare in northwestern Wyoming ....15. *C. bebbii*

296 [293] Perigynium body orbicular, about as long as wide, broadly winged; scale about as long as perigynium but narrower than it, not covering it; scattered on east slopes of mountain ranges, north-central Colorado and north-central Wyoming, not usually in shaded sites in Area C .....19. *C. brevior*
296 Perigynium body ovate or elliptic, obviously longer than wide, narrowly winged; scale covering perigynium or shorter than perigynium ..... (297)

297 [296] Upper margins of perigynium straight, forming sides of a triangle; scale covering perigynium; perigynium 5–8 mm long; spike slender, usually > 3 × as long as wide; moderately common to scattered in moist to dry sites of the mountains of the western ½ of Colorado and throughout Wyoming .... 92. *C. petasata*
297 Upper margins of perigynium concave; perigynium 4–6½ mm long; spike wider, usually < 2½ × as long as wide.....(298)

298 [297] Perigynium beak tip slender and terete; scale medium to dark colored; common to occasional in dry to moist forests in northwestern Wyoming..... ..... 94. *C. platylepis*
298 Perigynium beak tip flat, winged, and serrulate to apex; scale light colored; rare to occasional in a few sites in moist or wet sites in lower mountains and foothills of north-central Colorado ..... 109. *C. scoparia*

299 [284] Perigynium faces uniformly pubescent; bract leaf-like, usually longer than inflorescence; wet to moist woods, thickets, and shaded ravines, common in the Black Hills, a few sites in north-central Colorado and north-central Wyoming..... .....88. *C. peckii*
299 Perigynium faces glabrous (but margins often scabrous); bract none, scale-like, or leaf-like, shorter or longer than inflorescence .....(300)

300 [299] Lower spike dangling-hanging on a long peduncle > 2 × length of spike; perigynium beak long and slender, > ½ × perigynium length; perigynium 5–6½ mm long; scale light to medium colored, perigynium light colored; moist to wet forests, foothills and Montane Zone, Black Hills and in northeastern Wyoming, a few sites north-central Colorado and southeastern Wyoming .....113. *C. sprengelii*
300 Lower spike ascending on a short peduncle < ½ × length of spike; perigynium beak very short, < 1/8 × perigynium length; perigynium 2–4½ mm long; scale dark colored, perigynium medium colored; moist aspen and conifer forests in Subalpine and upper Montane Zones in the western 2/3 of Colorado and southeastern and northwestern Wyoming ..... 81. *C. norvegica*

301 [257] Leaves pubescent with long, soft hairs (pilose); common in dry to moist woods in the Black Hills; a few sites in north-central Colorado and northeastern Wyoming ..... 123. *C. torreyi*
301 Leaves glabrous ..... (302)

302 [301] All spikes androgynous ..... (303)
302 Lower spike not androgynous ..... (308)

303 [302] Spikes more than one, all spikes gynaecandrous ..... (304)
303 Spike solitary and various (gynaecandrous or unisexual); or spikes more than one and lower spike not gynaecandrous ..... (330)

304 [303] Head close, ovoid or cylindrical, usually 1½–2 × longer than wide; scale not hyaline, uniformly medium colored; Subalpine Zone and Montane Zone on mountains ..... (305)
304 Head longer and more interrupted, usually 2–10 × longer than wide; at least some part of scale hyaline and lighter colored; foothills, plains, or mountains, uncommon in northwestern Wyoming ..... (306)

305 [304] Scale uniformly medium colored, not hyaline, shorter and wider than perigynium; head tight, cylindrical; perigynium medium colored, shallowly bidentate; occasional in wet to moist meadows, north-central Colorado, southeastern and northwestern Wyoming ..... 78. *C. neurophora*
305 Scale hyaline-margined, shorter and narrower than perigynium; head close, ovoid; perigynium dark colored, glossy, deeply bidentate; common in moist to dry forests, mountains of western Colorado, Wyoming, and western South Dakota ..... 51. *C. hoodii*

306 [304] Head compound (more than one spike to a node on the culm), long-cylindrical, 3–10 cm long, with 5–30 spikes; spike with 20–50 pistillate flowers; perigynium 2–3½ mm long; scale conspicuously long-awned, the awn > 2 mm long; wet to moist foothill valleys and plains, eastern slope of the Big Horns, Laramie Range, and Laramie Hills in Wyoming; scattered in few sites north-central, southeastern and southwestern Colorado; not in western Wyoming ..... 130. *C. vulpinoidea*
306 Head simple (one spike to a node on the culm), shorter-cylindrical, usually < 3 cm long, with 2–20 spikes; spike with 1–30 pistillate flowers; perigynium 3–6 mm long; scale usually short-awned; Area C only southeastern Colorado ..... (307)

307 [306] Perigynium narrowly winged; leaves 2–6 mm wide ..... 75. *C. muehlenbergii*
307 Perigynium not winged; leaves 2–8 mm wide ..... 48. *C. gravida*

308 [302] Scale dark colored; perigynium winged ..... (309)
308 Scale light to medium colored ..... (313)

309 [308] Head close, broad, < 1½ × as long as wide; scale shorter than perigynium .. .. (310)
309 Head longer, interrupted or cylindrical, > 2 × as long as wide; spike with 20–50 pistillate flowers; scale covering perigynium; dry to moist forests in northwestern Wyoming ..... 94. *C. platylepis*

310 [309] Scale as wide as perigynium and slightly shorter than it, covering perigynium body; perigynium 3–5½ mm long; Subalpine to upper Montane Zones, mountains of Colorado and Wyoming ..... (311)
310 Scale narrower and shorter than perigynium; perigynium 3–4½ mm long; far northwestern Wyoming ..... 99. *C. preslii*

311 [310] Spike broad, < 1½ × as long as wide, usually broadest in the lower $^{1}/_{3}$, with 30–100 pistillate flowers ..... 86. *C. pachystachya*
311 Spike narrower, > ½ × as long as wide, usually broadest in the upper $^{2}/_{3}$, with 20–50 pistillate flowers ..... (312)

312 [311] Perigynium dark colored ..... 67. *C. macloviana*
312 Perigynium light to medium colored ..... 72. *C. microptera*

313 [308] Bract leaf-like, longer than inflorescence; head close; perigynium winged... .....10. *C. athrostachya*
313 Bract shorter than inflorescence .....(314)

314 [313] Perigynium dark colored ..... 67. *C. macloviana*
314 Perigynium light to medium colored .....(315)

315 [314] Head close, < 2 × as long as wide; lower spike very close or separated by < ½ × length of spike .....(316)
315 Head longer, > 2–2½ × as long as wide; lower spike separated by > ½ × length of spike..... (326)

316 [315] Perigynium > 6 mm long .....(317)
316 Perigynium < 6 mm long..... (318)

317 [316] Perigynium 6–8 mm long, 2–2½ × as long as wide; perigynium wing with crinkled margins; scale medium colored; dry to moist open meadows in Subalpine Zone or upper Montane Zone in western ½ of Colorado and southeastern Wyoming ..... 38. *C. egglestonii*
317 Perigynium 4–6½ mm long, 3–4 × as long as wide; scale light colored; moist forests and gulches in the foothills of northeastern Colorado..... 109. *C. scoparia*

318 [316] Bract leaf-like, longer than inflorescence.....10. *C. athrostachya*
318 Bract shorter than inflorescence .....(319)

319 [318] Perigynium < 4 mm long .....(320)
319 Perigynium > 4 mm long..... (324)

320 [319] Scale as wide as perigynium and slightly shorter, covering its body .....(321)
320 Scale narrower and shorter than perigynium..... (322)

321 [320,324] Spikes broad, usually 1–1½ × as long as wide, with 30–100 pistillate flowers; perigynium narrowly winged to base; culm usually stiffly erect .... 86. *C. pachystachya*
321 Spikes narrower, usually 1½–2½ × as long as wide, with 20–50 pistillate flowers; perigynium broadly or narrowly winged to base; culm often arcing downward when mature ..... 67. *C. macloviana*

322 [320] Perigynium beak tip flat, winged, and serrulate to apex; scattered in mountains and foothills, western 2/3 of Colorado and northeastern Wyoming; rare in northwestern Wyoming..... 15. *C. bebbii*
322 Perigynium beak tip slender and terete, Subalpine Zone and Montane Zone in all mountains in Region ..... (323)

323 [322,325] Spike broad, 1–1½ × longer than wide, with 20–50 pistillate flowers; scale dark brownish black; perigynium 3–5½ mm long; moist meadows, moist margins of wetlands, and open slopes of the Subalpine Zone and upper Montane Zone, mountains throughout the Region ..... 72. *C. microptera*
323 Spikes narrower, > 1½ × longer than wide, with 10–30 pistillate flowers; scale medium to dark colored; perigynium 3–4½ mm long; dry to moist sites in mountains, far northwestern Wyoming ..... 99. *C. preslii*

324 [319] Scale as wide as perigynium and slightly shorter, covering body of perigynium.....(321)
324 Scale narrower and shorter than perigynium..... (325)

325 [324] Scale light colored or mostly hyaline; perigynium 4–6½ mm long, 3–4 × as long as wide; rare to occasional in a few sites in moist or wet sites in lower mountains and foothills of north-central Colorado ..... 109. *C. scoparia*
325 Scale medium to dark colored, sometimes with very narrow hyaline margins; perigynium 3–5½ mm long, 1½–2½ × as long as wide; Subalpine Zone and Montane Zone in all mountains in Region ..... (323)

326 [315] Scale covering perigynium .....(327)
326 Scale narrower than perigynium, usually shorter as well..... (328)

327 [326] Upper margins of perigynium straight, forming sides of a triangle; perigynium 5–8 mm long; spike slender, usually > 3 × as long as wide; moderately common to scattered in moist to dry sites of the mountains of the western ½ of Colorado and throughout Wyoming.....92. *C. petasata*
327 Upper margins of perigynium concave; perigynium 4–6½ mm long; spike wider, usually < 2½ × as long as wide ..... (256)

328 [326] Scale light colored or mostly hyaline; perigynium 4–6½ mm long, 3–4 × as long as wide; perigynium beak tip slender and terete; rare to occasional in a few sites in moist or wet sites in lower mountains and foothills of north-central Colorado .....109. *C. scoparia*
328 Scale medium to dark colored, sometimes with very narrow hyaline margins or light-colored base; perigynium 2½–5½ mm long, 1–2 × as long as wide; perigynium beak tip flat, winged, and serrulate to apex..... (329)

329 [328] Spike obovoid, broadest near the tip; scattered on east slopes of mountain ranges, north-central Colorado and north-central Wyoming, not usually in shaded sites in Area C ..... 19. *C. brevior*
329 Spike ovoid, broadest near the base; mountains of western Colorado and north-central Wyoming, rare in northwestern Wyoming ..... 15. *C. bebbii*

330 [303] Spike solitary, gynaecandrous; or staminate or pistillate and plant dioecious; perigynium obovoid, broadest near tip; upper margins of perigynium rounded-convex, abruptly narrowed to a short or very short beak; scattered throughout the Region, rare in northwestern Wyoming .....87. *C. parryana*
330 Spikes more than one.....(331)

331 [330] All spikes staminate or all spikes pistillate, plant dioecious; perigynium obovoid, broadest near tip; upper margins of perigynium rounded-convex, abruptly narrowed to a short or very short beak; scattered throughout the Region, rare in northwestern Wyoming.....87. *C. parryana*
331 Upper spike gynaecandrous or staminate, lower spike pistillate ..... (332)

332 [331] Lower spike about as long as wide, few-flowered, with 1–20 flowers; perigynium spreading in the spike; scale light to medium colored; all or middle of perigynium dark colored; wet to moist open meadows in mountains throughout the Region ..... (334)
332 Lower spike clearly much longer than wide, often many-flowered, with 5–100 flowers; perigynium ascending in the spike; scale often dark colored and contrasting with perigynium; perigynium light to medium colored, sometimes purple-tinged above ..... (333)

333 [332] Perigynium dark, contrasting with the light to medium colored scale; lower spike short, about as long as wide, few-flowered, with 1–10 flowers; perigynium 1½–3½ mm long..... 54. *C. interior*
333 Perigynium margin light colored with dark middle, usually not contrasting with the scale; lower spike sometimes with > 10 flowers; perigynium 2–5 mm long ....6. *C. angustior*

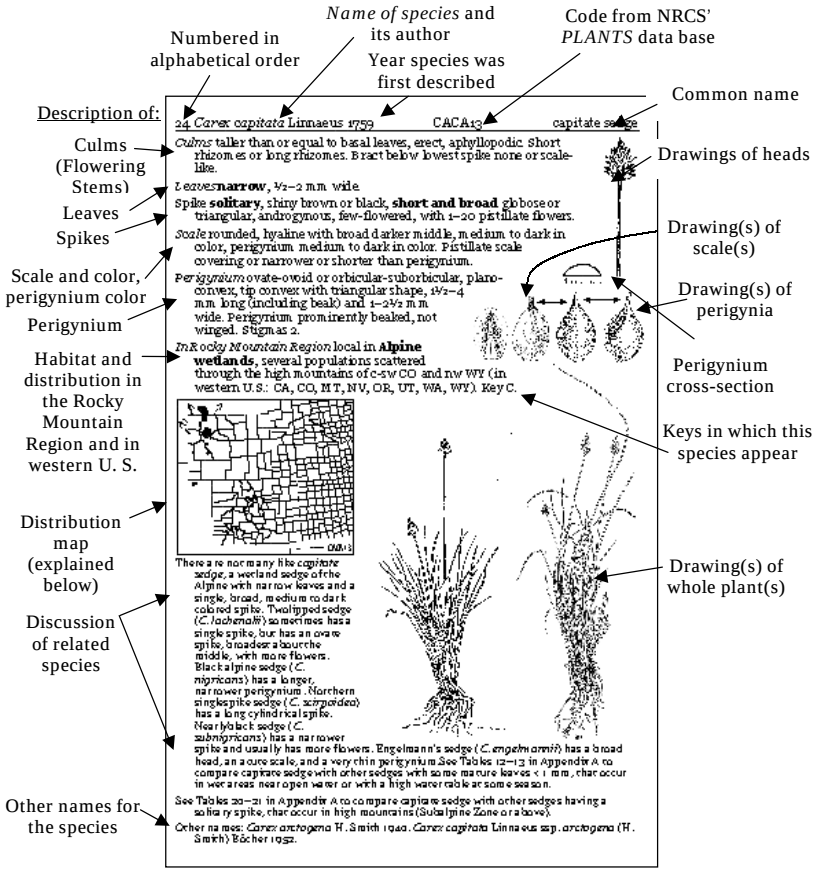
334 [332] Scale slightly shorter than perigynium, ± as wide as perigynium and covering perigynium body .....(335)
334 Scale clearly narrower and shorter than perigynium ..... (336)

335 [334] Perigynium obovoid, broadest near tip; upper margins of perigynium rounded-convex, abruptly narrowed to a short or very short beak; scale blunt to mucronate; scattered throughout the Region, rare in northwestern Wyoming ....87. *C. parryana*
335 Perigynium lanceolate, broadest near base; upper margins of perigynium concave, gradually tapered to a short or long beak; scale acute; wet to moist areas in the mountains of northwestern Wyoming ..... 66. *C. luzulina*

336 [334] Scale black with a narrow lighter colored midrib; perigynium plump, usually only a little flattened; dry to moist mountains meadows in the Subalpine Zone and upper Montane Zone.....100. *C. raynoldsii*
336 Scale medium to dark, never black; perigynium flattened on at least one face .... (337)

337 [336] Scale short-awned, medium to dark colored with lighter margins and midrib; perigynium 3½–5 mm long, often flattened and thin-edged, but not winged.....112. *C. spectabilis*
337 Scale acute to acuminate, uniformly dark colored; perigynium 2–4½ mm long, flattened but not thin-edged, not winged ..... 81. *C. norvegica*

Chapter 4. Descriptions



Abbreviations used in the descriptions

±	approximately; more or less	NV	Nevada
<	less than	nw	northwestern
>	greater than	SD	South Dakota
×	times	se	southeastern
CA	California	ssp.	subspecies
CO	Colorado	sw	southwestern
ID	Idaho	UT	Utah
MT	Montana	var.	variety
n	northern	w	western
nc	north-central	WA	Washington
ne	northeastern	wc	west-central
NE	Nebraska	WY	Wyoming
NM	New Mexico		

Please see the Glossary, in Chapter 3, for explanation of terminology.

Number. Assigned in alphabetical order of species name.

Name of species. Names follow Weber and Wittmann (2000), supplemented by Dorn (1992) and Great Plains Flora Association (1986). Following the species name is the name of the author who first described the species, and the year in which it was first described. I have used the species taxonomic rank in this book, and have not used subspecies or varieties, to make it easier for the users to use the keys.

Code. Codes for plants in this document are taken from: U. S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 1999. The PLANTS database. (http://plants.usda.gov). Baton Rouge, LA: USDA National Resources Conservation Service, National Plant Data Center (NPDC). Mail to USDA NRCS, NPDC, Baton Rouge, LA 70874-4490. Downloaded May 24, 1999. "The vascular plant nomenclature, most phytogeography, and other accompanying data found in PLANTS for the plants known to occur within the United States and its Caribbean territories were provided under a cooperative agreement by John Kartesz and his staff at the Biota of North America Program (BONAP). Portions of these data are copyrighted (© 1994) by John Kartesz, Biota of North America Program. The copyright notice must be preserved on all copies. Any user who alters any part of the cooperator-derived data cannot redistribute it as PLANTS data. All users of vascular PLANTS data are to acknowledge the contributions made by the Natural Resources Conservation Service (NRCS) and BONAP."

Common Name. This is usually the "common name" that has been used in the Rocky Mountain Region, mostly recorded in Nickerson and others (1976). When there was no common name assigned in the Forest Service literature, I have use the name in NRCS' PLANTS data base (USDA NRCS 1999). NRCS' *PLANTS* did not standardize common names, but just used the names that appeared in previous NRCS lists.

Drawings. These have been taken from Hermann (1970) and Creutzburg (1940). As appropriate, the drawings are labeled with the name under which they appeared in the sources. These labels (placed in "*quotes*") are not meant to imply any subspecific rank.

Head. This has been chosen to show as much as possible the form of the top of the culm.

Scale. The pistillate scale, approximately proportional to the perigynium next to it. Mostly from Creutzburg (1940), since Hermann (1970) rarely illustrated scales.

Perigynia. In proportion to the pistillate scale shown next to it; but not in any proportion relative to perigynia shown in other species descriptions. Arrows, used sparingly, show features of interest.

Whole plant(s). Again, this is not in any proportional scale relative to other plants. Supplemented occasionally with drawings of other parts, such as leaf sheath, bract sheath, or culm cross-section.

Perigynium cross-section. I drew this.

Descriptions. The starting point for the descriptions was the data base kindly supplied by Miriam Colson Fritts and Harold C. Fritts (1998). This data base was supplemented and updated, since several species in this book occur only on the Great Plains, and so do not appear in the Fritts' work. Then the descriptions were checked against other literature and herbarium specimens. In these descriptions, **bold face** has been used (sparingly) to show unique and special characteristics that I wish to emphasize. Many *Carex* species must be distinguished by a combination of three or more characteristics, so it is not possible to emphasize all the characters used in the keys; almost all of some descriptions would be bold!

Culms. Whether taller or shorter than basal leaves, whether phyllopodic or aphyllopodic. Habit (bunch, short rhizomes, long rhizomes, mat-forming). Nature of the lowest bract of the inflorescence. Special characteristics.

Leaves. Average leaf width per plant, and special leaf characteristics.

Spikes. Number of spikes per culm, and their nature. Whether upper and lower spikes are the same, or different. Description of lowest spike: separation and peduncle length. Number of pistillate flowers (perigynia, if they all mature) per spike, excluding staminate spikes.

Scale. Scale special characteristics, scale color. Perigynium color, listed here in order to show contrasts with scale color. Scale shape and size proportional to perigynium.

Perigynium. Perigynium shape and cross-section, shape of upper margins ("tip"). Perigynium length (including stipe and beak) and width. Length and width are shown to the nearest ½ mm – difficult enough to do in the field! Nature of perigynium beak, wing, and faces – nerved, ribbed, pubescent, etc. Number of stigmas.

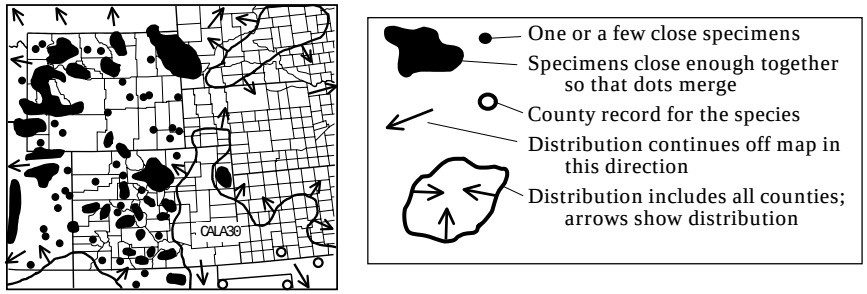
Similar species. This paragraph is a text description of similar and related species, with notes showing distinguishing characteristics. To save space, only those first-order characteristics that distinguish the two species are listed. Other characteristics may be the same or different between the two species being compared.

Other names. Names this species has had in recent literature. Species names and subspecific taxa (subspecies and varieties) have been included here as a matter of course, whether I believe they should be used or not.

Habitat and distribution. Habitat and distribution have been compiled from literature, herbarium specimens, and observations in the field. See definitions of *dry*, *moist*, and *wet* in the Glossary, Chapter 3. State distributions shown (in parenthesis) were extracted from Fritts and Fritts' (1998) data base of *Carex* species of eleven western states.

Keys. Shown are the sections of the key in which the species appears.

Distribution map. Compiled from distribution maps in the literature, and specimens from the herbaria used (cited in Acknowledgements). Following is an example distribution map (*Carex lanuginosa*), with explanation of the symbols used.





Culms taller than basal leaves, aphyllopodic. Bunch. Bract below lowest spike none or scale-like, always much shorter than inflorescence.

Leaves 2–4 mm wide, sheaths green-and-white mottled.

Spikes 2–10, obovoid (broadest at the tip). Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spikes separated by a distance 1–3 × length of spike, lower spike sessile or nearly so. Spikes with 20–30 pistillate flowers.

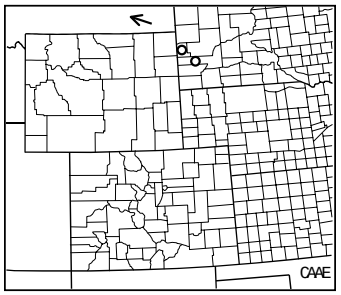


Scale light to medium in color, perigynium light to medium green or brown. Pistillate scale covering or narrower than perigynium, never shorter, usually concealing perigynium.



Perigynium shape ovate-ovoid, concavo-convex, tip concave with short taper, 3½–6 mm long and 1½–2½ mm wide. Perigynium winged to base; beak flat, winged, and serrulate to apex. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region few forested sites, dry to moist, in the Montane Zone of the Black Hills of w SD, “wooded areas and ravines” (FGP) (in western U.S.: ID, MT). Key B.





Bronze sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

Culms taller than basal leaves, phyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like or setaceous, shorter than inflorescence.

Leaves 2–6 mm wide, **sheaths green-and-white mottled**.

Spikes 5–20. Spikes **all androgynous**, upper and lower spikes appear the same, lower spikes closely adjacent to next spike, lower spike sessile or nearly so. Spikes with 20–50 pistillate flowers.

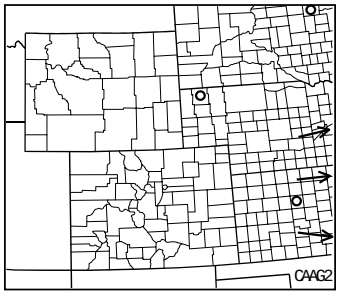
Scale obtuse to acute tip, light to medium in color; perigynium medium color to dark green. Pistillate scale narrower than perigynium and **just as long**.

Perigynium shape ovate-ovoid, tip concave with long taper, 3–4½ mm long and 1½–2½ mm wide. Perigynium beak serrulate and narrowly winged; beak flat, winged, and serrulate to apex, bidentate tip. Perigynium nerved or ribbed. Stigmas 2.





In Rocky Mountain Region few sites in woodlands of foothills and plains, dry to moist, in ne SD, nw NE, c KS, "dense to open wooded areas" (FGP) (not in western U.S.). Key A.





Among clustered-cylindrical-head dry- to moist-site bunch sedges of the plains, *glomerate sedge* can be distinguished by the lower leaf sheaths green-and-white mottled and scale that is as wide as the perigynium. Blunt broom sedge (*C. tribuloides*) has a winged culm and a more broadly winged perigynium. Mühlenberg's sedge (*C. muehlenbergii*) has a bract longer than the inflorescence; the bract is often reflexed. Heavy sedge (*C. gravida*) has shorter spikes with fewer flowers.

See Tables 26–27 in Appendix A to compare glomerate sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

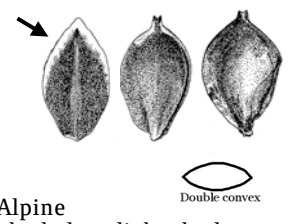
Other names: *Carex sparganioides* Mühlenberg var. *aggregata* (Mackenzie) Gleason 1952.



Culms taller than basal leaves, erect, phyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like or setaceous, shorter than inflorescence, sometimes with black or purple-black auricles.

Leaves 2–8 mm wide.

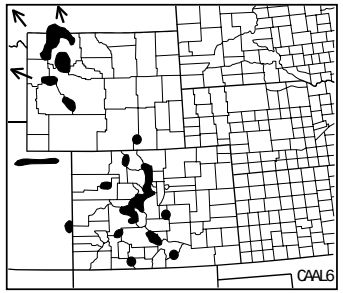
Spikes 2–5. Terminal spike gynaecandrous, lower spikes pistillate. Upper and lower spikes appear the same, lower spikes separated by a distance ¼–1 × length of spike, lower spike sessile or on a short peduncle up to ½ × length of spike. Spikes with 1–20 pistillate flowers, sometimes few-flowered.



Scale dark in color with conspicuous white-hyaline margins above, perigynium usually dark in color. Pistillate scale ± covering perigynium.

Perigynium shape ovate-ovoid or obovate-obovoid or elliptic-oblong or orbicular-suborbicular, tip convex with curved shape, 2½–3½ mm long and 1½–2½ mm wide. Perigynium not winged. Stigmas 3.

In Rocky Mountain Region common on dry to moist Alpine tundra and openings in Alpine willow thickets, unshaded to slight shade, Alpine Zone of CO, WY (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, UT, WA, WY). Key C.



Blackhead sedge is a fairly common black-headed sedge in the Alpine Zone of the Region. It usually does not appear bicolored from a distance. The most common confused species is cliff sedge (*C. scopulorum*), but that is a species of wetter sites, has apparently different upper and lower spikes, and the scale is all black and is smaller then the perigynium. Black sedge (*C. atrata*) has a light to medium colored perigynium, and the scale does not cover it.

Among other dark-scale and dark-perigynium sedges with several spikes of the Alpine, lesser panicled sedge (*C. diandra*) is a species of wet sites. Sheep sedge (*C. illota*) has spikes closer together and the perigynium is tapered to a longer beak. Jones's sedge (*C. jonesii*) has a tight, cylindrical head. Dunhead sedge (*C. phaeocephala*) has narrower leaves and narrower spikes. Thickhead sedge (*C. macloviana*) has spikes in a closer head and a winged perigynium. New sedge (*C. nova*) has few spikes in a closer head, and the scale is all black and smaller. In Tolmie sedge (*C. tolmiei*), the terminal spike is apparently different from lower ones.

See Tables 8–11 in Appendix A to compare blackhead sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.

Blackhead sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

Other names: black-and-white sedge. "*Carex albonigra*," misspelling of original name.



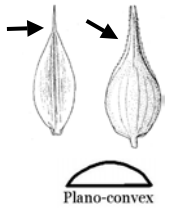


A typical habitat for blackhead sedge – among short willows right at timberline.



The head of blackhead sedge from one of the plants on the left.





Culms taller, equal, or shorter than basal leaves, erect, phyllopodic, **flattened and winged**. Bunch. Bract below lowest spike leaf-like or setaceous, shorter than inflorescence.

Leaves 2–10 mm wide, mostly 3–6 mm wide.

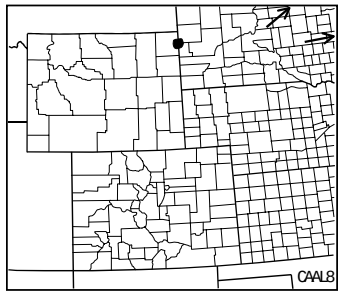
Spikes 5–10. Spikes **all androgynous**. Upper and lower spikes appear the same, lower spikes closely adjacent to next spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

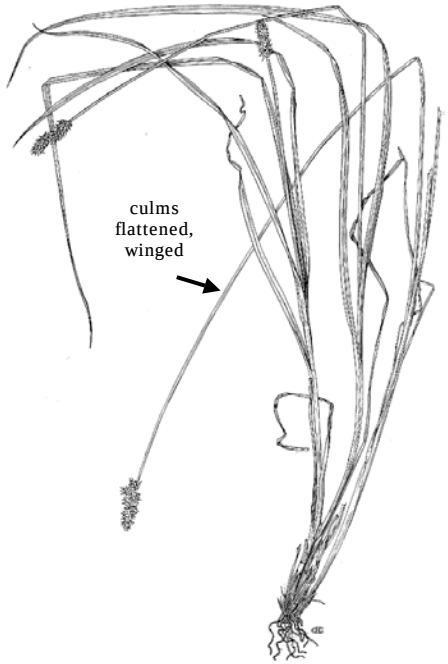
Head 2–3 cm long.

Scale short-awned (<2 mm), light in color; perigynium medium in color. Pistillate scale narrower than perigynium.

Perigynium shape ovate-ovoid or lanceolate, tip concave with long taper, 3–4½ mm long and 2–3 mm wide. Perigynium beak serrulate and narrowly winged; body not winged. Stigmas 2.

In Rocky Mountain Region few sites on the north edges of the Black Hills in WY, SD (not otherwise in western U.S.). Foothills and plains, Montane Zone in Black Hills. Habitat: moist or wet, "wet meadows" (D92), "wooded areas and swamps" (FGP). Key B.





Foxtail sedge is easily distinguished by its flattened, winged culm. The only other species with a winged culm in the Black Hills is crested sedge (*C. cristatella*), which has broader spikes with more flowers, and a conspicuously winged, jointed perigynium.

See Tables 4–7 in Appendix A to compare foxtail sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas, near open water or with a high water table at some season. See Tables 8–11 in Appendix A to compare foxtail sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas. See Table 25 in Appendix A to compare foxtail sedge with other wetland, bunch, androgynous-spike sedges that have more than one spike. See Tables 26–27 in Appendix A to compare foxtail sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

5. *Carex amphibola* Steudel 1855 CAAM8 eastern narrowleaf sedge

Culms taller than basal leaves, erect, phyllopodic. Bract below lowest spike leaf-like, longer than inflorescence, **long-sheathing > 3 mm**.

Leaves 1–10 mm wide.

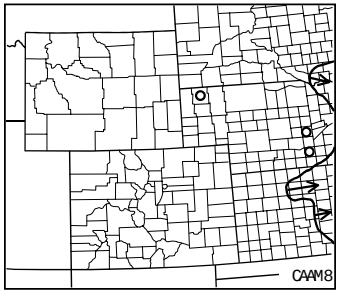
Spikes 2–5. Terminal spike staminate, lower spikes pistillate. Upper and lower spikes appear different, lower spikes separated by a distance 1–3 × length of spike, lower spike on a peduncle ½–2 × length of spike. Spikes few-flowered, with 1–10 pistillate flowers.

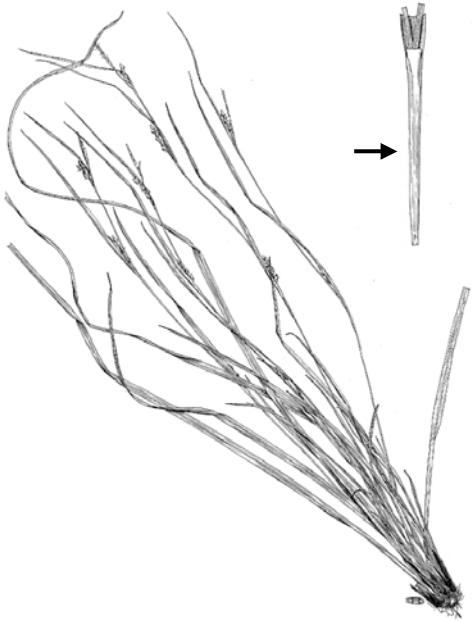
Scale awned, light yellow-green; perigynium light yellow-green. Pistillate scale shorter than perigynium.

Perigynium shape ovate-ovoid or obovate-obovoid, tip concave with short taper, 3½–5½ mm long and 1½–2½ mm wide. Perigynium not winged, ± beakless. Perigynium strongly many-nerved. Stigmas 3.

In Rocky Mountain Region few sites in (mostly) wooded areas, dry to moist, on foothills and plains in nw NE (not in western U.S.). Bunch. Key A.



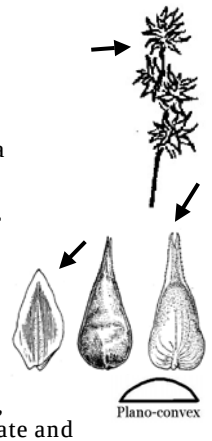




There are not many few-flowered, staminate over pistillate, long-bracted bunch sedges of dry to moist sites on the plains. Back's sedge (*C. backii*) has very long, leaflike scales. Eastern woodland sedge (*C. blanda*) has a perigynium with a twisted beak, a fiddle-shaped scale, and often has wider leaves. Eastern woodland sedge has a long-sheathing bract like eastern narrowleaf sedge, but Back's sedge does not.

See Tables 8–11 in Appendix A to compare eastern narrowleaf sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.

Other names: *Carex amphibola* Steudel var. *turgida* Fernald 1942.



Culms taller than or equal to basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, aphyllopodic. Bunch. Bract below lowest spike leaf-like, setaceous, scale-like or none, shorter than inflorescence.

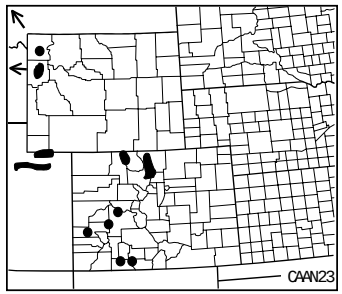
Leaves ½–4 mm wide.

Spikes 2–5, few-flowered, about as long as wide, the perigynia spreading. Terminal spike gynaecandrous, lower spikes pistillate. Upper and lower spikes appear the same, lower spikes separated by a distance 1–3 × length of spike, lower spike sessile or nearly so. Spikes with 1–20 pistillate flowers.

Scale light in color, perigynium light-margined with dark middle. Pistillate scale narrower and shorter than perigynium.

Perigynium shape ovate-ovoid or lanceolate, plano-convex, concave with long or very long taper, broadest in lower $^1/_3$, 2–5 mm long and ½–2 mm wide. Perigynium beak serrulate and sometimes narrowly winged, ½–1 × body. Perigynium body not winged, tip deeply bidentate, spongy at base. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region scattered populations in moist meadows of the Subalpine Zone and Montane Zone in mountains of CO and nw WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY). Key C.





There are two other sedges of the mountains that have small, sessile, few-flowered spikes with spreading perigynia and narrow leaves. Inland sedge (*C. interior*) looks a lot like prickley sedge, but has an ovate, darker, shallowly bidentate perigynium. Western sedge (*C. occidentalis*) has an ovate, lighter-colored perigynium nearly covered by the scale.

See Tables 14–19 in Appendix A to compare prickley sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

Prickley sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

Other names: *Carex echinata* J. A. Murray 1773, a species of Europe and eastern North America. "*Carex muricata*" and "*Carex stellulata*" of American reports.



Culms taller than or equal to basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, phyllopodic. Bunch or long rhizomes. Bract below lowest spike leaf-like, longer than or equal to inflorescence, sometimes with black or purple-black auricles.

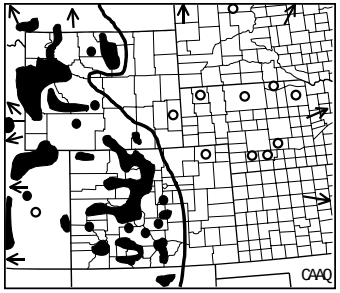
Leaves 2–10 mm wide. Leaves stiff, W-shaped in cross-section. Leaf sheaths sometimes pubescent, leaves sometimes glaucous. Ligule triangular.

Spikes 2–10, slender and long. Terminal spike staminate, lower spikes androgynous or pistillate. Upper and lower spikes appear different, lower spikes separated by a distance ¼–1 × length of spike, lower spike sessile or on a short peduncle ¼–½ × length of spike. Spikes with 20–100 pistillate flowers.

Scale dark with light midrib, perigynium light green in color, spikes usually bicolored green-and-black. Pistillate scale narrower and shorter than perigynium.

Perigynium shape obovate-obovoid or elliptic-oblong, tip convex with curved or triangular shape, 1½–4 mm long and 1–2½ mm wide. Perigynium not winged, not nerved. Stigmas 2.

In Rocky Mountain Region common in open, unshaded, cold, wet sites in the Subalpine zone (or, less commonly, montane zone) in mountains of w CO and w WY, always in or near water table, very commonly associated with low willows (such as planeleaf willow or Wolf's willow) (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Key C. I believe the records from ne CO, SD, NE, and far eastern WY are misidentifications.



Water sedge usually occupies cold, wet sites; in the mountains it is often seen in colder (or higher elevation) sites than beaked sedge (*C. utriculata*) or woolly sedge (*C. lanuginosa*); sometimes two or more of these species occur together. It can be distinguished from beaked sedge (*C. utriculata*) by the narrower leaves, colder sites (that are just as wet), and bicolored spikes. It can be distinguished from woolly sedge (*C. lanuginosa*) by the glabrous perigynia and ascending (not spreading) bracts.



See Tables 4–7 in Appendix A to compare water sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season. See Tables 30–31 in Appendix A to compare water sedge with other tall rhizomatous wetland sedges in the high mountains with staminate over pistillate spikes. See Tables 32–33 in Appendix A to compare water sedge with other tall bunch or short-rhizome wetland sedges in the high mountains with staminate over pistillate spikes.

Management. Moderately palatable to livestock (cattle and sheep) and to elk and deer; but rarely grazed by cattle or sheep because of the wet sites. Water sedge in good condition and some quantity is an indicator of a healthy perennial water table and generally healthy riparian system.

Other names: *Carex stans* Drejer 1841. *Carex aquatilis* Wahlenberg var. *altior* (Rydberg) Fernald 1942. *Carex aquatilis* Wahlenberg ssp. *stans* (Drejer) Hultén 1962.



A typical head of water sedge (*C. aquatilis*). One to several staminate spikes above several bicolored pistillate spikes.



Culms taller than basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike none or scale-like.

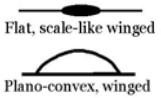
Leaves 1–4 mm wide.

Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spikes closely adjacent to next spike, lower spike sessile or nearly so. Spikes with 10–50 pistillate flowers, with several layers of papery staminate bracts at base of spike.

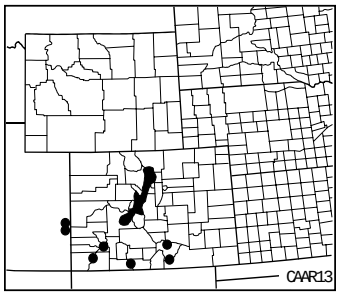
Scale medium in color, perigynium medium in color. Pistillate scale with narrow hyaline margins above, covering perigynium.



Perigynium shape obovate-obovoid, broadest in the middle 1/3, tip concave with short taper, 4–6 mm long and 2–3 mm wide. Perigynium winged to base; beak flat, winged, and serrulate to apex. Perigynium finely nerved. Stigmas 2.



In Rocky Mountain Region occasional populations in dry to moist rocky places in the Alpine Zone and high Subalpine Zone in the mountains of c & s CO and e UT (in western U.S.: CO, MT, UT). Key C.





Arapaho sedge can be confused with several other medium-colored, close-headed bunch sedges with scale covering the perigynium. Chamisso sedge (*C. pachystachya*) is similar, but has a darker head and occurs at lower elevations. Broadscale sedge (*C. platylepis*), a sedge of northwestern Wyoming, sometimes has a longer, more interrupted head, but is otherwise very similar. Jones's sedge (*C. jonesii*) has androgynous spikes, a much tighter head, and sometimes has long rhizomes. Arapaho sedge was once thought to occur in Wyoming, but there it has been merged with the closely-related thickhead sedge (*C. macloviana*), which has a smaller scale, shorter perigynium, and sometimes darker head.

Arapaho sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.



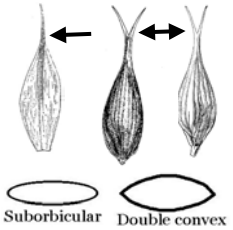
Culms taller than or equal to basal leaves, sometimes nodding or flexuous or spikes hanging, aphyllopodic. Long rhizomes. Bract below lowest spike leaf-like, longer than inflorescence.

Leaves often broad, 2–12 mm wide. **Leaf sheaths pubescent with long, soft hairs**, lower leaf sheaths sometimes filamentose. Leaf ligule longer than wide.

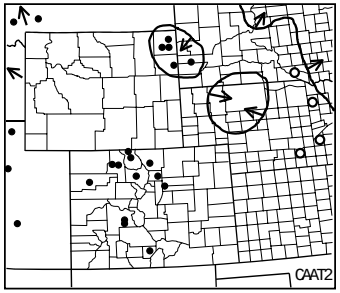
Spikes 2 – 10. Terminal spike staminate, lower spikes androgynous or pistillate. Upper and lower spikes appear different, lower spikes separated by a distance 1–3 × length of spike, lower spike sessile or nearly so. Spikes with 30–100 pistillate flowers.

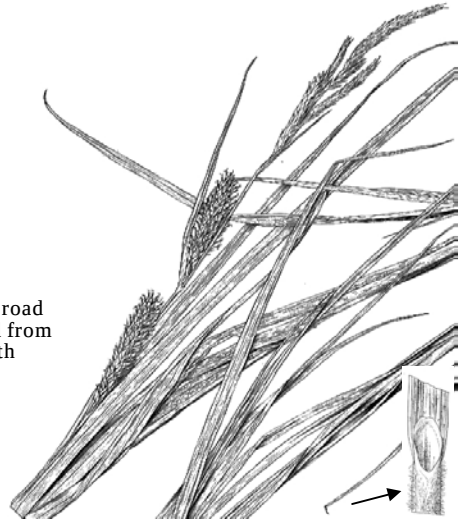
Scale **usually awned**, light to medium in color, perigynium light yellow-green to brown. Pistillate scale narrower and shorter than perigynium, awned with a serrulate awn.

Perigynium glabrous, inflated, ovate-ovoid or lanceolate, concave with very long taper, 6½–11 mm long and 1½–2½ mm wide, **tip with widely divergent teeth** 1–3 mm long, ± equal to rest of beak. Perigynium not winged. Perigynium nerved or ribbed. Stigmas 3.



In Rocky Mountain Region moderately common in wet to very wet, open sites (marshes, wet meadows, ditches, stream banks) in foothills and plains around the edges of the Black Hills in WY and SD and in nw NE; scattered in valleys and lower Montane Zone of n & c CO (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Keys A, B, C.





Slough sedge is a large plant, often with broad leaves, of wetlands. It is distinguished from most broad-leaved wetland sedges with staminate over pistillate spikes, by its soft-pubescent leaf sheaths, long perigynium beak teeth, and awned scale. Longhair sedge (*C. comosa*) has a scale with a very long awn, the perigynium beak teeth are curved outward, and the lowest spike is dangling when mature on a short peduncle.

See Tables 4–7 in Appendix A to compare slough sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season. See Tables 34–35 in Appendix A to compare slough sedge with other tall long-rhizomatous wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.

Other names: *Carex aristata* R. Brown 1823.





Culms taller than basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike leaf-like, **longer than inflorescence**.

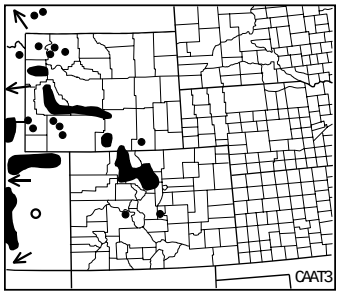
Leaves 1–6 mm wide.

Spikes 2–20. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spikes closely adjacent to next spike, lower spike sessile or nearly so. Spikes with 20–30 pistillate flowers.

Scale light to medium brown, perigynium light to medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium shape ovate-ovoid or lanceolate, tip concave with long taper, usually conspicuously bidentate, 3–5 mm long and 1–2 mm wide. Perigynium serrulate and winged to base, spongy at base; beak slender and terete. Perigynium nerved or ribbed. Stigmas 2.

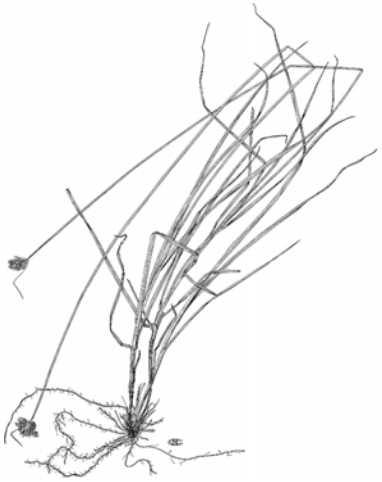
In Rocky Mountain Region moderately common on dry to moist margins of meadows and sloughs in valleys of n CO and w WY (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Key C.



The long bract of *slenderbeak sedge* is usually diagnostic. As Fritts (1996) notes, the long bract is not always present, but a quick look at other plants of the species in the habitat will usually yield several with long bracts.



Slenderbeak sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.



Culms taller than or equal to basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, aphyllopodic or phyllopodic. Bunch. Bract below lowest spike leaf-like, longer or shorter than inflorescence, sometimes with black or purple-black auricles, sometimes sheathing >3 mm.

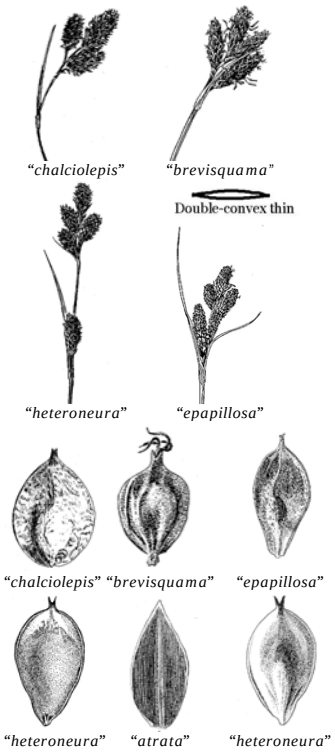
Leaves 2–8 mm wide, lower leaf sheaths sometimes filamentose ventrally.

Spikes 2–10. Terminal spike gynaecandrous, lower spikes pistillate. Upper and lower spikes appear the same, lower spikes separated by a distance ¼–5 × length of spike, lower spike on a peduncle ½–1 × length of spike. Spikes with 30–100 pistillate flowers.

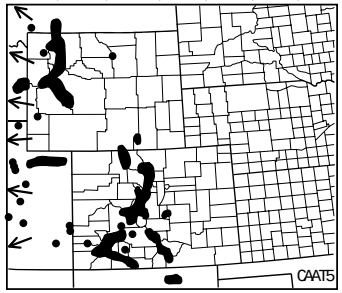
Scale black with very narrow lighter margins and midrib, perigynium light to medium in color. Pistillate scale covering or narrower or shorter than perigynium.

Perigynium not inflated, ovate-ovoid or obovate-obovoid or elliptic-oblong or orbicular-suborbicular, tip convex with curved or triangular shape, 2½–5 mm long and 1½–3 mm wide. Perigynium not winged, but short-abrupt-beaked. Stigmas 3.

Management. This sedge provides significant soil- and water-holding characteristics, as well as sometimes indicating good riparian condition.



In Rocky Mountain Region common in subalpine meadows, Alpine slopes, and edges of meadows, dry to moist, in mountains of w CO and nw & se WY; less common in the Big Horn Mountains in nc WY (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Key C.



Black sedge is commonly found in moist to dry Alpine situations, especially in the Alpine belt just above timberline. It is fairly easy to distinguish with its dark scale contrasting with lighter perigynium. Blackhead sedge (*C. albo-nigra*) has a dark perigynium and scale that covers the perigynium. Blackened sedge (*C. atrosquama*) has a light-colored perigynium, but the perigynium is narrower and lanceolate, and the plant occurs at somewhat lower elevations.

See Tables 8–11 in Appendix A to compare black sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.

Other names: different nerve sedge, bronzescale sedge. *Carex atrata* Linnaeus var. *erecta* Boott 1880. *Carex heteroneura* W. Boott 1880. *Carex chalciolepis* Holm 1903. *Carex atrata* Linnaeus var. *chalciolepis* (Holm) Kükenthal 1909. *Carex epapillosa* Mackenzie 1917. *Carex heteroneura* W. Boott var. *epapillosa* (Mackenzie) F. J. Hermann 1968. *Carex heteroneura* W. Boott var. *brevisquama* F. J. Hermann 1968. *Carex heteroneura* W. Boott var. *chalciolepis* (Holm) F. J. Hermann 1968.



"chalciolepis"



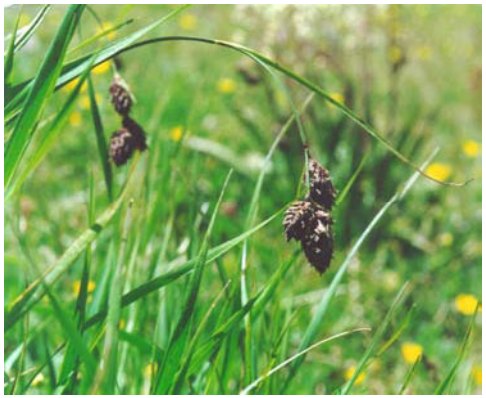
"brevisquama"



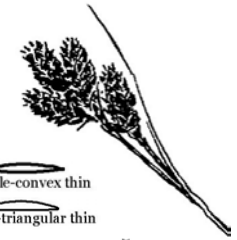
"chalciolepis"



The growth habit of black sedge,
with drooping heads, in the Alpine



One of the drooping heads of black sedge.
As the perigynia become heavier,
then the stems begin to hang down





Culms taller than basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, phyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like or setaceous, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

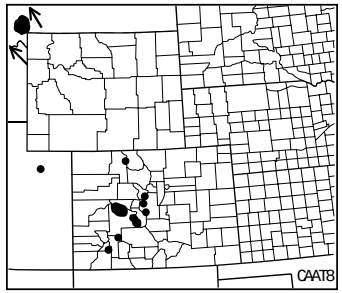
Leaves 1–6 mm wide, lower leaf sheaths sometimes filamentose ventrally.

Spikes 2–5. Terminal spike gynaecandrous, lower spikes pistillate. Upper and lower spikes appear the same, lower spikes separated by a distance ¼–3 × length of spike, lower spike on a peduncle ½–2 × length of spike. Spikes with 10–50 pistillate flowers.

Scale black, perigynium light to medium green. Pistillate scale narrower and shorter than perigynium.

Perigynium flat, only slightly inflated, elliptic-oblong, tip convex with triangular shape, 3–4 mm long and 1½–2 mm wide. Perigynium not winged, beak short and abrupt. Stigmas 3.

In Rocky Mountain Region occasional in open meadows of Alpine zone or upper subalpine zone in mountains of w CO (in western U.S.: CO, ID, MT, OR, UT, WA, WY). Habitat dry to moist. Key C.



Blackened sedge is fairly easy to distinguish with its dark scale contrasting with lighter perigynium. Black sedge (*C. atrata*) is closely related; it has a light-colored perigynium, but the perigynium is broader and obovate, and the plant occurs at somewhat higher elevations. Blackhead sedge (*C. albo-nigra*) has a dark perigynium and scale that covers the perigynium.

Other names: lesser blackscale sedge.



Culms < 4 dm tall, shorter than or equal to basal leaves, erect, producing long-pedunculate carpellate spikes from the plant base, phyllopodic or aphyllopodic. Long rhizomes. Bract below lowest spike leaf-like, longer or shorter than inflorescence, sheathing >3 mm.



Leaves 1–6 mm wide.

Spikes 2–10. Terminal spike gynaecandrous or staminate, lower spikes pistillate. Upper and lower spikes appear different, lower spikes separated by a distance 3–5 × length of spike, lower spike on a long peduncle 1–2 × length of spike. Spikes few-flowered, with 1–10 pistillate flowers.

Scale whitish-green, perigynium **light orange to yellow-green to yellow-brown**. Pistillate scale narrower and shorter than perigynium.

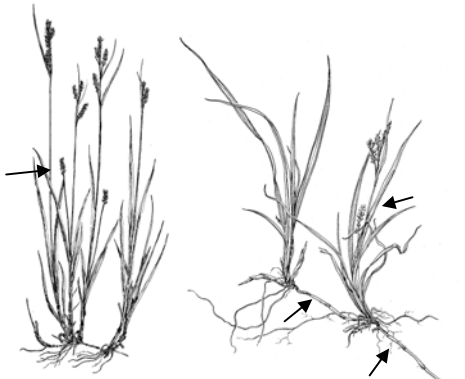


-----"*aurea*"---- "*hassei*" "*aurea*"

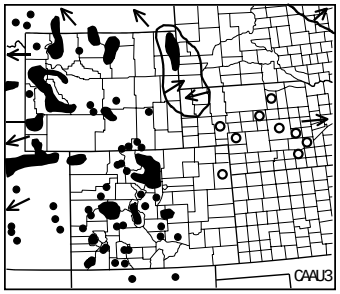
Perigynium **inflated**, obovate-obovoid or elliptic-oblong or orbicular-suborbicular, tip convex with curved shape, 2–3½ mm long and 1–2 mm wide. Perigynium not winged, beak minute to short to none. Perigynium nerved or ribbed. Stigmas 2.

Golden sedge is easily identified. It is a small rhizomatous plant of wet to moist areas, light green to yellow-green, with long-peduncled pistillate spikes at the base. The perigynium is inflated and often yellowish-orange. Other names: golden-fruited sedge, salt sedge. *Carex aurea* Nuttall var. *androgyna* Olney 1871. *Carex hassei* L. H. Bailey 1896.

In Rocky Mountain Region common on moist or wet margins of meadows, canyon streams, or wetlands, often in partial or deep shade, most common in the lower mountains and foothills of w CO, throughout WY, the Black Hills and sw foothills of SD, and nw NE; less commonly in the lower Subalpine Zone higher on the same mountains (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Keys A, B, C.



"*hassei*" "*aurea*"





A typical plant of golden sedge, in a shaded site, with inflated, light-colored perigynia



Culms shorter than basal leaves, erect, aphyllopodic or phyllopodic. Bract below lowest spike none or scale-like.

Leaves 2–6 mm wide.

Spikes 1 – 5. Spikes all androgynous. Upper and lower spikes appear the same, **lowest spikes long-separated, long-pedunculate, basal**. Spikes few-flowered, with 1–10 pistillate flowers.

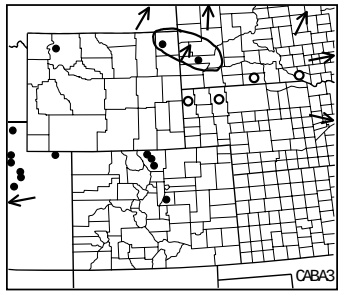
Scale light to medium in color, perigynium light to medium in color. **Pistillate scale leaf-like, much longer than and covering perigynium**.

Perigynium shape ovate-ovoid, tip concave with long taper, 5–6½ mm long and 2½–3 mm wide. Perigynium not winged, sometimes spongy at base or along sides. Perigynium nerved or ribbed. Stigmas 3.

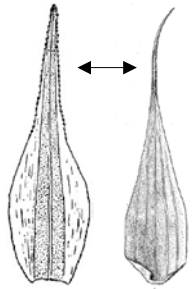


"*saximontana*" "*backii*"

In Rocky Mountain Region uncommon to occasional in dry sites in the lower mountains and foothills of the Black Hills in WY and SD, of the east slope of the Front Range in ne CO, and in nw NE; few sites in nw WY (in western U.S.: CO, OR, WA, WY). Bunch or mat-forming by short rhizomes. Key A, Key B, Key C.



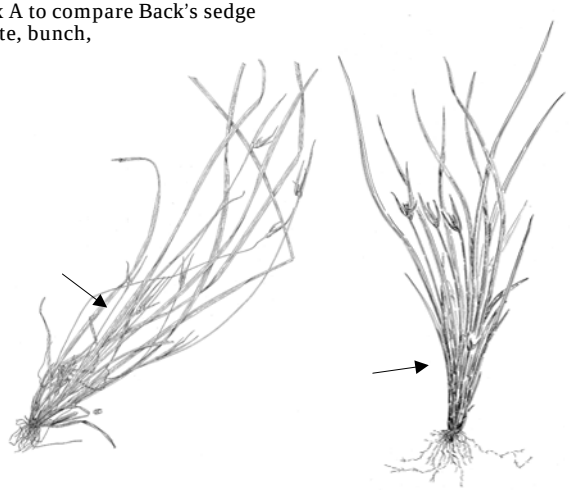
Back's sedge is a plant of dry sites, with long-peduncled pistillate spikes at the base of the plant. The long, leaf-like scales that look like long bracts, are unique in our Region.



Scales

See Tables 26–27 in Appendix A to compare Back's sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

Other names: Rocky Mountain sedge. *Carex durifolia* L. H. Bailey 1893. *Carex saximontana* Mackenzie 1906. *Carex durifolia* var. *subrostrata* Bates 1914. *Carex backii* Boott var. *subrostrata* (Bates) Dorn 1988.





Culms taller than basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike leaf-like, setaceous, scale-like or none, shorter than inflorescence.

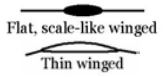
Leaves 1–6 mm wide.

Spikes 2–20. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spike very close to next spike or separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 20–30 pistillate flowers.

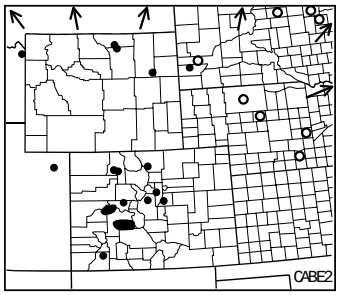
Scale medium in color, perigynium medium green to brown in color. Pistillate scale narrower and shorter than perigynium.



Perigynium shape thin, flat, ovate-ovoid, tip concave with short or long taper, 2½–4 mm long and 1–2½ mm wide. Perigynium narrowly winged to base; beak flat, winged, and serrulate to apex. Perigynium finely many-nerved. Stigmas 2.



In Rocky Mountain Region uncommon in moist sites in the Subalpine Zone or Montane Zone of mountains or in foothills or on plains, in c CO, ne WY, the Black Hills of SD, and c & nw NE (in western U.S.: AZ, CO, ID, MT, OR, UT, WA, WY). The habitat for this species seems unusually broad, and the sparseness of its distribution is difficult to explain. Key A, Key B, Key C.



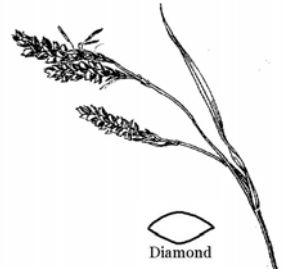


The head of Bebb's sedge



Bebb's sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Bebb's sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.





Culms taller than basal leaves, phyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, about equal to inflorescence, sometimes with black or purple-black auricles, long-sheathing >3 mm.

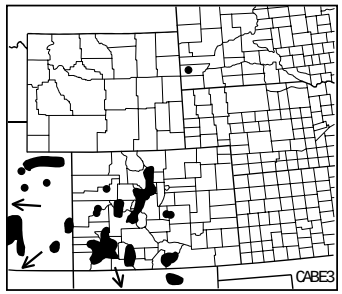
Leaves sometimes broad, 2–8 mm wide.

Spikes 2–5. Spikes all gynaecandrous, **nodding at maturity**. Upper and lower spikes appear the same, lower spikes separated by a distance 1–3 × length of spike, lower spike **on a long peduncle** 1–2 × length of spike. Spikes with 10–30 pistillate flowers.

Scale dark purplish brown or purplish black, with conspicuous white-hyaline margins; perigynium light greenish white to green in color. Spikes **usually conspicuously bicolored**. Pistillate scale narrower and shorter than perigynium.

Perigynium obovate-obovoid or elliptic-oblong or orbicular-suborbicular, tip convex with curved or triangular shape, 3–4½ mm long and 1½–2½ mm wide. Perigynium not winged, beak abrupt, minute to short. Stigmas 3.

In Rocky Mountain Region common in moist aspen stands and on moist open slopes in the Montane Zone or lower Subalpine Zone in the mountains of c & s CO; few sites in the s Black Hills of SD (in western U.S.: AZ, CO, NM, UT). Key B, Key C.



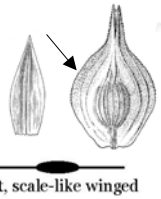
Beautiful sedge is distinguished by its bicolored black and green, nodding, peduncled spikes, in moist sites of the Montane Zone and lower Subalpine Zone.

See Tables 8–11 in Appendix A to compare beautiful sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.

Other names: showy sedge.







Flat, scale-like winged

Culms taller than basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike none or leaf-like, shorter or longer than inflorescence.

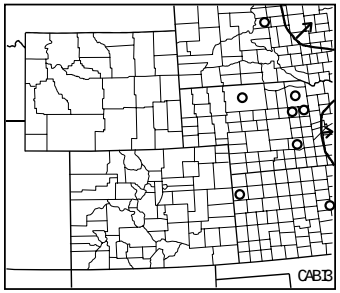
Leaves 2–6 mm wide. Leaf sheaths sometimes pubescent.

Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spikes separated by a distance ¼–3 × length of spike, lower spike sessile or nearly so. Spikes with 10–20 pistillate flowers.

Scale light to medium in color, perigynium light to medium straw-colored. Pistillate scale narrower and shorter than perigynium.

Perigynium body orbicular-suborbicular, tip concave with short taper, 5–8½ mm long and 2½–5 mm wide, about twice as long as wide. Perigynium serrulate and **broadly winged**; beak flat, winged, and serrulate to apex. Perigynium strongly nerved. Stigmas 2.

In Rocky Mountain Region dry to moist "prairies and woods" (FGP) of foothills and plains of cw SD, nw NE, and w KS (in western U.S.: NM). Key A.



Bicknell's sedge is very close to fescue sedge (*C. brevior*), but differs from it in its wider and longer perigynia. Both species occur in western South Dakota, western Nebraska, and western Kansas.

Bicknell's sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.



Culms taller than or equal to basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike leaf-like or setaceous, longer or shorter than inflorescence, sometimes sheathing >3 mm.

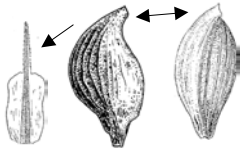
Leaves **often broad**, 3–15 mm wide.

Spikes 2–10. Terminal spike staminate or androgynous, lower spikes pistillate. Upper and lower spikes appear different, lower spikes widely separated by a distance >5 × length of spike, lower spike on a long peduncle >2 × length of spike. Spikes with 1–30 pistillate flowers. Bract long-sheathing, > 3 mm.

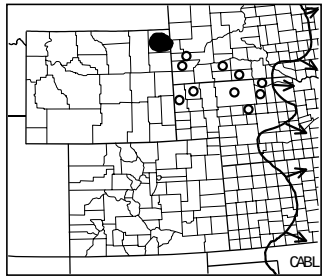
Scale light greenish-white, perigynium light yellow-green. Pistillate scale **fiddle shaped**, white-hyaline with a darker midrib, awned, narrower and shorter than perigynium.

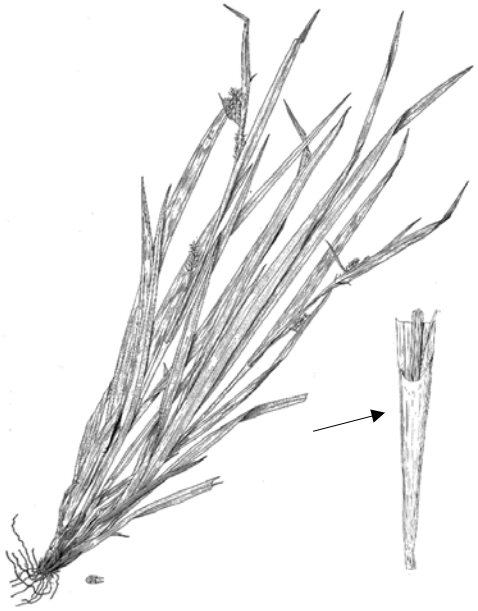
Perigynium ovate-ovoid or obovate-obovoid or elliptic-oblong, **tip ("beak") bent and recurved**, 3–4½ mm long and 1–2 mm wide. Perigynium not winged. Perigynium nerved or ribbed. Stigmas 3.





In Rocky Mountain Region moderately common on wooded banks and slopes, dry to moist sites, in and around the Black Hills and its foothills of ne WY and w SD, and on foothills or plains in sw SD and nw NE (in western U.S.: NM, WY). Key A, Key B.





Eastern woodland sedge is a broad-leaved, staminate over pistillate bunch plant of dry to moist, shaded sites. Its small perigynium with bent beak and fiddle shaped scale are diagnostic. Eastern narrowleaf sedge (*C. amphibola*) has narrower leaves, few pistillate flowers, and bract clearly exceeding the inflorescence. Other broad-leaved species with these characteristics are plants of wet areas.

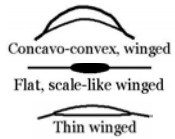
See Table 3 in Appendix A to compare eastern woodland sedge with other sedges that have leaves 12 mm wide or wider. See Tables 8–11 in Appendix A to compare eastern woodland sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas. Other names: *Carex laxiflora* Lamarck var. *blanda* (Dewey) F. Boott 1858.



Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like or setaceous, scale-like or none, shorter than inflorescence.

Leaves 1–6 mm wide.

Spikes obovate (wider near tip), 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spikes ± separated by a distance ¼–1 × length of spike, lower spike sessile or on a short peduncle. Spikes with 10–20 pistillate flowers.

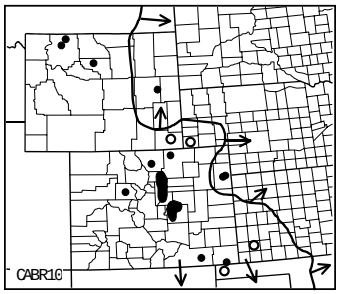


Scale light to medium in color, perigynium light greenish-white to medium green. Pistillate scale narrower and somewhat shorter than perigynium.

Perigynium body orbicular-suborbicular, about as wide as long, tip concave with short taper, 3½–5½ mm long and 2½–3½ mm wide. Perigynium serrulate and winged; beak flat, winged, and serrulate to apex. Perigynium nerved or ribbed. Stigmas 2.

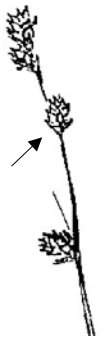


In Rocky Mountain Region common on dry to moist open sites along the east bases of the Front Range, Absorokas, and other mountain ranges in n & s CO and nw WY; also less commonly on mountains, foothills, or plains in SD, NE, and KS, where it sometimes occurs in shaded sites (in western U.S.: AZ, CO, ID, MT, NM, OR, WA, WY). Key A, Key B, Key C.





Fescue sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.



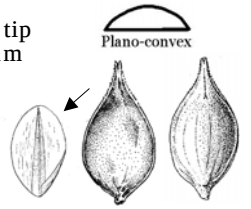
Culms taller than basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, phyllopodic or aphyllopodic. Bunch. Bract below lowest spike leaf-like, setaceous, scale-like or none, shorter than inflorescence.

Leaves often narrow (1–2½ mm wide), ranging ½–6 mm wide.

Heads simple, with 1 spike per node.

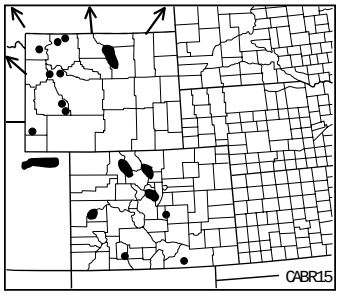
Spikes 5–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spikes separated by a distance 1–5 × length of spike, lower spike sessile or nearly so. Spikes few-flowered, with 5–10 pistillate flowers.

Scale ovate, white-hyaline with a thin green midrib, usually light colored; perigynium light in color. Pistillate scale shorter than perigynium.



Perigynium ovate-ovoid or elliptic-oblong, plano-convex, tip concave with short taper, 1½–3 mm long and 1–1½ mm wide. Perigynium beak serrulate, not winged, beak 0.5–0.7 mm long (¼–½ × body). Perigynium lightly nerved. Stigmas 2.

In Rocky Mountain Region in scattered shaded sites, moist or dry, in the mountains of CO and nc-nw WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY). Key C.





Brownish sedge is similar to several other narrow leaved bunch sedges of dry to moist, shaded sites in Area C, with sessile, separated, few-flowered lower spikes. It can be distinguished from most of them by the blunt, hyaline scale, and lower spike that is gynaecandrous. Prickley sedge (*C. angustior*) and inland sedge (*C. interior*) have spreading perigynia and pistillate lower spikes. Cusick's sedge (*C. cusickii*) has a compound head. Dewey sedge (*C. deweyana*) usually has more flowers and a scale that covers the perigynium body. Soft-leaved sedge (*C. disperma*) has lighter colored perigynium with a very short beak. Smooth-stem sedge (*C. laeviculmis*) has weak stems and a darker scale.

See Tables 14–19 in Appendix A to compare brownish sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

Brownish sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. These species are compared and contrasted in Table 2 in Appendix A.

Other names: *Carex curta* Goodenough 1794 var. *brunnescens* Persoon 1807.



Culms taller than basal leaves, erect, aphyllopodic. **Long rhizomes.** I
lowest spike leaf-like, longer or shorter than inflorescence, sometin
black or purple-black auricles.

Leaves sometimes narrow (2–3 mm wide), ranging 1–6 mm. Leaves sc
glaucous, lower leaf sheaths filamentose.

Spikes 2–5. Terminal spike gynaecandrous, lower spikes pistillate. Upp
lower spikes appear the same, lower spikes ± separated by a distan
length of spike, lower spike sessile or nearly so. Spikes with 10–50
flowers.

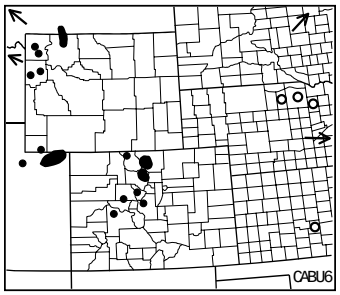
Scale dark with a narrow lighter midrib, awned; perigynium light to m
color. Pistillate scale about the same length or longer than perigyni
covering it.



Perigynium obovate-obovoid or elliptic-oblong, tip convex with tr
2½–4½ mm long and 1½–2½ mm wide.
Perigynium not winged, beak minute to very small, ±
0.2 mm long. Perigynium finely nerved. Stigmas 3.



In Rocky Mountain Region wet to moist aspen stands and wet meadows in the Montane Zone and Subalpine Zone of n & c CO and nw-sw WY; known from c NE to the east of the Region (in western U.S.: CA, CO, ID, MT, OR, UT, WY). Key C.





Buxbaum's sedge's head usually appears dark, or slightly bicolored. It can be distinguished from other black-headed long-rhizomatous wet to moist-site sedges of the mountains, by its similar upper and lower spikes and short-beaked perigynium. Water sedge (*C. aquatilis*), Nebraska sedge (*C. nebrascensis*), and Emory's sedge (*C. emoryi*) have different pistillate lower spikes and often occur in open wetlands. Woolly sedge (*C. lanuginosa*) and woollyfruit sedge (*C. lasiocarpa*) have different pistillate lower spikes, often occur in open wetlands, and have pubescent perigynia. Mud sedge (*C. limosa*) and russet sedge (*C. saxatilis*) have a long peduncle on the lower spike.

Buxbaum's sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

See Tables 30–31 (high mountains) or 34–35 (lower mountains, foothills, plains) in Appendix A to compare Buxbaum's sedge with other tall rhizomatous wetland sedges with staminate over pistillate spikes.

Culms taller than or equal to basal leaves, erect, phyllopodic or aphyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, setaceous, scale-like or none, shorter than inflorescence.

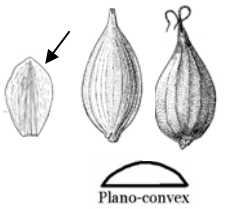


Leaves usually 2–4 mm wide, ranging 1–6 mm wide. Leaves glaucous.

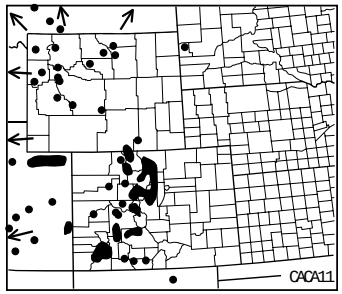
Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike ± separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

Scale light in color, hyaline with a broad green center, perigynium light in color. Pistillate scale narrower and shorter than perigynium.

Perigynium ovate-ovoid or elliptic-oblong, plano-convex, tip concave with short taper, 1½–3½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, sometimes serrulate, short-beaked (< ½ mm long). Perigynium nerved or ribbed. Stigmas 2.



In Rocky Mountain Region common in open, wet sites, shores and wetlands in the Subalpine and Montane Zones of w CO and nc-w WY; few sites in the Black Hills of SD (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Key B, Key C.



There are not many wetland sedges with light to medium colored, gynaecandrous spikes in the mountains. Twolipped sedge (*C. lachenalii*) has a medium colored scale with narrow hyaline margins. Broom sedge has more flowers, wider spikes and a winged perigynium. Manyhead sedge (*C. sychnocephala*) has several bracts much longer than the inflorescence and a long, narrow, winged perigynium.

Other names: gray sedge, silvery sedge. *Carex lapponica* O. F. Lang 1851.

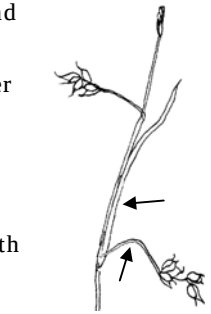


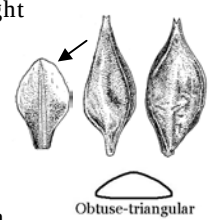


Pale sedge growing in an iron fen
(photos courtesy Gay Austin)



The head from one of the
plants at the left





Culms taller, less than, or shorter than basal leaves, stems and peduncles weak and drooping or hanging off adjacent vegetation, phyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like or setaceous, longer or shorter than inflorescence, bract long-sheathing >3 mm.

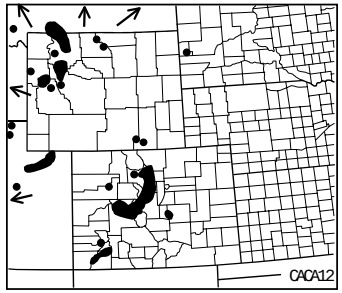
Leaves often narrow, ½–4 mm wide, lower leaf sheaths sometimes filamentose.

Spikes 2–5, short (< 9 mm long). Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–5 × length of spike, lower spike on a long peduncle >2 × length of spike. Spikes few-flowered, with 1–20 pistillate flowers.

Scale with rounded hyaline tip, light in color; perigynium light in color, so spikes often nearly invisible against associated vegetation. Pistillate scale shorter than perigynium.

Perigynium ovate-ovoid or lanceolate, tip concave with short taper, 2–4½ mm long (including beak and stipe) and ½–1½ mm wide. Perigynium beak serrulate, not winged, > ½ mm long. Stigmas 3.

In Rocky Mountain Region common on wet, shaded sites on stream banks and willow stands in the Subalpine Zone and upper Montane Zone of nc-sw CO and nw WY, commonly rooted in mosses; also known from a few sites in the Black Hills of SD (in western U.S.: CO, MT, NM, NV, OR, UT, WY).



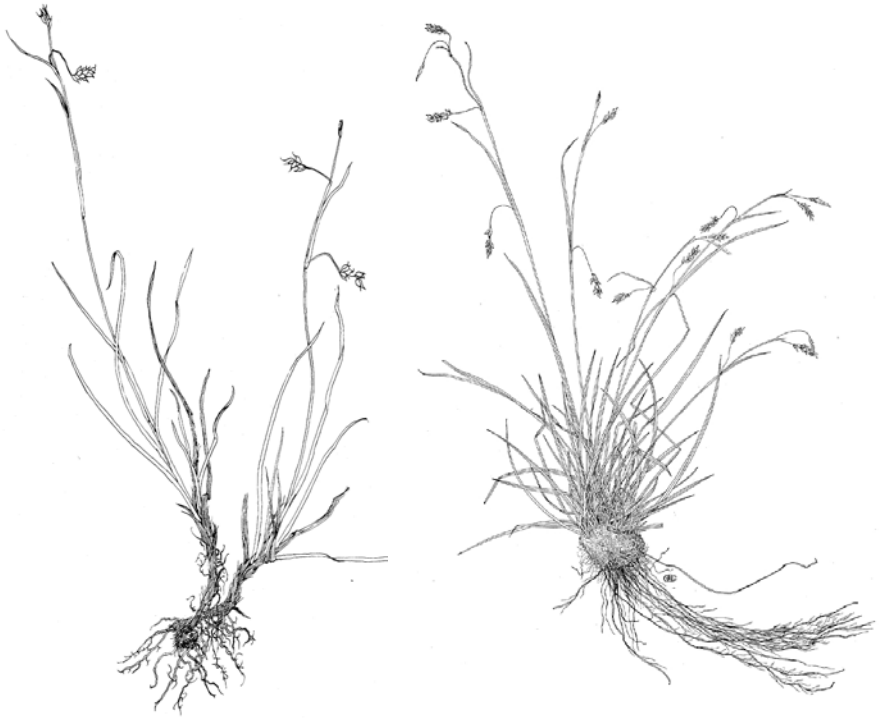
Hair sedge is easily distinguished from other wetland sedges by its stature, weak stems that hang off adjacent vegetation, and few-flowered inconspicuous spikes that droop on long peduncles.

See Tables 12–13 in Appendix A to compare hair sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season. See Tables 32–35 in Appendix A to compare hair sedge with other tall wetland sedges with staminate over pistillate spikes.

Other names: hairlike sedge. *Carex capillaris* Linnaeus var. *elongata* Olney 1902. *Carex capillaris* Linnaeus ssp. *chlorostachys* (Steven) Löve et al. 1957.



Hair sedge, showing the weak stems, hardly visible against surrounding vegetation, and dangling spikes





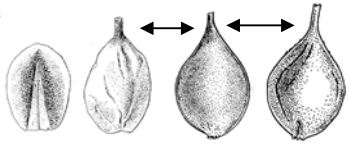
Culms taller than or equal to basal leaves, erect, aphyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike none or scale-like.

Leaves **narrow**, ½–2 mm wide.

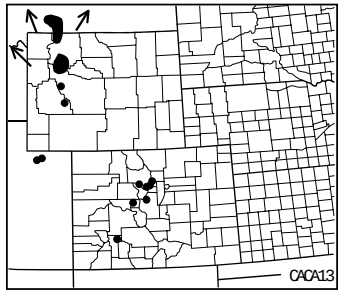
Spike **solitary**, shiny brown or black, **short and broad** globose or triangular, androgynous, few-flowered, with 1–20 pistillate flowers.

Scale rounded, hyaline with broad darker middle, medium to dark in color, perigynium medium to dark in color. Pistillate scale covering or narrower or shorter than perigynium.

Perigynium ovate-ovoid or orbicular-suborbicular, plano-convex, tip convex with triangular shape, 1½–4 mm long (including beak) and 1–2½ mm wide. Perigynium prominently beaked, not winged. Stigmas 2.



In Rocky Mountain Region local in **Alpine wetlands**, several populations scattered through the high mountains of c-sw CO and nw WY (in western U.S.: CA, CO, MT, NV, OR, UT, WA, WY). Key C.





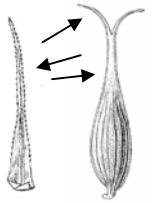
There are not many like *capitate sedge*, a wetland sedge of the Alpine with narrow leaves and a single, broad, medium to dark colored spike. Twolipped sedge (*C. lachenalii*) sometimes has a single spike, but has an ovate spike, broadest about the middle, with more flowers. Black alpine sedge (*C. nigricans*) has a longer, narrower perigynium. Northern singlespike sedge (*C. scirpoidea*) has a long cylindrical spike. Nearlyblack sedge (*C. subnigricans*) has a narrower spike and usually has more flowers. Engelmann's sedge (*C. engelmannii*) has a broad head, an acute scale, and a very thin perigynium.See Tables 12–13 in Appendix A to compare capitate sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season.

See Tables 20–21 in Appendix A to compare capitate sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

Other names: *Carex arctogena* H. Smith 1940. *Carex capitata* Linnaeus ssp. *arctogena* (H. Smith) Böcher 1952.







Culms triangular, winged on the angles, taller than or equal to basal leaves, erect, phyllopodic. Bunch. Bract below lowest spike leaf-like, much longer than inflorescence.

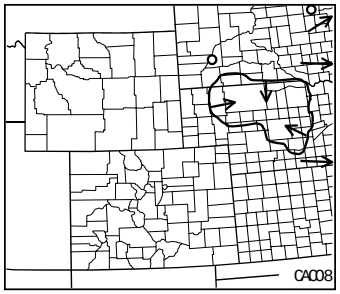
Leaves often very wide, 6–16 mm wide.

Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance ¼–1 × length of spike, lower spike on a short peduncle ¼–½ × length of spike, lower spikes hanging or dangling. Lower perigynia reflexed in the spike. Spikes with 50–150 pistillate flowers.

Scale long and narrow, serrulate-awned, light to medium in color, perigynium light to medium yellow-green. Pistillate scale narrower and shorter than perigynium.

Perigynium shining, lanceolate, tip concave with long taper, 5–8 mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, beak long with long-curved teeth (teeth 1½–2 mm long). Perigynium strongly 12–17–nerved. Stigmas 3.

In Rocky Mountain Region in "wet meadows, swamps," (FGP) and sloughs, nw-c NE; few sites in sw SD (in western U.S.: CA, ID, OR, WA). Key A.





Longhair sedge is a large plant with broad leaves of wetlands. It is distinguished from most broad-leaved wetland sedges with staminate over pistillate spikes, by its long divergent perigynium beak teeth and long-awned scale. Slough sedge (*C. atherodes*) has a longer perigynium with straight teeth, the lowest spike is sessile and ascending, and the scale has a shorter awn.

See Table 3 in Appendix A to compare longhair sedge with other sedges that have leaves 12 mm wide or wider. See Tables 4–7 in Appendix A to compare longhair sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season.





Culms taller than basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, phyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like, sometimes sheathing >3 mm.

Leaves often narrow (2–3 mm wide), ranging 1–4 mm wide, lower leaf sheaths sometimes filamentose ventrally.

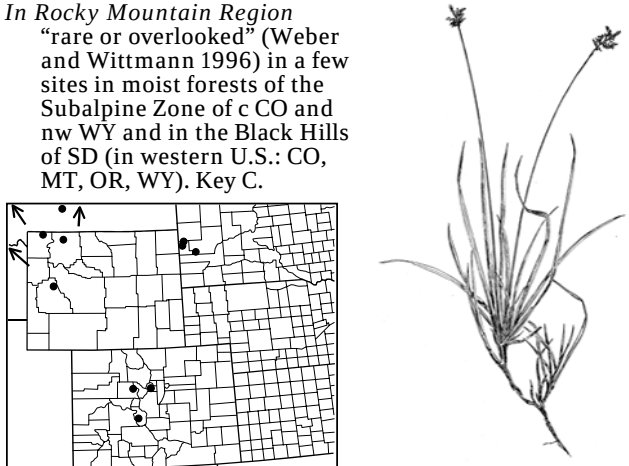
Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike slightly separated by a distance ¼–1 × length of spike, lower spike sessile or on a peduncle up to 2 × length of spike. Spikes relatively few-flowered, with 1–20 pistillate flowers.



Scale obtuse, ciliate, puberulent, dark to medium in color, perigynium medium red-brown. Pistillate scale narrower and shorter (about ½) than perigynium.

Perigynium shape obovate-obovoid or elliptic-oblong, tip convex with triangular shape, 2½–4 mm long (including beak and stipe) and 1–1½ mm wide. Perigynium not winged. Perigynium pubescent. Stigmas 3.

In Rocky Mountain Region "rare or overlooked" (Weber and Wittmann 1996) in a few sites in moist forests of the Subalpine Zone of c CO and nw WY and in the Black Hills of SD (in western U.S.: CO, MT, OR, WY). Key C.



There are several sedges of moist, shaded sites with staminate over pistillate spikes, a close head, and relatively few flowers. *Low northern sedge* can be distinguished from these by its pubescent perigynia and blunt, puberulent, hyaline-margined, medium-colored scales. Golden sedge (*C. aurea*) has a lighter colored, glabrous perigynium, and has long-peduncled basal spikes. Hair sedge (*C. capillaris*) has the lowest spike on a dangling peduncle and a light-colored scale. Crawe's sedge (*C. crawei*) has a long-peduncled basal spike. Peck's sedge (*C. peckii*) also has a pubescent perigynium, but has a longer head with a more separated lower spike, and the bract is longer than the inflorescence.

See Tables 28–29 in Appendix A to compare low northern sedge with other sedges with pubescent or puberulent perigynia.



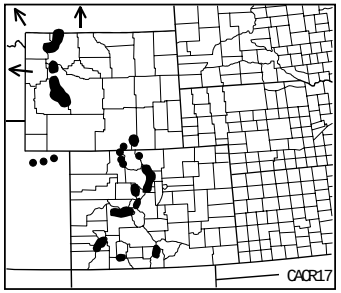
Culms taller than or equal to basal leaves, erect, aphyllopodic or phyllopodic. Bunch. Bract below lowest spike none or scale-like.

Leaves **narrow**, ½–2 mm wide, channeled or involute.

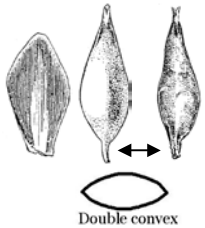
Spike **solitary**, androgynous, with 10–30 pistillate flowers.

Scale dark to medium color, with narrow lighter borders and midrib, perigynium dark in color. Pistillate scale **covering** perigynium body and **shorter** than the perigynium length.

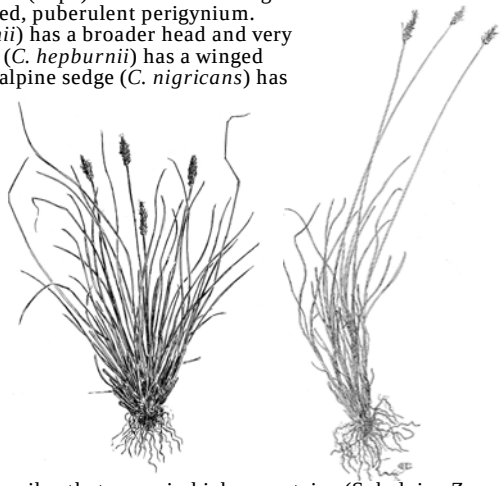
Perigynium shape lanceolate, with long stipe, concave with long or very long taper, 3–4½ mm long (including beak and stipe) and ½–1½ mm wide. Perigynium not winged, beak short. Stigmas 3.



In Rocky Mountain Region common on moist rocky snowmelt slopes in the Alpine Zone and high Subalpine Zone of the mountains of w CO and w WY (in western U.S.: CO, ID, MT, OR, UT, WA, WY). Key C.



Pyrenees sedge can be distinguished from other bunch sedges of dry to moist Alpine sites with single spikes by its scale that covers the perigynium body or nearly so, and a glabrous perigynium on a short stalk (stipe). Kobresia-like sedge (*C. elynoides*) has a abruptly-beaked, puberulent perigynium. Engelmann's sedge (*C. engelmannii*) has a broader head and very thin perigynium. Hepburn's sedge (*C. hepburnii*) has a winged perigynium without a stipe. Black alpine sedge (*C. nigricans*) has long rhizomes. Curly sedge (*C. rupestris*) has wider leaves that curl and dry at tips, and is often rhizomatous. Northern singlespike sedge (*C. scirpoidea*) has a pubescent, abruptly-beaked perigynium. Nearlyblack sedge (*C. subnigricans*) has a flattened perigynium and culms usually taller than the basal leaves.



See Tables 14–19 in Appendix A to compare Pyrenees sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas. See Tables 20–21 in Appendix A to compare Pyrenees sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

Other names: *Carex pyrenaica* Wahlenberg 1803, a European species. *Carex micropoda* C. A. Meyer 1831, a species of Asia, Alaska, and the Pacific Northwest. *Carex pyrenaica* Wahlenberg ssp. *micropoda* (C. A. Meyer) Hultén 1942 (see Egorova 1999).

Culms shorter than, equal to, or taller than basal leaves, erect, phyllopodic. Long rhizomes. Bract below lowest spike leaf-like, shorter than inflorescence, long-sheathing > 3 mm.

Leaves often narrow, 1–4 mm wide.

Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike widely separated by a distance 3–5 × length of spike, lower spike on a peduncle ½–1 × length of spike. Lowest spike on a long peduncle, nearly basal. Spikes with 10–50 pistillate flowers.

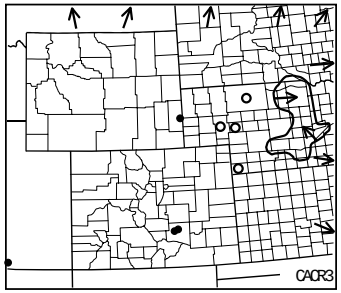


Scale medium red-brown, perigynium light green to brown. Pistillate scale narrower and shorter than perigynium, cuspidate or short awned.

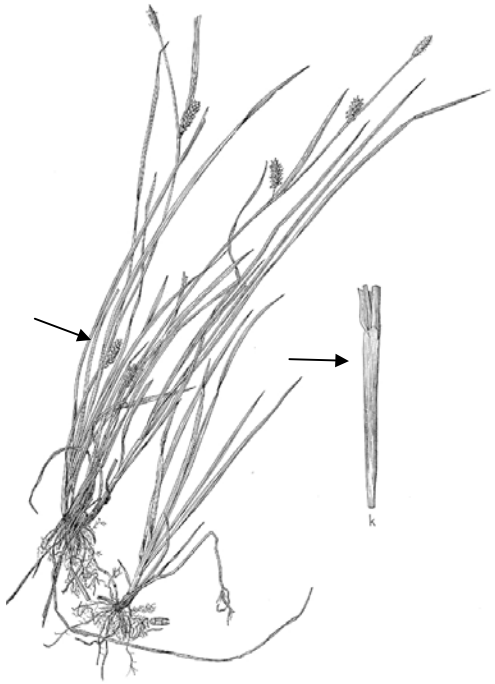
Perigynium ovate-ovoid or elliptic-oblong, tip convex with triangular shape or concave with short taper, 3–4 mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged. Perigynium strongly many-nerved. Stigmas 3.



In Rocky Mountain Region in wet sites, meadows, swales, and ditches in foothills and plains of c & nw NE; a few sites in ec CO and se WY (in western U.S.: CO, MT, UT, WA, WY). Key A, Key C.



See Tables 34–35 in Appendix A to compare Crawe's sedge with other tall long-rhizomatous wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.

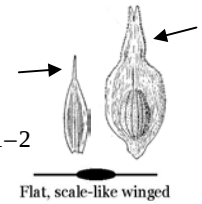




Culms **sharply triangular with concave sides**, taller than or equal to basal leaves, phyllopodic. Bunch or short rhizomes. Bract below lowest spike shorter than inflorescence.

Leaves mostly 3–7 mm wide, ranging 2–10 mm wide.

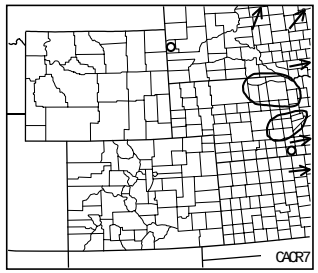
Spikes 5–20. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike ± separated by a distance ¼–3 × length of spike, lower spike sessile or nearly so. Spikes with 30–50 pistillate flowers.

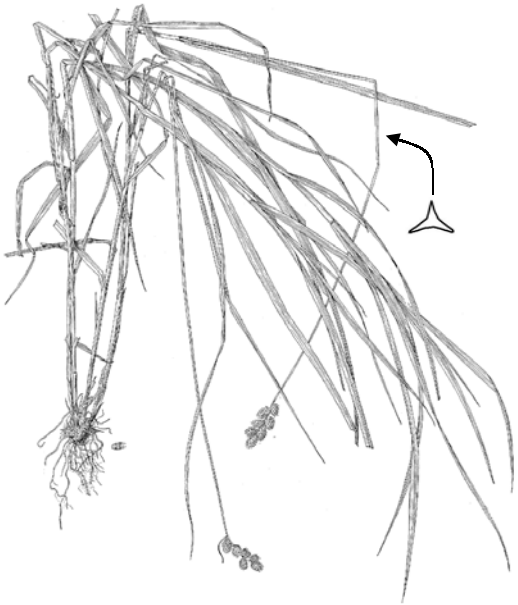


Scale acuminate or short-awned, light to medium in color, perigynium medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium shape ovate-ovoid or lanceolate, tip concave with short taper, 3–4½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium serrulate and winged; beak flat, winged, and serrulate to apex; **jointed at junction of body and beak, and the beaks spreading in the spike**. Perigynium nerved. Stigmas 2.

In Rocky Mountain Region few sites of foothills and plains in moist or wet "meadows, woody, swamps, and sand dunes" (FGP) in w SD and c NE (not in western U.S.). Key A, Key B.





Crested sedge is easily distinguished by its winged culms, traingular with concave edges in cross-section; and its winged, jointed perigynium such that the perigynium beaks are spreading in the spike. See Tables 4–7 in Appendix A to compare crested sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season. See Tables 8–11 in Appendix A to compare crested sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.

Crested sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Crested sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.



Culms taller than basal leaves, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

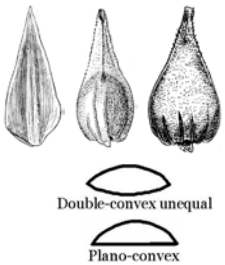
Leaves 2–6 mm wide. Leaf sheaths sometimes pubescent, leaf sheaths red-dotted or –banded near the mouth.

Head interruped, **compound** (more than one spike to a node).

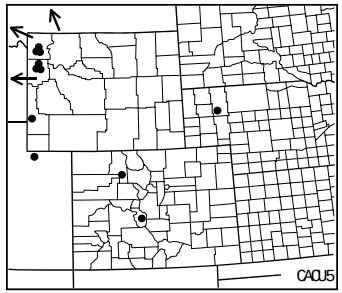
Spikes 5–20. Terminal spike staminate or androgynous, **lowest spike androgynous**. Upper and lower spikes appear the same, lowest spike separated by a distance 1–3 × length of spike, lower spike sessile or on a short peduncle up to 1 × length of spike. Spikes with 5–20 pistillate flowers.

Scale medium to dark in color, perigynium medium to dark in color. Pistillate scale covering perigynium.

Perigynium shape ovate-ovoid, concave with long or very long taper, 2½–4 mm long (including beak and stipe) and 1–2 mm wide. Perigynium beak serrulate, not winged, spongy at base. Perigynium nerved or ribbed. Stigmas 2.



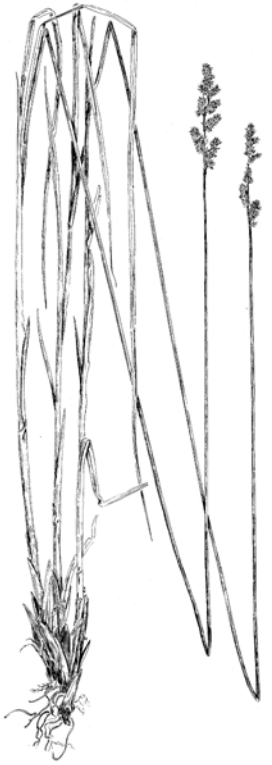
In Rocky Mountain Region a few sites in wet areas of mountains or foothills in c CO, nw WY, and w NE (in western U.S.: CA, ID, MT, OR, UT, WA, WY). Key A, Key C.

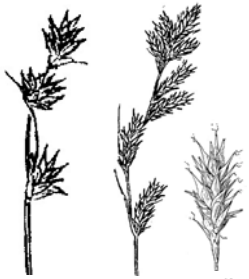


There are several bunch sedges of wet sites with cylindrical-interrupted inflorescence and similar, androgynous spikes. Heavy sedge (*C. gravida*) sometimes occurs in wet sites, but has a simple (not compound) head, and doesn't occur in Area C except in southeastern Colorado. Prairie sedge (*C. prairea*) has a simple head, narrower leaves, and the leaf sheaths are red-dotted. Sartwell sedge (*C. sartwellii*) has a tubular leaf ligule and smaller scale. Owlfruit sedge (*C. stipata*) has a tight head and longer perigynium. Fox sedge (*C. vulpinoidea*) has a very long inflorescence and an awned scale.

See Table 25 in Appendix A to compare Cusick's sedge with other wetland, bunch, androgynous-spike sedges that have more than one spike.

I do not know why *Carex cusickii* doesn't appear in either Colorado Flora, or in Weber and Wittmann's Checklist.





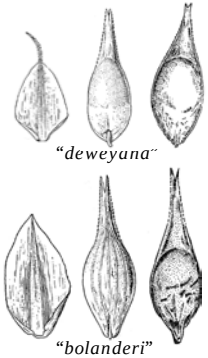
Culms taller than basal leaves, weak and slender, usually nodding, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like or setaceous, longer or shorter than inflorescence.

Leaves mostly 2-5 mm wide, ranging 1–6 mm wide. Leaves sometimes glaucous.

Spikes 5–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike separated by a distance 1–3 × length of spike, lower spike sessile or nearly so. Spikes sometimes few-flowered, with 5–20 pistillate flowers.

Scale acute to acuminate ("*bolanderi*") or awned ± ½ scale ("*deweyana*"), light to medium in color; perigynium light to medium green. Pistillate scale covering the perigynium body, but shorter than the beak.

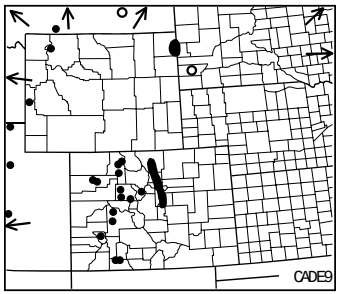
Perigynium ovate-ovoid or lanceolate, plano-convex, tip concave with short or long taper, 3½–5½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium beak serrulate, narrowly winged to not winged, beak ± ½ the perigynium length. Perigynium spongy at base. Perigynium not nerved to lightly nerved. Stigmas 2.



"*deweyana*"

"*bolanderi*"

In Rocky Mountain Region occasional in dry to moist, wooded gulches in the lower Montane Zone and adjacent foothills around the mountains of CO, nw WY, and the Black Hills of e WY and w SD (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Key B, Key C.



Dewey sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

Other names: *Carex bolanderi* Olney 1868. *Carex deweyana* Schweinitz var. *bolanderi* (Olney) Boott 1880.



"*deweyana*" "*bolanderi*"

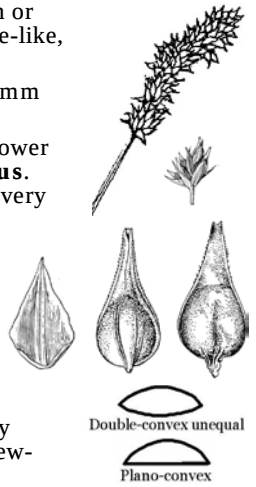
Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like, always much shorter than inflorescence.

Leaves mostly narrow, 1–3 mm wide, sometimes up to 4 mm wide. Leaf sheaths brown- or red-spotted.

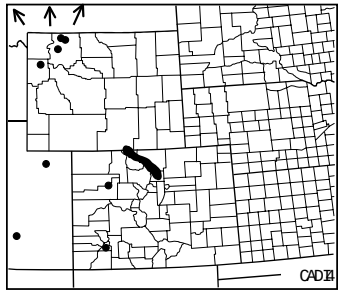
Spikes many, 10–20, in a long, **compound head**, with lower spikes two or more to a node. Spikes **all androgynous**. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes few-flowered, with 1–10 pistillate flowers.

Scale medium to dark in color, perigynium medium to dark in color. Pistillate scale shorter than perigynium.

Perigynium shining, ovate-ovoid, broadest in lower $^1/_3$, tip concave with long taper, 2–3½ mm long (including beak and stipe) and 1–1½ mm wide. Perigynium beak serrulate, unwinged or very narrowly winged; beak about as long as the body. Perigynium few-nerved. Stigmas 2.

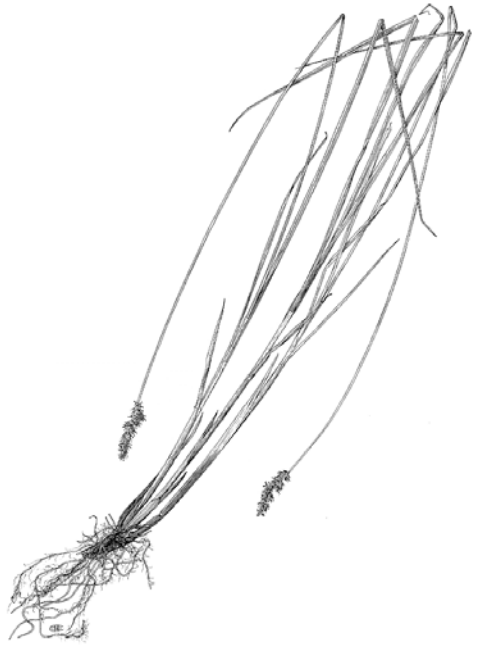


In Rocky Mountain Region occasional in wet, unshaded subalpine willow stands, swamps, or wet meadows in the mountains of n & w CO and nw WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY). Key C.



See Table 25 in Appendix A to compare lesser panicled sedge with other wetland, bunch, androgynous-spike sedges that have more than one spike.

Other names: *Carex teretiscula* Goodenough 1794.

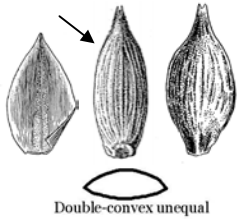




Culms taller than basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, aphyllopodic or phyllopodic. **Long rhizomes**. Bract below lowest spike none or scale-like.

Leaves **very narrow**, ½–1 mm wide.

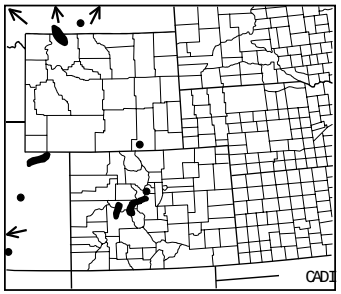
Spike solitary, staminate or pistillate, or androgynous. Plants may be dioecious. Spike often few-flowered, with 1–20 pistillate flowers.



Scale medium in color, perigynium medium to dark in color. Pistillate scale shorter than perigynium.

Perigynium ovate-ovoid or elliptic-oblong, tip concave with short taper, 2½–4½ mm long (including beak and stipe) and 1½–2 mm wide. Perigynium beak slightly serrulate, not winged, base tapered to a short stipe. Perigynium conspicuously nerved. Stigmas 2.

In Rocky Mountain Region in **wet** meadows or swamps in the Subalpine Zone of the high mountains of c CO, se WY, and nw WY (in western U.S.: CO, MT, NM, NV, OR, UT, WY). Key C.



There are few sedges of shaded wetlands with solitary spikes and spreading perigynia. Microglochin sedge (*C. microglochin*) has long, thin, sharply pointed and sharply reflexed perigynia.

See Tables 12–13 in Appendix A to compare northern bog sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season.

See Tables 20–21 in Appendix A to compare northern bog sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

Other names: *Carex gynocrates* Wormskiold 1841. *Carex dioica* Linnaeus ssp. *gynocrates* (Wormskiold) Hultén 1962.



Culms **very slender and weak**, shorter than, equal to, or taller than basal leaves, aphyllopodic or phyllopodic. Bunch or short rhizomes or long rhizomes. Bract below lowest spike various or none, always shorter than inflorescence.

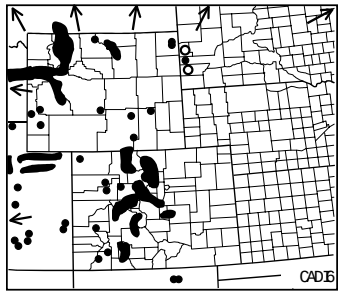
Leaves often narrow, <2 mm wide, ranging ½–4 mm.

Spikes 2–5, one to a node, distant. Spikes **all androgynous**. Upper and lower spikes appear the same, lowest spike separated by a distance 3–5 × length of spike, lower spike sessile or nearly so. Spikes few-flowered, with 1–10 pistillate flowers.

Scale light to medium in color, perigynium light to medium in color. Pistillate scale narrower and shorter than perigynium, acuminate to mucronate, with conspicuous hyaline margins.

Perigynium obovate-obovoid or elliptic-oblong, tip convex with triangular shape, 2–3½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, spongy at base, beak none to minute, <¼ mm long. Perigynium finely nerved. Stigmas 2.





In Rocky Mountain Region common in moist to wet, **shaded** forests and stream banks of the Montane Zone and lower Subalpine Zone of the mountains of CO, WY, and the Black Hills of WY & SD (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Key B, Key C.

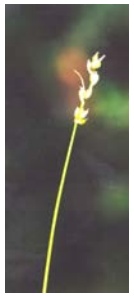
See Tables 12–13 in Appendix A to compare soft-leaved sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season.

See Tables 14–19 in Appendix A to compare soft-leaved sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

See Table 24 in Appendix A to compare soft-leaved sedge with other androgynous-spike sedges that have more than one spike and long rhizomes.

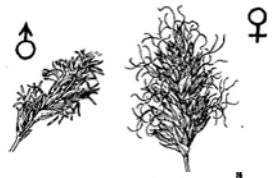
See Table 25 in Appendix A to compare soft-leaved sedge with other wetland, bunch, androgynous-spike sedges that have more than one spike.

There are a few weak-stemmed sedges with few-flowered spikes in shaded sites in the mountains. In hair sedge (*C. capillaris*), the lower spikes are pistillate, on drooping peduncles. Smooth-stem sedge (*C. laeviculmis*) has sessile, pistillate lower spikes, and a perigynium with longer beak.



The head of soft-leaved sedge



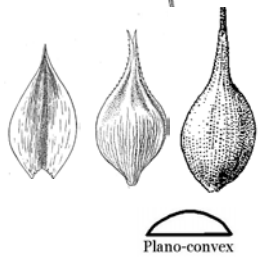


Culms taller than or equal to basal leaves, erect, phyllopodic. **Long rhizomes**. Bract below lowest spike various or none, longer or shorter than inflorescence.

Leaves often narrow, 1–2 mm wide, or up to 4 mm wide, involute.

Head often 1½–2½ cm broad.

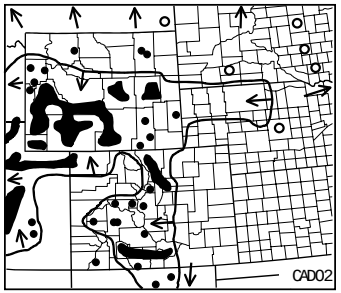
Spikes 5–20. Plants **often dioecious**. Spikes all staminate or all pistillate, or with terminal spike androgynous or staminate and lower spikes pistillate. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 10–30 pistillate flowers.



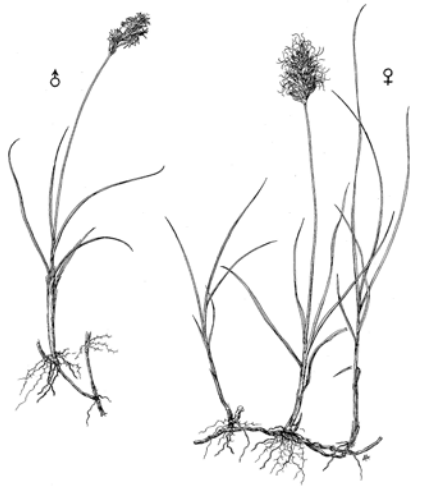
Scale light to medium in color, perigynium light to medium straw-colored to light brown. Pistillate scale covering perigynium.

Perigynium ovate-ovoid or lanceolate, plano-convex, tip concave with short taper, 3–4½ mm long (including beak and stipe) and 1½–2 mm wide. Perigynium beak serrulate, not winged. Perigynium sometimes lightly nerved. Stigmas 2.

In Rocky Mountain Region common in dry, open alkaline flats and slopes in foothills, plains and lower Montane Zone, throughout c & nw CO, s & c WY, and nw NE; less common in moist sites or outside this range in n WY, sw CO, and sw SD (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).









Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

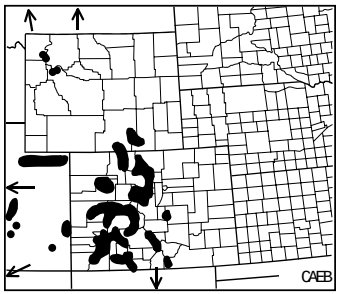
Leaves 1–6 mm wide.

Spikes 5–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 10–20 pistillate flowers.

Scale dark brown to black, perigynium dark, the head dark brown to black. Pistillate scale shorter than perigynium.

Perigynium lanceolate, flat and scale-like, tip concave with long taper, 4½–>7 mm long (including beak and stipe) and 1–2 mm wide. Perigynium serrulate and winged; beak slender and terete, beak ¾–1½ × body. Perigynium nerved. Stigmas 2.





In Rocky Mountain Region common in moist Subalpine meadows throughout the mountains of w CO and se WY; occasional in nw WY (in western U.S.: AZ, CO, NM, NV, UT, WY).

Ebony sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

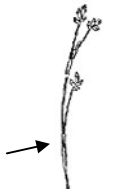


The habit of ebony sedge



Several heads of ebony sedge. Notice the uniformly dark color





Culms taller than or equal to basal leaves, sometimes nodding or flexuous, aphyllopodic. **Long rhizomes between the bunches**. Bract below lowest spike with no blade, but long-sheathing > 3 mm.

Leaves very narrow, ¼–1 mm wide.

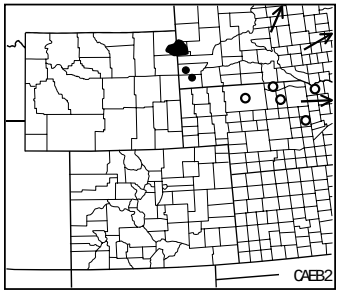
Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 3–>5 × length of spike, lower spike on a long peduncle >2 × length of spike. Spikes sometimes few-flowered, with 2–20 pistillate flowers.



Scale hyaline with darker midrib, light in color; perigynium dark green to dark brown. Pistillate scale shorter than perigynium.

Perigynium shining, ovate-ovoid, tip concave with short taper, 2–3 mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged. Perigynium finely nerved. Stigmas 3.

In Rocky Mountain Region in wooded or partially shaded, dry, rocky or sandy foothills and plains and lower Montane Zone of the Black Hills of WY & SD, in sw SD, and nw NE (in western U.S.: WY).



See Tables 14–19 in Appendix A to compare bristleleaf sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.





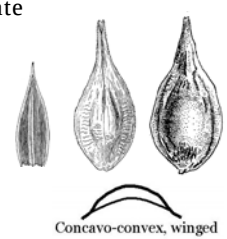
Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

Leaves 2–6 mm wide.

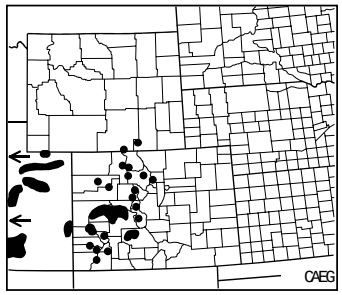
Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale medium in color, perigynium medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium ovate-ovoid, concavo-convex, tip concave with short or long taper, 6–8 mm long (including beak and stipe) and 2–3½ mm wide. Perigynium serrulate and winged to the base, margins of wing crinkled; beak flat, winged, and serrulate to apex. Stigmas 2.



In Rocky Mountain Region in scattered populations in dry, open meadows in the Subalpine Zone or upper Montane Zone in w CO and se WY (in western U.S.: CO, NV, UT, WY).



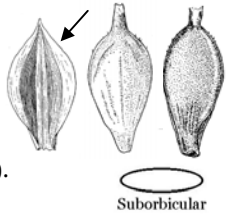
Eggleston sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.



The habit of Eggleston sedge.







Culms taller than or equal to basal leaves, erect, phyllopodic. Bunch to mat-forming. Bract below lowest spike none or scale-like.

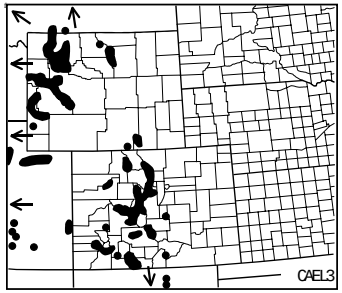
Leaves narrow, ½–1 mm wide.

Spike solitary, androgynous, few-flowered, with 1–10 pistillate flowers.

Scale medium in color, perigynium medium in color. Pistillate scale covering perigynium.

Perigynium obovate-obovoid, tip convex with triangular shape, 2½–4½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, with short abrupt beak, beak ½–1 mm long. Perigynium slightly puberulent at base of beak. Stigmas 3.

In Rocky Mountain Region common forming dry to moist turf throughout the Alpine zone of w CO and WY (in western U.S.: AZ, CO, ID, MT, NM, NV, UT, WY).



See Tables 14–19 in Appendix A to compare Kobresia-like sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas. See Tables 20–21 in Appendix A to compare Kobresia-like sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above). See Tables 28–29 in Appendix A to compare Kobresia-like sedge with other sedges with pubescent or puberulent perigynia.

Other names: blackroot sedge. *Carex filifolia* Nuttall var. *miser* L. H. Bailey 1886.



The habit of *Carex elynoides*, dominating an Alpine “grass”land



A close-up of the picture on the left, showing the narrow leaves and single spikes



Culms taller than or equal to basal leaves, erect, aphyllopodic. **Long rhizomes**. Bract below lowest spike leaf-like, usually longer than or equal to inflorescence.

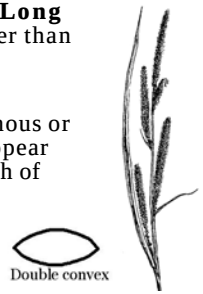
Leaves 2–6 mm wide. Leaf sheaths sometimes fibrous in age.

Spikes 5–10. Terminal spike staminate, middle spike androgynous or pistillate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 50–150 pistillate flowers.

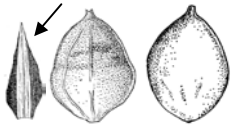
Scale three-striped with dark outside stripes and broad lighter midrib, perigynium light to medium green to straw-colored. Pistillate scale narrower than perigynium.

Perigynium ovate-ovoid or obovate-obovoid, tip convex with triangular shape, 1½–3½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged. Perigynium usually few-nerved. Stigmas 2.

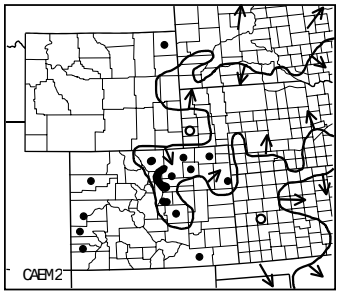
In Rocky Mountain Region common in wet swamps or along ditches of foothills and plains in ne CO, se WY, s SD, and w NE; isolated and less common in wet places in valleys and plains in ne WY, se & w CO, and w KS (in western U.S.: CO, NM, WA, WY).



"emoryi"


"emoryi"


"stricta"



See Tables 34–35 in Appendix A to compare Emory's sedge with other tall long-rhizomatous wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.

Other names: *Carex stricta* Lamarck.


"emoryi"


"stricta"

Culms taller than or equal to basal leaves, erect, phyllopodic. Long rhizomes. Bract below lowest spike none or scale-like.

Leaves very narrow, ¼–1 mm wide.

Spike solitary, androgynous, with 20–50 pistillate flowers.

Scale light to medium in color, perigynium light to medium in color. Pistillate scale covering or shorter than perigynium.

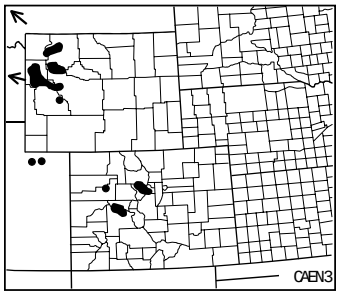
Perigynium ovate-ovoid or elliptic-oblong, tip convex with triangular shape or concave with long taper, 3½–7 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged, but very thin. Stigmas 3.

In Rocky Mountain Region uncommon on dry to moist Alpine tundra in n & c CO and nw WY (in western U.S.: CO, ID, MT, NV, OR, UT, WA, WY).





Double-convex thin



See Tables 14–19 in Appendix A to compare Engelmann's sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

See Tables 20–21 in Appendix A to compare Engelmann's sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

Other names: *Carex breweri* Boott var. *paddoensis* (Suskdorf) Cronquist 1969.





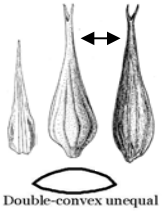
Culms taller than or equal to basal leaves, erect, phyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, longer than inflorescence, 1–1¾ × inflorescence.

Leaves 2–8 mm wide, lower leaf sheaths filamentose.

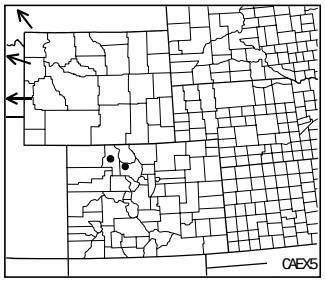
Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale light to medium in color, perigynium light to medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium lanceolate, concave with very long taper, ascending in spike, 7–10 mm long (including beak and stipe) and 2–>3 mm wide. Perigynium not winged. Perigynium nerved or ribbed. Stigmas 3.



In Rocky Mountain Region rare in a few wet sites in the mountains of nw CO (in western U.S.: CA, CO, ID, OR, UT, WA).



See Tables 4–7 in Appendix A to compare western inflated sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season. See Tables 8–11 in Appendix A to compare western inflated sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas. See Tables 32–33 in Appendix A to compare western inflated sedge with other tall bunch or short-rhizome wetland sedges in the high mountains with staminate over pistillate spikes.







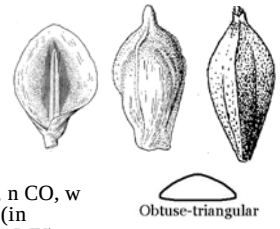
Culms narrow and ± weak, taller than or equal to basal leaves, erect, phyllopodic. Bunch or mat-forming. Bract below lowest spike none or scale-like.

Leaves very narrow, ¼–1 mm wide, lower leaf sheaths filamentose.

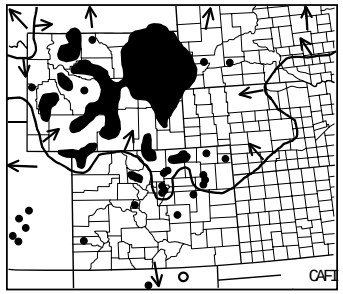
Spike solitary, androgynous, with 1–20 pistillate flowers.

Scale obtuse, conspicuously white-hyaline with darker middle, light to medium in color; perigynium light in color. Pistillate scale covering and shorter than perigynium.

Perigynium obovate-obovoid, tip convex with triangular shape, 3–4½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged, short-beaked (¼–½ mm long). Perigynium puberulent above. Stigmas 3.



In Rocky Mountain Region very common on dry plains, foothills, and lower slopes of mountains throughout WY, n CO, w SD, and w NE; much less common in s & c CO and w KS (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



See Tables 14–19 in Appendix A to compare threadleaf sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

See Tables 22–23 in Appendix A to compare threadleaf sedge with other sedges that have a solitary spike occurring in foothills, plains, or the lower slopes of mountains.

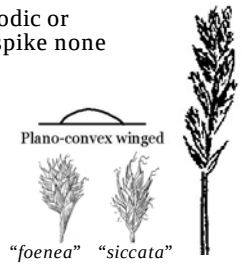
See Tables 28–29 in Appendix A to compare threadleaf sedge with other sedges with pubescent or puberulent perigynia.



Culms taller than or equal to basal leaves, erect, phyllopodic or aphyllopodic. **Long rhizomes**. Bract below lowest spike none or scale-like.

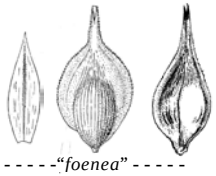
Leaves narrow to moderately narrow, 1–4 mm wide.

Spikes 2–10. Terminal spike gynaecandrous, lowest spike pistillate. Upper and lower spikes appear the same, lowest spike separated by a distance 1–3 × length of spike, lower spike sessile or nearly so. Spikes sometimes few-flowered, with 1–20 pistillate flowers.



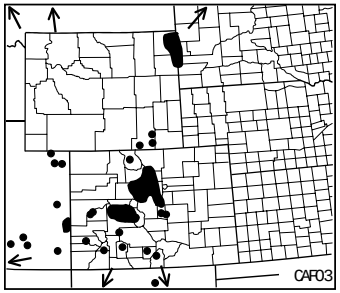
Scale medium in color, perigynium medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium shape lanceolate or elliptic-oblong, plano-convex, concave with short taper, 3–6 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium serrulate and narrowly winged, beak about as long as body, tip deeply bidentate, spongy at base. Perigynium many-nerved. Stigmas 2.



In Rocky Mountain Region common in dry, shaded forested sites in foothills, Montane, Subalpine, and lower Alpine Zones in c & cw CO and the Black Hills of e WY & w SD; less common in moist shaded sites; less common in se WY, n CO, and sw CO; apparently not in nw WY (in western U.S.: AZ, CO, MT, NM, UT, WA, WY).





Other names: dryspike sedge. *Carex siccata* Dewey 1826. *Carex foenea* Willdenow var. *tuberculata* F. J. Hermann 1968.



Culms shorter than basal leaves, erect, producing long-pedunculate carpellate spikes from the plant base, phyllopodic or aphyllopodic. Bunch or mat-forming. Bract below lowest spike leaf-like and longer or shorter than inflorescence, or none or scale-like, sometimes sheathing >3 mm.

Leaves ½–4 mm wide, lower leaf sheaths filamentose.

Spikes 1–5. Terminal spike androgynous or staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike basal, long-peduncled, and widely separated. Upper spikes few-flowered, with 1–3 pistillate flowers.

Scale short-awned, light to medium in color, perigynium light in color. Pistillate scale shorter than perigynium.

Perigynium obovate-obovoid ("*geophila*") or orbicular-suborbicular ("*geophila*") or elliptic-oblong ("*pityophila*"), tip convex with triangular shape or concave with long taper, 3–5 mm long (including beak and stipe) and 1½–2 mm wide. Perigynium not serrulate, not winged. Perigynium pubescent. Stigmas 3.

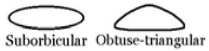




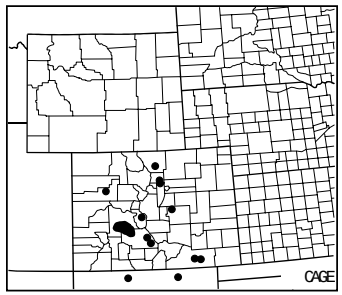
"*geophila*"



"*pityophila*"



In Rocky Mountain Region common in dry sites under shrubs and in partial shade of conifers in foothills and lower Montane Zone in the Gunnison Basin of wc CO; uncommon in similar habitats in se & n CO (in western U.S.: AZ, CO, NM).



See Tables 14–19 in Appendix A to compare dryland sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

See Tables 22–23 in Appendix A to compare dryland sedge with other sedges that have a solitary spike occurring in foothills, plains, or the lower slopes of mountains.

See Tables 28–29 in Appendix A to compare dryland sedge with other sedges with pubescent or puberulent perigynia.

Other names: White Mountain sedge. *Carex pityophila* Mackenzie 1913. "Doubtfully distinct from *C. rossii*" (Weber and Wittmann 2000).



The typical habit of dryland sedge, mat-forming under serviceberry in the sagebrush belt



"*pityophila*"



"*geophila*"



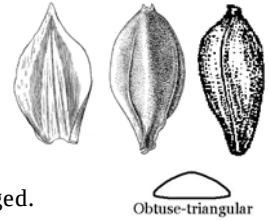




Culms taller, shorter, or equal to basal leaves, erect, aphyllopodic. Usually with long rhizomes. Bract below lowest spike none or scale-like.

Leaves 1–4 mm wide, sharply folded, V-shaped, over-wintering and curled and drying at tips.

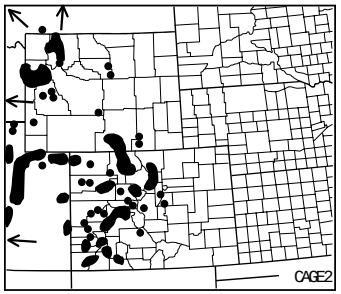
Spikes usually 2, ranging 1–5. Usually one terminal staminate spike (rarely androgynous) and 1 lower pistillate spike (sometimes 2–3). Upper and lower spikes appear different, lowest spike separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Pistillate spikes often 1-flowered, sometimes with 2–3.



Scale light to medium in color, perigynium light to medium in color. Pistillate scale covering perigynium.

Perigynium obovate-obovoid or elliptic-oblong, tip convex with triangular shape, 5–7 mm long (including beak and stipe) and 2½–>3 mm wide. Perigynium beakless or very short-beaked,not winged. Stigmas 3.

In Rocky Mountain Region common or dominant in shaded, dry to moist forests in the Subalpine Zone of CO and se-nw-nc WY; less common in the upper Montane Zone of the same distribution (in western U.S.: CA, CO, ID, MT, OR, UT, WA, WY).



See Tables 20–21 in Appendix A to compare elk sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above). See Tables 22–23 in Appendix A to compare elk sedge with other sedges that have a solitary spike occurring in foothills, plains, or the lower slopes of mountains.

Other names: Geyer's sedge.



Elk sedge. Notice the rhizomatous growth and the “flagged” head



Culms taller than or equal to basal leaves, phyllopodic. Bunch. Bract below lowest spike leaf-like, longer than inflorescence, long-sheathing >3 mm, red-dotted.

Leaves sometimes broad, 3–12 mm wide, often glaucous.

Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike widely separated (sometimes nearly basal) by a distance 3–5 × length of spike, upper pistillate spikes sessile or on a short peduncle up to ½ × length of spike. Spikes with 10–50 pistillate flowers.

Scale white-hyaline with a narrow, darker midrib, acuminate to short-awned, medium in color; perigynium medium in color. Pistillate scale shorter than perigynium, sometimes narrower.

Perigynium ovate-ovoid or obovate-obovoid, tip concave with short taper, small: 2–4 mm long (including beak and stipe) and 1–2½ mm wide. Perigynium very short-beaked, not winged. Perigynium strongly many-nerved. Stigmas 3.

In Rocky Mountain Region in moist to wet sites in bogs, swamps, along ditches, and in river-bottom woods in foothills, plains, and lower Montane Zone, in the northern Black Hills of e WY & w SD, and in nw-nc NE (in western U.S.: WY).

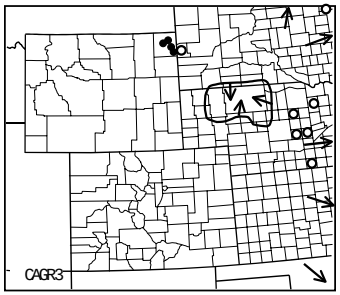




"*granularis*"

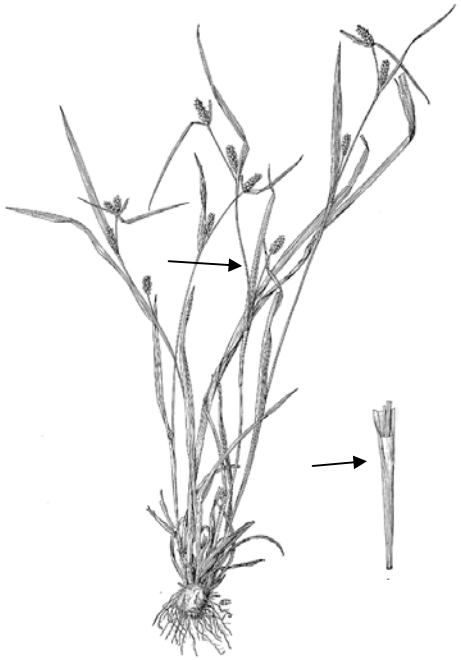


"*haleana*"



See Tables 4–7 in Appendix A to compare limestone meadow sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season. See Tables 8–11 in Appendix A to compare limestone meadow sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.

Other names: *Carex granularis* Mühlenberg var. *haleana* (Olney) Porter 1888.







"gravida"



"lunelliana"



Culms taller than or equal to basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike none or various, usually shorter than inflorescence.

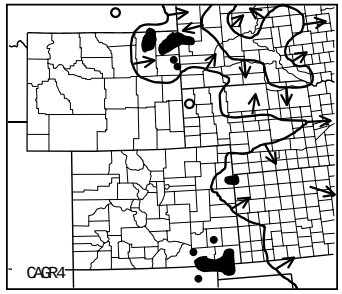
Leaves often >4 mm wide, ranging 2–8 mm wide, firm or stiff.

Spikes usually <15, ranging 5–20. Spikes **all androgynous**. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes sometimes few-flowered, with 1–20 pistillate flowers.

Scale acuminate to awn-tipped, medium to light in color; perigynium light green to medium brown. Pistillate scale narrower and shorter than perigynium.

Perigynium ovate-ovoid or orbicular-suborbicular, plano-convex, tip concave with short taper, 3–6 mm long (including beak and stipe) and 2–3½ mm wide. Perigynium beak serrulate, not winged. Perigynium spongy at base. Perigynium rarely nerved. Stigmas 2.

In Rocky Mountain Region along ditches, edges of sloughs, and in open woods usually on moist sites of foothills or plains in ne WY, ne-se CO, w SD, nw & c NE, and w KS (in western U.S.: CO, MT, NM, WY).



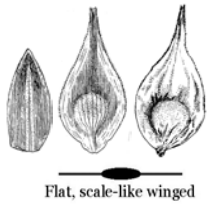


Among clustered-cylindrical-head dry- to moist-site bunch sedges of the plains, *heavy sedge* has shorter spikes with fewer flowers. Glomerate sedge (*C. aggregata*) has lower leaf sheaths green-and-white mottled and scale that is as wide as the perigynium. Blunt broom sedge (*C. tribuloides*) has a winged culm and a more broadly winged perigynium. Mühlenberg's sedge (*C. muehlenbergii*) has a bract longer than inflorescence; the bract is often reflexed.

See Tables 8–11 in Appendix A to compare heavy sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas. See Table 25 in Appendix A to compare heavy sedge with other wetland, bunch, androgynous-spike sedges that have more than one spike.

Other names: *Carex lunelliana* Mackenzie 1915. *Carex gravida* L. H. Bailey var. *lunelliana* (Mackenzie) F. J. Hermann 1936.





Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or leaf-like and shorter than inflorescence, sometimes with black or purple-black auricles.

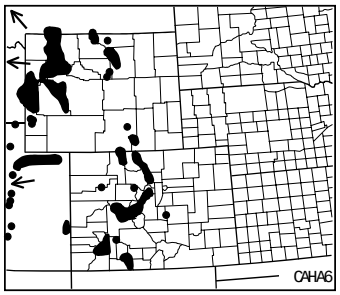
Leaves 1–4 mm wide.

Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale dark brown, perigynium medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium shape ovate-ovoid, tip concave with short taper, 4–6½ mm long (including beak and stipe) and 1½–3 mm wide. Perigynium flat and scale-like, beaked, serrulate and winged, sometimes spongy at base; beak tip slender and terete. Perigynium nerved or ribbed, sometimes with conspicuous transverse folds ventrally. Stigmas 2.

In Rocky Mountain Region moderately common on dry to moist tundra in the Alpine Zone and upper Subalpine Zone in w CO and se-nw-nc WY (in western U.S.: AZ, CA, CO, ID, MT, NV, OR, UT, WY).





Cloud sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Other names: Hayden's sedge. *Carex festiva* Dewey var. *decumbens* Holm 1903. *Carex nubicola* Mackenzie 1909.



Culms shorter than or equal to basal leaves, erect, aphyllopodic or phyllopodic. Bunch. Bract below lowest spike none or shorter than inflorescence, sometimes with black or purple-black auricles.

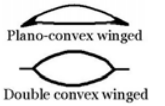
Leaves very narrow, ½–1 mm wide.

Spike solitary, gynaecandrous or androgynous, sometimes few-flowered, with 1–20 pistillate flowers.

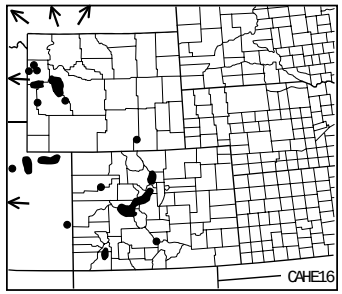


Scale light to medium to dark in color, perigynium light to medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium ovate-ovoid, tip concave with short taper, on a short stipe, 4–6½ mm long (including beak and stipe) and 1½–3 mm wide. Perigynium beak serrulate and narrowly winged; perigynium sometimes spongy at base or along sides; beak tip slender and terete. Perigynium sometimes striate, or with conspicuous transverse folds ventrally. Stigmas 2.



In Rocky Mountain Region occasional on high, rocky ridges on dry sites in the Alpine Zone of w CO, se WY, and nw WY (in western U.S.: AZ, CA, CO, ID, MT, NV, OR, UT, WY).





Hepburn's sedge, forming small mats on the dry, windswept ridge slope

See Tables 14–19 in Appendix A to compare Hepburn's sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas. See Tables 20–21 in Appendix A to compare Hepburn's sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

Other names: spikenard sedge. *Carex nardina* E. Fries 1839, a European species. *Carex nardina* E. Fries var. *hepburnii* (F. Boott) Kükenthal 1909. *Carex nardina* E. Fries ssp. *hepburnii* (Boott) Löve et al. 1971.



Close-up of heads from the plant above





Culms taller than or equal to basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike none or various, usually much shorter than inflorescence.

Leaves sometimes narrow, 1–4 mm wide.

Head dense, ovate, <2 cm long.



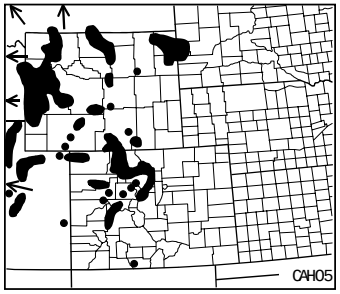
Spikes 2–10. Spikes **all androgynous**. Upper and lower spikes appear the same, lowest spike separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 10–20 pistillate flowers.

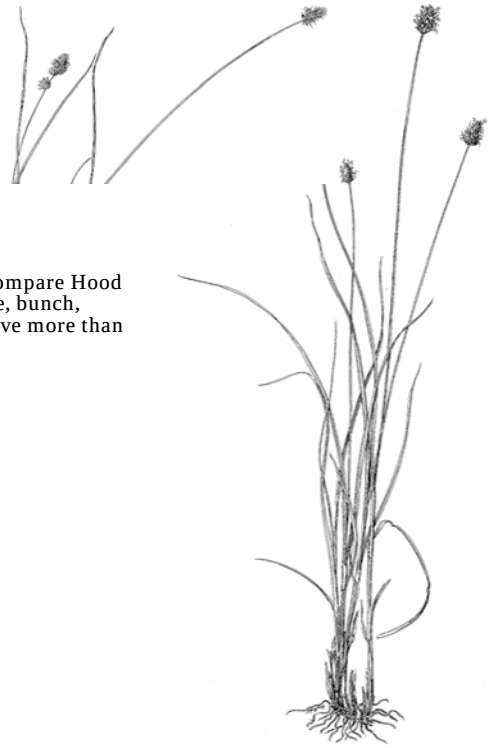
Scale medium chestnut-brown, perigynium dark glossy brown with a broad green margin. Pistillate scale narrower and shorter than perigynium.



Perigynium ovate-ovoid or elliptic-oblong, tip concave with short or long taper, 3–5½ mm long (including beak and stipe) and 1½–3 mm wide. Perigynium beak serrulate, winged or not, deeply bidentate, sometimes spongy at base or along sides. Perigynium nerved. Stigmas 2.

In Rocky Mountain Region common in dry to moist forest openings and meadows in the Subalpine Zone and Montane Zone in nw & c CO, se-sw-nw-wc WY, and in the Bear Lodge Mountains and Black Hills of ne WY and w SD (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).





See Tables 26–27 in Appendix A to compare Hood sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.



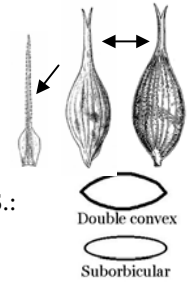
Culms shorter than or equal to basal leaves, flexuous and spikes hanging, phyllopodic or aphyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, longer than inflorescence (2–3 ×), sometimes sheathing >3 mm.

Leaves 2–10 mm wide, lower leaf sheaths filamentose.

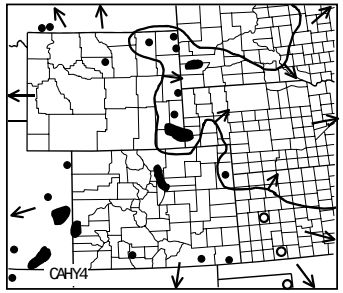
Spikes 2–5. Terminal spike staminate or androgynous, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–3 × length of spike, lower spike on a dangling or drooping peduncle ½–1 × length of spike. Spikes with 30–100 pistillate flowers.

Scale long-awned, light in color; perigynium medium green to straw-colored, glossy. Pistillate scale narrower and shorter than perigynium.

Perigynium widely spreading to horizontal in the spike, ovate-ovoid, tip concave with long taper, 5–7½ mm long (including beak and stipe) and 1–2½ mm wide. Perigynium long-beaked (>2 mm), not winged. Perigynium beak tip with long teeth (up to 1 mm long). Perigynium conspicuously many-nerved. Stigmas 3.



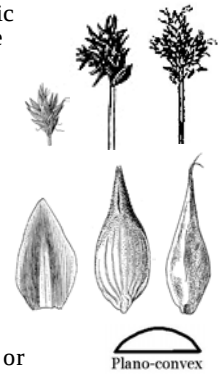
In Rocky Mountain Region occasional in wet sites, in sloughs, swamps, and along ditches in foothills and along bases of mountains in ne CO, e 1/3 WY, s SD, and w NE; less common in s & w CO, nc WY, and w KS (in western U.S.: AZ, CA, CO, ID, MT, NM, OR, UT, WA, WY).



See Tables 4–7 in Appendix A to compare bottlebrush sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season.

Other names: porcupine sedge. "*Carex hystricina*," a misspelling.





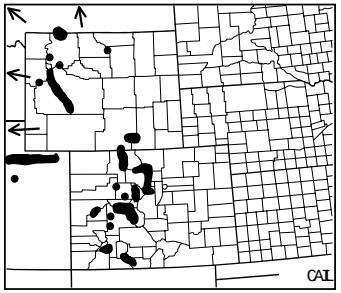
Culms taller than or equal to basal leaves, erect, aphyllopodic or phyllopodic. Short rhizomes. Bract below lowest spike none or scale-like.

Leaves 1–4 mm wide.

Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 1–20 pistillate flowers.

Scale dark in color, perigynium dark in color; spike appears dark. Pistillate scale shorter than perigynium.

Perigynium spreading, ovate-ovoid, plano-convex, tip concave with long taper, 2½–3½ mm long (including beak and stipe) and 1–1½ mm wide. Perigynium not winged, usually not serrulate, sometimes spongy at base or along sides. Perigynium nerved or ribbed. Stigmas 2.

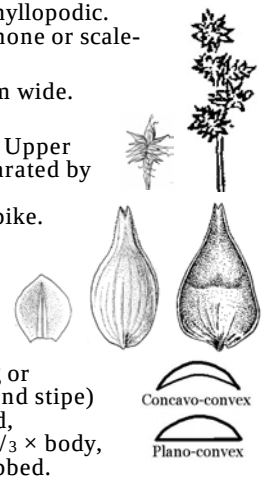


In Rocky Mountain Region wet sites in the Alpine and upper Subalpine Zones of w CO and se & nw WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).

Sheep sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Other names: small-headed sedge.





Culms taller than basal leaves, erect, aphyllopodic or phyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

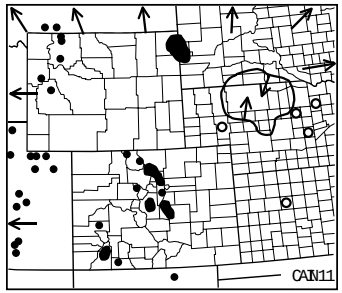
Leaves usually narrow, 1–2 mm wide, ranging ½–4 mm wide.

Spikes 2–10, about as long as wide. Terminal spike gynaecandrous or staminate, lowest spike pistillate. Upper and lower spikes appear the same, lowest spike separated by a distance 1–3 × length of spike, lower spike usually sessile or on a short peduncle up to ½ × length of spike. Spikes few-flowered, with 1–10 pistillate flowers.

Scale medium to light in color, perigynium dark in color. Pistillate scale narrower and shorter than perigynium.

Perigynium broadest in lower 1/3, spreading in the spike, ovate-ovoid, plano-convex, concave with long or very long taper, 1½–3½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium serrulate, not winged, sometimes spongy at base or along sides. Beak ¼–1/3 × body, shallowly sharp-bidentate. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region occasional in wet to moist sites of meadows and forests, in mountains and foothills in w 2/3 CO, nw WY, in the Black Hills of ne WY & w SD, and in nw-nc NE (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).





There are two other sedges of the mountains that have a few small, sessile spikes, few-flowered with spreading perigynia, and narrow leaves. Prickley sedge (*C. angustior*) looks a lot like inland sedge, but has an narrower, lighter-color perigynium that is not bidentate. Western sedge (*C. occidentalis*) has an ovate, lighter-colored perigynium nearly covered by the scale.

Inland sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

See Tables 12–13 in Appendix A to compare inland sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season. See Tables 14–19 in Appendix A to compare Hepburn's sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas. See Tables 32–33 in Appendix A to compare inland sedge with other tall bunch or short-rhizome wetland sedges in the high mountains with staminate over pistillate spikes.







Culms taller than basal leaves, erect, aphyllopodic or phyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike none or scale-like.

Leaves 1–4 mm wide, mostly basal.

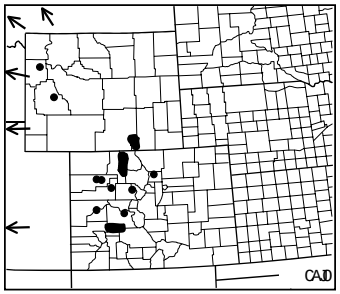
Head tightly clustered, densely cylindrical.

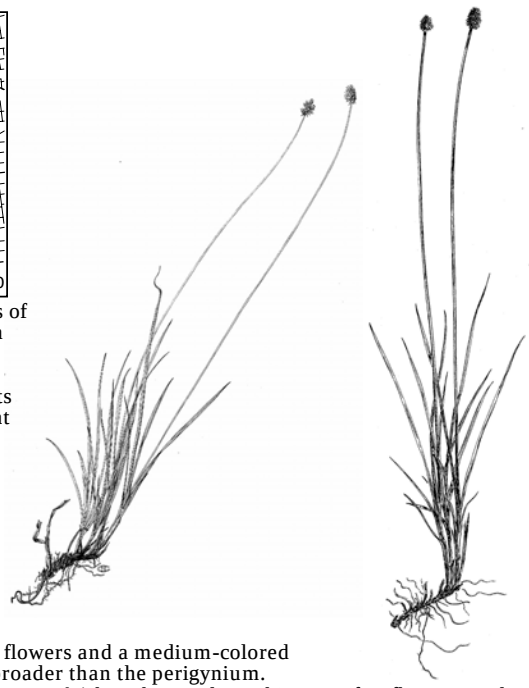
Spikes 2–10. Spikes **all androgynous**. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes few-flowered, with 3–10 pistillate flowers.

Scale medium to dark in color, perigynium medium to dark in color. Pistillate scale shorter than perigynium.

Perigynium broadest in the lower 1/3, ovate-ovoid or lanceolate, plano-convex, with very long taper from the base, 3–4½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region moist meadows in the Subalpine Zone and Montane Zone of the mountains of c-nc CO & se WY; less common in nw WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).



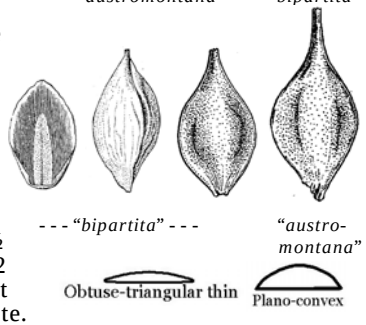


There are several tight-head sedges of the high mountains. All of them have several to many androgynous spikes. *Jones's sedge* can be distinguished by its few flowers and a dark scale that is broadest near the base and shorter than the perigynium. Mt. Baldy sedge (*C. perglobosa*) has a bunch to short-rhizome habit, with many flowers and a medium-colored ovate scale covering the perigynium. Alpine nerve sedge (*C. neurophora*) is a bunch or short-rhizome sedge with more flowers and a medium-colored ovate scale that is shorter and broader than the perigynium. Alpine blackheaded sedge (*C. vernacula*) has short to long rhizomes, few flowers, and a dark-colored obovate scale (broadest near the tip) covering the narrowly-winged perigynium. Curved sedge (*C. maritima*) is a long-rhizomes sedges with curled leaves and a dark-colored perigynium.

See Table 24 in Appendix A to compare Jones's sedge with other androgynous-spike sedges that have more than one spike and long rhizomes.

See Tables 26–27 in Appendix A to compare Jones's sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.





Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

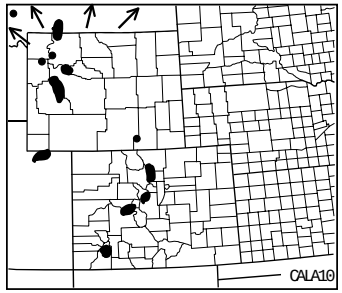
Leaves 1–4 mm wide.

Spikes usually 2–4, ranging 1–5, longer than wide. Spikes all gynaecandrous, or terminal spike androgynous and lower spikes gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 20–30 pistillate flowers.

Scale medium in color, perigynium medium in color. Pistillate scale shorter than perigynium.

Perigynium ovate-ovoid or lanceolate, plano-convex, concave with very long taper, 2–4½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium with medium to short beak (½–1 × body), not winged, not serrulate. Perigynium usually not nerved or ribbed. Stigmas 2.

In Rocky Mountain Region occasional in wet meadows and streambanks in the Alpine Zone and high Subalpine Zone in w CO, se WY, and nw WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).





Twolipped sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

See Tables 20–21 in Appendix A to compare twolipped sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

Other names: twotipped sedge. *Carex bipartita* Allioni ssp. *austromontana* F. J. Hermann 1963. "*Carex bipartita*" of American reports.

Culms taller, equal, or shorter than basal leaves, erect, aphyllopodic. Long rhizomes. Bract below lowest spike leaf-like, longer than inflorescence. Base of plant purple-tinged.

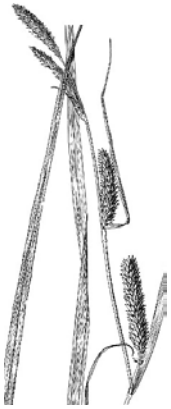
Leaves broad, 6–15 mm wide. Leaves sometimes glaucous, lower leaf sheaths filamentose.

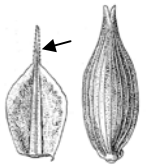
Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–3 × length of spike, lower spike on a peduncle 1–2 × length of spike. Spikes with 30–100 pistillate flowers.

Scale acuminate to awned (< body), medium to light in color, perigynium medium olive-green. Pistillate scale covering or shorter than perigynium.

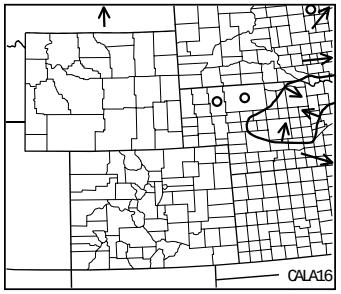
Perigynium shape ovate-ovoid, tip concave with short or long taper, 5½–7 mm long (including beak and stipe) and 2–3 mm wide. Perigynium not winged; beak short, about 1 mm long, beak tip with straight, short teeth <½ mm long. Perigynium strongly nerved. Stigmas 3.

In Rocky Mountain Region in very wet sites: swamps, sloughs, and wet meadows on plains and sand hills in w & c NE (not in western U.S.).







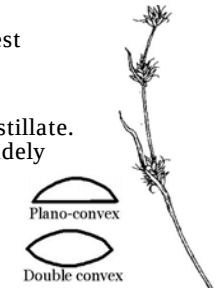




See Table 3 in Appendix A to compare hairy sedge with other sedges that have leaves 12 mm wide or wider.

See Tables 4–7 in Appendix A to compare hairy sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season.

See Tables 34–35 in Appendix A to compare hairy sedge with other tall long-rhizomatous wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.



Culms taller than basal leaves, weak and nodding, flexuous, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or various, shorter than inflorescence.

Leaves often narrow <2 mm wide, ranging 1–4 mm.

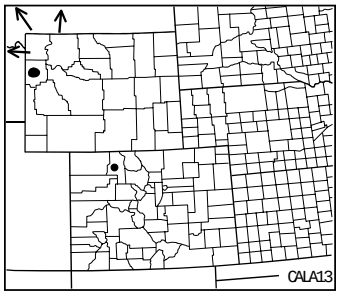
Spikes 2–10. Terminal spike gynaecandrous, lowest spike pistillate. Upper and lower spikes appear the same, lowest spike widely separated by a distance 3–5 × length of spike, lower spike sessile or nearly so. Spikes few-flowered, with 1–10 pistillate flowers.

Scale hyaline, light-brown tinged midrib; perigynium light to medium in color. Pistillate scale narrower and shorter than perigynium.

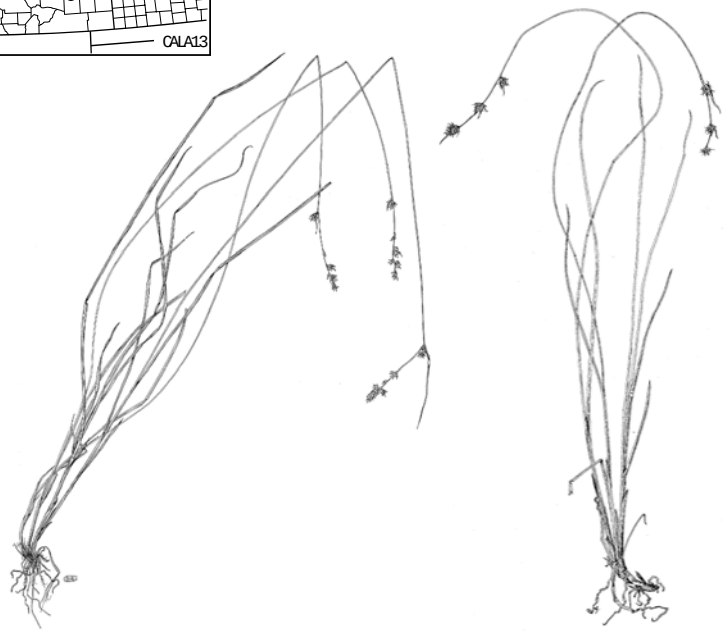


Perigynium ovate-ovoid, plano-convex, tip concave with long taper, 2½–4½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, short-beaked, <½ × body (beak ½–2½ mm long). Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region rare to occasional in a few sites on wet to moist, shaded Montane stream banks in nw CO and nw WY (in western U.S.: CA, CO, ID, MT, OR, WA).



Smooth-stem sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.





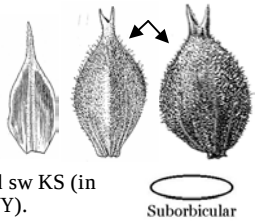
Culms sharply triangular, scabrous below inflorescence, taller than or equal to basal leaves, erect, aphyllopodic. **Long rhizomes**. Bract below lowest spike leaf-like, usually longer than inflorescence.

Leaves flat, 2–6 mm wide, lower leaf sheaths purple-tinged and filamentose.

Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance ½–5 × length of spike, lower spike sessile or nearly so. Spikes with 20–100 pistillate flowers.

Scale acuminate to short-awned (up to $^1/_3$ × scale length), medium in color; perigynium light brownish green. Pistillate scale narrower than perigynium.

Perigynium obovate-obovoid or elliptic-oblong or orbicular-suborbicular, tip convex with triangular shape, 2½–4½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged. Beak serrulate, short, about 1 mm long, deeply bidentate. Perigynium many-nerved. **Perigynium densely pubescent**. Stigmas 3.



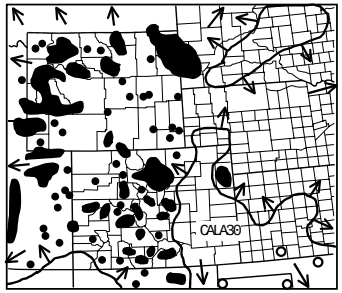
In Rocky Mountain Region common in wet sites: wet meadows, wet streamsides, ditches, open wetlands, and lowlands from the prairies and plains up in the mountains to the lower Subalpine Zone, in CO, WY, the Black Hills, w SD, and w NE; *uncommon* in c SD, se CO, and sw KS (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).

Woolly sedge usually occupies relatively warm, wet sites; in the mountains it is often seen in warmer (that is, lower elevation) sites than beaked sedge (*C. utriculata*) or water sedge (*C. aquatilis*); sometimes two or more of these species occur together. It can be distinguished from beaked sedge (*C. utriculata*) by the narrower leaves, warmer sites (that are just as wet), and pubescent perigynia. It can be distinguished from water sedge (*C. aquatilis*) by the pubescent perigynia and spreading (not ascending) bracts.

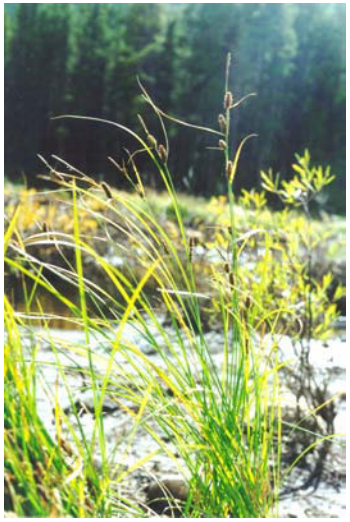
See Tables 28–29 in Appendix A to compare woolly sedge with other sedges with pubescent or puberulent perigynia.

See Tables 30–31 in Appendix A to compare woolly sedge with other tall rhizomatous wetland sedges in the high mountains with staminate over pistillate spikes. See Tables 34–35 in Appendix A to compare woolly sedge with other tall long-rhizomatous wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.

Management. Moderately palatable to livestock (cattle and sheep) and to elk and deer; but rarely grazed by cattle or sheep because of the wet sites. Woolly sedge in good condition and some quantity is an indicator of a healthy perennial water table and generally healthy riparian system.







The habit of woolly sedge, by the side of a stream and beaver pond



A head from the plant on the left

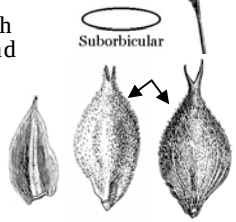


Culms obtusely triangular, taller than or equal to basal leaves, erect, aphyllopodic. **Long rhizomes**. Bract below lowest spike leaf-like, longer or shorter than inflorescence.

Leaves often narrow (<2 mm wide), ranging 1–4 mm wide, **filiform, involutely rolled, with long hairlike tips**. Lower leaf sheaths filamentose ventrally.

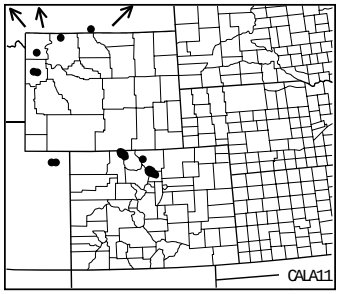
Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–3 × length of spike, lower spike sessile or nearly so. Spikes with 10–50 pistillate flowers.

Scale acute to acuminate, with a short beak (< ¼ × scale), medium to dark in color; perigynium light in color. Pistillate scale narrower than perigynium.



Perigynium ovate-ovoid or elliptic-oblong, tip concave with short taper, 3–5 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged. Perigynium beak short. Perigynium usually many-nerved. **Perigynium pubescent**. Stigmas 3.

In Rocky Mountain Region rare to occasional in wet sites such as fens or swamps, Subalpine Zone and upper Montane Zone of n CO and nw WY (in western U.S.: CA, CO, ID, OR, WA).



Woollyfruit sedge has only recently been detected in the Rocky Mountains, so the distribution map above is incomplete. Expect this species to be found elsewhere. There is quite a lot of overlap in characters and habitat between this species and woolly sedge (*C. lanuginosa*).

See Tables 28–29 in Appendix A to compare woollyfruit sedge with other sedges with pubescent or puberulent perigynia.

See Tables 30–31 in Appendix A to compare woollyfruit sedge with other tall rhizomatous wetland sedges in the high mountains with staminate over pistillate spikes. See Tables 34–35 in Appendix A to compare woollyfruit sedge with other tall long-rhizomatous wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.



Culms taller than or equal to basal leaves, erect, phyllopodic. Bunch. Bract below lowest spike leaf-like, longer than inflorescence, sometimes with black or purple-black auricles.

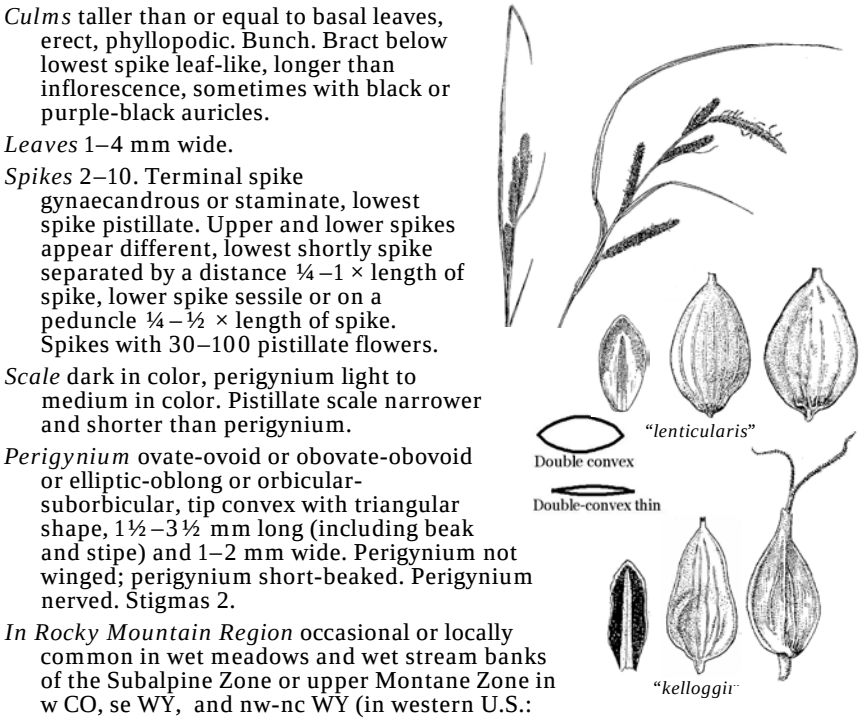
Leaves 1–4 mm wide.

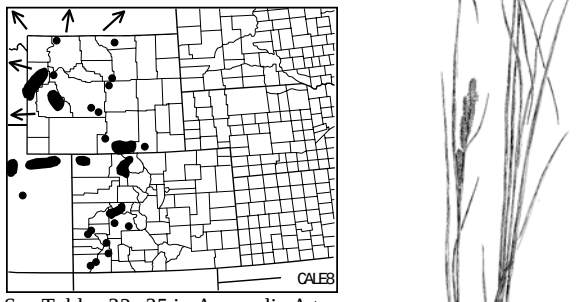
Spikes 2–10. Terminal spike gynaecandrous or staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest shortly spike separated by a distance ¼–1 × length of spike, lower spike sessile or on a peduncle ¼–½ × length of spike. Spikes with 30–100 pistillate flowers.

Scale dark in color, perigynium light to medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium ovate-ovoid or obovate-obovoid or elliptic-oblong or orbicular-suborbicular, tip convex with triangular shape, 1½–3½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged; perigynium short-beaked. Perigynium nerved. Stigmas 2.

In Rocky Mountain Region occasional or locally common in wet meadows and wet stream banks of the Subalpine Zone or upper Montane Zone in w CO, se WY, and nw-nc WY (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).

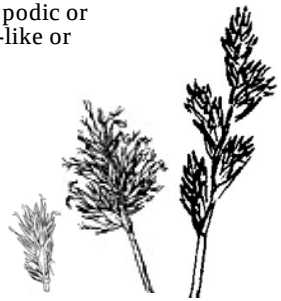




See Tables 32–35 in Appendix A to compare tufted sedge with other tall bunch or short-rhizome wetland sedges with staminate over pistillate spikes.

Other names: Kellogg sedge. *Carex kelloggii* W. Boott 1880. *Carex vulgaris* Fries var. *lipocarpa* Holm 1904. *Carex lenticularis* Michaux var. *lipocarpa* (Holm) L. Standley 1985. *Carex lenticularis* Michaux var. *pallida* (Boott) Dorn 1988.





Culms taller than or equal to basal leaves, erect, phyllopodic or aphyllopodic. Bunch. Bract below lowest spike leaf-like or setaceous, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

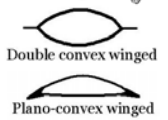
Leaves narrow, ½–2 mm wide.

Spikes 2–10. Spikes all gynaecandrous, or terminal spike staminate and lower spikes gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

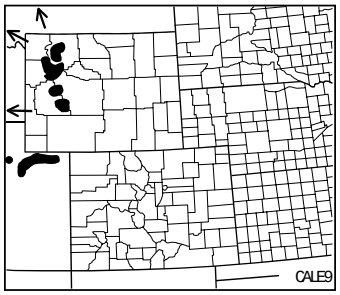


Scale with narrow hyaline margins, medium to dark reddish-brown, perigynium medium brown in color. Pistillate scale slightly narrower and shorter than perigynium, mostly concealing perigynium.

Perigynium ovate-ovoid or obovate-obovoid or elliptic-oblong or orbicular-suborbicular, tip convex with triangular shape, 1½–3½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged. Perigynium nerved or ribbed. Stigmas 2.



In Rocky Mountain Region dry to moist Montane to Subalpine slopes and meadows in the mountains of nw WY (in western U.S.: AZ, CA, ID, MT, NM, NV, OR, UT, WA, WY).





Siberian hare sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Siberian hare sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

See Tables 14–19 in Appendix A to compare Siberian hare sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

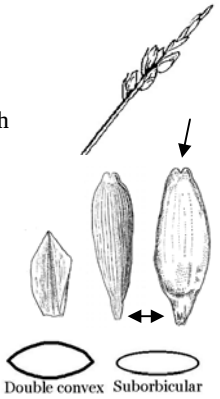
Culms taller than basal leaves, thin, erect or nodding or flexuous, aphyllopodic. Bunch. Bract below lowest spike none or scale-like.

Leaves narrow, ½–2 mm wide.

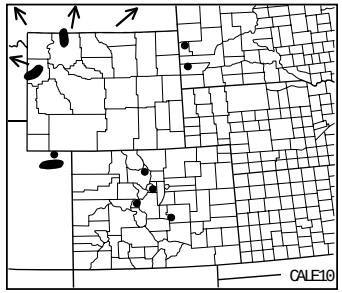
Spike solitary, androgynous, very narrow, few-flowered, with 3–10 pistillate flowers.

Scale light in color, perigynium light yellow-green. Pistillate scale narrower and shorter than perigynium.

Perigynium on a short stipe, lanceolate or elliptic-oblong, tip convex with triangular shape, 2½–5 mm long (including beak and stipe) and ½–1½ mm wide. Perigynium not winged, beakless, bluntly bidentate, spongy at base. Perigynium many-nerved. Stigmas 3.



In Rocky Mountain Region in a few scattered locations in wet or moist, shaded sites: fens, canyon forests, and willow stands in Subalpine, Montane, and Foothills Zones in c CO, nw WY, and the Black Hills in SD (in western U.S.: CA, CO, ID, MT, NM, OR, UT, WA, WY).





See Tables 12–13 in Appendix A to compare bristlystalked sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season.

See Tables 14–19 in Appendix A to compare bristlystalked sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas. See Tables 20–21 in Appendix A to compare bristlystalked sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above). See Tables 22–23 in Appendix A to compare bristlystalked sedge with other sedges that have a solitary spike occurring in foothills, plains, or the lower slopes of mountains.

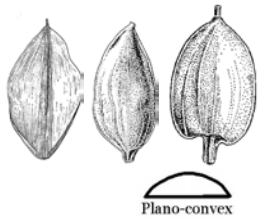
Other names: "*Carex polytrichoides*" of Colorado report.



Culms taller than basal leaves, often nodding or flexuous and spikes hanging, aphyllopodic or phyllopodic. Long, slender rhizomes. Bract below lowest spike leaf-like or setaceous, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

Leaves ½–4 mm wide.

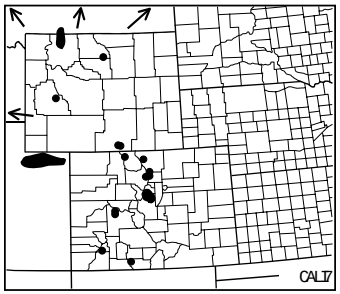
Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different. Lowest spike reflexed and hanging, >13 mm long, separated by a distance 1–3 × length of spike, on a peduncle ½–1 × length of spike. Spikes with 1–30 pistillate flowers.



Scale obtuse to minutely awn-tipped, medium to dark in color, perigynium light green in color. Pistillate scale as long and wide as perigynium, covering perigynium, persistent (not falling off).

Perigynium ovate-ovoid or elliptic-oblong, tip convex with triangular shape, 2½–4½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged. Perigynium few-nerved. Stigmas 3.

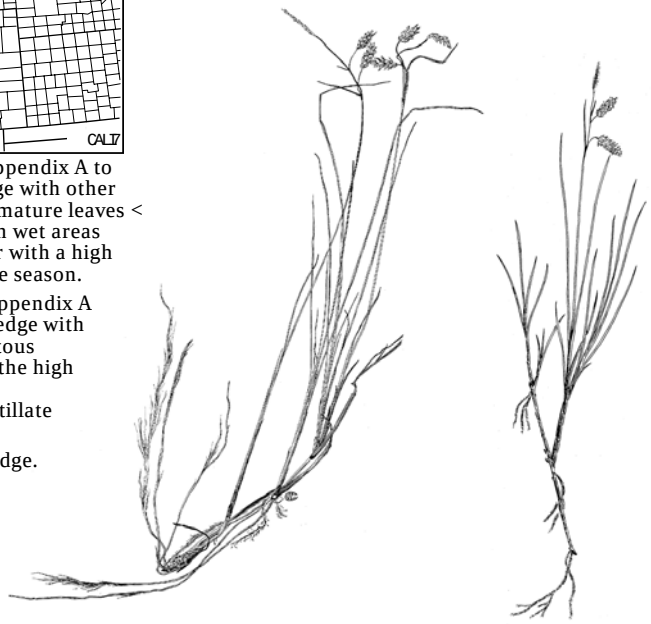
In Rocky Mountain Region in wet areas: wet meadows, fens, limy fens, or marshes, often rooted in mosses, in the Subalpine Zone in w CO and nw-nc WY (in western U.S.: CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



See Tables 12–13 in Appendix A to compare mud sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season.

See Tables 30–31 in Appendix A to compare mud sedge with other tall rhizomatous wetland sedges in the high mountains with staminate over pistillate spikes.

Other names: shore sedge.





Culms taller, equal, or shorter than basal leaves, erect, phyllopodic. **Long rhizomes**. Bract below lowest spike leaf-like, longer or shorter than inflorescence, long-sheathing >3 mm.

Leaves 1–4 mm wide. Leaves strongly glaucous.

Spikes 2–5. Terminal spike gynaecandrous or staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–3 × length of spike, lower spike on a peduncle ¼–2 × length of spike. Spikes with 1–20 pistillate flowers.

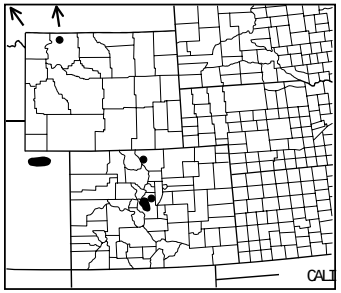


Scale light or medium in color, perigynium light in color. Pistillate scale shorter than perigynium, but mostly covering it.



Perigynium ovate-ovoid or elliptic-oblong, often triangular in cross-section, tip convex with triangular shape, 3–5 mm long (including beak and stipe) and 1–2 mm wide. Perigynium with a double beak, not winged. Perigynium nerved or ribbed. Stigmas 3.

In Rocky Mountain Region occasional in a few sites in very wet, cold fens and limy bogs in high mountains of c & nc CO and nw WY (in western U.S.: CA, CO, ID, MT, OR, WA).





See Tables 30–31 in Appendix A to compare livid sedge with other tall rhizomatous wetland sedges in the high mountains with staminate over pistillate spikes.

Other names: *Carex livida* (Wahlenberg) Willdenow var. *radicaulis* Payne 1865. *Carex livida* (Wahlenberg) Willdenow var. *grayana* Fernald 1926.

Culms taller than basal leaves, erect, phyllopodic or aphyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like or setaceous, shorter than inflorescence, rarely sheathing.

Leaves usually 3–9 mm wide, ranging 2–14 mm wide, lower leaf sheaths sometimes filamentose.

Spikes 2–5. Terminal spike staminate or **androgynous**, lowest spike pistillate. Upper and lower spikes appear the same, lowest spike widely separated by a distance 1–5 × length of spike, lower spike on a short peduncle ½–1 × length of spike. Spikes with 20–50 pistillate flowers.

Scale medium to dark purplish-brown to purplish-black, perigynium light green to yellow-green. Pistillate scale shorter than perigynium, sometimes also slightly narrower.

Perigynium shape lanceolate, tip concave with long taper, 3–5½ mm long (including beak and stipe) and 1–1½ mm wide. Perigynium serrulate, not winged. Perigynium beak short to medium, 1/3 to ¾ of body. Perigynium nerved or ribbed, or with conspicuous transverse folds ventrally. Stigmas 3.

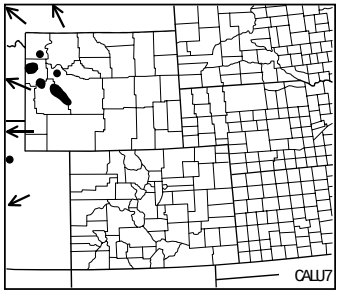



"luzulina"


"ablata"

Other names: woodrush sedge. *Carex ablata* L. H. Bailey 1888. *Carex luzulina* Olney var. *ablata* (L. H. Bailey) F. J. Hermann 1968. Carex *luzulina* Olney var. *atropurpurea* Dorn 1988.

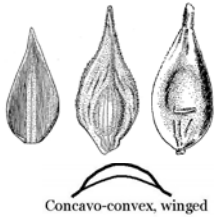
In Rocky Mountain Region locally common in wet to moist areas in the mountains of nw WY (in western U.S.: CA, ID, MT, NV, OR, UT, WA, WY).




"luzulina" "ablata"

See Table 3 in Appendix A to compare wingseed sedge with other sedges that have leaves 12 mm wide or wider. See Tables 4–7 in Appendix A to compare wingseed sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season. See Tables 8–11 in Appendix A to compare wingseed sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas. See Tables 32–35 in Appendix A to compare wingseed sedge with other tall sedges with staminate over pistillate spikes.





Culms taller than basal leaves, erect, aphyllopodic or phyllopodic. Bunch. Bract below lowest spike none or scale-like.

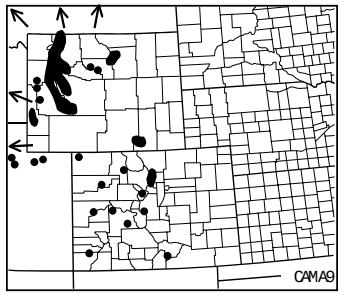
Leaves 1–6 mm wide.

Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale with white-hyaline margins, dark to medium in color, perigynium dark brown to copper brown. Pistillate scale shorter than perigynium, almost covering it.

Perigynium ovate-ovoid or obovate-obovoid, plano-convex, tip concave with short taper, 3½–4½ mm long (including beak and stipe) and 1½–2 mm wide. Perigynium serrulate and winged; beak tip slender and terete. Perigynium nerved or ribbed, or with conspicuous transverse folds ventrally. Stigmas 2.

In Rocky Mountain Region common in dry to moist mountain meadows of the Subalpine and Montane Zones in the mountains of nw WY; less common, scattered in similar habitats in the mountains of w CO, se WY, and sw WY (in western U.S.: CO, ID, MT, NV, OR, WA, WY).



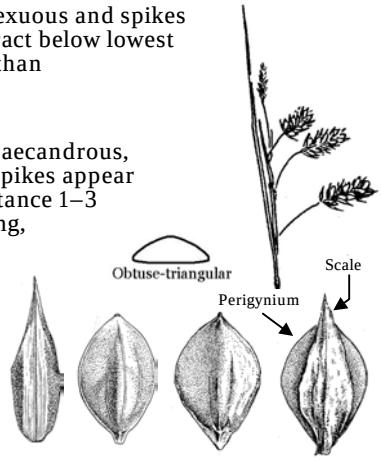
Thickhead sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.



Culms taller than basal leaves, nodding or flexuous and spikes hanging, phyllopodic. Short rhizomes. Bract below lowest spike leaf-like, shorter or slightly longer than inflorescence.

Leaves 1–6 mm wide.

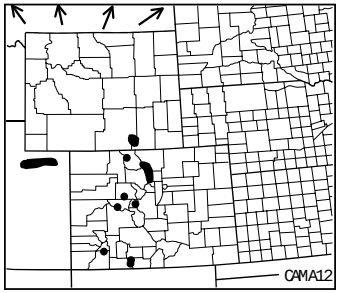
Spikes 2–5. Terminal spike staminate or gynaecandrous, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–3 × length of spike, lower spike <13 mm long, dangling or hanging, on a peduncle ½–1 × length of spike. Spikes with 1–20 pistillate flowers.



Scale long-attenuate, light to medium in color, perigynium light in color. Pistillate scale narrower and longer than perigynium, not covering perigynium, deciduous (falling off early).

Perigynium elliptic-oblong or orbicular-suborbicular, tip convex with triangular shape, 2–4 mm long (including beak and stipe) and 1–2½ mm wide. Perigynium not winged, beakless or very short-beaked. Perigynium nerved or ribbed. Stigmas 3.

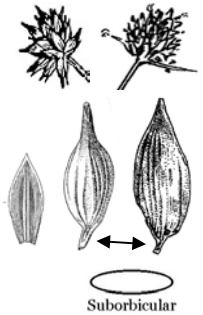
In Rocky Mountain Region scattered on wet lake shores and wet willow stands in the Subalpine Zone, mountains of w CO and se WY (in western U.S.: CO, ID, MT, UT, WA, WY).



See Tables 32–33 in Appendix A to compare boreal bog sedge with other tall bunch or short-rhizome wetland sedges in the high mountains with staminate over pistillate spikes.

Other names: *Carex paupercula* Michaux 1803. *Carex paupercula* Michaux var. *irrigua* (Wahlenberg) Fernald 1906. *Carex magellanica* Lamarck ssp. *irrigua* (J. E. Smith) Hultén 1962.





Culms shorter than or equal to basal leaves, sometimes erect, sometimes nodding or flexuous, aphyllopodic. Usually long rhizomes. Bract below lowest spike none or scale-like.

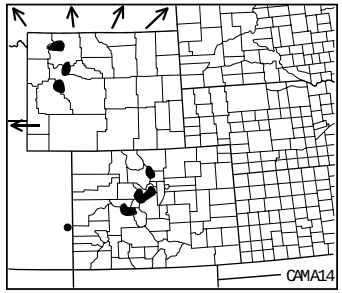
Leaves usually < 1½ mm wide, ranging ½–4 mm wide.

Spikes 2–5. Spikes densely aggregated into ball-like cluster (globose head), spikes all androgynous. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 1–20 pistillate flowers.

Scale medium in color, perigynium medium to dark in color. Pistillate scale narrower and shorter than perigynium.

Perigynium on a stipe, ovate-ovoid, plano-convex, tip concave with short or long taper, 3–4½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, short- to medium-beaked. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region occasional on moist frost scars and late snowbank areas in the Alpine Zone and high Subalpine Zone in c CO and nw WY (in western U.S.: CA, CO, ID, MT, WY).



See Tables 14–19 in Appendix A to compare curved sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas. See Table 24 in Appendix A to compare curved sedge with other androgynous-spike sedges that have more than one spike and long rhizomes.

Other names: *Carex incurviformis* Mackenzie 1917. *Carex incurviformis* Mackenzie var. *danaensis* F. J. Hermann 1955.



There are several tight-head sedges of the high mountains. All of them have several to many androgynous spikes. *Curved sedge* can be distinguished by its long-rhizome habit, with curled leaves and a dark-colored perigynium. Jones's sedge (*C. jonesii*) has few flowers and a dark scale that is broadest near the base and shorter than the perigynium. Mt. Baldy sedge (*C. perglobosa*) has a bunch to short-rhizome habit, with many flowers and a medium-colored ovate scale covering the perigynium. Alpine nerve sedge (*C. neurophora*) is a bunch or short-rhizome sedge with more flowers and a medium-colored ovate scale that is shorter and broader than the perigynium. Alpine blackheaded sedge (*C. vernacula*) has short to long rhizomes, few flowers, and a dark-colored obovate scale (broadest near the tip) covering the narrowly-winged perigynium.





Culms taller than or equal to basal leaves, erect, phyllopodic. Long rhizomes. Bract below lowest spike leaf-like, shorter than or equaling inflorescence, long-sheathing >3 mm.

Leaves 2–8 mm wide, lower leaf sheaths filamentose.

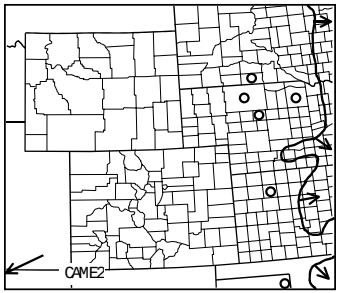
Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike widely-separated, long-pedunculate, nearly basal. Spikes with 1–30 pistillate flowers.

Scale blunt, awned, narrowly hyaline-margined, dark purple-brown to medium brown; perigynium light to medium yellow-green to brown. Pistillate scale as wide as perigynium and shorter than it.

Perigynium shape obovate-obovoid or elliptic-oblong, tip convex with triangular shape, 2½–4½ mm long (including beak and stipe) and 1–2½ mm wide. Perigynium not winged. Perigynium not strongly nerved or ribbed. Stigmas 3.

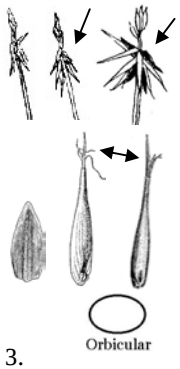


In Rocky Mountain Region SD, NE (in western U.S.: AZ, NM). Foothills and plains. Habitat dry to moist.



See Tables 8–11 in Appendix A to compare Mead's sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.





Culms taller than basal leaves, erect, phyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike none or scale-like.

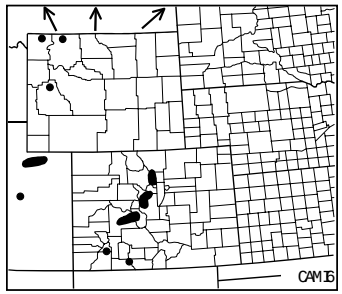
Leaves very narrow, ½–1 mm wide, channeled or involute.

Spike solitary, androgynous, usually few-flowered, with 1–20 pistillate flowers.

Scale light to medium in color, perigynium light yellowish. Pistillate scale shorter than perigynium, deciduous (falling off early).

Perigynium narrowly lanceolate, orbicular in cross-section, reflexed at maturity, concave with very long taper, 3–5½ mm long (including beak and stipe) and ½–1 mm wide. Perigynium not winged, spongy at base. Perigynium long-beaked, with a hooked rachilla protruding from beak. Stigmas 3.

In Rocky Mountain Region occasional to rare in wet, Subalpine willow stands in c & sw CO and nw WY, often rooted in mosses (in western U.S.: CO, MT, WY).





Microglochin sedge.
Photo courtesy Gay Austin

See Tables 12–13 in Appendix A to compare microglochin sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season. See Tables 20–21 in Appendix A to compare microglochin sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

Other names:
fewseeded bog sedge.



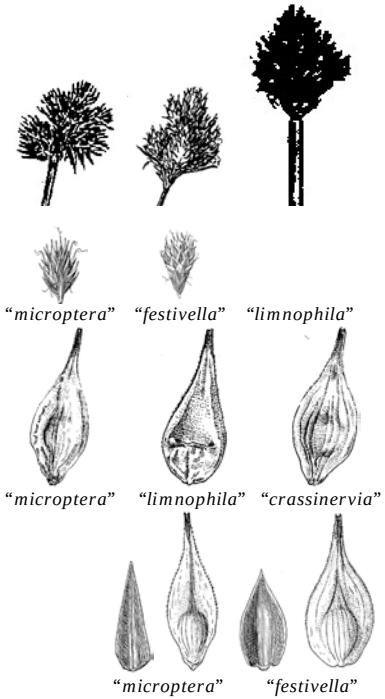
Culms taller than or equal with basal leaves, erect, aphyllopodic. Bract below lowest spike none, setaceous, or scale-like, shorter than inflorescence.

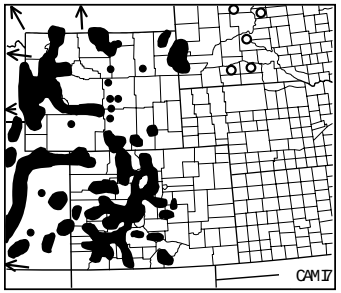
Leaves mostly 2–6 mm wide, ranging 1–6 mm wide.

Spikes 5–20. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike very close to next spike, or shortly separated by a distance up to 1 × length of spike, lower spike sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale dark brownish black; perigynium medium to light green to straw-colored, tinged with light brown. Pistillate scale narrower and shorter than perigynium.

Perigynium flattened and scalelike, ovate-ovoid, tip concave with short or long taper, 3–5½ mm long (including beak and stipe) and 1–2½ mm wide. Perigynium beak serrulate and winged; beak tip slender and terete. Perigynium nerved. Stigmas 2.





In Rocky Mountain Region common in moist meadows, open margins of wetlands and riparian areas, and open slopes in the Subalpine Zone and Montane Zone of all the mountains of CO and WY, including the Black Hills of ne WY and w SD; less common in dry sites of the same range (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Bunch or short rhizomes.

Smallwing sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Smallwing sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

Other names: ovalhead sedge. *Carex festivella* Mackenzie 1915. *Carex limnophila* F. J. Hermann 1956. *Carex microptera* Mackenzie var. *crassinervia* F. J. Hermann 1968. *Carex microptera* Mackenzie var. *limnophila* (F. J. Hermann) Dorn 1988.



“*microptera*”



“*festivella*”



“*limnophila*”



“*microptera*”



“*festivella*”

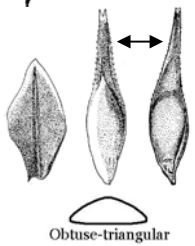


Typical habit of smallwing sedge, in a swale beside a stream



A head from one of the plants at left





Culms taller than basal leaves, nodding or flexuous and spikes hanging, phyllopodic. Bunch. Bract below lowest spike leaf-like or setaceous, shorter than inflorescence, usually long-sheathing >3 mm.

Leaves 1–4 mm wide.

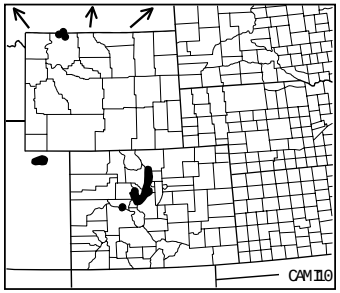
Spikes 2–5. Terminal spike gynaecandrous, lowest spike pistillate. Upper and lower spikes appear the same, lowest spike separated by a distance 1–5 × length of spike, lower spike on a drooping peduncle ½–2 × length of spike. Spikes with 20–50 pistillate flowers.

Scale dark in color, perigynium medium in color. Pistillate scale shorter and wider than perigynium.

Perigynium shape lanceolate, tip concave with long taper, 4–5½ mm long (including beak and stipe) and 1–1½ mm wide. Perigynium serrulate, not winged, but beak flat and about as long as the body. Stigmas 3.

Other names: *Carex fuliginosa* var. *misandra* (R. Brown) O. F. Lang 1851.

In Rocky Mountain Region dry to moist tundra slopes at a few sites in the Alpine Zone and upper Subalpine Zone in nc CO and nw WY (in western U.S.: CO, MT, UT, WY).







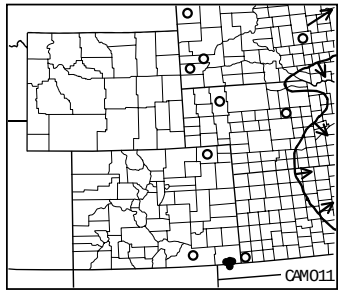
Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or various, shorter than inflorescence.

Leaves mostly 2–3 mm wide, ranging 1–6 mm wide. Leaf sheaths green-and-white mottled.

Spikes 2–10, ovate, widest at base. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

Scale blunt to acute, light to medium in color; perigynium light to medium green. Pistillate scale narrower and shorter than perigynium, reaching to base of beak.

Perigynium shape ovate-ovoid or orbicular-suborbicular, plano-convex, tip concave with short taper, 3–4½ mm long (including beak and stipe) and 1½–3 mm wide. Perigynium serrulate and broadly winged to base; beak flat, winged, and serrulate to apex. Perigynium nerved or ribbed. Stigmas 2.



In Rocky Mountain Region in a few sites in dry to moist woodlands, foothills, and canyons in se & ne CO, w SD, and wc NE (in western U.S.: CA, CO, NM).

Troublesome sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Troublesome sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

Other names: fescue sedge. "*Carex festucacea*" of Colorado report.





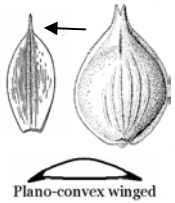


Culms taller than or equal to basal leaves. Bunch or short rhizomes. Bract below lowest spike none or various, reflexed, longer than inflorescence.

Leaves 2–6 mm wide.

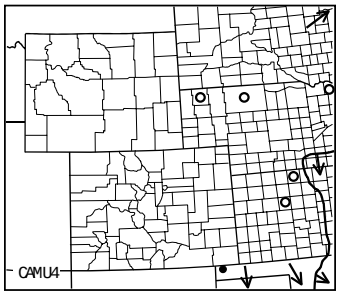
Spikes 2–10. Spikes **all androgynous**. Upper and lower spikes appear the same, lowest spike separated by a distance 1–3 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

Scale acute, acuminate, or awned, medium in color; perigynium medium in color. Pistillate scale narrower than perigynium, shorter than to about as long as perigynium.



Perigynium ovate-ovoid, tip concave with short taper, 3–4½ mm long (including beak and stipe) and 2–>3 mm wide. Perigynium serrulate and narrowly winged; beak tip shallowly bidentate. Perigynium several-nerved. Stigmas 2.

In Rocky Mountain Region occasional in "prairies, woodlands, roadside ditches, or moist sandy shores" (FGP) in nw NE; possibly in sw KS (not in western U.S.). Foothills and plains. Habitat dry to moist.



Among clustered-cylindrical-head dry- to moist-site bunch sedges of the plains, *Mühlenberg's sedge* can be distinguished by its reflexed bract longer than the inflorescence. Glomerate sedge has the lower leaf sheaths green-and-white mottled and scale that is as wide as the perigynium. Blunt broom sedge (*C. tribuloides*) has a winged culm and a more broadly winged perigynium. Heavy sedge (*C. gravida*) has shorter spikes with fewer flowers.

See Tables 26–27 in Appendix A to compare Mühlenberg's sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

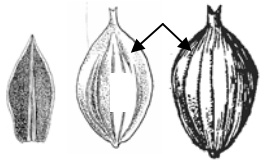
Other names: *Carex muehlenbergii* Willdenow var. *enervis* W. Boott 1862. *Carex muehlenbergii* Willdenow var. *australis* Olney 1886.











Culms taller than or equal to basal leaves, erect, aphyllopodic or phyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike leaf-like, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

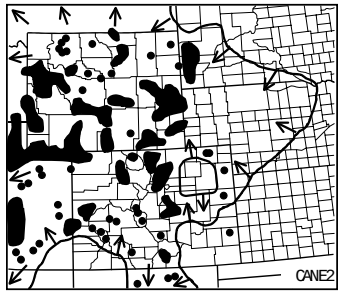
Leaves 2–12 mm wide. Leaves conspicuously glaucous.

Spikes plump, 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike on a short peduncle ¼–½ × length of spike. Spikes with 30–100 pistillate flowers.

Scale dark purple to brown-black with lighter midrib and narrow margins; perigynium light to medium straw-colored, red-dotted. Pistillate scale narrower and shorter than perigynium.

Perigynium obovate-obovoid or elliptic-oblong, tip convex with triangular shape, 2½–4 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged; beak short, ½-1 mm long, bidentate. Perigynium strongly several-ribbed, with nerves between the ribs. Stigmas 2.

In Rocky Mountain Region common in wet sites: swamps, wet streamsides, springs, alkaline meadows, wet swales in plains, foothills, and the lower Montane Zone on mountains, throughout WY, in most of CO (except the se & sw corners), in w & sw SD, and c & w NE (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



See Tables 4–7 in Appendix A to compare Nebraska sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season.

See Tables 34–38 in Appendix A to compare Nebraska sedge with other tall wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.

Other names: "*Carex nebraskensis*," misspelling of original name.





Culms taller than or equal to basal leaves, erect or nodding, phyllopodic or aphyllopodic. Short rhizomes. Bract below lowest spike none or various, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

Leaves 2–6 mm wide, lower leaf sheaths sometimes filamentose.

Spikes ovate, short and plump, 2–5. Terminal spike gynaecandrous, lowest spike pistillate. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 10–50 pistillate flowers.

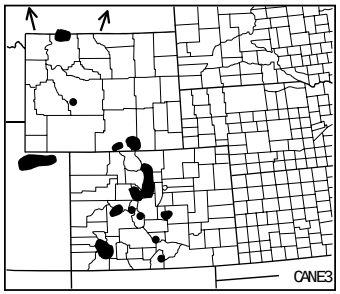


Scale dark in color, perigynium light to medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium elliptic-oblong, tip convex with triangular shape, 3–4½ mm long (including beak and stipe) and 1–2½ mm wide. Perigynium serrulate, not winged. Perigynium short-beaked, ½–1 mm long. Stigmas 3.



In Rocky Mountain Region dry to moist meadows, slopes, and snowmelt sites in Alpine Zone and high Subalpine Zone; fairly common in the mountains of ne & sw CO; scattered in c & s CO and in nw WY (in western U.S.: CO, UT, WY).



Nelson's sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.





Culms taller than or equal to basal leaves, stiffly erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

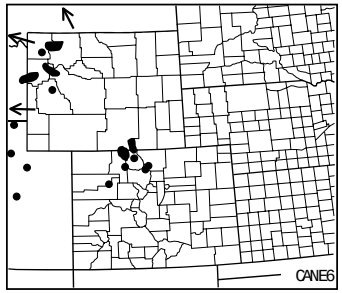
Leaves 2–6 mm wide. Leaf sheaths sometimes wrinkled.

Spikes short, 5–10, aggregated into a tight, cylindrical head. Spikes **all androgynous**. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 10–30 pistillate flowers.

Scale acute, not hyaline, medium in color; perigynium medium in color. Pistillate scale shorter and broader than perigynium.

Perigynium on a short stipe, broadest in lower 1/3, ovate-ovoid or lanceolate, plano-convex, concave with very long taper from base, 3–4½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, sometimes spongy at base. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region occasional in wet or moist meadows in the Montane Zone and Subalpine Zone in nc CO and nw WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).

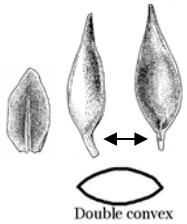




There are several tight-head sedges of the high mountains. All of them have several to many androgynous spikes. *Alpine nerve sedge* can be distinguished by its bunch or short-rhizome habit, with more flowers and a medium-colored ovate scale that is shorter and broader than the perigynium. Alpine blackheaded sedge (*C. vernacula*) has short to long rhizomes, few flowers, and a dark-colored obovate scale (broadest near the tip) covering the narrowly-winged perigynium. Mt. Baldy sedge (*C. perglobosa*) is a bunch sedge with many flowers and a medium-colored ovate scale covering the perigynium. Jones's sedge (*C. jonesii*) has few flowers, but its dark scale is broadest near the base and shorter than the perigynium. Curved sedge (*C. maritima*) is a long-rhizomes sedges with curled leaves and a dark-colored perigynium.

See Table 25 in Appendix A to compare alpine nerve sedge with other wetland, bunch, androgynous-spike sedges that have more than one spike. See Tables 26–27 in Appendix A to compare alpine nerve sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.





Culms taller than basal leaves, erect, aphyllopodic or phyllopodic. Long rhizomes. Bract below lowest spike none or scale-like.

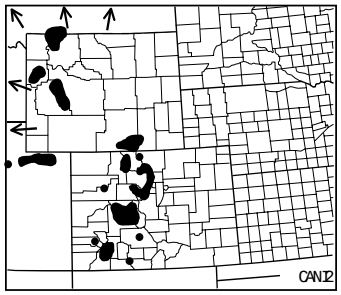
Leaves 1–6 mm wide.

Spike solitary, staminate or pistillate, or androgynous. Plants may be dioecious. Spike with 20–50 pistillate flowers.

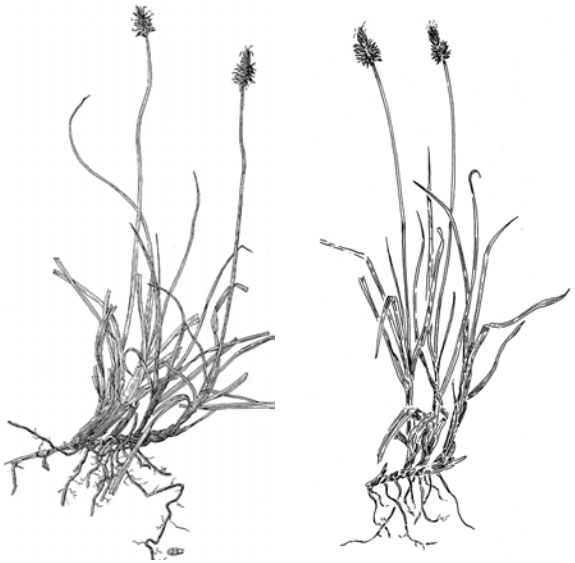
Scale dark brown to black, perigynium medium to dark in color. Pistillate scale shorter than perigynium and about as wide.

Perigynium spreading to reflexed, narrowly ovate-ovoid or lanceolate, tip concave with long taper, 3½–5½ mm long (including beak and stipe) and ½–1½ mm wide. Perigynium not winged. Perigynium nerveless and glabrous.

In Rocky Mountain Region common in moist to wet alpine tundra and streamsides, Alpine Zone and Subalpine Zone, in w CO and nw WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).



See Tables 20–21 in Appendix A to compare black alpine sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).









Culms taller than basal leaves, erect. Bunch or short rhizomes. Bract below lowest spike none or various, shorter than inflorescence.

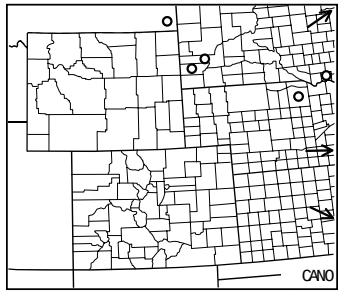
Leaves mostly 3–6 mm wide, ranging 2–8 mm wide. Leaf sheaths green-and-white mottled.

Spikes 2–20. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–3 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

Scale medium in color, perigynium medium green to straw-colored. Pistillate scale shorter and narrower than perigynium.

Perigynium ovate-ovoid, tip concave with short or long taper, 3–4½ mm long (including beak and stipe) and 1½–2½ mm wide, about twice as long as wide. Perigynium broadly winged to base, many-nerved. Perigynium beak flat and serrulate to the tip. Stigmas 2.

In Rocky Mountain Region in a few sites, "woodlands, occasionally prairies and ditches" (FGP) in the Black Hills in SD (not in western U.S.). Foothills and plains. Habitat dry to moist.

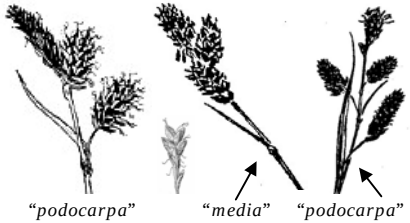


Greater straw sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Greater straw sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

See Tables 8–11 in Appendix A to compare greater straw sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.





Culms taller than basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, phyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

Leaves 1–4 mm wide, lower leaf sheaths sometimes filamentose.

Spikes 2–5, narrow (<6 mm wide). Terminal spike gynaecandrous or staminate, lowest spike pistillate. Upper and lower spikes appear the same, lowest spike ± separated by a distance ¼–1 × length of spike, lower spike on a short peduncle ¼–½ × length of spike. Spikes with 5–30 pistillate flowers.

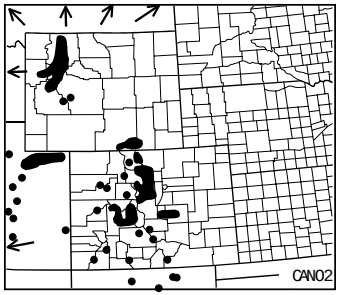




Scale dark in color, perigynium medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium ovate-ovoid or obovate-obovoid or elliptic-oblong, tip convex with triangular shape, 2–4½ mm long (including beak and stipe) and 1–2½ mm wide. Perigynium serrulate, not winged, with a short beak (about ½ mm long). Stigmas 3.

In Rocky Mountain Region common in moist aspen forests, forest openings, and wet tundra in the upper Montane, Subalpine, and Alpine Zones, in the mountains of n & c CO and nw WY; less common in s & wc CO (in western U.S.: CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).





Other names: Steven's sedge. *Carex podocarpa* R. Brown 1823. *Carex media* R. Brown 1823. *Carex alpina* var. *stevenii* Holm 1903. *Carex media* R. Brown var. *stevenii* (Holm) Fernald 1942. *Carex stevenii* (Holm) Kalela 1944. *Carex norvegica* Retzius ssp. *stevenii* (Holm) D. Murray 1969. *Carex norvegica* Retzius var. *stevenii* (Holm) Dorn 1988. Weber (2000) considers that this species in Colorado is really two: *Carex norvegica* including *C. podocarpa*, and *Carex stevenii*. He considers both to be separate from *C. media*.


"*pelocarpa*" "*nova*"

Culms taller than basal leaves, erect, phyllopodic or aphyllopodic. Culms sometimes weak and flexuous and spikes hanging. Bunch or short rhizomes. Bract below lowest spike none, or leaf-like and longer or shorter than inflorescence, sometimes with black or purple-black auricles.

Leaves 1–6 mm wide.

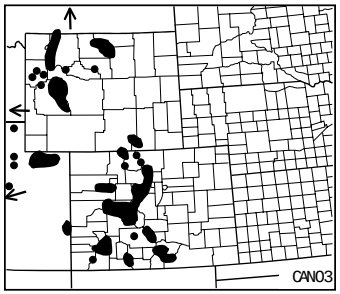
Spikes 2–5, broad-ovate with acute tip. Terminal spike gynaecandrous, lowest spike pistillate. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 30–100 pistillate flowers.

Scale dark in color, perigynium dark above. Pistillate scale narrower and shorter than perigynium.

Perigynium shape elliptic-oblong or orbicular-suborbicular, tip convex with curved or triangular shape, 3–4½ mm long (including beak and stipe) and 1½–3 mm wide. Perigynium serrulate, not winged, short-beaked. Stigmas 3.



In Rocky Mountain Region common on moist slopes and meadows in the Alpine Zone or Subalpine Zone in the mountains of w CO, se WY, and nw WY (in western U.S.: CO, ID, MT, NM, NV, OR, UT, WY).



New sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Other names: black sedge. *Carex violacea* C. B. Clarke 1908. *Carex pelocarpa* F. J. Hermann 1937. *Carex nova* L. H. Bailey var. *pelocarpa* (F. J. Hermann) Dorn 1988. Several botanists have suggested that the correct name for this species may be *Carex melanocephala* Turczaninov 1855 (Weber and Wittmann 2000, also see Egorova 1999).

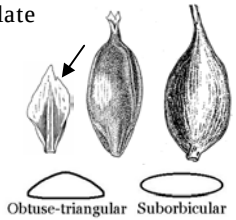

"*nova*" "*pelocarpa*"



Culms taller than or equal to basal leaves, erect, aphyllopodic. Long rhizomes. Bract below lowest spike none or scale-like.

Leaves narrow, ½–2 mm wide, folded, V-shaped.

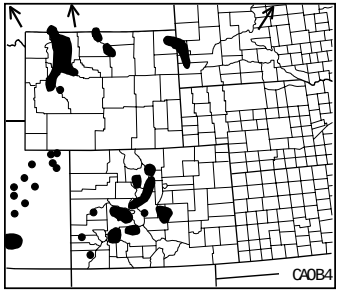
Spike solitary, androgynous, few-flowered, with 1–10 pistillate flowers.



Scale acute to acuminate, with conspicuous hyaline margins, light to medium in color; perigynium medium chestnut to dark blackish brown. Pistillate scale shorter than perigynium, and about the same width.

Perigynium obovate-obovoid or elliptic-oblong, tip concave with long taper, 3–5 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged. Beak short (½–1 mm long), with flaring hyaline tips. Perigynium nerved or ribbed. Stigmas 3.

In Rocky Mountain Region common on dry, open slopes, in full sun or slight shade, in the Subalpine Zone or upper Montane Zone in the mountains of c & w CO, nw & nc WY, and the Black Hills of ne WY & w SD (in western U.S.: AZ, CO, ID, MT, NM, UT, WY).

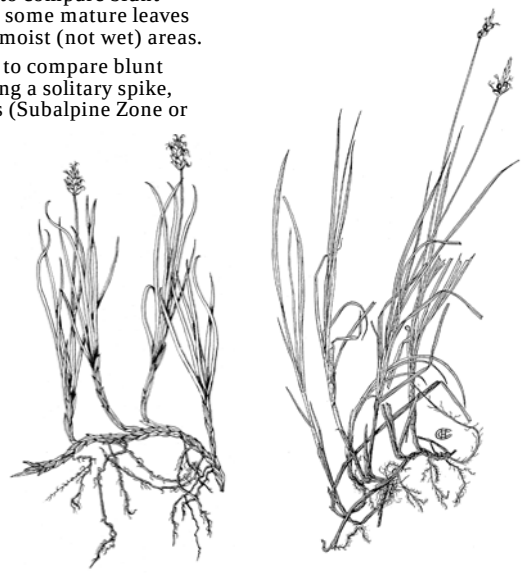


See Tables 14–19 in Appendix A to compare blunt sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

See Tables 20–21 in Appendix A to compare blunt sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

See Tables 22–23 in Appendix A to compare blunt sedge with other sedges that have a solitary spike occurring in foothills, plains, or the lower slopes of mountains.

Other names: obtuse sedge.





Culms taller than or equal to basal leaves, sometimes erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or various, shorter than inflorescence.

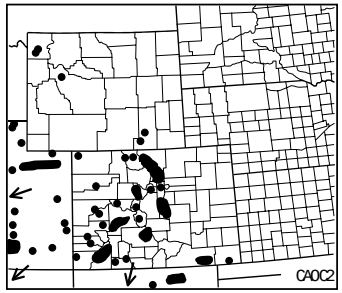
Leaves 1–4 mm wide.

Spikes 2–10, in an elongated head. Spikes **all androgynous**. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–3 × length of spike, lower spike sessile or nearly so. Spikes sometimes few-flowered, with 1–20 pistillate flowers.

Scale medium to light in color; perigynium medium greenish straw-colored margins with brownish center. Pistillate scale covering perigynium, or somewhat narrower and shorter than perigynium.

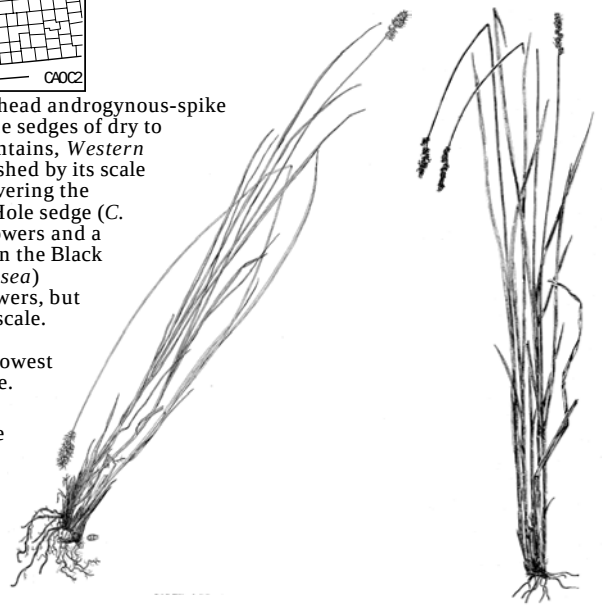
Perigynium broadest in the middle 1/3, elliptic-oblong, plano-convex, tip concave with short taper, 3–5 mm long (including beak and stipe) and 1–2 mm wide. Perigynium serrulate, not winged, shallowly bidentate, sometimes spongy at base. Stigmas 2.

In Rocky Mountain Region common to occasional in dry to moist forests and slopes of the Foothills, Montane, and Subalpine Zones in the mountains of CO, including the foothills and canyons in se CO; occasional in nw CO, se WY, and nw WY (in western U.S.: AZ, CA, CO, ID, NM, NV, UT, WY).



Among other interrupted-head androgynous-spike bunch or short-rhizome sedges of dry to moist sites in the mountains, *Western sedge* can be distinguished by its scale with a dark midrib, covering the perigynium. Jackson Hole sedge (*C. vallicola*) has fewer flowers and a lighter-colored scale. In the Black Hills, rosy sedge (*C. rosea*) sometimes has few flowers, but it has a blunt to acute scale. Longstalk sedge (*C. pedunculata*) has the lowest spike long-pedunculate.

See Tables 26–27 in Appendix A to compare western sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.



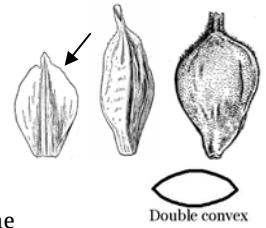


Culms stout, erect, scabrous below spike, taller than or equal to basal leaves, phyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

Leaves narrow, 1–2 mm wide.

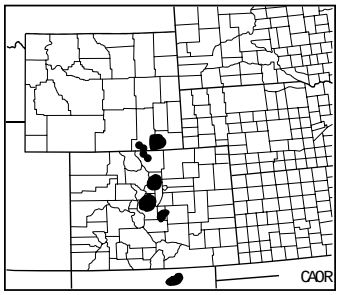
Spike solitary, androgynous, with 20–100 pistillate flowers.

Scale light to medium in color, perigynium light to medium in color. Pistillate scale shorter than perigynium, and about the same width. Lowest pistillate scale usually awned.



Perigynium shape obovate-obovoid, tip convex with triangular shape, 3–4½ mm long (including beak and stipe) and 1–1½ mm wide. Perigynium not winged, short-beaked. Perigynium puberulent, especially above. Stigmas 3.

In Rocky Mountain Region in dry grasslands of the foothills and Montane Zone of the eastern slope of the mountains in ne & c CO and se WY (in western U.S.: AZ, CO, NM, WY).



See Tables 22–23 in Appendix A to compare grassyslope sedge with other sedges that have a solitary spike occurring in foothills, plains, or the lower slopes of mountains.

See Tables 28–29 in Appendix A to compare grassyslope sedge with other sedges with pubescent or puberulent perigynia.





Culms taller than or equal to basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike none or scale-like.

Leaves 2–6 mm wide.

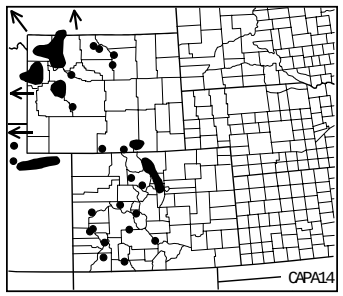
Head ovoid.

Spikes usually >5, ranging 2–20. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 30–100 pistillate flowers.

Scale dark brown to blackish brown with green midrib; perigynium medium to dark in color. Pistillate scale covering and shorter than perigynium.

Perigynium spreading in the spike, ovate-ovoid, plano-convex, tip concave with short taper, 3½–5 mm long (including beak and stipe) and 1–2½ mm wide. Perigynium serrulate and winged to base, sometimes spongy at base; beak tip slender and terete. Perigynium nerved or ribbed, or with conspicuous transverse folds ventrally. Stigmas 2.

In Rocky Mountain Region common in dry to moist meadows, open woods, and slopes in the Subalpine Zone or Montane Zone in mountains of nw WY and the eastern slope of the Front Range in ne CO and se WY; less common and scattered in w CO, sc WY, and nc WY (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).







Chamisso sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Chamisso sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

Other names: thick-headed sedge. *Carex macloviana* D'Urville ssp. *pachystachya* (Chamisso) Hultén 1942.

Culms usually taller than basal leaves, erect, phyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike none or various, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

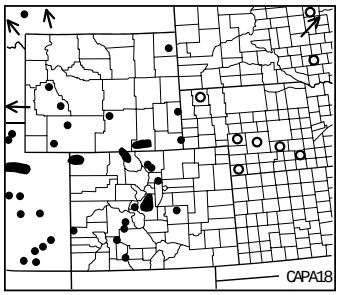
Leaves usually narrow, 2–3 mm wide, ranging 1–4 mm wide.

Spikes 1–5. Spike sometimes solitary; plants sometimes dioecious. Terminal spike (usually 1) staminate or gynaecandrous or pistillate, lower spikes (usually 1–3) staminate or pistillate. Upper and lower spikes appear the same or different, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 10–100 pistillate flowers.

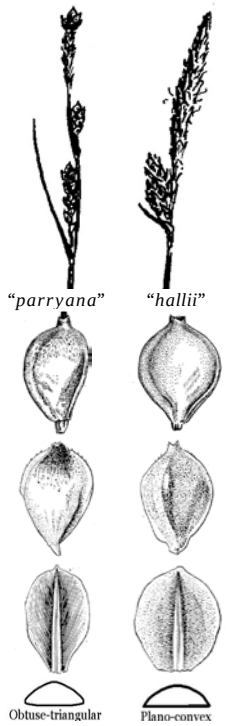
Scale medium brown to dark purple-brown, with prominent green midrib (never black); perigynium light straw-colored, purple-tinged above. Pistillate scale covering or narrower or shorter than perigynium.

Perigynium obovate-obovoid or orbicular-suborbicular, tip convex with curved or triangular shape, 2–4 mm long (including beak and stipe) and 1–2½ mm wide. Perigynium serrulate, not winged, very short-beaked (beak < ¾ mm long). Perigynium 2-ribbed. Stigmas 3.

In Rocky Mountain Region scattered in dry to moist open sites of prairies, plains, and mountains in w ⅔ of CO, sw & e WY, and w & c NE (in western U.S.: CO, ID, MT, NV, UT, WY).



Other names: deer sedge. *Carex hallii* Olney 1872. *Carex parryana* Dewey var. *unica* L. H. Bailey 1889. *Carex parryana* Dewey ssp. *hallii* (Olney) D. Murray 1969.







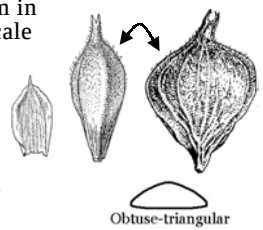
Culms taller than or equal to basal leaves, erect, phyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, usually longer than inflorescence.

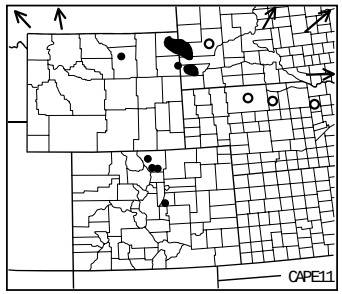
Leaves often narrow, 1½–3 mm wide, ranging 1–4 mm wide.

Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes sometimes few-flowered, with 1–20 pistillate flowers.

Scale obtuse to mucronate to short-awned, light to medium in color; perigynium light to medium in color. Pistillate scale much shorter than perigynium.

Perigynium obovate-obovoid, tip convex with curved or triangular shape, 3–4 mm long (including beak and stipe) and 1–1½ mm wide. Perigynium not winged. Perigynium body longer than wide, uniformly pubescent. Perigynium short-beaked (beak ½–1½ mm long). Perigynium 2-ribbed, base spongy. Stigmas 3.





In Rocky Mountain Region common in wet sites in woods, thickets, shaded ravines of Foothills and Montane Zone of the Black Hills in ne WY and w SD; occasional in similar habitats along the eastern slope of the Front Range in ne CO, and in nc WY, nc NE, and sw SD (in western U.S.: CO, WY).

See Tables 28–29 in Appendix A to compare Peck's sedge with other sedges with pubescent or puberulent perigynia.

See Tables 36–38 in Appendix A to compare Peck's sedge with other tall bunch or short-rhizome wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.



Culms shorter than or equal to basal leaves, sometimes nodding or flexuous or spikes hanging, producing long-pedunculate carpellate spikes from the plant base, phyllopodic. Bunch or short rhizomes or mat-forming.

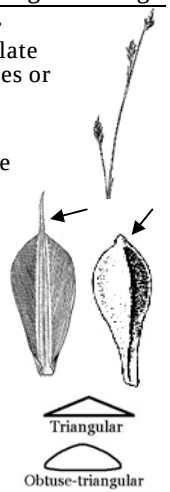
Leaves 2–6 mm wide.

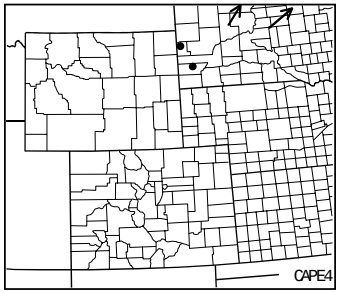
Spikes 2–5. Terminal spike staminate or androgynous, lowest spike androgynous or pistillate. Upper and lower spikes appear the same or different, lowest spike widely separated, long-peduncled, basal. Spikes often few-flowered, with 1–20 pistillate flowers.

Scale scabrous-awned, light to medium in color; perigynium light to medium green. Pistillate scale covering perigynium.

Perigynium shape obovate-obovoid, tip concave with short taper, 3½–5 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged, with a minute, bent beak. Perigynium puberulent, 2-ribbed. Stigmas 3.

In Rocky Mountain Region occasional in dry to moist woodlands of the Black Hills in w SD (not in western U.S.).



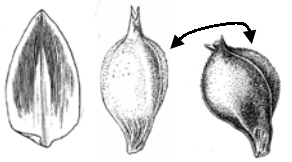


See Tables 26–27 in Appendix A to compare longstalk sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

See Tables 28–29 in Appendix A to compare longstalk sedge with other sedges with pubescent or puberulent perigynia.







"*heliophila*"



"*pensylvanica*"



Culms taller than or equal to basal leaves, erect, phyllopodic or aphyllopodic. Short rhizomes or long rhizomes or mat-forming. Bract below lowest spike usually leaf-like, shorter than inflorescence.

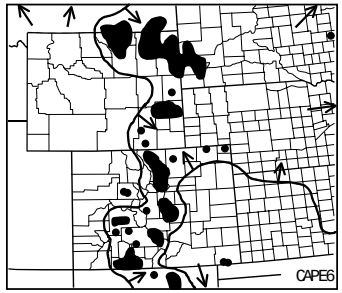
Leaves usually 1½–3 mm wide, ranging 1–6 mm wide, lower leaf sheaths filamentose.

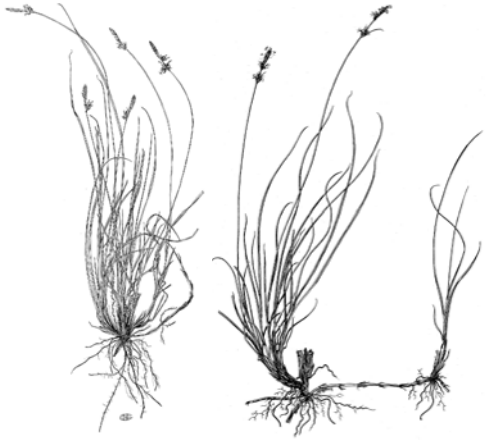
Spikes 2–5. Terminal spike staminate or **androgynous**, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–3 × length of spike, lower spike sessile or nearly so. Spikes sometimes few-flowered, with 1–20 pistillate flowers.

Scale acute to acuminate, with narrow hyaline margins, medium in color, perigynium medium green to yellow-green. Pistillate scale covering perigynium, usually exceeding or equal to perigynium.

Perigynium inflated, about as long as wide, obovate-obovoid or elliptic-oblong or orbicular-suborbicular, tip convex with curved or triangular shape, 2½–5 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium beak short (½–1½ mm long), serrulate, not winged. Perigynium body 2-keeled, spongy at base. Perigynium uniformly puberulent. Stigmas 3.

In Rocky Mountain Region common in dry sites on plains, hills, and open woods in the foothills and lower Montane Zone of the eastern slopes of mountains from nc WY south into ne NM; and common (especially under pines) in and around the Black Hills in ne WY and w SD; less common in the Gunnison Basin of wc CO, in ne & se CO, and in w NE (in western U.S.: CA, CO, ID, MT, NM, OR, WA, WY).

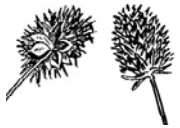




See Tables 28–29 in Appendix A to compare sun sedge with other sedges with pubescent or puberulent perigynia.

Among narrow-leaved species in these habitats, *C. filifolia* overlaps, but is very common in w WY and rare in s CO; it always has narrow leaves, a single androgynous spike, and is never rhizomatous. *C. praegracilis* (silver sedge) has 5 or more similar-looking spikes, and glabrous perigynia.

Other names: Pennsylvania sedge. *Carex pensylvanica* Lamarck var. *digyna* Böcher 1877. *Carex heliophila* Mackenzie 1913. *Carex pensylvanica* Lamarck ssp. *heliophila* (Mackenzie) W. A. Weber 1981. *Carex inops* L. H. Bailey ssp. *heliophila* (Mackenzie) Crins 1983.



Culms taller than or equal to basal leaves, erect, phyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

Leaves ½–4 mm wide, often curled and drying at tips.



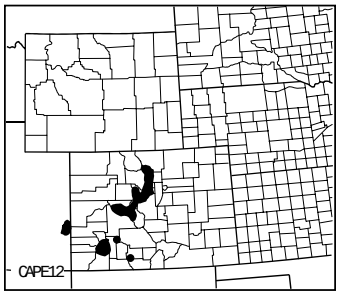
Spikes 5–20, aggregated into a tight, ± globose (ball-like) head. Spikes **all androgynous**. Upper and lower spikes appear the same; lower spike spreading to reflexed, very close to next spike, sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale light to medium in color, perigynium light in color. Pistillate scale covering perigynium.



Perigynium shape ovate-ovoid or elliptic-oblong, plano-convex or slightly inflated, tip convex with triangular shape or concave with short taper, 4–5 mm long (including beak and stipe) and 2–3 mm wide. Perigynium not winged. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region on dry to moist scree slopes in the Alpine Zone and upper Subalpine Zone of high mountains in c & sw CO (in western U.S.: CO, UT).





There are several tight-head sedges of the high mountains. All of them have several to many androgynous spikes. *Mt. Baldy* sedge can be distinguished by its bunch to short-rhizome habit, with many flowers and a medium-colored ovate scale covering the perigynium. Alpine nerve sedge (*C. neurophora*) is a bunch or short-rhizome sedge with more flowers and a medium-colored ovate scale that is shorter and broader than the perigynium. Alpine blackheaded sedge (*C. vernacula*) has short to long rhizomes, few flowers, and a dark-colored obovate scale (broadest near the tip) covering the narrowly-winged perigynium. Jones's sedge (*C. jonesii*) has few flowers, but its dark scale is broadest near the base and shorter than the perigynium. Curved sedge (*C. maritima*) is a long-rhizomes sedges with curled leaves and a dark-colored perigynium.

See Tables 14–19 in Appendix A to compare Mt. Baldy sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

See Tables 26–27 in Appendix A to compare Mt. Baldy sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

Other names: globe sedge.



Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

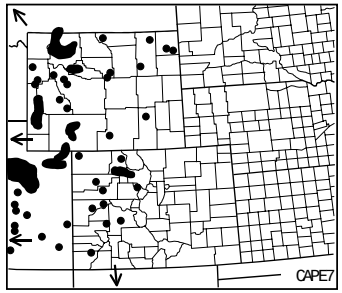
Leaves 1–6 mm wide.

Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale light to medium in color, perigynium medium in color. Pistillate scale covering perigynium.

Perigynium lanceolate or elliptic-oblong, plano-convex, tip concave with long taper, 5–8 mm long (including beak and stipe) and 1–2½ mm wide. Perigynium serrulate and narrowly winged, sometimes spongy at base or along sides; beak tip slender and terete. Perigynium nerved or ribbed, or with conspicuous transverse folds ventrally. Stigmas 2.

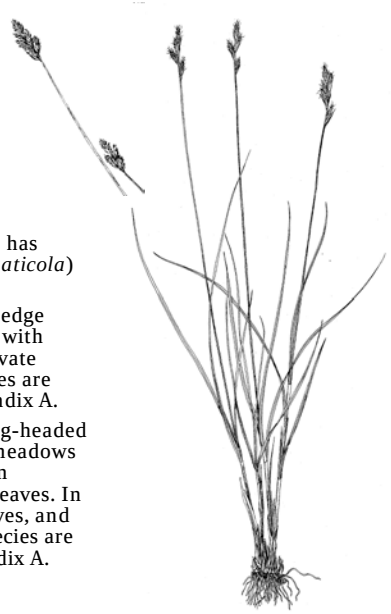
In Rocky Mountain Region moderately common in moist to dry sites in Subalpine Zone or Montane Zone in the mountains of w WY; scattered in the mountains of w CO and e WY (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



There are several other long-headed dry- or moist-site bunch sedges of the Black Hills. Bronze sedge can be distinguished from most of them by its scale that covers the perigynium and spikes broadest near the tip. Among sedges where the scale covers the perigynium, dryland sedge (*C. xerantica*) has more flowers per spike. Meadow sedge (*C. praticola*) has spikes that are closer together.

Liddon sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Liddon sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.





Culms 1–3 dm tall, taller than or equal to basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike leaf-like, setaceous, scale-like or none, shorter than inflorescence.

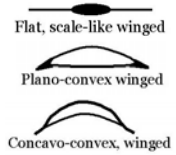
Leaves sometimes narrow, often ½–2 mm wide, ranging ½–4 mm wide.

Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

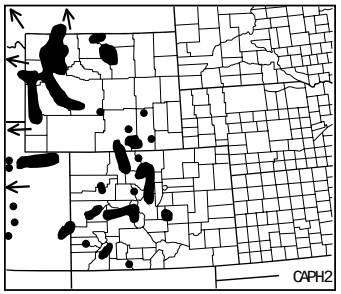


Scale medium to dark in color, perigynium medium to dark in color. Pistillate scale covering perigynium or nearly so.

Perigynium shape ovate-ovoid or elliptic-oblong, plano-convex, tip concave with long taper, 4–5½ mm long (including beak and stipe) and 1–2½ mm wide. Perigynium serrulate and narrowly winged, sometimes spongy at base. Beak short, ½–1 mm long. beak tip slender and terete. Perigynium nerved or ribbed. Stigmas 2.



In Rocky Mountain Region common in dry to moist rocks, meadows, and open forests in the Alpine Zone and upper Subalpine Zone in the mountains of w CO and se-w-nc WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).





Dunhead sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Dunhead sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

See Tables 14–19 in Appendix A to compare dunhead sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

Other names: mountain hare sedge. *Carex leporina*, a European species.



Culms taller than basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or various, usually shorter than inflorescence.

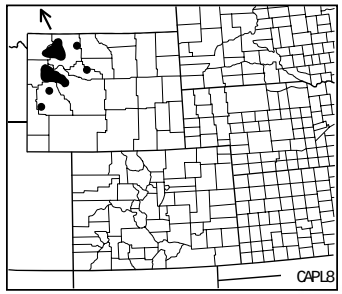
Leaves 2–6 mm wide.

Spikes 5–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale medium or dark in color, perigynium medium in color. Pistillate scale covering perigynium.

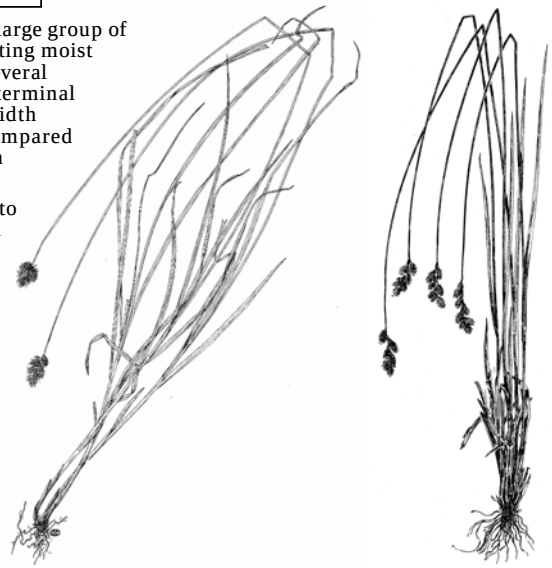
Perigynium shape lanceolate or elliptic-oblong, plano-convex, tip concave with long taper, 4–5 mm long (including beak and stipe) and 1½–2 mm wide. Perigynium serrulate and winged; beak tip slender and terete. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region common to occasional in dry to moist meadows, woods, and slopes in the mountains of nw WY (in western U.S.: ID, MT, OR, WA, WY).



Broadscale sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

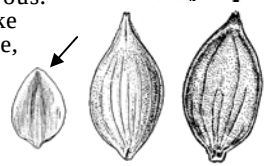
Broadscale sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.





Culms taller than or equal to basal leaves, erect, phyllopodic or aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or various, shorter than inflorescence.

Leaves 1–4 mm wide.



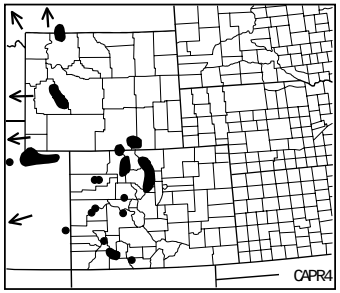
Spikes usually 4–5, ranging 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes sometimes few-flowered, with 1–20 pistillate flowers.

Scale medium to dark in color, perigynium medium in color. Pistillate scale narrower and shorter than perigynium.



Perigynium ovate-ovoid or elliptic-oblong, plano-convex, tip concave with short taper, 1½–2½ mm long (including beak and stipe) and ½–1½ mm wide. Perigynium serrulate, not winged, sometimes spongy at base or along sides. Beak short, ¼–½ × body (¼–½ mm long). Perigynium conspicuously nerved. Stigmas 2.

In Rocky Mountain Region locally common on tundra or grassy slopes in Alpine and upper Subalpine Ranges in the Park Range, Front Range, and Snowy Range of nc CO & se WY, and in the Wind River Mountains and Absaroka Mountains of nw WY; less common on scattered mountains in w CO (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).





Teachers' sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Teachers' sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

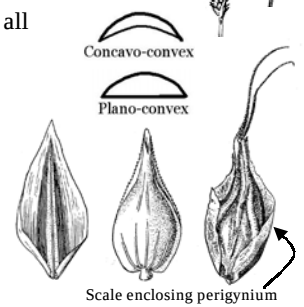
Other names: early sedge.



Culms taller than or equal to basal leaves, erect, aphyllopodic. Usually with **long rhizomes**. Bract below lowest spike none or scale-like.

Leaves usually 2–3 mm wide, ranging 1–4 mm wide. Leaf sheaths dark brown to black.

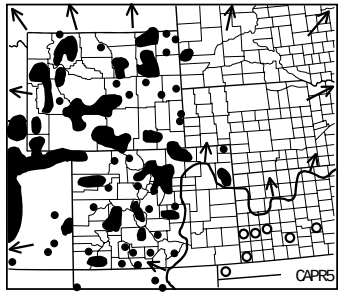
Spikes 5–20. Plants sometimes dioecious and spikes all staminate or pistillate; or terminal spike **androgynous** and lower spikes staminate or androgynous or pistillate. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.



Scale medium in color, perigynium medium straw-colored to dark brownish-black. Pistillate scale **covering perigynium and enclosing it**.

Perigynium ovate-ovoid, plano-convex, tip concave with short taper, 3–4½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium serrulate, not winged (or slightly winged at junction of beak and base), sometimes spongy at base or along sides. Beak ½–1¾ mm long. Perigynium nerved. Stigmas 2.

In Rocky Mountain Region common in moist to dry swales, prairies, plains, mountain slopes, open areas, and ditches throughout CO, WY, w SD, and w NE; occasional in se & ec CO and sw KS (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



See Table 24 in Appendix A to compare silver sedge with other androgynous-spike sedges that have more than one spike and long rhizomes.

See Tables 26–27 in Appendix A to compare silver sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

Other names: clustered field sedge.







Culms taller than or equal to basal leaves, sometimes nodding or flexuous or spikes hanging, phyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like, much shorter than inflorescence.

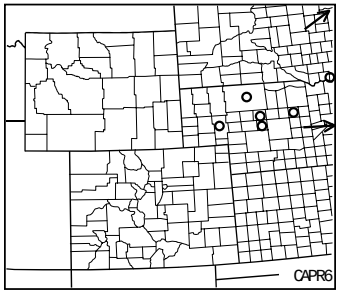
Leaves usually 2–3 mm wide, ranging 1–4 mm wide. Lower leaf sheaths red-dotted.

Spikes 5–20. Spikes **all androgynous**. Upper and lower spikes appear the same, lowest spike shortly or widely separated by a distance ¼–5 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

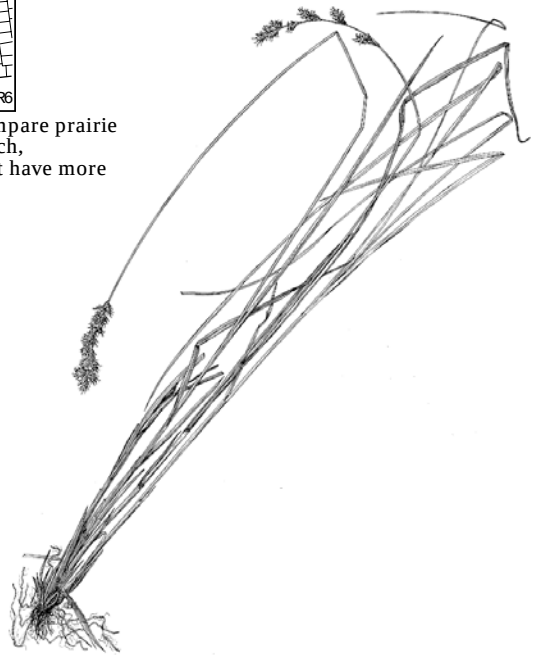
Scale ovate, acute to acuminate, light to medium reddish-brown, perigynium light to medium brown color. Pistillate scale covering perigynium.

Perigynium ovate-ovoid, tip concave with long taper, 2½–3½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, few-nerved. Beak serrulate, about as long as body. Stigmas 2.

In Rocky Mountain Region common to occasional in “marshes, wet meadows, and swamps” (FGP) in w & c NE (not in western U.S.). Foothills and plains.



See Table 25 in Appendix A to compare prairie sedge with other wetland, bunch, androgynous-spike sedges that have more than one spike.





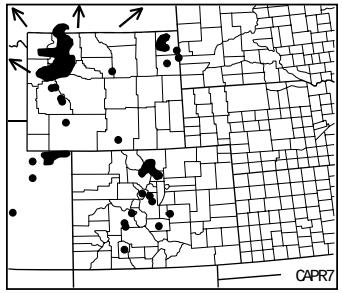
Culms taller than basal leaves, sometimes nodding, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

Leaves usually 2–3 mm wide, ranging 1–4 mm wide.

Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale medium in color, perigynium light green or whitish-green. Pistillate scale covering perigynium.

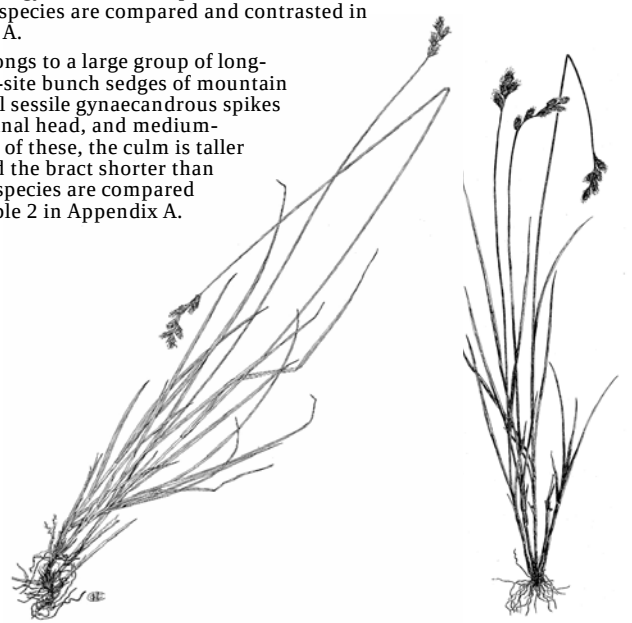
Perigynium ovate-ovoid or lanceolate, plano-convex, tip concave with long taper, 4½–7 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium winged to base. Beak serrulate and winged, beak tip slender and terete. Perigynium lightly nerved. Stigmas 2.



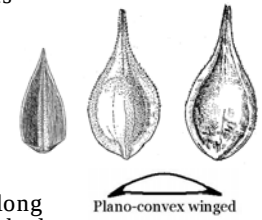
In Rocky Mountain Region common in open, moist to dry meadows in the Subalpine and Montane Zone of mountains in nw WY; scattered in similar habitats in the mountains of CO, and se-ne WY, and in the Black Hills in ne WY & w SD (in western U.S.: CA, CO, ID, MT, NM, OR, UT, WA, WY).

Meadow sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Meadow sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.







Culms taller than or equal to basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike none or scale-like.

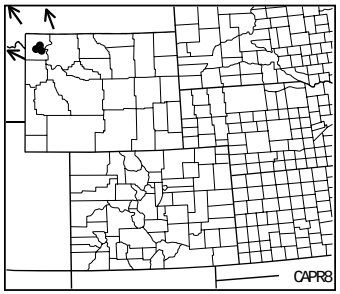
Leaves 1–6 mm wide.

Spikes 2–5. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

Scale medium to dark in color, perigynium light to medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium shape ovate-ovoid, plano-convex, tip concave with long taper, 3–4½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium serrulate and winged, sometimes spongy at base or along sides; beak tip terete or flat. Perigynium nerved or ribbed, or with conspicuous transverse folds ventrally. Stigmas 2.

In Rocky Mountain Region in a few dry to moist sites in nw WY (in western U.S.: CA, ID, MT, NV, OR, WA). Subalpine zone or montane zone in mountains. Habitat dry to moist.





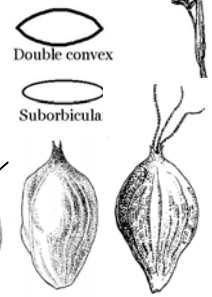
Presl's sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.



Culms taller than or equal to basal leaves, erect, phyllopodic or aphyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

Leaves 2–8 mm wide.

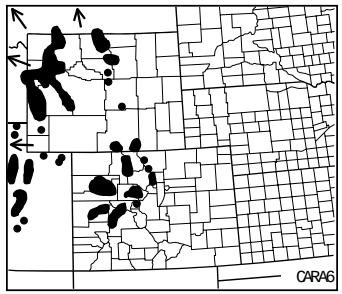
Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–3 × length of spike, lower spike on a peduncle ½–1 × length of spike. Spikes with 10–50 pistillate flowers.



Scale black with a narrow lighter midrib, perigynium light to medium green. Pistillate scale narrower and shorter than perigynium.

Perigynium plump, obovate-obovoid or elliptic-oblong, tip convex with curved or triangular shape, 3–5 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged. Perigynium nerved or ribbed. Stigmas 3.

In Rocky Mountain Region uncommon or locally common in moist to dry mountain meadows and slopes in the Subalpine Zone and Montane Zone in nw-nc CO and se-nw-nc WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).



See Tables 8–11 in Appendix A to compare Raynolds sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.



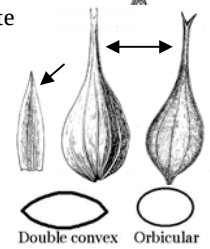


Culms shorter than or equal to basal leaves, erect, phyllopodic or aphyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, much longer than inflorescence (exceeding by 3–4 ×).

Leaves 2–10 mm wide, lower leaf sheaths filamentose.

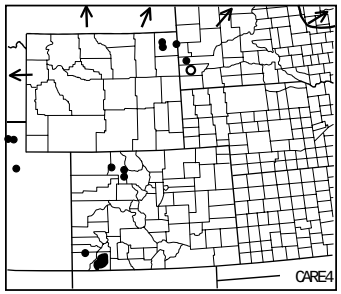
Spikes 2–20. Terminal spike gynaecandrous or staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 50–150 pistillate flowers.

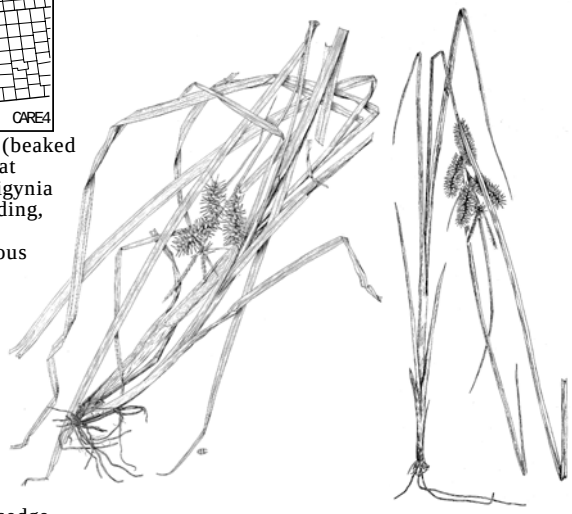
Scale brown and green, acute to acuminate, not awned; perigynium light yellow-green to medium green. Pistillate scale narrower and shorter than perigynium.



Perigynium widely spreading or reflexed in spike, ovate-ovoid or elliptic-oblong, tip concave with long taper, 6½–10 mm long (including beak and stipe) and 2–3½ mm wide. Perigynium not winged, long-beaked (2–4 mm long), shining, inflated, strongly 7–9–nerved. Stigmas 3.

In Rocky Mountain Region uncommon in scattered marshes, wet meadows, or sloughs, in foothills and the Montane Zone, in nw & sw CO, and in the Bear Lodge Mountains and Black Hills in ne WY and w SD (in western U.S.: CO, ID, MT, NV, OR, UT, WA).

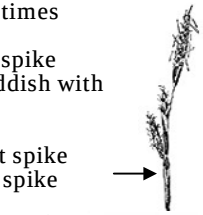


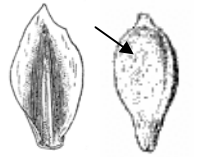


Similar species: C. utriculata (beaked sedge), found in wet sites at higher elevations, has perigynia ascending to slightly speading, with shorter beaks, so the beaks are not as conspicuous as in knotsheath sedge. *C. comosa* (longhair sedge), found in wet sites on plains in nw-nc NE, has spikes dangling on short peduncles, and perigynia with long, spreading teeth that make the spikes look coarsely hairy.

See Tables 4–7 in Appendix A to compare knotsheath sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season.

Other names: "*Carex lupulina*" of Colorado report.







Culms shorter than, equal to, or taller than basal leaves, sometimes erect, sometimes nodding or flexuous or spikes hanging, phyllopodic. Bunch or short rhizomes. Bract below lowest spike usually without a blade but long-sheathing 10–20 mm, reddish with white-hyaline margins.

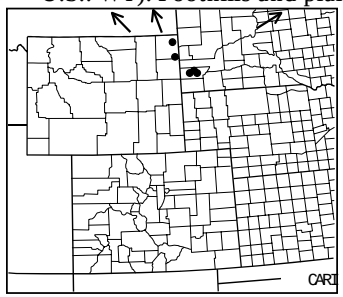
Leaves 2–4 mm wide.

Spikes 2–5, 10–25 mm long. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike shortly separated by a distance ¼–3 × length of spike, lower spike on a peduncle ½–2 × length of spike. Spikes with 20–30 pistillate flowers.

Scale acute, with **conspicuous hyaline margins**, light to medium to dark in color; perigynium medium straw-colored to dark brown in color. Pistillate scale longer than perigynium and covering it.

Perigynium obovate-obovoid, tip convex with curved shape, 2–3 mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, 2-keeled. Perigynium **appressed-pubescent**. Stigmas 3.

In Rocky Mountain Region occasional in dry to moist "low prairies, ditches, and hillsides" (FGP) in and around the Black Hills of ne WY and w SD (in western U.S.: WY). Foothills and plains. Habitat dry to moist.



See Tables 28–29 in Appendix A to compare Richardson's sedge with other sedges with pubescent or puberulent perigynia.



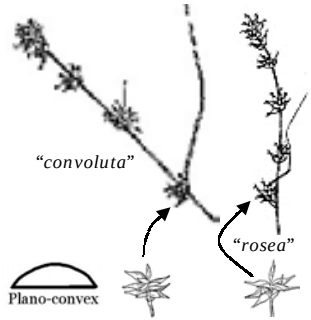
Culms taller than or equal to basal leaves, sometimes nodding or flexuous, phyllopodic. Bunch. Bract below lowest spike none or various, shorter than inflorescence.

Leaves usually narrow, 1–2 mm wide, ranging 1–4 mm wide.

Spikes 2–10. Spikes **all androgynous**. Upper and lower spikes appear the same, lowest spike widely separated by a distance 1–5 × length of spike, lower spike sessile or nearly so. Spikes sometimes few-flowered, with 1–20 pistillate flowers.

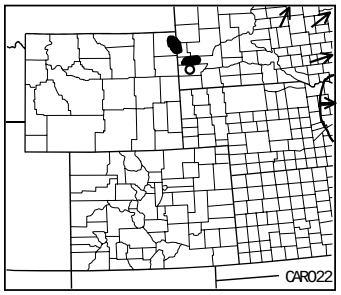
Scale light to medium in color, perigynium light to medium in color. Pistillate scale shorter than perigynium.

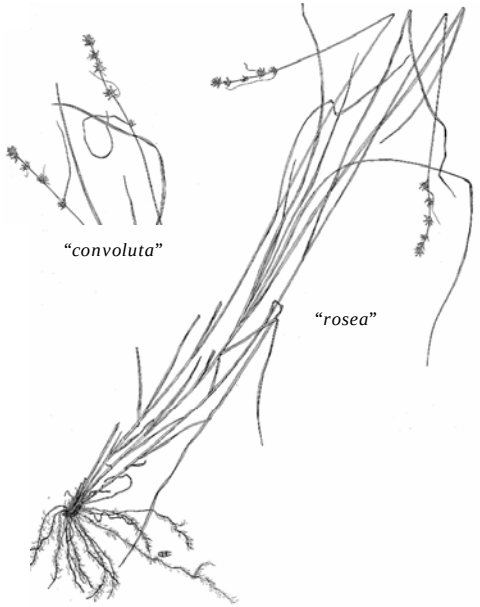
Perigynium shape ovate-ovoid or lanceolate, tip concave with long taper, 2–4½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged, spongy at base. Beak serrulate, ½-1 × body. Stigmas 2.





In Rocky Mountain Region in a few sites, moist to dry, open woodlands and meadows in and around the Black Hills of ne WY and w SD (in western U.S.: WY). Foothills and plains. Habitat dry to moist.





Among other interrupted-head androgynous-spike bunch or short-rhizome sedges of dry to moist sites in the mountains, rosy sedge can be distinguished by its relatively few flowers and a blunt to acute scale. Western sedge (*C. occidentalis*) has a scale with a dark midrib, covering the perigynium. Jackson Hole sedge (*C. vallicola*) has fewer flowers and a lighter-colored scale. Longstalk sedge (*C. pedunculata*) has the lowest spike long-pedunculate.

See Tables 26–27 in Appendix A to compare rosy sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

Other names: *Carex convoluta* Mackenzie 1916.



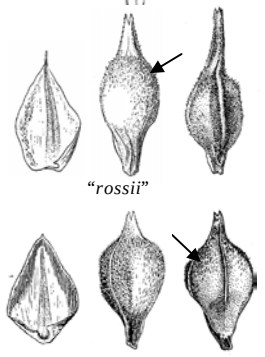
Culms shorter than or equal to basal leaves, erect, producing long-pedunculate carpellate spikes from the plant base, aphyllopodic or phyllopodic. Bunch or mat-forming.

Leaves ½–4 mm wide, lower leaf sheaths sometimes filamentose ventrally.

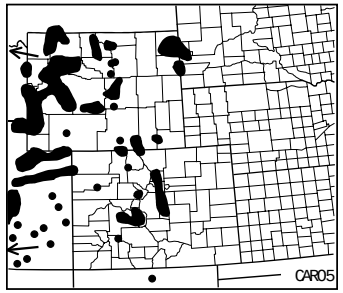
Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike basal and long-peduncled. Upper spikes sometimes few-flowered, with 3–20 pistillate flowers.

Scale obtuse, cuspidate, or awned, light to medium in color; perigynium light to medium green. Pistillate scale shorter than perigynium, and about as wide.

Perigynium elliptic-oblong or orbicular-suborbicular, tip convex with triangular shape, 2–4½ mm long (including beak and stipe) and 1–2½ mm wide. Perigynium serrulate, not winged. Beak shallowly to deeply bidentate, 1¼–1¾ mm long. Perigynium short-pubescent or puberulent, 2-keeled. Stigmas 3.



In Rocky Mountain Region common in dry pine forests from foothills to lower Subalpine Zone in the mountains of CO, w WY, and the Black Hills of ne WY & w SD (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



See Tables 14–19 in Appendix A to compare Ross sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

See Tables 28–29 in Appendix A to compare Ross sedge with other sedges with pubescent or puberulent perigynia.

Other names: *Carex brevipes* Boott 1880. *Carex rossii* F. Boott var. *brevipes* (Boott) Kükenthal 1909.



"*rossii*"



"*rossii*"



"*brevipes*"



Typical habit of Ross sedge.
The flowers are buried in the leaves



Close-up of the base of Ross sedge, showing the normal culm (above) and the basal spike (below)



Culms shorter than, equal to, or taller than basal leaves, erect, phyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike none or scale-like.

Leaves 1–4 mm wide. Leaf tips curled and drying.



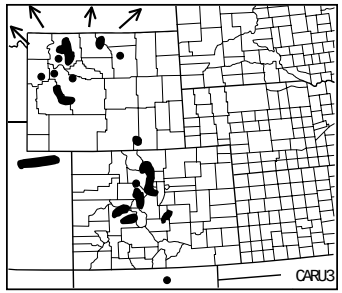
Spike solitary, closely-flowered, androgynous, usually with 6–15 pistillate flowers, ranging 1–20.

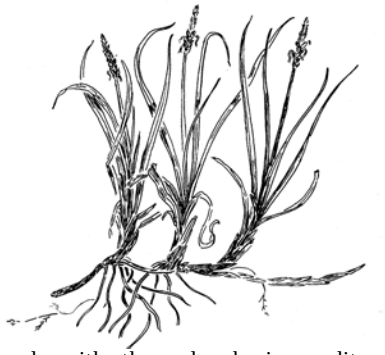
Scale dark to medium in color, perigynium medium in color. Pistillate scale covering perigynium.



Perigynium obovate-obovoid, tip convex with triangular shape, 3½–4½ mm long (including beak and stipe) and 1½–2 mm wide. Perigynium not winged. Perigynium nerved or ribbed. Stigmas 3.

In Rocky Mountain Region dry ridgetops and windswept slopes in the Alpine Zone and upper Subalpine Zone in the high mountains of c-nc CO, se-nw-nc WY (in western U.S.: CO, ID, MT, NM, UT, WY).





See Tables 20–21 in Appendix A to compare curly sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

Other names: Drummond sedge. *Carex drummondiana* Dewey 1836. *Carex rupestris* Allioni ssp. *drummondiana* (Dewey) Holub.





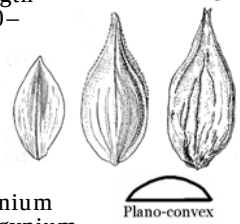


A plant of curly sedge – note the curled, drying leaf tips



An isolated culm of curly sedge





Culms taller than or equal to basal leaves, erect, aphyllopodic. **Long rhizomes**. Bract below lowest spike none or scale-like.

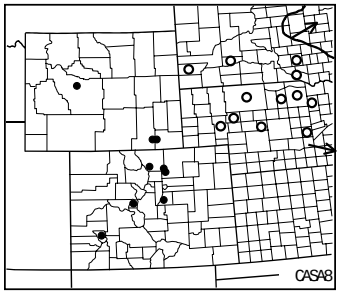
Leaves mostly 2½-4 mm wide, ranging 2–6 mm wide. Upper leaf sheaths green-nerved. **Ligule conspicuously tubular, hyaline.**

Spikes 10–20. Terminal spike **androgynous** or staminate, **lowest spike androgynous**. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 10–30 pistillate flowers.

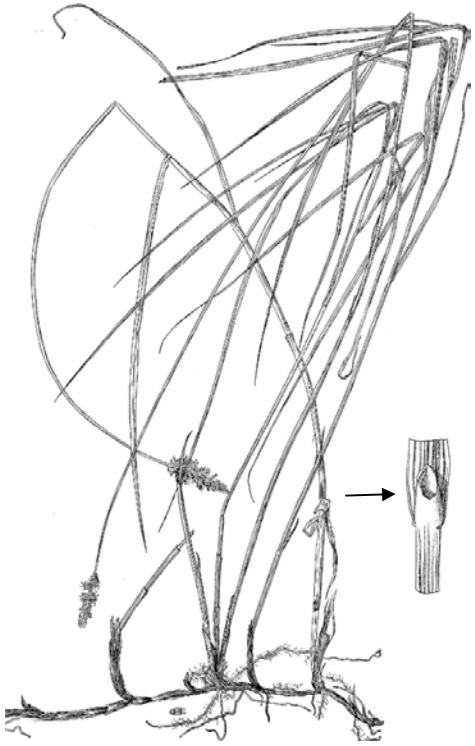
Scale medium in color, perigynium tan to light brown. Pistillate scale narrower and shorter than perigynium.

Perigynium ovate-ovoid or elliptic-oblong, plano-convex, tip concave with short taper, 2½–4 mm long (including beak and stipe) and 1½–2 mm wide. Perigynium beak serrulate, not winged. Beak about ¼ × body. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region scattered sites in wet marshes, bogs, wet meadows, and sloughs in foothills, plains, and lower mountains, in w & c NE, the Black Hills in SD, se & nw WY, and c-nc CO (in western U.S.: CO, MT, WY).



See Table 24 in Appendix A to compare Sartwell sedge with other androgynous-spike sedges that have more than one spike and long rhizomes.



Culms taller than or equal to basal leaves, sometimes nodding or flexuous or spikes hanging, phyllopodic. **Long rhizomes**. Bract below lowest spike leaf-like, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

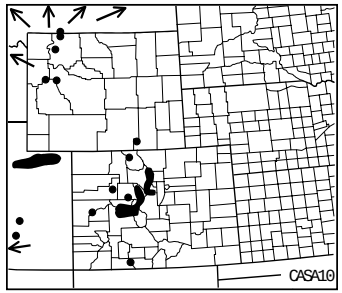
Leaves 1–6 mm wide, lower leaf sheaths sometimes filamentose.

Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike shortly or distantly separated by a distance ¼–3 × length of spike; lower spike nodding, on a long or short peduncle ½–2 × length of spike. Spikes with 20–100 pistillate flowers.

Scale very dark in color, perigynium medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium shining, ovate-ovoid or elliptic-oblong, tip convex with triangular shape, 3–5½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged. Beak short, about ½ mm long. Stigmas 2 or 3.

In Rocky Mountain Region occasional in wet pond shores and wet willow stands, Subalpine Zone and lower Alpine Zone, in high mountains of c CO; scattered in same habitats in nw & se WY, and w CO (in western U.S.: CO, ID, MT, NV, OR, UT, WA, WY).



See Tables 30–31 in Appendix A to compare russet sedge with other tall rhizomatous wetland sedges in the high mountains with staminate over pistillate spikes.

Other names: rock sedge. *Carex physocarpa* Presl 1828. *Carex saxatilis* Linnaeus var. *major* Olney 1871. *Carex saxatilis* Linnaeus ssp. *laxa* (Trautvetter) Kalela 1940.





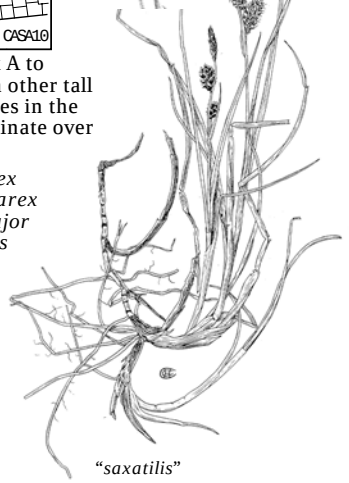
"*saxatilis*"



"*physocarpa*"



"*physocarpa*"



"*saxatilis*"



"*saxatilis*"

Culms taller than or equal to basal leaves, erect, aphyllopodic or phyllopodic. Culms strongly purplish-tinged at base. Short rhizomes or long rhizomes or mat-forming. Bract below lowest spike none or various, shorter than inflorescence, sometimes with black or purple-black auricles.

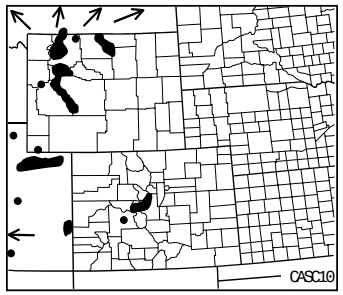
Leaves 1–4 mm wide. Leaf sheaths sometimes pubescent or filamentose.

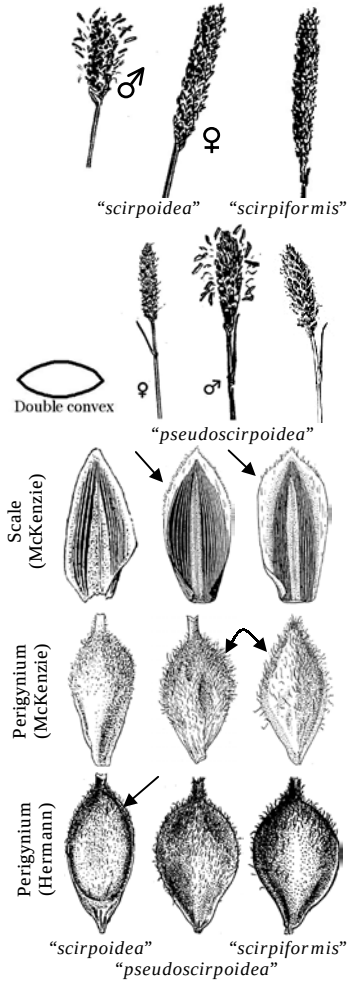
Spike solitary; either androgynous, or staminate or pistillate and plant dioecious; with 30–100 pistillate flowers.

Scale dark in color, with white-hyaline margins; perigynium medium to dark in color. Pistillate scale covering or slightly shorter than perigynium.

Perigynium ovate-ovoid or obovate-obovoid or elliptic-oblong, tip convex with curved or triangular shape, 2–3½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium not winged. Perigynium pubescent. Stigmas 3.

In Rocky Mountain Region locally common, especially on limestone or dolomite, in snowmelt areas, calcareous fens, and moist rocky slopes, Alpine Zone and upper Subalpine Zone in the high mountains of c CO and nw WY (in western U.S.: CA, CO, ID, MT, NV, OR, UT, WA, WY).





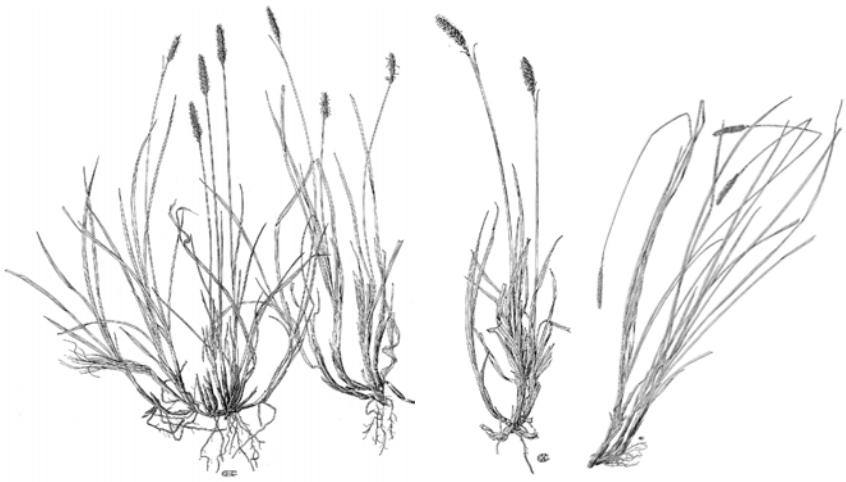
See Tables 20–21 in Appendix A to compare northern singlespike sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).

See Tables 28–29 in Appendix A to compare northern singlespike sedge with other sedges with pubescent or puberulent perigynia.

Other names: western singlespike sedge. *Carex pseudoscirpoidea* Rydberg 1900. *Carex scirpoidea* Michaux var. *pseudoscirpoidea* (Rydberg) Cronquist 1969. *Carex scirpiformis* Mackenzie 1908. *Carex scirpoidea* Michx. var. *scirpiformis* (Mackenzie) O'Neill and Duman 1941.

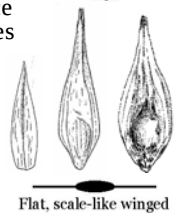


"scirpoidea" *"pseudoscirpoidea"* *"scirpiformis"*



"scirpoidea" *"pseudoscirpoidea"* *"scirpiformis"*





Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or sometimes leaf-like, shorter than inflorescence.

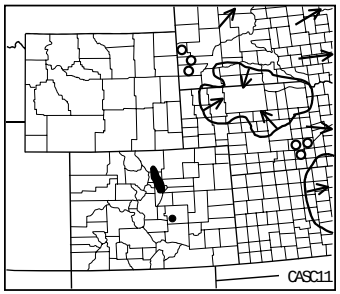
Leaves mostly 1–3 mm wide, ranging 1–4 mm wide.

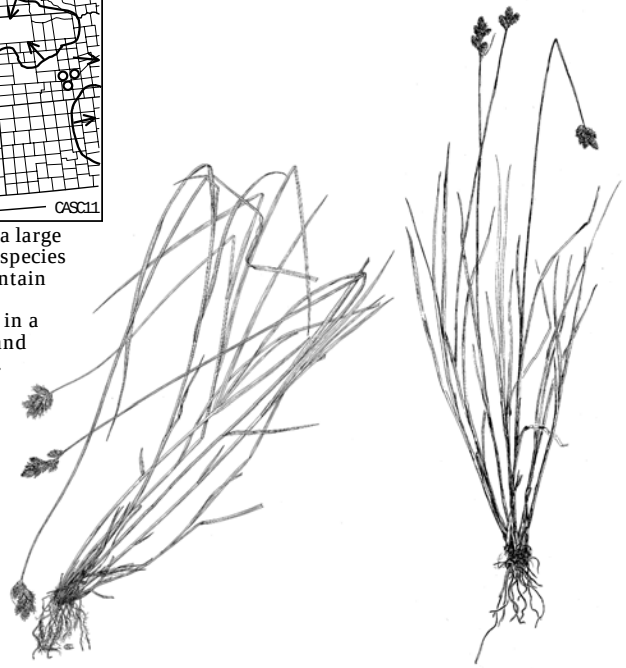
Spikes 2–20. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 30–100 pistillate flowers.

Scale light in color, perigynium medium in color. Pistillate scale narrower and shorter than perigynium, exposing it.

Perigynium length 3–4 × width, ovate-ovoid or lanceolate, tip concave with long taper, 4–6½ mm long (including beak and stipe) and 1–2½ mm wide. Perigynium serrulate and winged to base; beak flat, winged, and serrulate to apex. Perigynium many-nerved. Stigmas 2.

In Rocky Mountain Region common in moist "wooded areas, sandy shores, low meadows, prairies, open swamps, or wet places" (FGP) in nw-nc NE and the Black Hills of SD; and in moist forests and gulches in the foothills of the east side of the CO Front Range (in western U.S.: AZ, CA, CO, ID, MT, NM, OR, WA). Habitat: moist or wet.





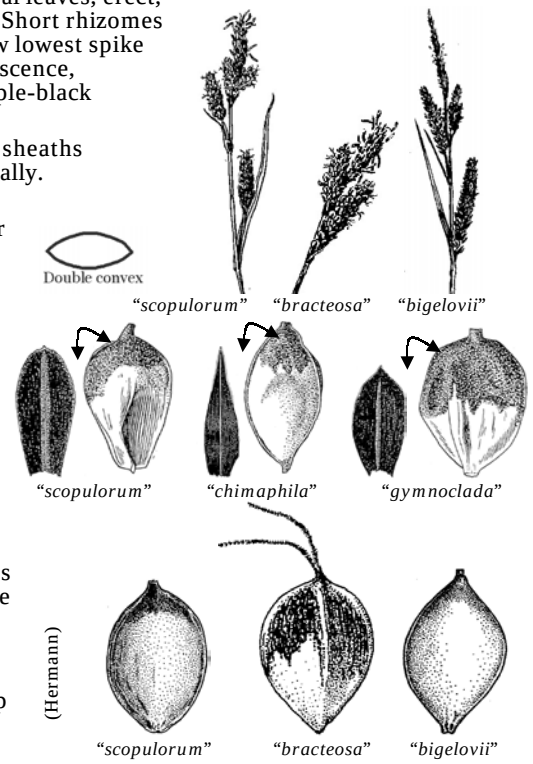
Broom sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.

Broom sedge also belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

Culms taller than or equal to basal leaves, erect, aphyllopodic or phyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike leaf-like, shorter than inflorescence, sometimes with black or purple-black auricles.

Leaves 1–8 mm wide, lower leaf sheaths sometimes filamentose ventrally.

Spikes 2–10. Terminal spike gynaecandrous, staminate, or androgynous, lowest spike pistillate. Upper and lower spikes appear different, lowest spike shortly separated by a distance ¼–3 × length of spike, lower spike on a short peduncle ¼–1 × length of spike. Spikes with 10–50 pistillate flowers.



Scale dark purple-black in color, perigynium usually dark in upper ½, medium to light in lower ½, so the spikes appearing very dark. Pistillate scale narrower and shorter than perigynium.

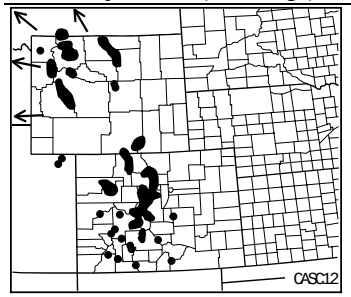
Perigynium inflated, obovate-obovoid or elliptic-oblong, tip convex with curved or triangular shape, 2–4 mm long (including beak and stipe) and 1–2½ mm wide. Perigynium not winged, short-beaked. Stigmas 2.

Blackhead sedge is a fairly common black-headed sedge in the Alpine Zone of the Region. It usually does not appear bicolored from a distance. The most common confused species is cliff sedge (*C. scopulorum*), but that is a species of wetter sites, has apparently different upper and lower spikes, and the scale is all black and is smaller then the perigynium. Black sedge (*C. atrata*) has a light to medium colored perigynium, and the scale does not cover it.

Among other dark-scale and dark-perigynium sedges with several spikes of the Alpine, lesser panicled sedge (*C. diandra*) is a species of wet sites. Sheep sedge (*C. illota*) has spikes closer together and the perigynium is tapered to a longer beak. Jones's sedge (*C. jonesii*) has a tight, cylindrical head. Dunhead sedge (*C. phaeocephala*) has narrower leaves and narrower spikes. Thickhead sedge (*C. macloviana*) has spikes in a closer head and a winged perigynium. New sedge (*C. nova*) has few spikes in a closer head, and the scale is all black and smaller. In Tolmie sedge (*C. tolmiei*), the terminal spike is apparently different from lower ones.

See Tables 4–7 in Appendix A to compare cliff sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season. See Tables 8–11 in Appendix A to compare cliff sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas. See Tables 30–33 in Appendix A to compare cliff sedge with other tall wetland sedges in the high mountains with staminate over pistillate spikes.

Other names: Rocky Mountain sedge, mountain sedge. *Carex bigelowii* Torrey "ssp. *rigida*" of Rocky Mountain reports. *Carex bracteosa* L. H. Bailey 1886. *Carex gymnoclada* Holm 1902. *Carex chimaphila* Holm 1903. *Carex scopulorum* Holm var. *chimaphila* (Holm) Kükenthal 1909. *Carex scopulorum* Holm var. *bracteosa* (L. H. Bailey) F. J. Hermann 1959.



In Rocky Mountain Region common in wet basins and on moist protected tundra, Alpine Zone and upper Subalpine Zone, in the high mountains of w CO, se WY, and nw WY (in western U.S.: CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



"*scopulorum*"



"*bigelovii*"



"*bracteosa*"



"*scopulorum*"

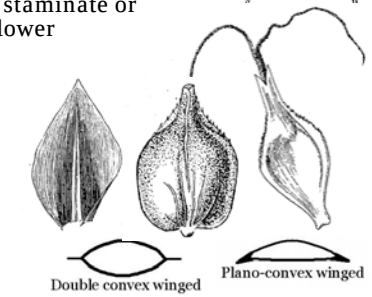


"*chimaphila*"



"*gymnoclada*"





Culms taller than or equal to basal leaves, erect, aphyllopodic. Long rhizomes. Bract below lowest spike none or various, shorter than inflorescence.

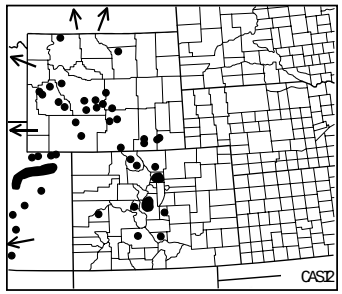
Leaves ½–4 mm wide.

Spikes 5–20. Spikes **all androgynous**; or all staminate or pistillate and plants dioecious. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 1–20 pistillate flowers.

Scale medium to dark brown, perigynium medium in color. Pistillate scale covering perigynium.

Perigynium shape ovate-ovoid or orbicular-suborbicular, tip concave with short taper, 1½–3 mm long (including beak and stipe) and 1–2 mm wide. Perigynium serrulate and narrowly winged at junction of beak and body, short-beaked (beak ¼-½ mm long). Perigynium sometimes spongy at base. Perigynium nerved or ribbed. Stigmas 2.

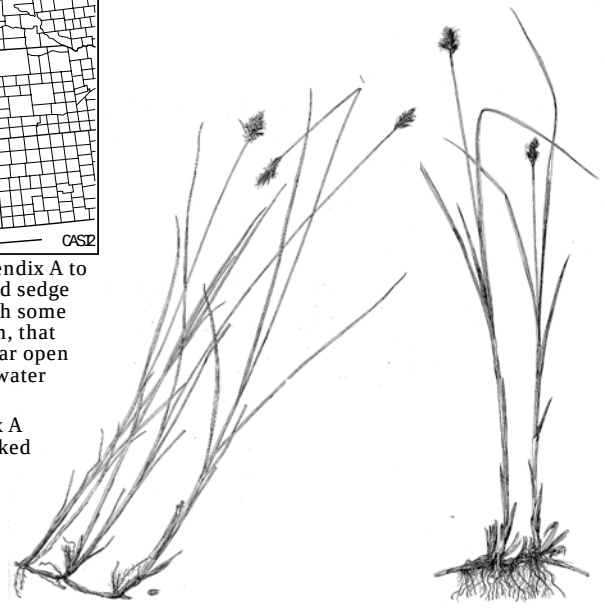
In Rocky Mountain Region scattered in wet meadows and swamps in foothills, Montane Zone and Subalpine Zone of mountains in c-nc CO and se-c-sw-nw-nc WY (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



See Tables 12–13 in Appendix A to compare short-beaked sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season.

See Table 24 in Appendix A to compare short-beaked sedge with other androgynous-spike sedges that have more than one spike and long rhizomes.

Other names: analogue sedge.





Culms taller than basal leaves, sometimes nodding or flexuous or spikes hanging, aphyllopodic. Bunch or short rhizomes or mat-forming. Bract below lowest spike leaf-like, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

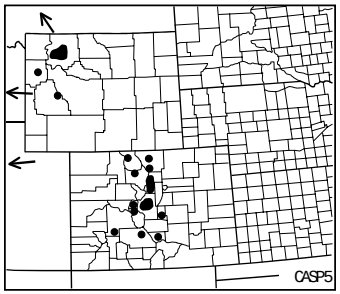
Leaves 2–6 mm wide.

Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–3 × length of spike, lower spike on a short peduncle ½–1 × length of spike. Spikes with 10–30 pistillate flowers.

Scale short-awned, medium to dark in color with lighter margins and midrib, perigynium light in color. Pistillate scale narrower and shorter than perigynium.

Perigynium shape ovate-ovoid or elliptic-oblong, tip convex with curved or triangular shape, 3½–5 mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged, short-beaked. Perigynium nerved or ribbed. Stigmas 3.

In Rocky Mountain Region scattered in moist areas in the mountains of c-nc CO and nw WY (in western U.S.: CA, MT, OR, WA). Subalpine zone or montane zone in mountains. Habitat dry to moist.



I do not know why this is not listed in either Colorado Flora, nor in Weber and Wittmann's checklist.

C. spectabilis seems very close to *C. tolmiei*, and the name *C. spectabilis* antedates *C. tolmiei* by three years. The only consistent difference seems to be that *C. tolmiei* has a scale that covers the perigynium, but this is somewhat variable. *C. tolmiei* has a dark scale and long rhizomes more often, as well.

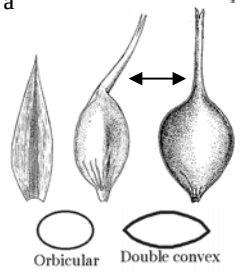




Culms taller than or equal to basal leaves, with spikes hanging, phyllopodic. Bunch or mat-forming. Bract below lowest spike leaf-like or setaceous, longer or shorter than inflorescence.

Leaves 2–6 mm wide, lower leaf sheaths filamentose.

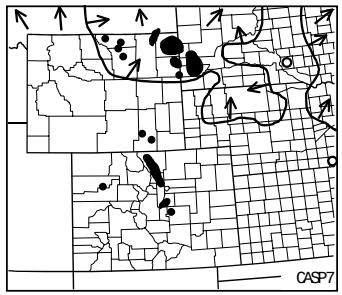
Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike widely separated by a distance 1–5 × length of spike, lower spike dangling-drooping when mature, on a long peduncle >2 × length of spike. Spikes with 10–50 pistillate flowers.



Scale light to medium in color, perigynium light straw-colored to medium green. Pistillate scale narrower than perigynium.

Perigynium shape obovate-obovoid or orbicular-suborbicular, tip convex with triangular shape, 5–6½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged, with very long, short-bidentate beak (> body), nerveless. Stigmas 3.

In Rocky Mountain Region common in moist or wet forests and streambanks in Foothills and Montane Zone in and around the Black Hills in ne WY and w SD, and in nw NE; somewhat disjunct in cool shaded ravines of the foothills on the east side of the Front Range in ne CO; a few locations in se WY, nw CO, sc CO, and nc WY (in western U.S.: CO, MT, WY).



See Tables 36–38 in Appendix A to compare Sprengel's sedge with other tall bunch or short-rhizome wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.





Culms taller than or equal to basal leaves, erect, phyllopodic or aphyllopodic. Long rhizomes. Bract below lowest spike none or scale-like.

Leaves usually narrow, 1–2 mm wide, ranging ½–4 mm wide, involute.



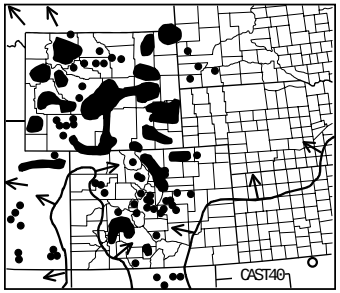
Spikes 2–10. Spikes **all androgynous**; or all staminate or pistillate and plants dioecious. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes few-flowered, with 1–10 pistillate flowers.



Scale chestnut to light brown, perigynium medium straw-colored to dark black in color. Pistillate scale covering perigynium.

Perigynium ovate-ovoid or orbicular-suborbicular, plano-convex, tip concave with short taper, 2–3½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium serrulate, not winged; beak ¼–1½ × body. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region common to very common in open dry slopes, hills, and dry prairies in foothills, plains, and Montane Zone in mountains throughout the Region; except far western CO, se CO, and sw KS (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WY).





A "worm's-eye" view of needleleaf sedge, apparently rhizomatous

See Tables 14–19 in Appendix A to compare needleleaf sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.



See Table 24 in Appendix A to compare needleleaf sedge with other androgynous-spike sedges that have more than one spike and long rhizomes.

Other names: *Carex duriuscula* C. A. Meyer 1831. *Carex eleocharis* L. H. Bailey 1889. *Carex stenophylla* Wahlenberg ssp. *eleocharis* (L. H. Bailey) Hultén 1942.







Culms taller than basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike none or scale-like.

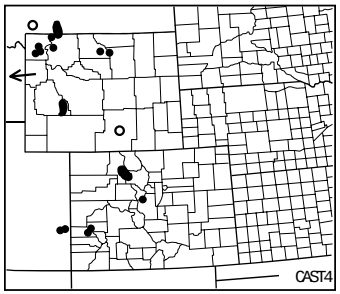
Leaves 1–4 mm wide.

Spikes 5–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 10–30 pistillate flowers.

Scale pale to medium chestnut-brown, with lighter midrib, perigynium medium straw-colored. Pistillate scale shorter than perigynium.

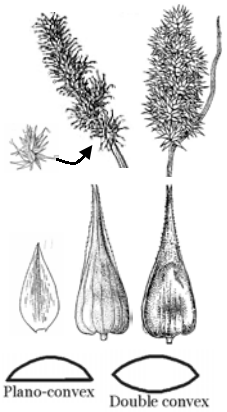
Perigynium narrowly lanceolate, plano-convex, tip concave with long taper, 4½–6 mm long (including beak and stipe) and 1–2 mm wide. Perigynium serrulate and narrowly winged, sometimes spongy at base or along sides; beak tip slender and terete. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region a few scattered sites in dry Montane forests, openings, and rocks in n-w CO, se-nw-nc WY (in western U.S.: CO, MT, NV, UT, WY).



Smallwing sedge belongs to a large group of bunch sedge species inhabiting moist mountain meadows with several gynaecandrous spikes in a terminal ovate head, and medium-width leaves. These species are compared and contrasted in Table 1 in Appendix A.





Culms taller than or equal to basal leaves, erect, phyllopodic or aphyllopodic, spongy at base, slightly winged. Bunch or short rhizomes. Bract below lowest spike leaf-like, setaceous, scale-like or none, shorter than inflorescence.

Leaves usually 4–8 mm wide, ranging 2–12 mm wide. Leaf sheaths sometimes cross-rugulose ventrally.

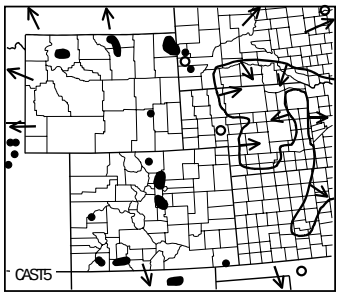
Head a tight, cylindrical cluster of close spikes.

Spikes many, 10–>20. Spikes **all androgynous**. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 10–20 pistillate flowers.

Scale light to medium in color, perigynium light to medium yellow. Pistillate scale narrower and shorter than perigynium, so perigynia exposed and **spike like a pincushion**.

Perigynium stiffly spreading, triangular, ovate-ovoid or lanceolate, plano-convex, concave with long or very long taper from near the base, 4–5½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium beak serrulate. Perigynium body not winged, sometimes beak narrowly winged. Perigynium spongy at base. Perigynium sharply several-nerved. Stigmas 2.

In Rocky Mountain Region occasional in swamps, wet woods, and wet swales in the foothills and lower mountain valleys, in scattered locations in nc-sw-se CO, nw & nc WY, the Black Hills of ne WY and w SD, and w NE; possibly also in w KS (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



See Tables 4–7 in Appendix A to compare owlfruit sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season.

See Table 25 in Appendix A to compare owlfruit sedge with other wetland, bunch, androgynous-spike sedges that have more than one spike.

Other names: *Carex conjuncta* Boott of Colorado report, "probably" (Weber and Wittmann 2000).









"Space ship"

Culms taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like.

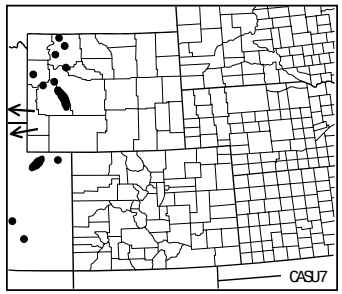
Leaves narrow, ½–1½ mm wide.

Spike solitary, androgynous, with 10–50 pistillate flowers.

Scale light to medium in color, perigynium medium in color. Pistillate scale covering perigynium.

Perigynium on a short stipe, ovate-ovoid or lanceolate or elliptic-oblong, tip concave with long taper, 2½–4 mm long (including beak and stipe) and 1–1½ mm wide. Perigynium not winged. Stigmas 3.

In Rocky Mountain Region occasional in moist meadows and moist rocky slopes in high mountains of nw WY (in western U.S.: CA, ID, MT, NV, OR, UT, WY). Alpine Zone or Subalpine Zone in mountains.



See Tables 14–19 in Appendix A to compare nearlyblack sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

See Tables 20–21 in Appendix A to compare nearlyblack sedge with other sedges having a solitary spike, that occur in high mountains (Subalpine Zone or above).



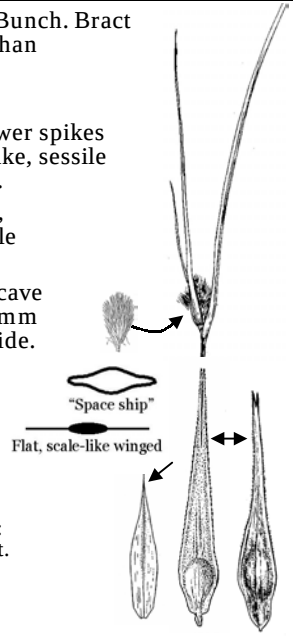
Culms shorter than basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike leaf-like, several times longer than inflorescence.

Leaves ½–4 mm wide, mostly 1½–4 mm wide.

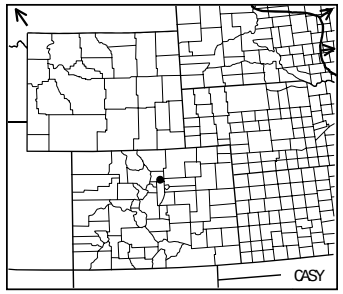
Spikes 2–20. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 50–100 pistillate flowers.

Scale acuminate to short-awned, light greenish-white, perigynium light to medium in color. Pistillate scale narrower and shorter than perigynium.

Perigynium long-lanceolate, plano-convex, beak concave with very long taper from near the base, 4½–6½ mm long (including beak and stipe) and ½–1½ mm wide. Perigynium beak serrulate and winged; beak flat, winged, and serrulate to apex. Perigynium nerved or ribbed, spongy at base. Stigmas 2.



In Rocky Mountain Region in a very few sites in plains at the base of the east side of the Front Range in CO; Weber (1996) suggests it might be adventive here: the closest locations are in eastern SD, out of our area ("sandy shores and river banks" – FGP) (in western U.S.: CO, MT, WA). Foothills and plains. Habitat: moist or wet.





See Tables 14–19 in Appendix A to compare manyhead sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

Other names: "*Carex cyperoides*" of Colorado report.

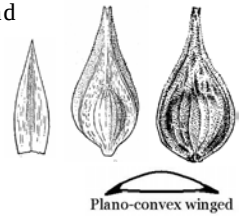


Culms taller than basal leaves, sometimes erect, sometimes nodding, scabrous on the angles, usually zig-zag in the inflorescence, aphyllopodic. Bunch. Bract below lowest spike none or scale-like, much less than inflorescence.

Head loose, **"moniliform," upper culms zig-zag between the spikes**.

Leaves ½–4 mm wide, mostly ½–2½ mm wide.

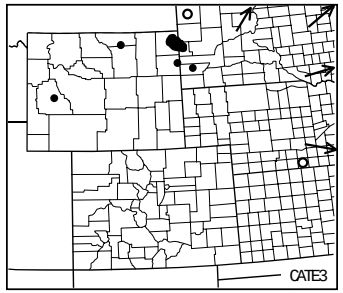
Spikes globose, 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike well-separated by a distance 1–3 × length of spike, lower spike sessile or nearly so. Spikes with 30–100 pistillate flowers.



Scale light to medium in color, perigynium light to medium straw-colored. Pistillate scale narrower and shorter than perigynium.

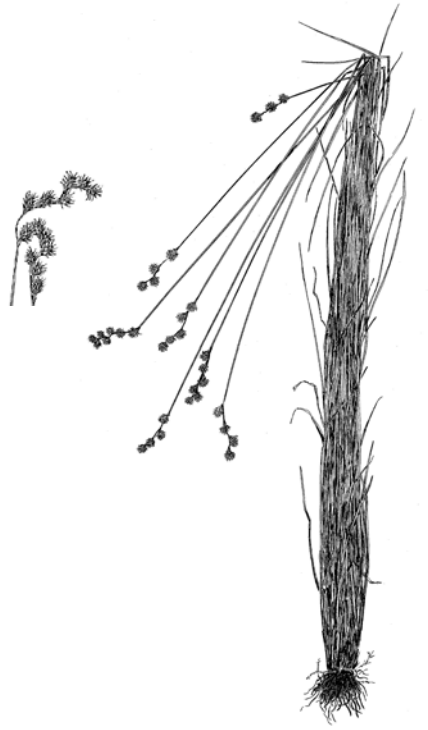
Perigynium broadest in lower 1/3, ovate-ovoid or orbicular-suborbicular, plano-convex, tip concave with short taper, 3–4½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium serrulate and winged to the base; beak flat, winged, and serrulate to apex. Perigynium strongly nerved, or with conspicuous transverse folds ventrally. Stigmas 2.

In Rocky Mountain Region common in dry to moist woods and meadows of foothills and lower Montane Zone of mountains in the Black Hills of ne WY and w SD; also in a few scattered locations in w WY, nc WY, and sw SD (in western U.S.: MT, OR, WA, WY). Montane zone in mountains, or foothills and plains. Key A, Key B, Key C.



Quill sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

See Tables 14–19 in Appendix A to compare quill sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas.

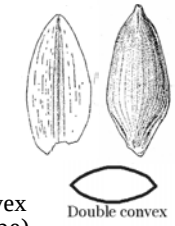




Culms taller than or equal to basal leaves, very thin and weak, phyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike none or scale-like.

Leaves narrow, ½–2 mm wide.

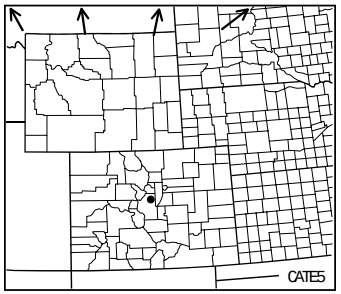
Spikes few, 2–5. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike ± separated by a distance 1–5 × length of spike, lower spike sessile or nearly so. Spikes few-flowered, with 1–10 pistillate flowers.



Scale light in color, blunt to subacute, hyaline with a narrow green midrib; perigynium light in color. Pistillate scale covering or shorter than perigynium.

Perigynium ovate-ovoid or elliptic-oblong, plano-convex, tip convex with triangular shape, 2–3½ mm long (including beak and stipe) and ½–2 mm wide. Perigynium not winged, very short-beaked, sometimes spongy at base or along sides. Perigynium conspicuously many-nerved. Stigmas 2.

In Rocky Mountain Region rare, in one location, in a very wet “quaking fen” in the lower Subalpine Zone in c CO, disjunct from British Columbia, Saskatchewan, Manitoba, and Québec (in western U.S.: CO).



See Tables 12–13 in Appendix A to compare sparseflower sedge with other sedges with some mature leaves < 1 mm, that occur in wet areas near open water or with a high water table at some season.

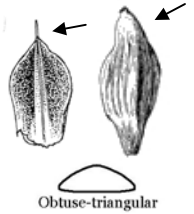




Culms shorter than basal leaves, erect, phyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, shorter than inflorescence, long-sheathing >3 mm.

Leaves 2–6 mm wide.

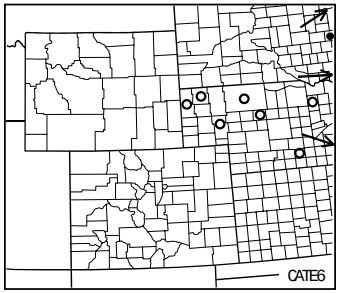
Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance ¼–3 × length of spike, lower spike sessile or on a short peduncle 0–½ × length of spike. Spikes with 1–30 pistillate flowers.



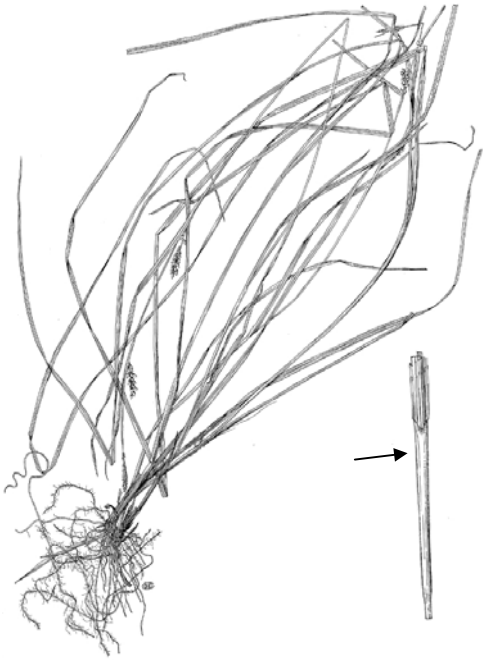
Scale acuminate to short-awned, purplish-brown above with lighter base and midrib, perigynium medium-dark green.

Perigynium broadest above the middle, obovate-obovoid, tip concave with short taper, 2–4 mm long (including beak and stipe) and 1½–2 mm wide. Perigynium not winged, beak minute or absent. Perigynium nerved or ribbed. Stigmas 3.

In Rocky Mountain Region occasional in wet sites, “swamps, wet meadows, and ditches” (FGP) of foothills and plains in nw & c NE (not in western U.S.).

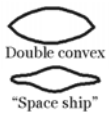


See Tables 36–38 in Appendix A to compare rigid sedge with other tall bunch or short-rhizome wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.









Culms taller than basal leaves, erect, phyllopodic or aphyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike leaf-like, longer or shorter than inflorescence, sometimes with black or purple-black auricles.

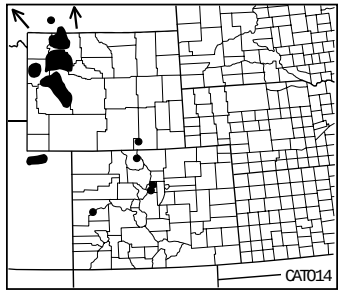
Leaves 2–8 mm wide, lower leaf sheaths filamentose.

Spikes 2–10. Terminal spike staminate or androgynous, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance 1–3 × length of spike, lower spike on a short peduncle ½–1 × length of spike. Spikes with 10–50 pistillate flowers.

Scale dark reddish-brown, perigynium light-colored below. Pistillate scale covering perigynium, or slightly narrower and shorter.

Perigynium shape ovate-ovoid or elliptic-oblong or orbicular-suborbicular, tip convex with triangular shape, 3–4 mm long (including beak and stipe) and 2–2½ mm wide. Perigynium not winged. Perigynium nerved or ribbed. Stigmas 3.

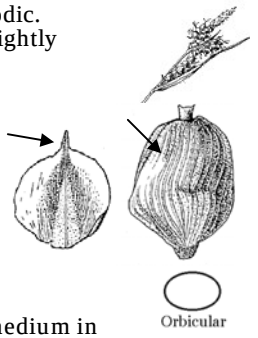
In Rocky Mountain Region common to occasional in moist sites in nw WY; scattered in the mountains of n CO and se WY (in western U.S.: CO, ID, MT, NV, OR, UT, WA, WY). Alpine zone or subalpine zone in mountains. Habitat dry to moist.



See Tables 8–11 in Appendix A to compare Tolmie sedge with other sedges with mature leaves 6 mm wide or wider, that occur in dry or moist (not wet) areas.

Other names: *Carex paysonis* Clokey 1922. *C. tolmiei* has been considered by some to be a synonym of *C. spectabilis* (Cronquist 1977, for example). The two species do seem very close.





Culms taller than or equal to basal leaves, erect, aphyllopodic. Bunch. Bract below lowest spike leaf-like, shorter or slightly longer than inflorescence.

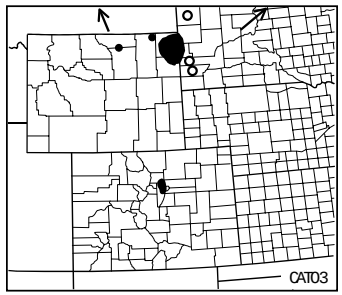
Leaves 1–4 mm wide, mostly 1½–3 mm wide. Leaf sheaths pubescent, soft-pilose.

Spikes 2–5. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike ± separated by a distance ¼–3 × length of spike, lower spike sessile or on a short peduncle up to ½ × length of spike. Spikes with 10–30 pistillate flowers.

Scale orbicular, hyaline with a broad green midrib, short-awned, light to medium in color, perigynium light to medium in color. Pistillate scale shorter than perigynium, but usually just as broad below.

Perigynium plump, filled by the achene, ovate-ovoid or obovate-obovoid, tip convex with triangular shape, 2–3½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium not winged, beakless or short-beaked (<½ mm long). Perigynium nerved or ribbed. Stigmas 3.

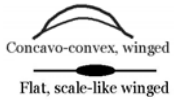
In Rocky Mountain Region in dry woods or on plains or open meadows, Black Hills of ne WY and w SD; scattered to rare in nc CO, nc WY, and sw SD (in western U.S.: CO, MT, WY). Montane zone in mountains, or foothills and plains. Habitat dry to moist.











Culms winged, sharply triangular with concave sides, taller than or equal to basal leaves, phyllopodic. Bunch. Bract below lowest spike leaf-like or setaceous, shorter than inflorescence.

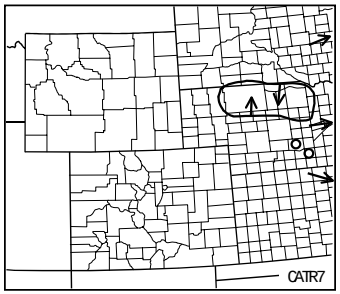
Leaves 2–10 mm wide, mostly 2½–7 mm wide. Leaf sheaths green-striate.

Spikes 5–20. Spikes all gynaecandrous. Upper and lower spikes appear the same, lowest spike shortly separated by a distance ¼–1 × length of spike, lower spike sessile or nearly so. Spikes with 30–50 pistillate flowers.

Scale acute to acuminate, medium in color, perigynium medium green to straw-colored. Pistillate scale narrower and shorter than perigynium.

Perigynium lanceolate, tip concave with long taper, 3½–5½ mm long (including beak and stipe) and 1½–2½ mm wide. Perigynium serrulate. Perigynium winged to base; beak flat, winged, and serrulate to apex. Perigynium several-nerved. Stigmas 2.

In Rocky Mountain Region occasional in wet sites, swamps, ditches, and wet prairies, in the sandhills of nc NE (not in western U.S.). Foothills and plains.





Blunt broom sedge is relatively easy to distinguish, with its triangular, winged culm.

Among clustered-cylindrical-head dry- to moist-site bunch sedges of the plains, *blunt broom sedge* can be distinguished by a winged culm and a more broadly winged perigynium. Glomerate sedge (*C. aggregata*) has lower leaf sheaths green-and-white mottled and scale that is as wide as the perigynium. Mühlenberg's sedge (*C. muehlenbergii*) has a bract longer than inflorescence; the bract is often reflexed. Heavy sedge (*C. gravida*) has shorter spikes with fewer flowers.

See Tables 4–7 in Appendix A to compare blunt broom sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season. See Tables 36–38 in Appendix A to compare blunt broom sedge with other tall bunch or short-rhizome wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.



Culms bluntly triangular below spikes, taller than or equal to basal leaves, erect, aphyllopodic or phyllopodic, spongy-inflated at bases. Short rhizomes or long rhizomes. Bract below lowest spike leaf-like or setaceous, usually 1–1½ × longer than inflorescence.

Leaves often > 6 mm wide, ranging 4–12 mm wide.

Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike ± separated by a distance ¼–3 × length of spike, lower spike sessile or nearly so. Spikes with 30–150 pistillate flowers.

Scale acuminate to short-awned, light to medium in color, perigynium light yellow-green to medium brown. Pistillate scale narrower and shorter than perigynium.

Perigynium ovate-ovoid, tip concave with short taper, 3½–8 mm long (including beak and stipe) and 2–3½ mm wide. Perigynium not winged. Beak about as long as body (1–2 mm long), with conspicuous teeth ½–1 mm long. Perigynium strongly 7–9 nerved. Stigmas 3.

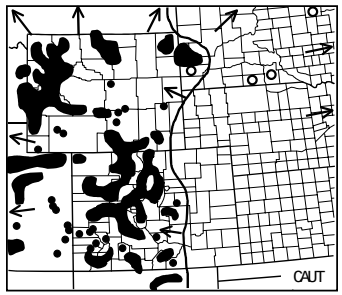
In Rocky Mountain Region common to very common in wet to very wet sites in foothills and mountains up to the lower Subalpine Zone, often dominant under tall willows or dominant in sedge wetlands, in the w $^{2}/_{3}$ of CO, all of WY but the very se corner, and in the Black Hills of ne WY and wc SD (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).

Beaked sedge usually occupies moderately warm, wet sites; in the mountains it is often seen in warmer (that is, lower elevation) sites than water sedge (*C. aquatilis*). Beaked sedge often grows with woolly sedge (*C. lanuginosa*). It can be distinguished from water sedge (*C. aquatilis*) by the broader leaves, warmer sites (that are just as wet), and single-colored spikes. It can be distinguished from woolly sedge (*C. lanuginosa*) by the glabrous perigynia and ascending (not spreading) bracts.

Management. Moderately palatable to livestock (cattle and sheep) and to elk and deer; but rarely grazed by cattle or sheep because of the wet sites. Water sedge in good condition and some quantity is an indicator of a healthy perennial water table and generally healthy riparian system.

See Tables 4–7 in Appendix A to compare beaked sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season. See Tables 30–35 in Appendix A to compare beaked sedge with other tall wetland sedges with staminate over pistillate spikes.

Other names: Northwest Territory sedge. "*Carex rostrata*," not in North America. *Carex rostrata* J. Stokes var. *utriculata* (Boott) L. H. Bailey 1886.





Typical beaked sedge, with its "feet" in the water





A view of a head of beaked sedge. Several staminate spikes over several pistillate spikes



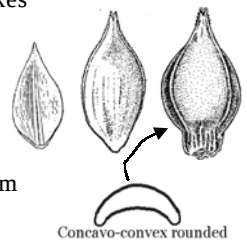
A closer view of pistillate spikes, with beaks spreading



Culms taller than basal leaves, erect, aphyllopodic or phyllopodic. Bunch or short rhizomes. Bract below lowest spike none or leaf-like, usually shorter than inflorescence.

Leaves narrow, often < 2 mm wide, ranging ½–4 mm wide.

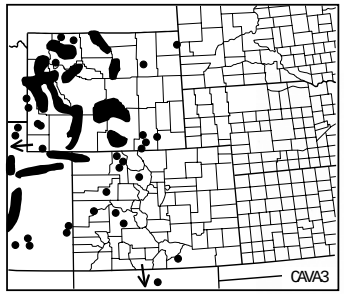
Spikes 5–20. Spikes **all androgynous**. Upper and lower spikes appear the same, lowest spike ± separated by a distance ¼–3 × length of spike, lower spike sessile or nearly so. Spikes **few-flowered**, with 1–10 pistillate flowers.

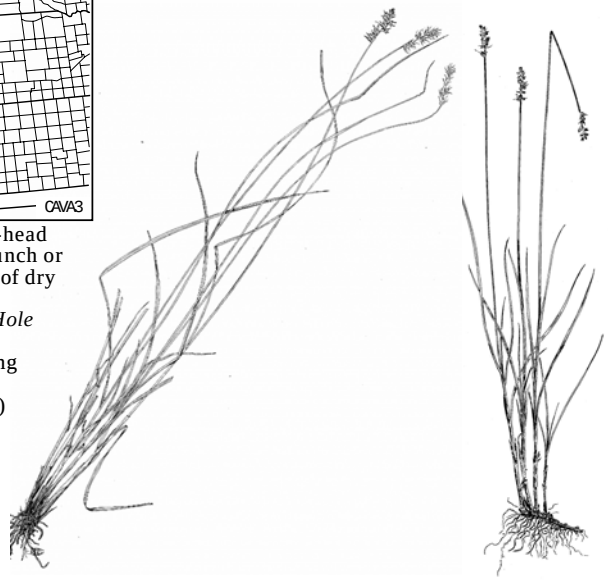


Scale light to medium in color, perigynium light to medium in color. Pistillate scale shorter than perigynium.

Perigynium elliptic-oblong, concavo-convex with rounded corners, tip concave with short taper, 3–4½ mm long (including beak and stipe) and 1–2½ mm wide. Perigynium serrulate, not winged, slightly bidentate, sometimes spongy at base or along sides. Perigynium not strongly nerved. Stigmas 2.

In Rocky Mountain Region common on dry hillsides or dense shrublands in foothills or Montane Zone of mountains in the w $^{2}/_{3}$ of WY; occasional on similar habitats in scattered sites in e $^{1}/_{3}$ of WY and the w $^{2}/_{3}$ of CO (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).





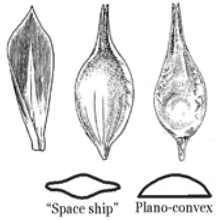
Among other interrupted-head androgynous-spike bunch or short-rhizome sedges of dry to moist sites in the mountains, *Jackson Hole sedge* can usually be distinguished by having few flowers. Western sedge (*C. occidentalis*) sometimes has few flowers, but it has a scale with a dark midrib, covering the perigynium. In the Black Hills, rosy sedge (*C. rosea*) sometimes has few flowers, but it has a blunt to acute scale. Longstalk sedge (*C. pedunculata*) has the lowest spike long-pedunculate.

See Tables 14–19 in Appendix A to compare Jackson hole sedge with other sedges with some mature leaves < 1 mm, that occur in dry or moist (not wet) areas. See Tables 26–27 in Appendix A to compare Jackson Hole sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

Other names: valley sedge

127. *Carex vernacula* L. H. Bailey 1893 CAVE5 alpine blackheaded sedge





Culms taller than basal leaves, erect, phyllopodic. Short rhizomes or long rhizomes. Bract below lowest spike none or scale-like.

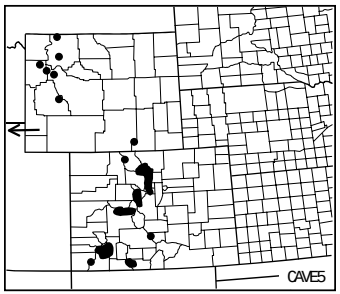
Leaves 1½–4 mm wide. Leaves usually not curling or drying.

Spikes 10–20. Spikes densely aggregated into spherical ball-like cluster, spikes **all androgynous**. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes few-flowered, with 1–10 pistillate flowers.

Scale obovate-oblanceolate, broadest in upper ¼, dark-colored above, with lighter lower portion and midrib; perigynium medium in color. Pistillate scale covering perigynium.

Perigynium ovate-ovoid or lanceolate, plano-convex, tip concave with long taper, 3½–5 mm long (including beak and stipe) and 1½–2 mm wide. Perigynium not winged, except sometimes narrowly winged at junction of beak and body. Perigynium nerved or ribbed. Stigmas 2.

In Rocky Mountain Region occasional to locally common on dry to moist tundra in the Alpine Zone and upper Subalpine Zone in the high mountains of w CO and nw WY (in western U.S.: CA, CO, OR, UT, WA, WY).





There are several tight-head sedges of the high mountains. All of them have several to many androgynous spikes. *Alpine blackheaded sedge* can usually be distinguished by its short to long rhizomes, few flowers, and a dark-colored obovate scale (broadest near the tip) covering the narrowly-winged perigynium. Alpine nerve sedge (*C. neurophora*) is a bunch sedge, with more flowers and a medium-colored ovate scale that is shorter and broader than the perigynium. Mt. Baldy sedge (*C. perglobosa*) is a bunch sedge with many flowers and a medium-colored ovate scale covering the perigynium. Jones's sedge (*C. jonesii*) has few flowers, but its dark scale is broadest near the base and shorter than the perigynium. Curved sedge (*C. maritima*) is a long-rhizomes sedges with curled leaves and a dark-colored perigynium.

See Table 24 in Appendix A to compare alpine blackheaded sedge with other androgynous-spike sedges that have more than one spike and long rhizomes.See Tables 26–27 in Appendix A to compare alpine blackheaded sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.

Other names: native sedge. *Carex foetida* Allioni var. *vernacula* (L. H. Bailey) Kükenthal 1909.



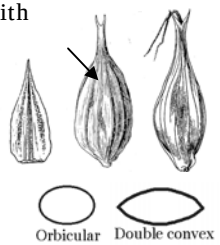
Culms shorter than or equal to basal leaves, erect, aphyllopodic. Bunch or short rhizomes, or rarely long rhizomes. Bract below lowest spike leaf-like, longer than inflorescence, 1–½ × inflorescence.

Leaves 2–8 mm wide, usually <6 mm wide, lower leaf sheaths filamentose.

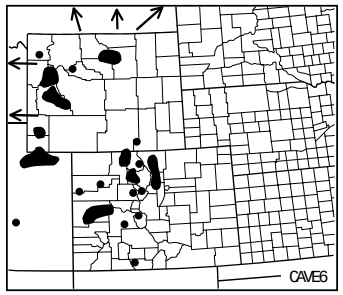
Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike separated by a distance ½–3 × length of spike, lower spike sessile or nearly so. Spikes with 30–100 pistillate flowers.

Scale long-acuminate, medium in color; perigynium light yellow-green to medium brown. Pistillate scale narrower and shorter than perigynium.

Perigynium ascending in spike, ovate-ovoid, tip concave with long taper, 3½–10 mm long (including beak and stipe) and 2½–3½ mm wide. Perigynium not winged. Beak ± 2 mm long, with teeth ½–1 mm long. Perigynium strongly many-nerved. Stigmas 3.



In Rocky Mountain Region locally common in very wet sites, marshes and wet meadows, in the Subalpine Zone or Montane Zone in mountains of nc-wc CO and nw-nc WY; scattered in s & nw CO (in western U.S.: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY). Weber (2000) considers this an alien in the Rocky Mountains.



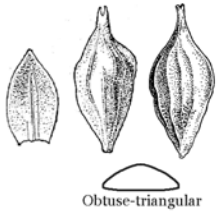
See Tables 4–7 in Appendix A to compare blister sedge with other sedges with mature leaves 6 mm wide or wider, that occur in wetland areas near open water or with a high water table at some season.

See Tables 30–35 in Appendix A to compare blister sedge with other tall wetland sedges in the high mountains with staminate over pistillate spikes. See Tables 36–38 in Appendix A to compare rigid sedge with other tall bunch or short-rhizome wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.

Other names: inflated sedge. *Carex vesicaria* Linnaeus var. *monile* (Tuckerman) Fernald 1901.







Culms taller than or equal to basal leaves, erect, phyllopodic. Bunch. Bract below lowest spike leaf-like, longer than inflorescence, sometimes sheathing >3 mm.

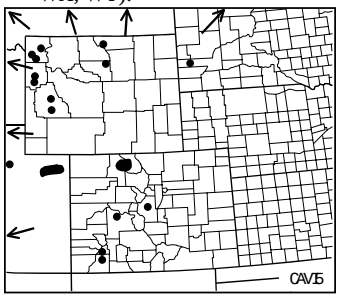
Leaves 1–4 mm wide, lower leaf sheaths glabrous, sometimes filamentose.

Spikes 2–10. Terminal spike staminate, lowest spike pistillate. Upper and lower spikes appear different, lowest spike ± separated by a distance ¼–3 × length of spike, lower spike sessile or on a short peduncle up to 1 × length of spike. Spikes with 10–30 pistillate flowers.

Scale light to medium in color, perigynium light to medium yellow-green. Pistillate scale narrower and shorter than perigynium.

Perigynium shape obovate-obovoid, tip convex with triangular shape, 2–3½ mm long (including beak and stipe) and 1–1½ mm wide. Perigynium not winged, short-beaked (1/3–½ × body or ½–1¼ mm long), shallowly bidentate. Perigynium strongly several-ribbed/nerved. Stigmas 3.

In Rocky Mountain Region rare to scattered in a few sites on wet stream banks and shores in foothills and Montane and Subalpine Zones in mountains of w CO, nw-nc WY, and in the southern Black Hills in w SD (in western U.S.: CA, CO, ID, MT, NM, NV, OR, UT, WA, WY).



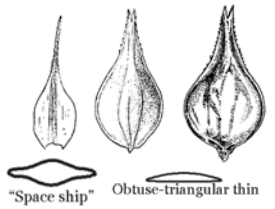


See Tables 32–33 in Appendix A to compare green sedge with other tall bunch or short-rhizome wetland sedges in the high mountains with staminate over pistillate spikes.

See Tables 36–38 in Appendix A to compare green sedge with other tall bunch or short-rhizome wetland sedges with staminate over pistillate spikes that occur on lower mountains, foothills, or plains.

Other names: little green sedge. *Carex oederi* Retzius ssp. *viridula* (Michaux) Hultén 1968. *Carex oederi* Retzius var. *recterostrata* (L. H. Bailey) Dorn 1988.





Culms shorter than or equal to basal leaves, erect, phyllopodic or aphyllopodic. Bunch or short rhizomes. Bract below lowest spike leaf-like, longer or slightly shorter than inflorescence.

Leaves firm or stiff, 2–6 mm wide, usually 2-4 mm wide. Leaf sheaths sometimes cross-rugulose.

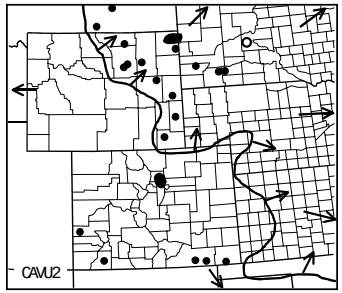
Head an interrupted long cylinder, 3–10 cm long.

Spikes 5–>20, **in a compound head,** sometimes spikes many. Spikes **all androgynous**. Upper and lower spikes appear the same, lowest spike ± separated by a distance ¼–3 × length of spike, lower spike sessile or nearly so. Spikes with 20–50 pistillate flowers.

Scale conspicuously long-awned (> 2 mm), light to medium in color, perigynium light to medium in color. Pistillate scale narrower than perigynium.

Perigynium broadest in middle 1/3, ovate-ovoid, tip concave with short taper, 2–3½ mm long (including beak and stipe) and 1–2 mm wide. Perigynium beak serrulate, not winged except sometimes narrowly winged at junction of beak and body. Perigynium sometimes spongy at base. Perigynium several-nerved. Stigmas 2.

In Rocky Mountain Region common in wet to moist sites, meadows, edges of swamps, moist ravines, and ditches, in foothill valleys and plains in e WY, sw SD, and n-c NE; scattered and less common in ne CO, se CO, and sw CO (in western U.S.: AZ, CA, CO, ID, MT, NM, OR, WA, WY).



See Table 25 in Appendix A to compare fox sedge with other wetland, bunch, androgynous-spike sedges that have more than one spike.

See Tables 26–27 in Appendix A to compare fox sedge with other dry- to moist-site, bunch, androgynous-spike sedges that have more than one spike.



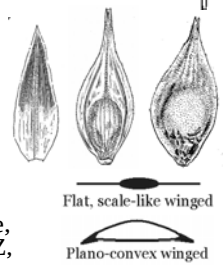


Culms stiff, taller than basal leaves, erect, aphyllopodic. Bunch or short rhizomes. Bract below lowest spike none or scale-like, much shorter than inflorescence.

Leaves 2–4 mm wide.

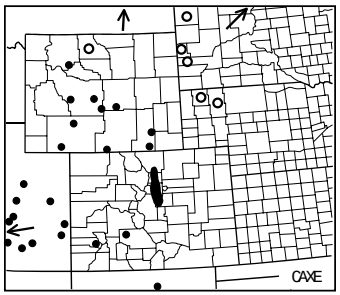
Spikes 2–10. Spikes all gynaecandrous. Upper and lower spikes appear the same, lower spike very close to next spike, sessile or nearly so. Spikes with 30–50 pistillate flowers.

Scale light to medium in color, perigynium medium green to golden-yellow. Pistillate scale covering perigynium or slightly narrower and shorter than perigynium.



Perigynium broadest in lower 1/3, ovate-ovoid, tip concave with long taper, 4–6½ mm long (including beak and stipe) and 2–3 mm wide. Perigynium serrulate and winged to base; beak usually flat, winged, and serrulate to apex. Perigynium many-nerved. Stigmas 2.

In Rocky Mountain Region dry sites under pines (often ponderosa pines) in foothills and lower Montane Zone, scattered in w ½ CO, WY, SD, NE (in western U.S.: AZ, CO, ID, MT, NM, UT, WA, WY).





Dryland sedge belongs to a large group of long-headed dry- or moist-site bunch sedges of mountain meadows with several sessile gynaecandrous spikes in an elongated terminal head, and medium-width leaves. In most of these, the culm is taller than basal leaves, and the bract shorter than inflorescence. These species are compared and contrasted in Table 2 in Appendix A.

Other names: whitescale sedge.

Chapter 5. Tables of Characteristics

A. HABITAT AND DISTRIBUTION IN ROCKY MOUNTAIN REGION

Carex	Area A	Area B	Area C	High Mts (AlpZ-SZ)	Lower Mts (MZ)	Foothills	Plains	Dry Shaded	Dry Open	Moist Shaded	Moist Open	Wet Shaded	Wet Open
1. *aenea*		X			X	X		X		X			
2. *aggregata*	X					X	X	X		X			
3. *albo-nigra*			X	X					X	X	X		
4. *alopecoidea*		X			X	X	X			X	X	X	X
5. *amphibola*	X					X	X	X		X			
6. *angustior*			X	X	X						X		
7. *aquatilis*			X	X	X								X
8. *arapahoensis*			X	X					X		X		
9. *atherodes*	X	X	X		X	X	X					X	X
10. *athrostachya*			X	X	X	X			X		X		
11. *atrata*			X	X					X		X		
12. *atrosquama*			X	X					X		X		
13. *aurea*	X	X	X	X	X	X				X		X	
14. *backii*	X	X	X		X	X		X	X				
15. *bebbii*	X	X	X	X	X	X	X			X	X		
16. *bella*		X	X	X	X					X	X		
17. *bicknellii*	X	X			X	X	X	X	X	X	X		
18. *blanda*	X	X				X	X	X		X			
19. *brevior*	X	X	X		X	X	X	X	X	X	X		
20. *brunnescens*			X	X	X			X		X			
21. *buxbaumii*	X		X	X	X		?			X	X	X	
22. *canescens*		X	X	X	X								X
23. *capillaris*		X	X	X	X							X	
24. *capitata*			X	X									X
25. *comosa*	X						X						X
26. *concinna*		X	X	X	X					X			
27. *crandallii*			X	X							X		
28. *crawei*	X		X			X	X						X
29. *cristatella*	X	X				X	X			X	X	X	X
30. *cusickii*	X		X		X	X						X	X
31. *deweyana*		X	X		X	X		X		X			
32. *diandra*			X	X									X
33. *dioica*			X	X									X
34. *disperma*		X	X	X	X					X		X	
35. *douglasii*	X		X		X	X	X		X		X		
36. *ebenea*			X	X						X	X		
37. *eburnea*	X	X			X	X	X	X					
38. *egglestonii*			X	X	X				X		X		
39. *elynoides*			X	X					X		X		
40. *emoryi*	X	X	X			X	X						X
41. *engelmannii*			X	X					X		X		
42. *exsiccata*			X	X	X							X	X
43. *filifolia*	X	X	X			X	X		X				
44. *foenea*		X	X	X	X	X		X					
45. *geophila*			X		X	X		X	X				
46. *geyeri*			X	X	X			X		X			
47. *granularis*	X	X			X	X	X			X	X	X	X
48. *gravida*	X	X	X			X	X			X	X		
49. *haydeniana*			X	X					X		X		
50. *hepburnii*			X	X					X				

Carex	Area A	Area B	Area C	High Mts (AlpZ-SZ)	Lower Mts (MZ)	Foothills	Plains	Dry Shaded	Dry Open	Moist Shaded	Moist Open	Wet Shaded	Wet Open
51. *hoodii*		X	X	X	X			X	X	X	X		
52. *hystericina*	X	X	X		X	X	X	X					X
53. *illota*			X	X									X
54. *interior*	X	X	X		X	X				X	X	X	X
55. *jonesii*			X	X	X						X		
56. *lachenalii*			X	X								X	X
57. *lacustris*	X						X						X
58. *laeviculmis*			X	X	X					X		X	
59. *lanuginosa*	X	X	X	X	X	X	X						X
60. *lasiocarpa*			X	X	X								X
61. *lenticularis*			X	X	X							X	X
62. *leporinella*			X	X	X			X	X	X	X		
63. *leptalea*		X	X	X	X	X				X		X	
64. *limosa*			X	X								X	X
65. *livida*			X	X								X	X
66. *luzulina*			X	X	X					X	X	X	X
67. *macloviana*			X	X	X				X		X		
68. *magellanica*			X	X								X	X
69. *maritima*			X	X							X		
70. *meadii*	X					X	X		X		X		
71. *microglochin*			X	X								X	X
72. *microptera*	?	X	X	X	X				X		X		
73. *misandra*			X	X					X		X		
74. *molesta*	X	X	X			X		X		X			
75. *muehlenbergii*	X		X			X	X		X		X		
76. *nebrascensis*	X	X	X		X	X							X
77. *nelsonii*			X	X					X		X		
78. *neurophora*			X	X	X					X	X	X	X
79. *nigricans*			X	X							X		X
80. *normalis*	X	X				X	X	X	X	X	X		
81. *norvegica*			X	X	X					X	X		X
82. *nova*			X	X							X		
83. *obtusata*		X	X	X	X				X				
84. *occidentalis*			X		X	X		X	X	X	X		
85. *oreocharis*			X		X	X			X				
86. *pachystachya*			X	X	X			X	X	X	X		
87. *parryana*	X	X	X		X	X	X		X		X		
88. *peckii*	X	X	X			X				X		X	
89. *pedunculata*		X			X	X		X		X			
90. *pensylvanica*	X	X	X		X	X	X	X	X				
91. *perglobosa*			X	X					X		X		
92. *petasata*		X	X	X	X			X	X	X	X		
93. *phaeocephala*			X	X				X	X	X	X		
94. *platylepis*			X	X	X			X	X	X	X		
95. *praeceptorum*			X	X					X		X		
96. *praegracilis*	X	X	X		X	X	X		X		X		
97. *prairea*	X					X	X						X
98. *praticola*		X	X	X	X				X		X		
99. *preslii*			X	X	X			X	X	X	X		
100. *raynoldsii*			X	X	X				X		X		
101. *retrorsa*		X	X		X	X							X

Carex	Area A	Area B	Area C	High Mts (AlpZ-SZ)	Lower Mts (MZ)	Foothills	Plains	Dry Shaded	Dry Open	Moist Shaded	Moist Open	Wet Shaded	Wet Open
102. *richardsonii*	X	X				X	X		X		X		
103. *rosea*	X	X				X	X	X	X	X	X		
104. *rossii*		X	X	X	X	X		X					
105. *rupestris*			X	X					X				
106. *sartwellii*	X	X	X		X	X	X						X
107. *saxatilis*			X	X								X	X
108. *scirpoidea*			X	X							X		X
109. *scoparia*	X	X	X		X	X	X			X	X	X	X
110. *scopulorum*			X	X							X		X
111. *simulata*			X	X	X	X							X
112. *spectabilis*			X	X	X			X	X	X	X		
113. *sprengelii*	X	X	X		X	X				X		X	
114. *stenophylla*	X	X	X		X	X	X		X				
115. *stenoptila*			X		X			X	X				
116. *stipata*	X	X	X		X	X						X	X
117. *subnigricans*			X	X							X		
118. *sychnocephala*	?	?	X			X	X					X	X
119. *tenera*	X	X	X		X	X	X	X	X	X	X		
120. *tenuiflora*			X	X									X
121. *tetanica*	X					X	X						X
122. *tolmiei*			X	X				X	X	X	X		
123. *torreyi*	X	X	X		X	X	X	X	X	X	X		
124. *tribuloides*	X					X	X						X
125. *utriculata*	X	X	X	X	X	X							X
126. *vallicola*		X	X		X	X		X	X				
127. *vernacula*			X	X					X		X		
128. *vesicaria*			X	X	X								X
129. *viridula*		X	X	X	X	X						X	X
130. *vulpinoidea*	X	X	X			X	X			X	X	X	X
131. *xerantica*	X	X	X		X	X		X					

B. DESCRIPTIVE DISTRIBUTION

Carex	Distribution
1. *aenea*	MZ BH w SD
2. *aggregata*	fthls, plns ne SD-nw NE-c KS
3. *albo-nigra*	AlpZ CO-WY
4. *alopecoidea*	Fthls-plns-MZ BH ne WY-w SD
5. *amphibola*	fthls-plns nw NE
6. *angustior*	SZ-MZ mts CO-nw WY
7. *aquatilis*	SZ-MZ mts w CO-w WY
8. *arapahoensis*	AlpZ-SZ c & s CO
9. *atherodes*	fthls-plns BH WY-SD, nw NE, MZ n & c CO
10. *athrostachya*	n CO-w WY
11. *atrata*	SZ-AlpZ w CO-nw & se WY-nc WY
12. *atrosquama*	AlpZ-SZ w CO
13. *aurea*	mts, fthls w CO-WY-BH-sw SD-nw NE
14. *backii*	mts-fthls BH WY-SD-ne CO-nw NE- nw WY
15. *bebbii*	SZ-MZ-mts-fthls-plns c CO ne WY BH SD, c & nw NE
16. *bella*	MZ-SZ mts c & s CO-s BH SD
17. *bicknellii*	prairies-fthls-plns cw SD-nw NE-w KS
18. *blanda*	fthls-plns BH-ne WY-w SD-sw SD-nw NE
19. *brevior*	lower mtns n & s CO, nw WY; mts-fthls-plns SD NE, KS

Carex	Distribution
20. *brunnescens*	mts CO-nc & nw WY
21. *buxbaumii*	MZ-SZ n & c CO-nw & sw WY; c NE?
22. *canescens*	SZ-MZ mts w CO-nc & w WY-BH SD
23. *capillaris*	SZ-MZ mts nc & sw CO-nw WY-BH SD
24. *capitata*	AlpZ c-sw CO-nw WY
25. *comosa*	nw-c NE; sw SD
26. *concinna*	SZ c CO-nw WY-BH SD
27. *crandallii*	AlpZ- SZ mts w CO, w WY
28. *crawei*	fthls-plns c & nw NE-ec CO-se WY
29. *cristatella*	fthls-plns w SD-c NE
30. *cusickii*	mts-fthls c CO-nw WY-w NE
31. *deweyana*	MZ-fthls mts CO-nw WY-BH e WY-w SD
32. *diandra*	SZ n & w CO-nw WY
33. *dioica*	SZ c CO-se WY-nw WY
34. *disperma*	MZ-SZ mts CO-WY-BH WY-SD
35. *douglasii*	fthls-plns-MZ c & w CO-WY-nw NE-sw SD
36. *ebenea*	SZ w CO-se & nw WY
37. *eburnea*	fthls-plns-MZ BH WY & SD-sw SD-nw NE
38. *egglestonii*	SZ-MZ w CO-se WY
39. *elynoides*	AlpZ CO-WY
40. *emoryi*	fthls-plns e & wc CO-e WY-s SD-w NE-w KS
41. *engelmannii*	AlpZ n & c CO-nw WY
42. *exsiccata*	mts nw CO
43. *filifolia*	plns-fthls WY-n CO-w SD-w NE
44. *foenea*	fthls-MZ-SZ-AlpZ mts CO-se & ne WY-BH SD
45. *geophila*	fthls-MZ wc CO-se & nc CO
46. *geyeri*	SZ-MZ mts CO-se & nw & nc WY
47. *granularis*	fthls-plns-MZ n BH-ne WY-w SD-nw & nc NE
48. *gravida*	fthls-plns ne WY-e CO-w SD-nw & c NE-w KS
49. *haydeniana*	AlpZ-SZ w CO-se & nw & nc WY
50. *hepburnii*	AlpZ w CO-se WY-nw WY
51. *hoodii*	SZ-MZ nw & c CO-s & nw & wc WY-BH ne WY-w SD
52. *hystericina*	fthls-plains CO-e & nc WY-s SD-w NE-w KS
53. *illota*	AlpZ-SZ w CO-se & nw WY
54. *interior*	mts-fthls w CO-nw WY-BH ne WY-w SD-nw & nc NE
55. *jonesii*	SZ, MZ mts c & nc CO-se & nw WY
56. *lachenalii*	AlpZ-SZ w CO-se & nw WY
57. *lacustris*	plns-sand hills w & c NE
58. *laeviculmis*	MZ mts nw CO-nw WY
59. *lanuginosa*	fthls-MZ-SZ CO-WY-BH-w NE
60. *lasiocarpa*	SZ-MZ n CO-nw WY
61. *lenticularis*	SZ-MZ mts w CO-se & nw & nc WY
62. *leporinella*	MZ-SZ nw WY
63. *leptalea*	SZ-MZ-Fthls c CO-nw WY-BH SD
64. *limosa*	SZ w CO-nw & nc WY
65. *livida*	high mts c & nc CO-nw WY
66. *luzulina*	mts nw WY
67. *macloviana*	SZ-MZ mts nw & s WY-w CO
68. *magellanica*	SZ w CO-se WY
69. *maritima*	AlpZ- SZ c CO-nw WY
70. *meadii*	Fthls-plns SD-NE
71. *microglochin*	SZ c & sw CO-nw WY
72. *microptera*	SZ-MZ mts CO-WY-SD
73. *misandra*	AlpZ-SZ nc CO-nw WY
74. *molesta*	fthls-canyons se & ne CO-w SD-wc NE
75. *muehlenbergii*	Fthls-plns nw NE-sw KS
76. *nebrascensis*	fthls-MZ WY-CO-w & sw SD-c & w NE
77. *nelsonii*	AlpZ-SZ c & s CO-nw WY
78. *neurophora*	MZ-SZ nc CO-nw WY
79. *nigricans*	AlpZ -SZ w CO-nw WY
80. *normalis*	Fthls-plns BH SD

Carex	Distribution
81. *norvegica*	MZ-SZ-AlpZ mts CO-nw WY
82. *nova*	AlpZ-SZ w CO-se & nw WY
83. *obtusata*	SZ-MZ mts c & w CO-nw & nc WY-BH WY-SD
84. *occidentalis*	Fthls-canyons-MZ- SZ mts CO-se & nw CO-se & nw WY
85. *oreocharis*	fthls-MZ ne & c CO-se WY
86. *pachystachya*	SZ-MZ mts nc & nw & s WY-w CO
87. *parryana*	plns-mts w CO-sw & e WY-w & c NE
88. *peckii*	Fthls-MZ BH; ne CO-nc & ne WY-nc NE-w SD
89. *pedunculata*	BH w SD
90. *pensylvanica*	plns-hills-fthls-MZ nc WY-c & e CO-BH-w NE
91. *perglobosa*	AlpZ-SZ c & sw CO
92. *petasata*	SZ-MZ mts w & ne WY-w CO
93. *phaeocephala*	AlpZ-SZ w CO-se & w & nc WY
94. *platylepis*	mts nw WY
95. *praeceptorum*	AlpZ-SZ w & nc CO-se & nw WY
96. *praegracilis*	plns-fthls-MZ CO-WY-w SD-w NE-sw KS
97. *prairea*	Fthls-plns w & c NE
98. *praticola*	SZ-MZ mts nw & se WY-CO-BH WY-SD
99. *preslii*	SZ-MZ mts nw WY
100. *raynoldsii*	SZ-MZ nw & nc CO-se & nw & nc WY
101. *retrorsa*	fthls-MZ nw & sw CO-ne WY-wc SD-BH
102. *richardsonii*	Fthls-plns-hills ne WY-w SD
103. *rosea*	Fthls-plns ne WY-w SD
104. *rossii*	fthls-MZ-SZ mts CO-w WY-BH WY-SD
105. *rupestris*	AlpZ-SZ c & nc CO-se & nw & nc WY
106. *sartwellii*	fthls-plns-lower MZ w & c NE-BH-SD-se & nw WY-c & nc CO
107. *saxatilis*	SZ-AlpZ c & w CO-nw & se WY
108. *scirpoidea*	AlpZ-SZ c CO-nw WY
109. *scoparia*	plains-fthls nw-nc NE, BH SD, ne CO
110. *scopulorum*	AlpZ-SZ w CO-se & nw WY
111. *simulata*	fthls-MZ-SZ mts c & nc CO-se & w & nc WY
112. *spectabilis*	SZ-MZ mts c & nc CO-nw WY
113. *sprengelii*	Fthls-MZ BH WY-SD, nw NE-n & sc CO-se & nc WY
114. *stenophylla*	fthls-plns-MZ throughout
115. *stenoptila*	MZ n & w CO-se & nw & nc WY
116. *stipata*	fthls-lower MZ nc & s CO-n WY-BH-w SD-w NE-w KS?
117. *subnigricans*	AlpZ-SZ mts nw WY
118. *sychnocephala*	few locs fthls-plns nc CO
119. *tenera*	fthls-MZ mts BH ne WY- w SD-w & nc WY-sw SD
120. *tenuiflora*	few locs SZ c CO
121. *tetanica*	fthls-plns nw & c NE
122. *tolmiei*	AlpZ-SZ mts nw & se WY-n CO
123. *torreyi*	MZ-fthls-plns BH ne WY-w SD-nc CO-nc WY-sw SD
124. *tribuloides*	Fthls-plns-sandhills nc NE
125. *utriculata*	fthls-MZ-SZ w CO-WY-BH ne WY-wc SD
126. *vallicola*	fthls-MZ mts WY-w CO
127. *vernacula*	AlpZ-SZ w CO-nw WY
128. *vesicaria*	SZ-MZ mts c & w CO-nw & nc WY
129. *viridula*	fthls-MZ-SZ mts w CO-nw & nc WY-BH w SD
130. *vulpinoidea*	fthls-plains e WY-sw SD-n & c NE-e & sw CO
131. *xerantica*	fthls-MZ w CO-WY-SD-NE

ABBREVIATIONS USED IN THE TABLE ABOVE

AlpZ	Alpine Zone	locs	Locations		area between the ranges
BH	Black Hills of ne WY and wc SD	mts	Mountains	s	southern
		MZ	Montane Zone	sc	south-central
c	Central	n	Northern	SD	South Dakota
CO	Colorado	nc	north-central	se	south-eastern
cw	Central-west	ne	north-eastern	sw	south-western
e	Eastern	NE	Nebraska	SZ	Subalpine Zone
ec	east-central	nw	north-western	w	western
fthls	Foothills	plns	plains: either the Great Plains or any broad, flat	wc	west-central
KS	Kansas			WY	Wyoming

C. HABIT AND CULMS

	HABIT				CULMS						
Carex	Bunch	Mat-forming	Short Rhizomes	Long Rhizomes	> Basal Leaves	= Basal Leaves	< Basal Leaves	Nodding-Hanging	Slender and Weak	Long-pedunc Basal Spikes	Culms
1. *aenea*	X				X						
2. *aggregata*	X		X		X						
3. *albo-nigra*	X		X		X						
4. *alopecoidea*	X				X	X	X				flattened & winged
5. *amphibola*	X				X						
6. *angustior*	X				X	X		X			
7. *aquatilis*	X			X	X	X		X			
8. *arapahoensis*	X				X						
9. *atherodes*				X	X	X		X			
10. *athrostachya*	X				X						
11. *atrata*	X				X	X		X			
12. *atrosquama*	X		X		X			X			
13. *aurea*				X		X	X			X	< 4 dm tall
14. *backii*	X	X	X				X			X	
15. *bebbii*	X				X						
16. *bella*	X		X		X			X			
17. *bicknellii*	X				X						
18. *blanda*	X				X	X					
19. *brevior*	X		X		X						
20. *brunnescens*	X				X			X			
21. *buxbaumii*				X	X						
22. *canescens*	X		X		X	X					
23. *capillaris*	X		X		X	X	X	X	X		
24. *capitata*			X	X	X	X					
25. *comosa*	X				X	X					Winged
26. *concinna*	X		X		X			X			
27. *crandallii*	X				X	X					
28. *crawei*				X	X	X	X				
29. *cristatella*	X		X		X	X					sharply triangular-winged
30. *cusickii*	X		X		X						
31. *deweyana*	X		X		X			X	X		
32. *diandra*	X		X		X						
33. *dioica*				X	X			X			
34. *disperma*	X		X	X	X	X	X		X		
35. *douglasii*				X	X	X					
36. *ebenea*	X		X		X						
37. *eburnea*	X			X	X	X		X			
38. *egglestonii*	X		X		X						
39. *elynoides*	X	X			X	X					
40. *emoryi*				X	X	X					
41. *engelmannii*				X	X	X					
42. *exsiccata*	X		X		X	X					
43. *filifolia*	X	X			X	X		X	X		
44. *foenea*				X	X	X					
45. *geophila*	X	X					X			X	
46. *geyeri*				X	X	X	X				
47. *granularis*	X				X	X					
48. *gravida*	X				X	X					
49. *haydeniana*	X		X		X						
50. *hepburnii*	X					X	X				
51. *hoodii*	X				X	X					

	HABIT				CULMS						
Carex	Bunch	Mat-forming	Short Rhizomes	Long Rhizomes	> Basal Leaves	= Basal Leaves	< Basal Leaves	Nodding-Hanging	Slender and Weak	Long-pedunc Basal Spikes	Culms
52. *hystericina*	X		X			X	X	X			
53. *illota*			X		X	X					
54. *interior*	X		X		X						
55. *jonesii*			X	X	X						
56. *lachenalii*	X		X		X						
57. *lacustris*				X	X	X	X				Base purple-tinged
58. *laeviculmis*	X		X		X			X	X		
59. *lanuginosa*				X	X	X					sharply triang, scabrous below infl
60. *lasiocarpa*				X	X	X					obtusely triang
61. *lenticularis*	X				X	X					
62. *leporinella*	X				X	X					
63. *leptalea*	X				X			X	X		
64. *limosa*				X	X			X			
65. *livida*				X	X	X	X				
66. *luzulina*	X		X		X						
67. *macloviana*	X				X						
68. *magellanica*			X		X			X			
69. *maritima*				X		X	X	X			
70. *meadii*				X	X	X					
71. *microglochin*			X	X	X						
72. *microptera*	X		X		X	X					
73. *misandra*	X				X			X			
74. *molesta*	X		X		X						
75. *muehlenbergii*	X		X		X	X					
76. *nebrascensis*			X	X	X	X					
77. *nelsonii*			X		X	X		X			
78. *neurophora*	X		X		X	X					stiffly erect
79. *nigricans*				X	X						
80. *normalis*	X		X		X						
81. *norvegica*	X		X		X			X			
82. *nova*	X		X		X			X	X		
83. *obtusata*				X	X	X					
84. *occidentalis*	X		X		X	X					
85. *oreocharis*	X		X		X	X					stout, erect, scabrous below spk
86. *pachystachya*	X				X	X					
87. *parryana*			X	X	X						
88. *peckii*	X		X		X	X					
89. *pedunculata*	X	X	X			X	X	X	X	X	
90. *pensylvanica*		X	X	X	X	X					
91. *perglobosa*	X		X		X	X					
92. *petasata*	X		X		X						
93. *phaeocephala*	X				X	X					
94. *platylepis*	X		X		X			X			
95. *praeceptorum*	X		X		X	X					
96. *praegracilis*				X	X	X					
97. *prairea*	X		X		X	X		X			
98. *praticola*	X		X		X			X			
99. *preslii*	X				X	X					
100. *raynoldsii*	X		X		X	X					
101. *retrorsa*	X		X			X	X				
102. *richardsonii*	X		X		X	X	X	X			

Carex	HABIT				CULMS						Culms
	Bunch	Mat-forming	Short Rhizomes	Long Rhizomes	> Basal Leaves	= Basal Leaves	< Basal Leaves	Nodding-Hanging	Slender and Weak	Long-pedunc Basal Spikes	
103. *rosea*	X				X	X		X			
104. *rossii*	X	X				X	X			X	
105. *rupestris*			X	X	X	X	X				
106. *sartwellii*				X	X	X					
107. *saxatilis*				X	X	X		X			
108. *scirpoidea*		X	X	X	X	X					Strongly purplish-tinged base
109. *scoparia*	X		X		X						
110. *scopulorum*			X	X	X	X					
111. *simulata*				X	X	X					
112. *spectabilis*	X	X	X		X			X			
113. *sprengelii*	X	X			X	X					
114. *stenophylla*				X	X	X					
115. *stenoptila*	X				X						
116. *stipata*	X		X		X	X					Spongy base, slightly winged
117. *subnigricans*	X		X		X						
118. *sychnocephala*	X						X				
119. *tenera*	X				X			X			Scabrous on angles
120. *tenuiflora*			X	X	X	X			X		
121. *tetanica*	X		X				X				
122. *tolmiei*			X	X	X						
123. *torreyi*	X				X	X					
124. *tribuloides*	X				X	X					sharply triangular-winged
125. *utriculata*			X	X	X	X					Blunt-triang above, spongy bases
126. *vallicola*	X		X		X						
127. *vernacula*			X	X	X						
128. *vesicaria*	X		X	X		X	X				
129. *viridula*	X				X	X					
130. *vulpinoidea*	X		X			X	X				
131. *xerantica*	X		X		X						Stiff

D. LEAVES (*s = sometimes*)

Carex	LEAF WIDTH											Leaf sheaths filamentose	Leaf sheaths pubescent	Leaves glaucous	Leaves
	<½ mm	½ – 1 mm	1 – 2 mm	2 – 3 mm	3 – 4 mm	4 – 6 mm	6 – 8 mm	8 – 10 mm	10 – 12 mm	12 – 14 mm	14 – 16 mm				
1. *aenea*				X	X										sheaths green-and-white mottled
2. *aggregata*				X	X	X									sheaths green-and-white mottled
3. *albo-nigra*				X	X	X	X								
4. *alopecoidea*				s	X	X	s	s							
5. *amphibola*			X	X	X	X	X	X							
6. *angustior*		X	X	X	X										
7. *aquatilis*				X	X	X	X	X						s	stiff, W-shaped cross-section, Ligule triang
8. *arapahoensis*			X	X	X										
9. *atherodes*				X	X	X	X	X	X			X	X		Long soft hairs, Leaf ligule l > w
10. *athrostachya*			X	X	X	X									

Carex	LEAF WIDTH											Leaf sheaths filamentose	Leaf sheaths pubescent	Leaves glaucous	Leaves
	<½ mm	½ – 1 mm	1 – 2 mm	2 – 3 mm	3 – 4 mm	4 – 6 mm	6 – 8 mm	8 – 10 mm	10 – 12 mm	12 – 14 mm	14 – 16 mm				
11. *atrata*				X	X	X	X					s			
12. *atrosquama*			X	X	X	X						s			
13. *aurea*			X	X	X	X									
14. *backii*				X	X	X									
15. *bebbii*			X	X	X	X									
16. *bella*				X	X	X	X								
17. *bicknellii*				X	X	X							s		
18. *blanda*					X	X	X	X	X	X	X				
19. *brevior*			X	X	X	X									
20. *brunnescens*		X	X	X	X	X									
21. *buxbaumii*			X	X	X	X						X		s	
22. *canescens*			X	X	X	X								X	
23. *capillaris*		X	X	X	X							s			
24. *capitata*		X	X												
25. *comosa*							X	X	X	X	X				
26. *concinna*			X	X	X							s			
27. *crandallii*		X	X												channeled-involute
28. *crawei*			X	X	X										
29. *cristatella*			s	X	X	X	X	s							
30. *cusickii*				X	X	X							s		leaf sheaths red-dotted or banded
31. *deweyana*			X	X	X	X								s	
32. *diandra*			X	X	X										Leaf sheaths brown- or red-spotted
33. *dioica*		X													
34. *disperma*		X	X	X	X										
35. *douglasii*			X	X	X										involute
36. *ebenea*			X	X	X	X									
37. *eburnea*	X	X													
38. *egglestonii*				X	X	X									
39. *elynoides*		X													
40. *emoryi*				X	X	X						s			
41. *engelmannii*	X	X													
42. *exsiccata*				X	X	X	X					X			
43. *filifolia*	X	X										X			
44. *foenea*			X	X	X										
45. *geophila*		X	X	X	X							X			
46. *geyeri*			X	X	X										sharply folded, V-shaped, curled & drying at tips
47. *granularis*					X	X	X	X	X					X	
48. *gravida*				X	X	X	X								firm-stiff
49. *haydeniana*			X	X	X										
50. *hepburnii*		X													
51. *hoodii*			X	X	X										
52. *hystericina*			X	X	X	X	X	X				X			
53. *illota*			X	X	X										
54. *interior*		X	X	X	X										
55. *jonesii*			X	X	X										mostly basal
56. *lachenalii*			X	X	X										
57. *lacustris*							X	X	X	X	X	X		s	
58. *laeviculmis*			X	X	X										
59. *lanuginosa*												X			lower leaf sheaths purple-tinged
60. *lasiocarpa*			X	X	X							X			filiform, involute, long hairlike tips
61. *lenticularis*			X	X	X										
62. *leporinella*		X	X												

Carex	LEAF WIDTH											Leaf sheaths filamentose	Leaf sheaths pubescent	Leaves glaucous	Leaves
	<½ mm	½ – 1 mm	1 – 2 mm	2 – 3 mm	3 – 4 mm	4 – 6 mm	6 – 8 mm	8 – 10 mm	10 – 12 mm	12 – 14 mm	14 – 16 mm				
63. *leptalea*		X	X												
64. *limosa*		X	X	X	X										
65. *livida*			X	X	X									X	
66. *luzulina*				X	X	X	X	X	X	X		s			
67. *macloviana*			X	X	X	X									
68. *magellanica*			X	X	X	X									
69. *maritima*		X	X	X	X										
70. *meadii*				X	X	X	X					X			
71. *microglochin*		X													channeled-involute
72. *microptera*			X	X	X	X									
73. *misandra*			X	X	X										
74. *molesta*			X	X	X	X									Leaf sheaths green-and-white mottled
75. *muehlenbergii*				X	X	X									
76. *nebrascensis*				X	X	X	X	X	X					X	
77. *nelsonii*				X	X	X						s			
78. *neurophora*				X	X	X									Leaf sheaths sometimes wrinkled
79. *nigricans*			X	X	X	X									
80. *normalis*					X	X	X								Leaf sheaths green-and-white mottled
81. *norvegica*			X	X	X							s			
82. *nova*			X	X	X	X									
83. *obtusata*		X	X												folded, V-shaped
84. *occidentalis*			X	X	X										
85. *oreocharis*			X												
86. *pachystachya*			X	X	X	X									
87. *parryana*			X	X	X										
88. *peckii*			X	X	X										
89. *pedunculata*				X	X	X									
90. *pensylvanica*			X	X	X	X						X			
91. *perglobosa*		X	X	X	X										curled & drying at tips
92. *petasata*			X	X	X	X									
93. *phaeocephala*		X	X	X	X										
94. *platylepis*				X	X	X									
95. *praeceptorum*			X	X	X										
96. *praegracilis*			X	X	X										Leaf sheaths dark brown-black
97. *prairea*			X	X	X										Leaf sheaths red-dotted
98. *praticola*			X	X	X										
99. *preslii*			X	X	X	X									
100. *raynoldsii*				X	X	X	X								
101. *retrorsa*				X	X	X	X	X				X			
102. *richardsonii*				X	X										
103. *rosea*			X	X	X										
104. *rossii*		X	X	X	X							s			
105. *rupestris*			X	X	X										Leaf tips curled & drying
106. *sartwellii*				X	X	X									Leaf sheaths green-nerved, Ligule tubular, hyal
107. *saxatilis*			X	X	X	X						s			
108. *scirpoidea*			X	X	X							s	s		
109. *scoparia*			X	X	X										
110. *scopulorum*			X	X	X	X	X					s			
111. *simulata*		X	X	X	X										
112. *spectabilis*				X	X	X									
113. *sprengelii*				X	X	X						X			

Carex	LEAF WIDTH										Leaf sheaths filamentose	Leaf sheaths pubescent	Leaves glaucous	Leaves
	<½ mm	½ – 1 mm	1 – 2 mm	2 – 3 mm	3 – 4 mm	4 – 6 mm	6 – 8 mm	8 – 10 mm	10 – 12 mm	12 – 14 mm	14 – 16 mm				
114. *stenophylla*		X	X	X	X										involute
115. *stenoptila*			X	X	X										
116. *stipata*				X	X	X	X	X	X						sheaths sometimes cross-rugulose
117. *subnigricans*		X	X												
118. *sychnocephala*		X	X	X	X										
119. *tenera*		X	X	X	X										
120. *tenuiflora*		X	X												
121. *tetanica*				X	X	X									
122. *tolmiei*				X	X	X	X					X			
123. *torreyi*			X	X	X								X		soft-pilose
124. *tribuloides*				X	X	X	X	X							Leaf sheaths green-striate
125. *utriculata*						X	X	X	X						
126. *vallicola*		X	X	X	X										
127. *vernacula*			X	X	X										usu not curling-drying
128. *vesicaria*				X	X	X	X					X			
129. *viridula*			X	X	X							s			sheaths glabrous
130. *vulpinoidea*				X	X	X									sheaths sometimes cross-rugulose, firm-stiff
131. *xerantica*				X	X										

E. BRACT BELOW LOWEST SPIKE ON CULM

Carex	TEX-TURE		LENGTH					Black or purple-black auricles	Long-peduncled Basal Spikes	Bract
	None or Scale-like	Leaf-like blade	< Inflorescence	= Inflorescence	> Inflorescence	>> Inflorescence	Long-sheathing > 3 mm			
1. *aenea*	X		X							
2. *aggregata*		X	X							
3. *albo-nigra*		X	X					s		
4. *alopecoidea*		X	X							
5. *amphibola*		X			X		X			
6. *angustior*	X	X	X							
7. *aquatilis*		X		X	X			s		
8. *arapahoensis*	X		X							
9. *atherodes*		X			X					
10. *athrostachya*		X			X					
11. *atrata*		X	X	X	X		s	s		
12. *atrosquama*		X	X	X	X			s		
13. *aurea*		X	X	X	X		X		X	
14. *backii*		X			X				X	Actually ***scales*** leaf-like & > infl
15. *bebbii*	X	X	X							
16. *bella*		X		X			X	s		± equal infl
17. *bicknellii*	X	X	X	X	X					
18. *blanda*		X	X	X	X		s			
19. *brevior*	X	X	X							
20. *brunnescens*	X	X	X							

Carex	TEX-TURE		LENGTH							Bract
	None or Scale-like	Leaf-like blade	< Inflorescence	= Inflorescence	> Inflorescence	>> Inflorescence	Long-sheathing > 3 mm	Black or purple-black auricles	Long-peduncled Basal Spikes	
21. *buxbaumii*		X	X	X	X			s		
22. *canescens*	X	X	X							
23. *capillaris*		X	X	X	X		X			
24. *capitata*	X		X							
25. *comosa*		X			X	X				
26. *concinna*	X	X	X				s			
27. *crandallii*	X		X							
28. *crawei*		X	X				X			
29. *cristatella*	X	X	X							
30. *cusickii*	X		X							
31. *deweyana*		X	X	X	X					
32. *diandra*	X		X							
33. *dioica*	X		X							
34. *disperma*	X	X	X							
35. *douglasii*	X	X	X	X	X					
36. *ebenea*	X		X							
37. *eburnea*	X						X			with no blade
38. *egglestonii*	X		X							
39. *elynoides*	X		X							
40. *emoryi*		X		X	X					
41. *engelmannii*	X		X							
42. *exsiccata*		X			X					bract 1-1¾ × infl
43. *filifolia*	X		X							
44. *foenea*	X		X							
45. *geophila*		X	X	X	X		s		X	
46. *geyeri*	X		X							
47. *granularis*		X			X		X			sheath red-dotted
48. *gravida*	X	X	X	X						
49. *haydeniana*	X	X	X					s		
50. *hepburnii*	X	X	X					s		
51. *hoodii*	X	X	X							
52. *hystericina*		X			X	X	s			bract 2-3 × infl
53. *illota*	X		X							
54. *interior*	X		X							
55. *jonesii*	X		X							
56. *lachenalii*	X		X							
57. *lacustris*		X			X					
58. *laeviculmis*	X	X	X							
59. *lanuginosa*		X		X	X					
60. *lasiocarpa*		X	X	X	X					
61. *lenticularis*		X			X			X		
62. *leporinella*		X	X	X	X			s		
63. *leptalea*	X		X							
64. *limosa*		X	X	X	X			s		
65. *livida*		X	X	X	X		X			
66. *luzulina*		X	X				s			rarely sheathing
67. *macloviana*	X		X							
68. *magellanica*		X	X	X	X					shorter or slightly longer than infl
69. *maritima*	X		X							
70. *meadii*		X	X	X			X			

Carex	TEX-TURE: None or Scale-like	TEX-TURE: Leaf-like blade	LENGTH: < Inflorescence	LENGTH: = Inflorescence	LENGTH: > Inflorescence	LENGTH: >> Inflorescence	LENGTH: Long-sheathing > 3 mm	Black or purple-black auricles	Long-peduncled Basal Spikes	Bract
71. *microglochin*	X		X							
72. *microptera*	X	X	X							
73. *misandra*		X	X				X			
74. *molesta*	X	X	X							
75. *muehlenbergii*	X	X			X					bract reflexed
76. *nebrascensis*		X	X	X	X			s		
77. *nelsonii*	X	X	X	X	X			s		
78. *neurophora*	X		X							
79. *nigricans*	X		X							
80. *normalis*	X	X	X							
81. *norvegica*		X	X		X			s		
82. *nova*	X	X	X		X			s		
83. *obtusata*	X		X							
84. *occidentalis*	X	X	X							
85. *oreocharis*	X		X							
86. *pachystachya*	X		X							
87. *parryana*	X	X	X	X	X			s		
88. *peckii*		X		X	X					
89. *pedunculata*		X	X						X	
90. *pensylvanica*		X	X	X						
91. *perglobosa*	X		X							
92. *petasata*	X		X							
93. *phaeocephala*	X	X	X							
94. *platylepis*	X	X	X	X						
95. *praeceptorum*	X	X	X							
96. *praegracilis*	X		X							
97. *prairea*	X		X							
98. *praticola*	X		X							
99. *preslii*	X		X							
100. *raynoldsii*		X	X	X	X			s		
101. *retrorsa*		X			X	X				bract 3-4 × infl
102. *richardsonii*	X		X				X			usu without blade, sheath 10-20 mm, sheath reddish
103. *rosea*	X	X	X							
104. *rossii*		X		X	X	X			X	
105. *rupestris*	X		X							
106. *sartwellii*	X		X							
107. *saxatilis*		X	X	X	X			s		
108. *scirpoidea*	X	X	X					s		
109. *scoparia*	X	X	X							
110. *scopulorum*		X	X					s		
111. *simulata*	X	X	X							
112. *spectabilis*		X	X	X	X			s		
113. *sprengelii*		X	X	X	X					
114. *stenophylla*	X		X							
115. *stenoptila*	X		X							
116. *stipata*	X	X	X							
117. *subnigricans*	X		X							
118. *sychnocephala*		X			X	X				bract 2–3 × infl

Carex	TEXTURE: None or Scale-like	TEXTURE: Leaf-like blade	LENGTH: < Inflorescence	LENGTH: = Inflorescence	LENGTH: > Inflorescence	LENGTH: >> Inflorescence	Long-sheathing > 3 mm	Black or purple-black auricles	Long-peduncled Basal Spikes	Bract
119. *tenera*	X		X							
120. *tenuiflora*	X		X							
121. *tetanica*		X	X				X			
122. *tolmiei*		X	X	X	X			s		
123. *torreyi*		X	X	X	X					
124. *tribuloides*		X	X							
125. *utriculata*		X			X					usu 1-1½ × infl
126. *vallicola*	X	X	X	X						
127. *vernacula*	X		X							
128. *vesicaria*		X			X					
129. *viridula*		X			X		s			
130. *vulpinoidea*		X	X	X	X					
131. *xerantica*	X	X	X							

F. HEAD

Carex	HEAD FORM: Tight	Close	Compound	Interrupted	Moniliform	Zigzag	Widely separated	HEAD SHAPE: Conical	Ovoid	Broadly ovoid	Cylindrical	Long cylindrical	Spherical	Special
1. *aenea*				X										
2. *aggregata*		X									X			
3. *albo-nigra*		X							X					
4. *alopecoidea*		X									X			2-3 cm long
5. *amphibola*		X							X					
6. *angustior*				X		X								
7. *aquatilis*				X										
8. *arapahoensis*		X							X					
9. *atherodes*				X										
10. *athrostachya*		X							X					
11. *atrata*		X		X					X					
12. *atrosquama*		X							X					
13. *aurea*				X			X							
14. *backii*		X					X			X				
15. *bebbii*		X							X					
16. *bella*				X										
17. *bicknellii*		X		X					X					
18. *blanda*				X			X							
19. *brevior*		X			X				X		X			
20. *brunnescens*				X		X								
21. *buxbaumii*				X										
22. *canescens*				X										
23. *capillaris*				X			X							
24. *capitata*	X							X						
25. *comosa*				X										
26. *concinna*		X							X					
27. *crandallii*		X									X			

Carex	HEAD FORM							HEAD SHAPE						Special
	Tight	Close	Compound	Interrupted	Moniliform	Zigzag	Widely separated	Conical	Ovoid	Broadly ovoid	Cylindrical	Long cylindrical	Spherical	
28. *crawei*				X			X							
29. *cristatella*		X				X								
30. *cusickii*			X	X					X					
31. *deweyana*		X				X								
32. *diandra*		X	X								X			
33. *dioica*		X									X			
34. *disperma*				X										
35. *douglasii*		X							X		X			1½-2½ cm broad
36. *ebenea*		X							X	X				dark brown-black
37. *eburnea*				X										
38. *egglestonii*		X							X					
39. *elynoides*		X						X			X			Small
40. *emoryi*				X										
41. *engelmannii*		X							X		X			
42. *exsiccata*														
43. *filifolia*		X									X			
44. *foenea*		X		X							X			
45. *geophila*				X			X							
46. *geyeri*		X						X			X			
47. *granularis*				X		X								
48. *gravida*		X						X			X			
49. *haydeniana*		X											X	
50. *hepburnii*		X							X			X		
51. *hoodii*	X								X		X			<2 cm long
52. *hystericina*				X										
53. *illota*		X							X					
54. *interior*		X		X	X				X		X			
55. *jonesii*	X										X			
56. *lachenalii*		X		X					X					
57. *lacustris*				X										
58. *laeviculmis*				X			X							
59. *lanuginosa*				X										
60. *lasiocarpa*				X										
61. *lenticularis*				X										± Interr
62. *leporinella*		X		X					X					
63. *leptalea*		X						X						
64. *limosa*				X										
65. *livida*				X										
66. *luzulina*				X			X							
67. *macloviana*		X								X			X	
68. *magellanica*				X										
69. *maritima*	X												X	
70. *meadii*				X			X							
71. *microglochin*		X							X		X			Small
72. *microptera*		X								X			X	
73. *misandra*				X										
74. *molesta*		X								X			X	
75. *muehlenbergii*		X		X							X			
76. *nebrascensis*				X										
77. *nelsonii*		X								X				
78. *neurophora*	X									X	X			
79. *nigricans*	X							X			X			
80. *normalis*		X		X					X		X			
81. *norvegica*		X		X					X		X			

	HEAD FORM							HEAD SHAPE						
Carex	Tight	Close	Compound	Interrupted	Moniliform	Zigzag	Widely separated	Conical	Ovoid	Broadly ovoid	Cylindrical	Long cylindrical	Spherical	
82. *nova*		X								X			X	
83. *obtusata*	X								X		X			Small
84. *occidentalis*		X		X								X		
85. *oreocharis*	X							X						
86. *pachystachya*		X								X				
87. *parryana*		X		X								X		
88. *peckii*				X										
89. *pedunculata*				X			X							
90. *pensylvanica*				X										
91. *perglobosa*	X										X		X	
92. *petasata*		X		X					X					
93. *phaeocephala*		X		X					X					
94. *platylepis*		X			X				X					
95. *praeceptorum*		X							X					
96. *praegracilis*		X			X				X		X			
97. *prairea*		X		X								X		
98. *praticola*		X		X					X					
99. *preslii*		X							X					
100. *raynoldsii*		X		X					X					
101. *retrorsa*		X		X					X					
102. *richardsonii*				X										
103. *rosea*				X		X								
104. *rossii*				X			X							
105. *rupestris*	X							X			X			
106. *sartwellii*		X						X	X					
107. *saxatilis*				X										
108. *scirpoidea*	X										X	X		
109. *scoparia*		X							X					
110. *scopulorum*		X		X					X					
111. *simulata*		X							X					
112. *spectabilis*				X										
113. *sprengelii*				X										
114. *stenophylla*		X							X					
115. *stenoptila*	X	X								X				
116. *stipata*	X													
117. *subnigricans*	X													
118. *sychnocephala*	X	X							X	X				
119. *tenera*				X	X	X								zig-zag in infl
120. *tenuiflora*		X							X		X			
121. *tetanica*				X										
122. *tolmiei*		X		X					X					
123. *torreyi*		X							X					
124. *tribuloides*		X									X			
125. *utriculata*				X										
126. *vallicola*		X		X							X			
127. *vernacula*	X												X	
128. *vesicaria*				X										
129. *viridula*		X		X					X					
130. *vulpinoidea*				X								X		long cylindr 3-10 cm long
131. *xerantica*		X			X						X			

G. SPIKES – NUMBER AND KIND

Carex	NUMBER					UPPER/ONLY SPIKE				LOWEST SPIKE				U/L SPKS		Special
	Solitary	2 – 5	5 – 10	10 – 20	> 20	Pistillate	Gynaecandrous	Androgynous	Staminate	Pistillate	Gynaecandrous	Androgynous	Staminate	Appear the Same	Appear Different	
1. *aenea*		X	X				X				X			X		
2. *aggregata*			X	X				X				X		X		
3. *albo-nigra*		X					X			X				X		
4. *alopecoidea*			X					X				X		X		
5. *amphibola*		X							X	X					X	
6. *angustior*		X					X			X				X		± as long as wide, peri spread
7. *aquatilis*		X	X						X	X		X			X	slender & long
8. *arapahoensis*		X	X				X				X			X		
9. *atherodes*		X	X						X	X		X			X	
10. *athrostachya*		X	X	X			X				X			X		
11. *atrata*		X	X				X			X				X		
12. *atrosquama*		X					X			X				X		
13. *aurea*		X	X				X		X	X					X	
14. *backii*	X	X						X				X		X		
15. *bebbii*		X	X	X			X				X			X		
16. *bella*		X					X				X			X		
17. *bicknellii*		X	X				X				X			X		
18. *blanda*		X	X					X	X	X					X	
19. *brevior*		X	X				X				X			X		obovoid (wider near tip)
20. *brunnescens*			X				X				X			X		
21. *buxbaumii*		X					X			X				X		
22. *canescens*		X	X				X				X			X		
23. *capillaris*		X							X	X					X	short (< 9 mm long)
24. *capitata*	X							X		X						shiny brown-black
25. *comosa*		X	X						X	X					X	
26. *concinna*		X							X	X					X	
27. *crandallii*	X							X								
28. *crawei*		X							X	X					X	
29. *cristatella*			X	X			X				X			X		
30. *cusickii*			X	X				X	X			X		X		
31. *deweyana*			X				X				X			X		
32. *diandra*				X	X			X				X		X		many, lower two-more-a node
33. *dioica*	X					X		X	X							Plants may be dioecious
34. *disperma*		X						X				X		X		one-a node
35. *douglasii*			X	X		X		X	X	X			X	X		Plants often dioecious
36. *ebenea*			X				X				X			X		
37. *eburnea*		X							X	X					X	
38. *egglestonii*		X	X				X				X			X		
39. *elynoides*	X							X								
40. *emoryi*			X						X	X		X			X	
41. *engelmannii*	X							X								
42. *exsiccata*		X	X						X	X					X	
43. *filifolia*	X							X								
44. *foenea*		X	X				X			X				X		
45. *geophila*	X	X						X	X	X					X	
46. *geyeri*	X	X						X	X	X					X	Usu 1 term stam spk & 1 lower pist spk
47. *granularis*		X	X						X	X					X	
48. *gravida*			X	X				X				X		X		usu <15
49. *haydeniana*		X	X				X				X			X		
50. *hepburnii*	X						X	X								
51. *hoodii*		X	X					X				X		X		
52. *hystericina*		X						X	X	X					X	
53. *illota*		X	X				X				X			X		

Carex	NUMBER					UPPER/ONLY SPIKE				LOWEST SPIKE				U/L SPKS		Special
	Solitary	2 – 5	5 – 10	10 – 20	> 20	Pistillate	Gynaecandrous	Androgynous	Staminate	Pistillate	Gynaecandrous	Androgynous	Staminate	Appear the Same	Appear Different	
54. *interior*		X	X				X		X	X				X		± as long as wide
55. *jonesii*		X	X					X				X		X		
56. *lachenalii*	X	X					X	X			X			X		usu 2-4, longer than wide
57. *lacustris*		X	X						X	X					X	
58. *laeviculmis*		X					X			X				X		
59. *lanuginosa*		X							X	X					X	
60. *lasiocarpa*		X							X	X					X	
61. *lenticularis*		X	X				X		X	X					X	
62. *leporinella*		X	X				X				X			X		
63. *leptalea*	X							X								very narrow
64. *limosa*		X							X	X					X	
65. *livida*		X					X		X	X					X	
66. *luzulina*		X						X	X	X				X		
67. *macloviana*		X	X				X				X			X		
68. *magellanica*		X					X		X	X					X	
69. *maritima*		X						X				X		X		
70. *meadii*		X							X	X					X	
71. *microglochin*	X							X								
72. *microptera*			X	X			X				X			X		
73. *misandra*		X					X			X				X		
74. *molesta*		X	X				X				X			X		
75. *muehlenbergii*		X	X					X				X		X		
76. *nebrascensis*		X							X	X					X	plump
77. *nelsonii*			X				X			X				X		ovate, short & plump
78. *neurophora*	X							X				X		X		
79. *nigricans*	X					X		X	X							Plants may be dioecious
80. *normalis*		X	X	X			X				X			X		
81. *norvegica*		X					X		X	X				X		narrow (<6 mm)
82. *nova*		X					X			X				X		broad-ovate, acute tip
83. *obtusata*	X							X								
84. *occidentalis*		X	X					X				X		X		
85. *oreocharis*	X							X								
86. *pachystachya*		X	X	X			X				X			X		usu >5
87. *parryana*		X				X	X		X	X			X	X	X	plants may be dioecious
88. *peckii*		X							X	X					X	
89. *pedunculata*		X						X	X	X		X			X	
90. *pensylvanica*		X						X	X	X					X	
91. *perglobosa*			X	X				X				X		X		
92. *petasata*		X	X				X				X			X		
93. *phaeocephala*		X	X				X				X			X		
94. *platylepis*			X				X				X			X		
95. *praeceptorum*		X					X				X			X		usu 4-5
96. *praegracilis*		X	X	X				X		X		X	X	X		Plants may be dioecious
97. *prairea*		X	X	X				X				X		X		
98. *praticola*		X	X				X				X			X		
99. *preslii*		X					X				X			X		
100. *raynoldsii*		X							X	X					X	
101. *retrorsa*		X	X	X			X		X	X					X	
102. *richardsonii*		X							X	X					X	
103. *rosea*		X	X					X				X		X		
104. *rossii*		X	X						X	X					X	
105. *rupestris*	X							X								
106. *sartwellii*				X				X	X			X		X		

	NUMBER					UPPER/ONLY SPIKE				LOWEST SPIKE				U/L SPKS		
Carex	Solitary	2 – 5	5 – 10	10 – 20	> 20	Pistillate	Gynaecandrous	Androgynous	Staminate	Pistillate	Gynaecandrous	Androgynous	Staminate	Appear the Same	Appear Different	Special
107. *saxatilis*		X							X	X					X	
108. *scirpoidea*	X					X		X	X							Plants may be dioecious
109. *scoparia*		X	X	X			X				X			X		
110. *scopulorum*		X	X				X	X	X	X					X	
111. *simulata*			X	X		X		X	X	X		X	X	X		Plants may be dioecious
112. *spectabilis*		X	X						X	X					X	
113. *sprengelii*		X	X						X	X					X	
114. *stenophylla*		X	X			X		X	X	X		X	X	X		Plants may be dioecious
115. *stenoptila*			X	X			X				X			X		
116. *stipata*				X	X			X				X		X		
117. *subnigricans*	X							X								
118. *sychnocephala*		X	X	X			X				X			X		
119. *tenera*		X	X				X				X			X		globose
120. *tenuiflora*		X					X				X			X		
121. *tetanica*		X							X	X					X	
122. *tolmiei*		X	X					X	X	X					X	
123. *torreyi*		X							X	X					X	
124. *tribuloides*			X	X			X				X			X		
125. *utriculata*		X	X						X	X					X	
126. *vallicola*			X	X				X				X		X		
127. *vernacula*				X				X				X		X		
128. *vesicaria*		X	X						X	X					X	
129. *viridula*		X	X						X	X					X	
130. *vulpinoidea*			X	X	X			X				X		X		
131. *xerantica*		X	X				X				X			X		

H. LOWEST SPIKE – LOCATION AND PEDUNCLE

	SEPARATION FROM NEXT SPIKE					PEDUNCLE					
Carex	Closely adjacent	Short-Separated ¼ – 1 ×	Separated 1 – 3 ×	Wide-Separated 3 – 5 ×	Wide-Separated > 5 × (±Basal)	Sessile or nearly so	Peduncle ¼ – ½ ×	Peduncle ½ – 1 ×	Peduncle 1 – 2 ×	Peduncle > 2 ×	Peduncle Dangling-Drooping
1. *aenea*			X			X					
2. *aggregata*	X					X					
3. *albo-nigra*		X					X				
4. *alopecoidea*	X					X					
5. *amphibola*			X					X	X		
6. *angustior*			X			X					
7. *aquatilis*		X					X				
8. *arapahoensis*	X					X					
9. *atherodes*			X			X					
10. *athrostachya*	X					X					
11. *atrata*		X	X	X				X			
12. *atrosquama*		X	X					X	X		
13. *aurea*				X					X	X	
14. *backii*			X	X	X					X	
15. *bebbii*	X					X					
16. *bella*			X						X		
17. *bicknellii*		X	X			X					
18. *blanda*					X					X	
19. *brevior*		X				X	X				
20. *brunnescens*			X	X		X					
21. *buxbaumii*		X	X			X					
22. *canescens*		X				X					

Carex	SEPARATION FROM NEXT SPIKE					PEDUNCLE						
	Closely adjacent	Short-Separated ¼ – 1 ×	Separated 1 – 3 ×	Wide-Separated 3 – 5 ×	Wide-Separated > 5 × (±Basal)	Sessile or nearly so	Peduncle ¼ – ½ ×	Peduncle ½ – 1 ×	Peduncle 1 – 2 ×	Peduncle > 2 ×	Peduncle Dangling-Drooping	
23. *capillaris*			X	X						X		
24. *capitata*												
25. *comosa*		X					X				X	
26. *concinna*		X						X	X			
27. *crandallii*												
28. *crawei*				X						X		
29. *cristatella*		X	X			X						
30. *cusickii*			X				X	X				
31. *deweyana*			X			X						
32. *diandra*	X					X						
33. *dioica*												
34. *disperma*				X		X						
35. *douglasii*	X					X						
36. *ebenea*	X					X						
37. *eburnea*				X	X					X		
38. *egglestonii*	X					X						
39. *elynoides*												
40. *emoryi*		X				X						
41. *engelmannii*												
42. *exsiccata*		X				X						
43. *filifolia*												
44. *foenea*			X			X						
45. *geophila*				X	X					X		
46. *geyeri*		X				X						
47. *granularis*				X	X		X			X		
48. *gravida*		X				X						
49. *haydeniana*	X					X						
50. *hepburnii*												
51. *hoodii*		X				X						
52. *hystericina*			X						X	X	X	
53. *illota*	X					X						
54. *interior*			X			X	X					
55. *jonesii*	X					X						
56. *lachenalii*		X				X						
57. *lacustris*			X						X			
58. *laeviculmis*				X		X						
59. *lanuginosa*		X	X	X		X						
60. *lasiocarpa*			X			X						
61. *lenticularis*		X				X	X					
62. *leporinella*		X				X						
63. *leptalea*												
64. *limosa*			X					X			X	
65. *livida*			X				X	X	X			
66. *luzulina*			X	X				X				
67. *macloviana*	X					X						
68. *magellanica*			X					X			X	
69. *maritima*	X					X						

Carex	SEPARATION FROM NEXT SPIKE					PEDUNCLE						
	Closely adjacent	Short-Separated ¼ – 1 ×	Separated 1 – 3 ×	Wide-Separated 3 – 5 ×	Wide-Separated > 5 × (±Basal)	Sessile or nearly so	Peduncle ¼ – ½ ×	Peduncle ½ – 1 ×	Peduncle 1 – 2 ×	Peduncle > 2 ×	Peduncle Dangling-Drooping	
70. *meadii*					X					X		
71. *microglochin*												
72. *microptera*	X					X						
73. *misandra*			X	X				X	X	X	X	
74. *molesta*		X				X						
75. *muehlenbergii*			X			X						
76. *nebrascensis*		X					X					
77. *nelsonii*	X					X						
78. *neurophora*	X					X						
79. *nigricans*												
80. *normalis*		X	X			X						
81. *norvegica*		X					X					
82. *nova*	X					X						
83. *obtusata*												
84. *occidentalis*		X	X			X						
85. *oreocharis*												
86. *pachystachya*		X				X						
87. *parryana*		X				X						
88. *peckii*		X				X						
89. *pedunculata*					X					X		
90. *pensylvanica*			X			X						
91. *perglobosa*	X					X						X
92. *petasata*		X				X						
93. *phaeocephala*		X				X						
94. *platylepis*		X				X						
95. *praeceptorum*		X				X						
96. *praegracilis*		X				X						
97. *prairea*		X	X	X		X						
98. *praticola*		X				X						
99. *preslii*		X				X						
100. *raynoldsii*			X					X				
101. *retrorsa*		X				X						
102. *richardsonii*		X	X					X	X			
103. *rosea*			X	X		X						
104. *rossii*					X					X		
105. *rupestris*												
106. *sartwellii*		X				X						
107. *saxatilis*		X	X					X	X		X	
108. *scirpoidea*												
109. *scoparia*		X				X						
110. *scopulorum*		X	X				X	X				
111. *simulata*		X				X						
112. *spectabilis*			X					X				
113. *sprengelii*			X	X						X	X	
114. *stenophylla*	X					X						
115. *stenoptila*	X					X						
116. *stipata*	X					X						
117. *subnigricans*												
118. *sychnocephala*	X					X						

Carex	SEPARATION FROM NEXT SPIKE: Closely adjacent	Short-Separated ¼ – 1 ×	Separated 1 – 3 ×	Wide-Separated 3 – 5 ×	Wide-Separated > 5 × (±Basal)	PEDUNCLE: Sessile or nearly so	Peduncle ¼ – ½ ×	Peduncle ½ – 1 ×	Peduncle 1 – 2 ×	Peduncle > 2 ×	Peduncle Dangling-Drooping
119. *tenera*			X			X					
120. *tenuiflora*			X	X		X					
121. *tetanica*		X	X			X	X				
122. *tolmiei*			X					X			
123. *torreyi*		X	X			X	X				
124. *tribuloides*		X				X					
125. *utriculata*		X	X			X					
126. *vallicola*		X	X			X					
127. *vernacula*	X					X					
128. *vesicaria*		X	X			X					
129. *viridula*		X	X			X	X	X			
130. *vulpinoidea*		X	X			X					
131. *xerantica*	X					X					

I. NUMBER OF PISTILLATE FLOWERS PER SPIKE

Carex	PIST. FLOWERS PER SPIKE: 1 – 3	3 – 10	10 – 20	20 – 30	30 – 50	50 – 100	> 100
1. *aenea*				X			
2. *aggregata*				X	X		
3. *albo-nigra*	X	X	X				
4. *alopecoidea*			X	X			
5. *amphibola*	X	X					
6. *angustior*	X	X	X				
7. *aquatilis*				X	X	X	
8. *arapahoensis*			X	X	X		
9. *atherodes*					X	X	
10. *athrostachya*				X			
11. *atrata*					X	X	
12. *atrosquama*			X	X	X		
13. *aurea*	X	X					
14. *backii*	X	X					
15. *bebbii*				X			
16. *bella*			X	X			
17. *bicknellii*			X				
18. *blanda*	X	X	X	X			
19. *brevior*			X				
20. *brunnescens*		X					
21. *buxbaumii*			X	X	X		
22. *canescens*			X	X			
23. *capillaris*	X	X	X				
24. *capitata*	X	X	X				
25. *comosa*						X	X
26. *concinna*	X	X	X				
27. *crandallii*			X	X			

Carex	PIST. FLOWERS PER SPIKE: 1 – 3	3 – 10	10 – 20	20 – 30	30 – 50	50 – 100	> 100
28. *crawei*			X	X	X		
29. *cristatella*					X		
30. *cusickii*	X	X	X				
31. *deweyana*		X	X				
32. *diandra*	X	X					
33. *dioica*	X	X	X				
34. *disperma*	X	X					
35. *douglasii*			X	X			
36. *ebenea*			X				
37. *eburnea*	X	X	X				
38. *egglestonii*				X	X		
39. *elynoides*	X	X					
40. *emoryi*						X	X
41. *engelmannii*				X	X		
42. *exsiccata*				X	X		
43. *filifolia*	X	X	X				
44. *foenea*	X	X	X				
45. *geophila*	X						
46. *geyeri*	X						
47. *granularis*			X	X	X		
48. *gravida*	X	X	X				
49. *haydeniana*				X	X		
50. *hepburnii*	X	X	X				
51. *hoodii*			X				
52. *hystericina*					X	X	
53. *illota*	X	X	X				
54. *interior*	X	X					

Carex	PIST. FLOWERS PER SPIKE						
	1 – 3	3 – 10	10 – 20	20 – 30	30 – 50	50 – 100	> 100
55. *jonesii*	X	X					
56. *lachenalii*				X			
57. *lacustris*					X	X	
58. *laeviculmis*	X	X					
59. *lanuginosa*				X	X	X	
60. *lasiocarpa*			X	X	X		
61. *lenticularis*					X	X	
62. *leporinella*			X	X			
63. *leptalea*	X	X					
64. *limosa*	X	X	X	X			
65. *livida*	X	X	X				
66. *luzulina*				X	X		
67. *macloviana*				X	X		
68. *magellanica*	X	X	X				
69. *maritima*	X	X	X				
70. *meadii*	X	X	X	X			
71. *microglochin*	X	X	X				
72. *microptera*				X	X		
73. *misandra*				X	X		
74. *molesta*			X	X			
75. *muehlenbergii*			X	X			
76. *nebrascensis*					X	X	
77. *nelsonii*			X	X	X		
78. *neurophora*			X	X			
79. *nigricans*				X	X		
80. *normalis*			X	X			
81. *norvegica*	X	X	X	X			
82. *nova*					X	X	
83. *obtusata*	X	X					
84. *occidentalis*	X	X	X				
85. *oreocharis*				X	X	X	
86. *pachystachya*					X	X	
87. *parryana*			X	X	X	X	
88. *peckii*	X	X	X				
89. *pedunculata*	X	X	X				
90. *pensylvanica*	X	X	X				
91. *perglobosa*				X	X		
92. *petasata*				X	X		
93. *phaeocephala*			X	X			

Carex	PIST. FLOWERS PER SPIKE						
	1 – 3	3 – 10	10 – 20	20 – 30	30 – 50	50 – 100	> 100
94. *platylepis*				X	X		
95. *praeceptorum*	X	X	X				
96. *praegracilis*			X	X			
97. *prairea*			X	X			
98. *praticola*				X	X		
99. *preslii*			X	X			
100. *raynoldsii*			X	X	X		
101. *retrorsa*						X	
102. *richardsonii*				X			
103. *rosea*	X	X	X				
104. *rossii*		X	X				
105. *rupestris*	X	X	X				
106. *sartwellii*			X	X			
107. *saxatilis*				X	X	X	
108. *scirpoidea*					X	X	
109. *scoparia*					X	X	
110. *scopulorum*			X	X	X		
111. *simulata*	X	X	X				
112. *spectabilis*			X	X			
113. *sprengelii*			X	X	X		
114. *stenophylla*	X	X					
115. *stenoptila*			X	X			
116. *stipata*			X				
117. *subnigricans*			X	X	X		
118. *sychnocephala*						X	
119. *tenera*					X	X	
120. *tenuiflora*	X	X					
121. *tetanica*	X	X	X	X			
122. *tolmiei*			X	X	X		
123. *torreyi*			X	X			
124. *tribuloides*					X		
125. *utriculata*					X	X	X
126. *vallicola*	X	X					
127. *vernacula*	X	X					
128. *vesicaria*					X	X	
129. *viridula*			X	X			
130. *vulpinoidea*				X	X		
131. *xerantica*					X		

J. SCALE SIZE AND SHAPE

Carex	SIZE RELATIVE TO PERIGYNIUM							TIP SHAPE					Special
	Shorter	Narrower	Same Length	Same Width	Longer	Wider	Covering-Concealing body	Obtuse	Acute	Acuminate ("beaked")	Awned	Long-awned (>2 mm)	
1. *aenea*		X	X	X	X		X		X				
2. *aggregata*		X	X						X				
3. *albo-nigra*			X	X			X	X	X				

	SIZE RELATIVE TO PERIGYNIUM							TIP SHAPE					
Carex	Shorter	Narrower	Same Length	Same Width	Longer	Wider	Covering-Concealing body	Obtuse	Acute	Acuminate ("beaked")	Awned	Long-awned (>2 mm)	Special
4. *alopecoidea*	X	X	X						X		X		awn < 2 mm
5. *amphibola*	X		X						X		X	X	
6. *angustior*	X	X							X				
7. *aquatilis*	X	X							X				
8. *arapahoensis*			X	X		X	X	X					
9. *atherodes*	X	X									X	X	serrulate awn
10. *athrostachya*	X	X							X	X			
11. *atrata*	X	X					X						
12. *atrosquama*	X	X											
13. *aurea*	X	X							X		X		
14. *backii*					X	X	X			X			leaf-like
15. *bebbii*	X	X							X				
16. *bella*	X	X											
17. *bicknellii*	X	X	X						X				
18. *blanda*	X	X									X	X	fiddle-shaped
19. *brevior*	X	X	X						X				
20. *brunnescens*	X	X		X				X					
21. *buxbaumii*				X	X		X			X	X		
22. *canescens*	X	X						X	X				
23. *capillaris*	X			X		X	X	X					
24. *capitata*	X			X		X	X	X					
25. *comosa*	X	X	X							X	X	X	long & narrow, serrulate awn
26. *concinna*	X	X						X					ciliate, puberulent, ± ½ length peri
27. *crandallii*	X			X		X	X	X					
28. *crawei*	X	X		X						X	X		
29. *cristatella*	X	X								X	X		
30. *cusickii*			X	X			X		X				
31. *deweyana*	X		X	X			X		X		X	X	awn none or up to ½ scale length
32. *diandra*	X	X		X					X				
33. *dioica*	X			X		X			X	X			
34. *disperma*	X	X							X				
35. *douglasii*			X	X			X			X			
36. *ebenea*	X			X			X		X	X			
37. *eburnea*	X			X				X					
38. *egglestonii*	X	X								X			
39. *elynoides*			X	X		X	X						
40. *emoryi*		X			X				X	X			
41. *engelmannii*	X			X			X		X				
42. *exsiccata*	X	X								X			
43. *filifolia*	X			X		X	X	X					
44. *foenea*	X	X							X	X			
45. *geophila*	X	X	X	X			X		X		X		
46. *geyeri*				X	X	X	X			X			
47. *granularis*	X	X		X						X	X		
48. *gravida*	X	X								X	X		
49. *haydeniana*	X	X							X				
50. *hepburnii*	X	X		X				X	X				
51. *hoodii*	X	X							X				
52. *hystericina*		X	X									X	awn ±¾ scale length

Carex	SIZE RELATIVE TO PERIGYNIUM							TIP SHAPE					Special
	Shorter	Narrower	Same Length	Same Width	Longer	Wider	Covering-Concealing body	Obtuse	Acute	Acuminate ("beaked")	Awned	Long-awned (>2 mm)	
53. *illota*	X			X					X				
54. *interior*	X	X											
55. *jonesii*	X			X			X		X	X			
56. *lachenalii*	X			X				X	X				
57. *lacustris*	X			X		X	X			X	X	X	awn <½ scale length
58. *laeviculmis*	X	X		X					X				
59. *lanuginosa*		X	X							X	X		awn/beak up to 1/3 scale length
60. *lasiocarpa*		X	X						X	X			beak < ¼ scale length
61. *lenticularis*	X	X						X	X				
62. *leporinella*	X			X			X		X				
63. *leptalea*	X	X							X				
64. *limosa*			X	X			X		X		X		minutely awn-tipped, persistent (not falling off)
65. *livida*	X			X			X	X					
66. *luzulina*	X			X			X	X	X				
67. *macloviana*	X			X			X			X			
68. *magellanica*		X			X					X			long-acuminate, deciduous (falling off early)
69. *maritima*	X	X		X					X				
70. *meadii*	X			X				X			X		
71. *microglochin*	X					X		X	X				deciduous (falling off early)
72. *microptera*	X	X							X	X			
73. *misandra*	X					X	X	X	X				
74. *molesta*	X	X						X	X				reaching to base of beak
75. *muehlenbergii*	X	X	X							X	X		
76. *nebrascensis*	X	X							X				
77. *nelsonii*	X	X		X					X	X			
78. *neurophora*	X					X			X				
79. *nigricans*	X			X		X		X	X				
80. *normalis*	X	X							X				
81. *norvegica*	X	X								X			
82. *nova*	X	X							X				
83. *obtusata*	X			X					X	X			
84. *occidentalis*	X			X			X		X	X			
85. *oreocharis*	X			X		X			X	X	X		Lowest scale usu awn
86. *pachystachya*	X			X			X		X				
87. *parryana*	X	X	X	X			X	X					
88. *peckii*	X			X				X	X		X		mucronate or short-awn
89. *pedunculata*					X	X	X				X	X	scabrous awn
90. *pensylvanica*			X	X	X		X		X	X			
91. *perglobosa*			X	X			X		X				
92. *petasata*			X	X			X		X				
93. *phaeocephala*	X	X	X	X			X		X	X			± covering peri
94. *platylepis*			X	X			X	X	X				
95. *praeceptorum*	X	X						X	X				
96. *praegracilis*					X	X	X		X				covering peri & enclosing it
97. *prairea*			X	X			X		X	X			
98. *praticola*			X	X			X		X				
99. *preslii*	X	X							X	X			
100. *raynoldsii*	X	X						X	X				
101. *retrorsa*	X	X							X	X			

Carex	SIZE RELATIVE TO PERIGYNIUM							TIP SHAPE					Special
	Shorter	Narrower	Same Length	Same Width	Longer	Wider	Covering-Concealing body	Obtuse	Acute	Acuminate ("beaked")	Awned	Long-awned (>2 mm)	
102. *richardsonii*				X	X	X	X		X				
103. *rosea*	X			X			X		X				
104. *rossii*	X			X			X	X	X		X		
105. *rupestris*			X	X		X	X	X					
106. *sartwellii*	X	X							X				
107. *saxatilis*	X	X						X	X				
108. *scirpoidea*	X		X	X			X	X	X				slightly shorter than peri
109. *scoparia*	X	X							X				
110. *scopulorum*	X	X						X	X	X			
111. *simulata*			X	X	X	X	X		X				
112. *spectabilis*	X	X							X		X		
113. *sprengelii*		X	X		X				X	X			
114. *stenophylla*			X	X			X	X	X				
115. *stenoptila*	X							X	X				
116. *stipata*	X	X							X	X			
117. *subnigricans*	X		X				X		X				
118. *sychnocephala*	X			X						X	X		
119. *tenera*	X	X							X				
120. *tenuiflora*	X			X		X	X	X	X				obtuse to subacute
121. *tetanica*	X		X	X			X		X	X	X		
122. *tolmiei*	X	X		X			X		X	X			slightly narrower
123. *torreyi*	X			X				X		X	X		
124. *tribuloides*	X	X							X				
125. *utriculata*	X	X								X	X		
126. *vallicola*	X			X					X	X			
127. *vernacula*			X	X			X	X	X				obov-oblanc, broadest in upper ¼
128. *vesicaria*	X	X								X			
129. *viridula*	X	X							X				
130. *vulpinoidea*		X	X	X	X					X	X	X	awn > 3 mm
131. *xerantica*			X	X			X						

K. SCALE COLOR

Carex	Scale Color
1. *aenea*	light-medium
2. *aggregata*	light-medium
3. *albo-nigra*	dark, conspic white-hyal marg above
4. *alopecoidea*	light
5. *amphibola*	light yellow-green
6. *angustior*	light
7. *aquatilis*	dark, light midrib
8. *arapahoensis*	with narrow hyal marg above, medium
9. *atherodes*	light-medium
10. *athrostachya*	light-medium brown
11. *atrata*	black, very narrow lighter marg & midrib
12. *atrosquama*	black
13. *aurea*	whitish-green
14. *backii*	light-medium
15. *bebbii*	medium
16. *bella*	dark purplish brown-purplish black, conspic white-hyal marg

Carex	Scale Color
17. *bicknellii*	light-medium
18. *blanda*	white-hyal, darker midrib, light greenish-white
19. *brevior*	light-medium
20. *brunnescens*	ovate, white-hyal, thin green midrib, usu light
21. *buxbaumii*	dark, narrow lighter midrib
22. *canescens*	light, hyal, broad green center
23. *capillaris*	hyal above, light
24. *capitata*	hyal, broad darker middle, medium
25. *comosa*	light-medium
26. *concinna*	dark-medium
27. *crandallii*	dark-medium, narrow lighter borders & midrib
28. *crawei*	medium red-brown
29. *cristatella*	light-medium
30. *cusickii*	medium-dark
31. *deweyana*	light-medium
32. *diandra*	medium-dark
33. *dioica*	medium
34. *disperma*	conspic hyal marg, light-medium
35. *douglasii*	light-medium
36. *ebenea*	dark brown-black
37. *eburnea*	hyal, darker midrib, light
38. *egglestonii*	medium
39. *elynoides*	medium
40. *emoryi*	three-striped, dark outside stripes & broad lighter midrib
41. *engelmannii*	light-medium
42. *exsiccata*	light-medium
43. *filifolia*	conspic white-hyal, darker middle, light-medium
44. *foenea*	medium
45. *geophila*	light-medium
46. *geyeri*	light-medium
47. *granularis*	white-hyal, narrow, darker midrib, medium
48. *gravida*	medium-light
49. *haydeniana*	dark brown
50. *hepburnii*	light-medium-dark
51. *hoodii*	medium chestnut-brown
52. *hystericina*	light
53. *illota*	dark
54. *interior*	medium-light
55. *jonesii*	medium-dark
56. *lachenalii*	medium
57. *lacustris*	medium-light
58. *laeviculmis*	hyal, light-brown tinged midrib
59. *lanuginosa*	medium
60. *lasiocarpa*	medium-dark
61. *lenticularis*	dark
62. *leporinella*	with narrow hyal marg, medium-dark reddish-brown
63. *leptalea*	light
64. *limosa*	medium-dark
65. *livida*	light-medium
66. *luzulina*	medium-dark purplish-brown-purplish-black
67. *macloviana*	with white-hyal marg, dark-medium
68. *magellanica*	light-medium
69. *maritima*	medium
70. *meadii*	narrow hyal-marged, dark purple-brown-medium brown
71. *microglochin*	light-medium
72. *microptera*	dark brownish black
73. *misandra*	dark
74. *molesta*	light-medium
75. *muehlenbergii*	acute, acumin,-awn, medium
76. *nebrascensis*	dark purple-brown-black, lighter midrib & narrow marg
77. *nelsonii*	dark

Carex	Scale Color
78. *neurophora*	not hyal, medium
79. *nigricans*	dark brown-black
80. *normalis*	medium
81. *norvegica*	dark
82. *nova*	dark
83. *obtusata*	with conspic hyal marg, light-medium
84. *occidentalis*	medium-light
85. *oreocharis*	light-medium
86. *pachystachya*	dark brown-blackish brown, green midrib
87. *parryana*	medium brown-dark purple-brown, prominent green midrib (never black)
88. *peckii*	light-medium
89. *pedunculata*	light-medium
90. *pensylvanica*	with narrow hyal marg, medium
91. *perglobosa*	light-medium
92. *petasata*	light-medium
93. *phaeocephala*	medium-dark
94. *platylepis*	medium-dark
95. *praeceptorum*	medium-dark
96. *praegracilis*	medium
97. *prairea*	ovate, light-medium reddish-brown
98. *praticola*	medium
99. *preslii*	medium-dark
100. *raynoldsii*	black, narrow lighter midrib
101. *retrorsa*	brown & green
102. *richardsonii*	with conspic hyal marg, light-medium-dark
103. *rosea*	light-medium
104. *rossii*	light-medium
105. *rupestris*	dark-medium
106. *sartwellii*	medium
107. *saxatilis*	very dark
108. *scirpoidea*	dark, white-hyal marg
109. *scoparia*	light
110. *scopulorum*	dark purple-black
111. *simulata*	medium-dark brown
112. *spectabilis*	medium-dark, lighter marg & midrib
113. *sprengelii*	light-medium
114. *stenophylla*	chestnut-light brown
115. *stenoptila*	pale-medium chestnut-brown, lighter midrib
116. *stipata*	light-medium
117. *subnigricans*	light-medium
118. *sychnocephala*	light greenish-white
119. *tenera*	light-medium
120. *tenuiflora*	light, hyal, narrow green midrib
121. *tetanica*	purplish-brown above, lighter base & midrib
122. *tolmiei*	dark reddish-brown
123. *torreyi*	orbic, hyal, broad green midrib, light-medium
124. *tribuloides*	medium
125. *utriculata*	light-medium
126. *vallicola*	light-medium
127. *vernacula*	dark-color above, lighter lower portion & midrib
128. *vesicaria*	medium
129. *viridula*	light-medium
130. *vulpinoidea*	light-medium
131. *xerantica*	light-medium

L. PERIGYNIUM SIZE

Carex	LENGTH, INCLUDING BEAK AND STIPE															WIDTH							
	1½ – 2 mm	2 – 2½ mm	2½ – 3 mm	3 – 3½ mm	3½ – 4 mm	4 – 4½ mm	4½ – 5 mm	5 – 5½ mm	5½ – 6 mm	6 – 6½ mm	6½ – 7 mm	7 – 8 mm	8 – 9 mm	9 – 10 mm	10 – 11 mm	½ – 1 mm	1 – 1½ mm	1½ – 2 mm	2 – 2½ mm	2½ – 3 mm	3 – 3½ mm	3½ – 4 mm	4 – 5 mm
1. *aenea*					X	X	X	X	X									X	X				
2. *aggregata*					X	X												X	X				
3. *albo-nigra*			X	X														X	X				
4. *alopecoidea*				X	X	X													X	X			
5. *amphibola*					X	X	X	X										X	X				
6. *angustior*		X	X	X	X	X	X									X	X	X					
7. *aquatilis*	X	X	X	X	X												X	X	X				
8. *arapahoensis*						X	X	X	X										X	X			
9. *atherodes*											X	X	X	X	X			X	X				
10. *athrostachya*				X	X	X	X										X	X					
11. *atrata*			X	X	X	X	X											X	X	X			
12. *atrosquama*				X	X													X					
13. *aurea*		X	X	X													X	X					
14. *backii*								X	X	X										X			
15. *bebbii*			X	X	X												X	X	X				
16. *bella*				X	X	X												X	X				
17. *bicknellii*								X	X	X	X	X	X								X	X	X
18. *blanda*				X	X	X											X	X					
19. *brevior*					X	X	X	X													X	X	
20. *brunnescens*	X	X	X														X						
21. *buxbaumii*			X	X	X	X												X	X				
22. *canescens*	X	X	X	X													X	X					
23. *capillaris*		X	X	X	X	X										X	X						
24. *capitata*	X	X	X	X	X													X	X	X	X	X	
25. *comosa*								X	X	X	X	X					X	X					
26. *concinna*			X	X	X												X						
27. *crandallii*				X	X	X										X	X						
28. *crawei*				X	X												X	X					
29. *cristatella*				X	X	X											X	X					
30. *cusickii*			X	X	X												X	X					
31. *deweyana*					X	X	X	X									X	X					
32. *diandra*		X	X	X													X						
33. *dioica*			X	X	X	X												X					
34. *disperma*		X	X	X													X	X					
35. *douglasii*				X	X	X												X					
36. *ebenea*							X	X	X	X	X	X					X	X					
37. *eburnea*		X	X														X	X					
38. *egglestonii*										X	X	X							X	X	X		
39. *elynoides*			X	X	X	X											X	X					
40. *emoryi*	X	X	X	X													X	X					
41. *engelmannii*					X	X	X	X	X	X	X							X	X				
42. *exsiccata*												X	X	X					X	X	X		
43. *filifolia*				X	X	X												X	X				
44. *foenea*				X	X	X	X	X	X									X	X				
45. *geophila*				X	X	X	X											X					
46. *geyeri*								X	X	X	X									X	X	X	
47. *granularis*		X	X	X	X												X	X	X				
48. *gravida*				X	X	X	X	X	X										X	X	X		
49. *haydeniana*						X	X	X	X	X									X	X	X		
50. *hepburnii*						X	X	X	X	X									X	X	X		
51. *hoodii*				X	X	X	X	X											X	X	X		
52. *hystericina*								X	X	X	X	X					X	X	X				
53. *illota*		X	X	X													X						
54. *interior*	X	X	X	X													X	X					
55. *jonesii*				X	X	X											X	X					
56. *lachenalii*		X	X	X	X	X											X	X					

Carex	LENGTH, INCLUDING BEAK AND STIPE															WIDTH							
	1½ – 2 mm	2 – 2½ mm	2½ – 3 mm	3 – 3½ mm	3½ – 4 mm	4 – 4½ mm	4½ – 5 mm	5 – 5½ mm	5½ – 6 mm	6 – 6½ mm	6½ – 7 mm	7 – 8 mm	8 – 9 mm	9 – 10 mm	10 – 11 mm	½ – 1 mm	1 – 1½ mm	1½ – 2 mm	2 – 2½ mm	2½ – 3 mm	3 – 3½ mm	3½ – 4 mm	4 – 5 mm
57. *lacustris*									X	X	X								X	X			
58. *laeviculmis*			X	X	X	X											X	X					
59. *lanuginosa*			X	X	X	X												X	X				
60. *lasiocarpa*				X	X	X	X											X	X				
61. *lenticularis*	X	X	X	X													X	X					
62. *leporinella*	X	X	X	X													X	X					
63. *leptalea*			X	X	X	X	X	X								X	X						
64. *limosa*			X	X	X	X												X	X				
65. *livida*				X	X	X	X										X	X					
66. *luzulina*				X	X	X	X	X									X						
67. *macloviana*					X	X												X					
68. *magellanica*		X	X	X	X												X	X	X				
69. *maritima*				X	X	X											X	X					
70. *meadii*			X	X	X	X											X	X	X				
71. *microglochin*				X	X	X	X	X								X							
72. *microptera*				X	X	X	X	X									X	X	X				
73. *misandra*						X	X	X									X						
74. *molesta*				X	X	X												X	X	X			
75. *muehlenbergii*				X	X	X													X	X	X		
76. *nebrascensis*			X	X	X													X	X				
77. *nelsonii*				X	X	X											X	X	X				
78. *neurophora*				X	X	X											X	X					
79. *nigricans*					X	X	X	X								X	X						
80. *normalis*				X	X	X												X	X				
81. *norvegica*		X	X	X	X	X											X	X	X				
82. *nova*				X	X	X												X	X	X			
83. *obtusata*				X	X	X	X											X	X				
84. *occidentalis*				X	X	X	X										X	X					
85. *oreocharis*				X	X	X											X						
86. *pachystachya*					X	X	X										X	X	X				
87. *parryana*		X	X	X	X												X	X	X				
88. *peckii*				X	X												X						
89. *pedunculata*					X	X	X										X	X	X				
90. *pensylvanica*			X	X	X	X	X										X	X	X				
91. *perglobosa*						X	X												X	X			
92. *petasata*								X	X	X	X	X					X	X	X				
93. *phaeocephala*						X	X	X									X	X	X				
94. *platylepis*						X	X											X					
95. *praeceptorum*	X	X														X	X						
96. *praegracilis*				X	X	X											X	X					
97. *prairea*			X	X													X	X					
98. *praticola*							X	X	X	X	X							X	X				
99. *preslii*				X	X	X												X	X				
100. *raynoldsii*				X	X	X	X											X	X				
101. *retrorsa*										X	X	X	X						X	X	X		
102. *richardsonii*		X	X	X													X	X					
103. *rosea*		X	X	X	X	X											X	X					
104. *rossii*		X	X	X	X	X											X	X	X				
105. *rupestris*					X	X												X					
106. *sartwellii*			X	X	X													X					
107. *saxatilis*				X	X	X	X	X										X	X				
108. *scirpoidea*		X	X	X													X	X					
109. *scoparia*						X	X	X	X	X							X	X	X				
110. *scopulorum*		X	X	X	X												X	X	X				
111. *simulata*	X	X	X														X	X					

Carex	LENGTH, INCLUDING BEAK AND STIPE															WIDTH					
	1½ – 2 mm	2 – 2½ mm	2½ – 3 mm	3 – 3½ mm	3½ – 4 mm	4 – 4½ mm	4½ – 5 mm	5 – 5½ mm	5½ – 6 mm	6 – 6½ mm	6½ – 7 mm	7 – 8 mm	8 – 9 mm	9 – 10 mm	10 – 11 mm	½ – 1 mm	1 – 1½ mm	1½ – 2 mm	2 – 2½ mm	2½ – 3 mm	3 – 3½ mm	3½ – 4 mm	4 – 5 mm
112. *spectabilis*					X	X	X	X										X	X				
113. *sprengelii*								X	X	X								X	X				
114. *stenophylla*		X	X	X														X	X				
115. *stenoptila*							X	X	X								X	X					
116. *stipata*						X	X	X									X	X					
117. *subnigricans*			X	X	X												X						
118. *sychnocephala*							X	X	X	X						X	X	X					
119. *tenera*				X	X	X												X	X				
120. *tenuiflora*		X	X	X												X	X	X					
121. *tetanica*		X	X	X	X													X					
122. *tolmiei*				X	X														X				
123. *torreyi*		X	X	X														X	X				
124. *tribuloides*					X	X	X	X										X	X				
125. *utriculata*					X	X	X	X	X	X	X	X							X	X	X		
126. *vallicola*				X	X	X											X	X	X				
127. *vernacula*					X	X	X											X					
128. *vesicaria*					X	X	X	X	X	X	X	X	X	X						X	X		
129. *viridula*		X	X	X													X						
130. *vulpinoidea*		X	X	X													X	X					
131. *xerantica*						X	X	X	X										X	X			

M. PERIGYNIUM MORPHOLOGY: BEAK, WING, AND PUBESCENCE

Carex	No Beak	Abrupt – v. short/minute	Abrupt – short	Abrupt – long > 1 mm	Abrupt – v. long >2 mm	Taper from upper 1/3	Taper from middle 1/3	Taper from lower 1/3	Beak Terete	Flat	Winged	Serrulate	Bidentate, short teeth <½ mm	Bidentate, long teeth <2 mm	Bidentate, v. long teeth >2 mm	No Wing	Body winged	Beak winged	Narrowly Winged	Broadly Winged	Pubescent or puberulent
1. *aenea*							X	X		X	X	X	X				X	X	X	X	
2. *aggregata*							X				X	X	X				X	X	X		
3. *albo-nigra*			X						X							X					
4. *alopecoidea*							X		X		X	X	X					X			
5. *amphibola*	X		X						X							X					
6. *angustior*								X					X					X			
7. *aquatilis*			X			X			X							X					
8. *arapahoensis*							X			X	X	X					X	X	X		
9. *atherodes*				X			X		X					X	X	X					
10. *athrostachya*							X				X	X	X	X			X	X	X	X	
11. *atrata*			X						X							X					
12. *atrosquama*			X						X							X					
13. *aurea*	X	X	X						X							X					
14. *backii*						X	X		X							X					
15. *bebbii*							X			X	X	X	X				X	X	X		
16. *bella*		X	X						X				X			X					
17. *bicknellii*						X	X			X	X	X	X				X	X		X	
18. *blanda*			X						X							X					
19. *brevior*						X	X			X	X	X	X				X	X	X	X	
20. *brunnescens*						X			X			X	X			X					
21. *buxbaumii*	X	X				X			X							X					
22. *canescens*			X			X			X			X				X					
23. *capillaris*						X	X		X							X					
24. *capitata*			X	X		X			X							X					

Carex	No Beak	Abrupt – v. short/minute	Abrupt – short	Abrupt – long > 1 mm	Abrupt – v. long >2 mm	Taper from upper 1/3	Taper from middle 1/3	Taper from lower 1/3	Beak Terete	Flat	Winged	Serrulate	Bidentate, short teeth <½ mm	Bidentate, long teeth <2 mm	Bidentate, v. long teeth >2 mm	No Wing	Body winged	Beak winged	Narrowly Winged	Broadly Winged	Pubescent or puberulent
25. *comosa*				X				X	X					X		X					
26. *concinna*		X	X										X			X					X
27. *crandallii*			X					X	X				X			X					
28. *crawei*			X			X			X							X					
29. *cristatella*							X			X	X	X	X	X			X	X	X		
30. *cusickii*								X				X	X			X					
31. *deweyana*							X		X	X		X	X			X					
32. *diandra*							X	X			X		X					X	X		
33. *dioica*			X			X			X			X				X					
34. *disperma*	X	X	X										X			X					
35. *douglasii*				X			X		X			X				X					
36. *ebenea*								X	X	X	X	X					X	X	X		
37. *eburnea*			X			X										X					
38. *egglestonii*							X			X	X	X					X	X	X	X	
39. *elynoides*			X													X					X
40. *emoryi*		X														X					
41. *engelmannii*						X	X			X			X			X	X	X		X	
42. *exsiccata*								X	X					X		X					
43. *filifolia*			X			X			X							X					X
44. *foenea*				X			X				X	X	X	X			X	X	X		
45. *geophila*			X	X					X				X			X					X
46. *geyeri*	X	X							X				X			X					
47. *granularis*		X											X			X					
48. *gravida*						X	X		X			X	X								
49. *haydeniana*							X		X	X	X	X					X	X	X	X	
50. *hepburnii*			X			X			X									X	X		
51. *hoodii*				X			X				X	X	X			X	X	X	X		
52. *hystericina*				X	X		X		X					X		X					
53. *illota*							X	X	X			X				X					
54. *interior*						X	X		X		X	X	X			X		X			
55. *jonesii*							X	X	X				X			X					
56. *lachenalii*			X	X	X	X			X							X					
57. *lacustris*			X			X			X				X			X					
58. *laeviculmis*						X	X		X				X			X					
59. *lanuginosa*			X						X					X		X					X
60. *lasiocarpa*			X			X			X				X	X		X					X
61. *lenticularis*		X	X						X							X					
62. *leporinella*							X		X							X					
63. *leptalea*	X	X											X			X					
64. *limosa*		X	X						X							X					
65. *livida*	X	X	X						X							X					
66. *luzulina*							X	X	X				X			X					
67. *macloviana*							X		X		X	X					X	X	X		
68. *magellanica*	X	X							X							X					
69. *maritima*			X	X		X			X							X					
70. *meadii*			X			X			X							X					
71. *microglochin*								X	X							X					
72. *microptera*							X	X	X	X	X	X	X				X	X	X	X	
73. *misandra*								X		X	X	X	X			X		X	X		
74. *molesta*							X			X	X	X	X				X	X		X	
75. *muehlenbergii*			X			X			X				X				X	X	X		
76. *nebrascensis*			X										X			X					
77. *nelsonii*			X						X			X	X			X					
78. *neurophora*								X	X				X			X					

Carex	No Beak	Abrupt – v. short/minute	Abrupt – short	Abrupt – long > 1 mm	Abrupt – v. long >2 mm	Taper from upper 1/3	Taper from middle 1/3	Taper from lower 1/3	Beak Terete	Flat	Winged	Serrulate	Bidentate, short teeth <½ mm	Bidentate, long teeth <2 mm	Bidentate, v. long teeth >2 mm	No Wing	Body winged	Beak winged	Narrowly Winged	Broadly Winged	Pubescent or puberulent
79. *nigricans*							X	X	X							X					
80. *normalis*							X	X		X	X	X	X				X	X	X		
81. *norvegica*			X									X	X			X					
82. *nova*			X									X	X			X					
83. *obtusata*			X			X			X				X	X		X					
84. *occidentalis*							X		X			X	X			X					
85. *oreocharis*			X													X					X
86. *pachystachya*							X	X	X	X	X	X	X				X	X	X		
87. *parryana*		X	X						X			X	X			X					
88. *peckii*			X						X				X			X					X
89. *pedunculata*		X							X							X					X
90. *pensylvanica*			X	X					X			X	X			X					X
91. *perglobosa*							X						X			X					
92. *petasata*								X	X			X	X				X	X	X		
93. *phaeocephala*			X			X	X		X			X	X				X	X	X		
94. *platylepis*								X	X			X	X				X	X	X		
95. *praeceptorum*			X			X			X			X	X			X					
96. *praegracilis*							X	X	X			X				X		X			
97. *prairea*				X				X	X			X	X			X					
98. *praticola*							X	X	X		X	X	X				X	X	X	X	
99. *preslii*							X	X	X	X	X	X	X				X	X	X		
100. *raynoldsii*			X						X				X			X					
101. *retrorsa*					X		X		X				X	X		X					
102. *richardsonii*		X	X													X					X
103. *rosea*							X			X		X	X			X					
104. *rossii*			X	X			X	X	X			X	X			X					X
105. *rupestris*			X						X							X					
106. *sartwellii*							X		X			X	X			X					
107. *saxatilis*			X						X				X			X					
108. *scirpoidea*			X										X			X					X
109. *scoparia*								X		X	X	X	X				X	X	X		
110. *scopulorum*		X	X						X							X					
111. *simulata*		X					X		X			X				X		X	X		
112. *spectabilis*		X				X			X	X			X			X					
113. *sprengelii*					X				X				X			X					
114. *stenophylla*			X			X			X							X					
115. *stenoptila*							X	X	X		X	X					X	X	X		
116. *stipata*								X	X		X	X	X			X		X	X		
117. *subnigricans*							X		X				X			X					
118. *sychnocephala*								X		X	X	X	X				X	X	X		
119. *tenera*							X	X		X	X	X	X				X	X	X	X	
120. *tenuiflora*		X	X						X							X					
121. *tetanica*			X						X							X					
122. *tolmiei*			X						X							X					
123. *torreyi*			X						X				X			X					
124. *tribuloides*							X			X	X	X	X				X	X	X	X	
125. *utriculata*				X					X				X	X		X					
126. *vallicola*			X			X			X			X	X			X					
127. *vernacula*			X	X			X		X				X			X		X	X		
128. *vesicaria*				X	X		X	X	X					X		X					
129. *viridula*			X				X		X				X			X					
130. *vulpinoidea*								X	X			X	X			X		X	X		
131. *xerantica*							X	X	X	X	X	X	X				X	X	X	X	

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Appendix A. Tables of species in *selected* groups

Outline of Tables

I. All spikes gynaecandrous, ± sessile, upper & lower appear the same. Dry to moist mountain meadows, no long rhizomes, culms ≥ basal leaves, bract < inflorescence
- A. Head short, ovate: Lower spike ± shortly separated 0–½ × spike length, sessile or nearly so ..... Table 1, p. A-5
- B. Head elongate: Lower spike ± widely separated > 1 × spike length, sessile or nearly so .... Table 2, p. A-8

II. Some mature leaves 12 mm wide or wider ..... Table 3, p. A-10

III. Some mature leaves 6–12 mm wide
- A. Wetland plants, areas near open water or with a high water table at some season
  - 1. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*) ..... Table 4, p. A-11
  - 2. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons
    - a. Bract below inflorescence shorter than inflorescence ..... Table 5, p. A-12
    - b. Bract below inflorescence longer than inflorescence
      - i. Leaf sheaths pubescent or glaucous ..... Table 6, p. A-13
      - ii. Leaf sheaths neither pubescent nor glaucous ..... Table 7, p. A-14
- B. Plants of dry to moist sites, water table always low
  - 1. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*)
    - a. Bract below inflorescence shorter than inflorescence ..... Table 8, p. A-15
    - b. Bract below inflorescence longer than inflorescence ..... Table 9, p. A-16
  - 2. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons
    - a. Bract below inflorescence shorter than inflorescence ..... Table 10, p. A-17
    - b. Bract below inflorescence longer than inflorescence ..... Table 11, p. A-18

IV. Some mature leaves < 1 mm wide
- A. Wetland plants, areas near open water or with a high water table at some season
  - 1. Long rhizomes present ..... Table 12, p. A-19
  - 2. No long rhizomes present, bunch sedges or mat-forming ..... Table 13, p. A-20
- B. Plants of dry to moist sites, water table always low
  - 1. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*)
    - a. Long rhizomes present ..... Table 14, p. A-21
    - b. No long rhizomes present, bunch sedges or mat-forming
      - i. Spike solitary ..... Table 15, p. A-22
      - ii. Spikes more than one to a culm ..... Table 16, p. A-23
  - 2. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons
    - a. Long rhizomes present ..... Table 17, p. A-24
    - b. No long rhizomes present, bunch sedges or mat-forming
      - i. Bract below inflorescence longer than inflorescence ..... Table 18, p. A-25
      - ii. Bract below inflorescence shorter than inflorescence ..... Table 19, p. A-26

V. Spike solitary
- A. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*)
  - 1. Long rhizomes present ..... Table 20, p. A-27
  - 2. No long rhizomes present, bunch sedges or mat-forming ..... Table 21, p. A-28
- B. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons
  - 1. Long rhizomes present ..... Table 22, p. A-29
  - 2. No long rhizomes present, bunch sedges or mat-forming ..... Table 23, p. A-30

VI. More than one spike, all spikes androgynous or lowest spike androgynous, upper and lower appear the same or similar
- A. Long rhizomes present ..... Table 24, p. A-31
- B. No long rhizomes, bunch sedges or mat-forming
  - 1. Wetland plants, areas near open water or with a high water table at some season ..... Table 25, p. A-32
  - 2. Plants of dry to moist sites, water table always low
    - a. Scale covering perigynium or nearly so ..... Table 26, p. A-33
    - b. Scale narrower than perigynium ..... Table 27, p. A-34

VII. Perigynium pubescent or puberulent
- A. Spike solitary ..... Table 28, p. A-35
- B. Spikes more than one to a culm ..... Table 29, p. A-36

VIII. Wetland species with staminate over pistillate spikes
- A. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*)
  - 1. Long rhizomes present
    - a. Bract longer than inflorescence, often much longer ..... Table 30, p. A-37
    - b. Bract shorter than inflorescence ..... Table 31, p. A-38
  - 2. No long rhizomes, bunch sedges or mat-forming
    - a. Bract longer than inflorescence, often much longer ..... Table 32, p. A-40
    - b. Bract shorter than inflorescence ..... Table 33, p. A-41
- B. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons
  - 1. Long rhizomes present
    - a. All mature leaves < 4 mm wide ..... Table 34, p. A-42
    - b. Some mature leaves > 4 mm wide ..... Table 35, p. A-43
  - 2. No long rhizomes, bunch sedges or mat-forming
    - a. All mature leaves < 4 mm wide ..... Table 36, p. A-44
    - b. Some mature leaves > 4 mm wide
      - i. Bract longer than inflorescence, often much longer ..... Table 37, p. A-45
      - ii. Bract shorter than inflorescence ..... Table 38, p. A-46

IX. Dioecious plants ..... Table 39, p. A-47

X. Plants of high elevations with black or very dark scales
- A. Long rhizomes present
  - 1. Wetland plants, areas near open water or with a high water table at some season
    - a. Spike solitary ..... Table 40, p. A-48
    - b. More than one spike per culm ..... Table 41, p. A-49
  - 2. Plants of dry to moist sites, water table always low
    - a. Spike solitary ..... Table 42, p. A-50
    - b. More than one spike per culm ..... Table 43, p. A-51
- B. No long rhizomes, bunch sedges or mat-forming
  - 1. Wetland plants, areas near open water or with a high water table at some season
    - a. Head compound, with more than one spike to a node of the culm, with 5-20 spikes ..... Table 44, p. A-52
    - b. Head simple, with only one spike to a node, with 1–10 spikes ..... Table 45, p. A-53
  - 2. Plants of dry to moist sites, water table always low
    - a. Spike solitary ..... Table 46, p. A-54
    - b. Spikes more than one to a culm
      - i. Terminal spike staminate
        - a. Scale covering perigynium body, beak may be protruding ..... Table 47, p. A-55
        - b. Scale narrower and shorter than perigynium ..... Table 48, p. A-56
      - ii. Terminal spike gynaecandrous
        - a. Scale covering perigynium body, beak may be protruding
          - ①. Lower spikes gynaecandrous ..... Table 49, p. A-57
          - ②. Lower spikes pistillate ..... Table 50, p. A-58
        - b. Scale narrower and shorter than perigynium
          - ①. Lower spikes gynaecandrous ..... Table 51, p. A-59
          - ②. Lower spikes pistillate ..... Table 52, p. A-60
      - iii. Terminal spike androgynous ..... Table 53, p. A-61

XI. Lower spikes dangling or drooping on a long peduncle
- A. Long rhizomes present ..... Table 54, p. A-62
- B. No long rhizomes, bunch sedges or mat-forming
  - 1. Wetland plants, areas near open water or with a high water table at some season
    - a. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, Abies bifolia, or Engelmann spruce, Picea engelmannii) ..... Table 55, p. A-63
    - b. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons
      - i. Perigynium > 5 mm long ..... Table 56, p. A-64
      - ii. Perigynium < 5 mm long ..... Table 57, p. A-65
  - 2. Plants of dry to moist sites, water table always low
    - a. Terminal spike gynaecandrous ..... Table 58, p. A-66
    - b. Terminal spike staminate or androgynous ..... Table 59, p. A-67

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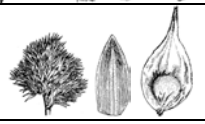
Only one species is not included in any table – Carex torreyi.

Species	Common name	Table(s)
1. *Carex aenea*	bronze sedge	2A, 2B
2. *Carex aggregata*	glomerate sedge	27
3. *Carex albo–nigra*	blackhead sedge	2B, 8, 50
4. *Carex alopecoidea*	foxtail sedge	5, 10, 25, 27
5. *Carex amphibola*	eastern narrowleaf sedge	11
6. *Carex angustior*	prickley sedge	2A, 16, 19
7. *Carex aquatilis*	water sedge	4, 6–7, 30, 32, 41, 45
8. *Carex arapahoensis*	Arapaho sedge	1B
9. *Carex atherodes*	slough sedge	6, 35
10. *Carex athrostachya*	slenderbeak sedge	1A
11. *Carex atrata*	black sedge	8–9, 50, 52, 58
12. *Carex atrosquama*	blackened sedge	52
13. *Carex aurea*	golden sedge	30, 31, 34, 35
14. *Carex backii*	Back's sedge	23, 26
15. *Carex bebbii*	Bebb's sedge	1A, 2A
16. *Carex bella*	beautiful sedge	8–11, 51, 58
17. *Carex bicknellii*	Bicknell's sedge	2A
18. *Carex blanda*	eastern woodland sedge	3, 10–11
19. *Carex brevior*	fescue sedge	2A
20. *Carex brunnescens*	brownish sedge	2B, 16, 19
21. *Carex buxbaumii*	Buxbaum's sedge	30–31, 34–35, 41, 43
22. *Carex canescens*	pale sedge	55
23. *Carex capillaris*	hair sedge	13, 32–33, 36, 57
24. *Carex capitata*	capitate sedge	12–13, 20–21, 40, 45
25. *Carex comosa*	longhair sedge	3, 7, 56
26. *Carex concinna*	low northern sedge	29, 48
27. *Carex crandallii*	Pyrenees sedge	15, 21, 46
28. *Carex crawei*	Crawe's sedge	34
29. *Carex cristatella*	crested sedge	1A, 2A, 5, 10–11
30. *Carex cusickii*	Cusick's sedge	25, 44
31. *Carex deweyana*	Dewey sedge	2B
32. *Carex diandra*	lesser panicled sedge	25, 44
33. *Carex dioica*	northern bog sedge	12, 20, 39
34. *Carex disperma*	soft leaved sedge	12–17, 19, 24–25
35. *Carex douglasii*	Douglas sedge	39
36. *Carex ebenea*	ebony sedge	1A, 49
37. *Carex eburnea*	bristleleaf sedge	17, 19, 54, 59
38. *Carex egglestonii*	Eggleston sedge	1A
39. *Carex elynoides*	Kobresia–like sedge	15, 21, 28
40. *Carex emoryi*	Emory's sedge	34–35
41. *Carex engelmannii*	Engelmann's sedge	14, 20
42. *Carex exsiccata*	western inflated sedge	4, 7, 9, 11, 32, 55-56
43. *Carex filifolia*	threadleaf sedge	19, 23, 28
44. *Carex foenea*	silvertop sedge	2A
45. *Carex geophila*	dryland sedge	18, 23, 28–29
46. *Carex geyeri*	elk sedge	20, 22
47. *Carex granularis*	limestone meadow sedge	6, 11, 57, 59
48. *Carex gravida*	heavy sedge	10, 25
49. *Carex haydeniana*	cloud sedge	1A, 51
50. *Carex hepburnii*	Hepburn's sedge	15, 21, 46
51. *Carex hoodii*	Hood sedge	53
52. *Carex hystericina*	bottlebrush sedge	7, 55-56
53. *Carex illota*	sheep sedge	1B, 45
54. *Carex interior*	inland sedge	2A, 13, 16, 33
55. *Carex jonesii*	Jones's sedge	24, 26–27, 43, 53
56. *Carex lachenalii*	twolipped sedge	1B, 21
57. *Carex lacustris*	hairy sedge	3, 6–7, 35, 54
58. *Carex laeviculmis*	smooth–stem sedge	2A
59. *Carex lanuginosa*	woolly sedge	29–31, 34–35
60. *Carex lasiocarpa*	woollyfruit sedge	29–31, 34, 41
61. *Carex lenticularis*	tufted sedge	32, 36, 45, 55, 57
62. *Carex leporinella*	Siberian hare sedge	1B, 16, 18–19, 47, 49
63. *Carex leptalea*	bristlystalked sedge	13, 15, 21, 23
64. *Carex limosa*	mud sedge	12, 30–31, 41, 54
65. *Carex livida*	livid sedge	30–31
66. *Carex luzulina*	wingseed sedge	3–4, 8, 10, 33, 37–38, 45, 47, 53, 55-57, 59
67. *Carex macloviana*	thickhead sedge	1A, 1B, 49

Species	Common name	Table(s)
68. *Carex magellanica*	boreal bog sedge	32–33, 55, 57
69. *Carex maritima*	curved sedge	14, 24
70. *Carex meadii*	Mead's sedge	10, 54
71. *Carex microglochin*	microglochin sedge	12–13, 20–21
72. *Carex microptera*	smallwing sedge	1A, 2A, 51
73. *Carex misandra*	shortleaved sedge	50, 58
74. *Carex molesta*	troublesome sedge	1A, 2A
75. *Carex muehlenbergii*	Mühlenberg's sedge	27
76. *Carex nebrascensis*	Nebraska sedge	4–6, 35, 37–38
77. *Carex nelsonii*	Nelson's sedge	1A, 52
78. *Carex neurophora*	alpine nerve sedge	25–27
79. *Carex nigricans*	black alpine sedge	20, 39, 40, 42
80. *Carex normalis*	greater straw sedge	1A, 2A, 10
81. *Carex norvegica*	Norway sedge	32, 33, 36, 45, 48, 52, 55, 57-59
82. *Carex nova*	new sedge	1A, 52
83. *Carex obtusata*	blunt sedge	14, 17, 20, 22
84. *Carex occidentalis*	western sedge	26–27
85. *Carex oreocharis*	grassyslope sedge	23
86. *Carex pachystachya*	Chamisso sedge	1B, 2B, 49
87. *Carex parryana*	Parry sedge	22–23, 39-40, 42-43, 46-48. 50, 52
88. *Carex peckii*	Peck's sedge	29, 36
89. *Carex pedunculata*	longstalk sedge	26, 29, 59
90. *Carex pensylvanica*	sun sedge	29
91. *Carex perglobosa*	Mt. Baldy sedge	16, 26
92. *Carex petasata*	Liddon sedge	1B, 2B
93. *Carex phaeocephala*	dunhead sedge	1B, 2B, 16, 49
94. *Carex platylepis*	broadscale sedge	1B, 2B, 49
95. *Carex praeceptorum*	teachers' sedge	1A, 2A, 51
96. *Carex praegracilis*	silver sedge	24, 26, 39
97. *Carex prairea*	prairie sedge	25
98. *Carex praticola*	meadow sedge	1B, 2B
99. *Carex preslii*	Presl's sedge	1A, 51
100. *Carex raynoldsii*	Raynolds sedge	8–11, 48, 59
101. *Carex retrorsa*	knotsheath sedge	7, 56
102. *Carex richardsonii*	Richardson's sedge	29
103. *Carex rosea*	rosy sedge	26–27
104. *Carex rossii*	Ross sedge	16, 18–19, 29
105. *Carex rupestris*	curly sedge	20–21, 40, 42, 46
106. *Carex sartwellii*	Sartwell sedge	24
107. *Carex saxatilis*	russet sedge	30–31, 41, 54
108. *Carex scirpoidea*	northern singlespike sedge	20–21, 28, 39-40, 42, 45, 46
109. *Carex scoparia*	broom sedge	1A, 2A
110. *Carex scopulorum*	cliff sedge	4, 8, 31, 33, 41, 43, 45, 48, 52
111. *Carex simulata*	short–beaked sedge	12, 24, 39, 41
112. *Carex spectabilis*	showy sedge	8, 9, 43, 48, 53, 59
113. *Carex sprengelii*	Sprengel's sedge	36–38, 56, 59
114. *Carex stenophylla*	needleleaf sedge	17, 24, 39
115. *Carex stenoptila*	smallwing sedge	1A
116. *Carex stipata*	owlfruit sedge	5, 25
117. *Carex subnigricans*	nearlyblack sedge	15
118. *Carex sychnocephala*	manyhead sedge	18
119. *Carex tenera*	quill sedge	2A, 19
120. *Carex tenuiflora*	sparseflower sedge	12–13
121. *Carex tetanica*	rigid sedge	38
122. *Carex tolmiei*	Tolmie sedge	8–9, 43, 47-48, 53-54, 59
123. *Carex torreyi*	Torrey's sedge	–
124. *Carex tribuloides*	blunt broom sedge	5, 38
125. *Carex utriculata*	beaked sedge	4, 7, 30, 32, 35
126. *Carex vallicola*	Jackson Hole sedge	19, 26–27
127. *Carex vernacula*	alpine blackheaded sedge	24, 26, 43, 53
128. *Carex vesicaria*	blister sedge	4, 7, 32, 34–36
129. *Carex viridula*	green sedge	32, 36
130. *Carex vulpinoidea*	fox sedge	25, 27
131. *Carex xerantica*	dryland sedge	2A, 2B

Table 1. Dry to moist mountain meadows. Bunch or short rhizomes, culms ≥ basal leaves, bract < inflorescence. All spikes gynaecandrous, upper & lower appear the same. Lower spike ± shortly separated 0–½ × spike length, sessile or nearly so

TABLE 1A. SCALE NARROWER THAN PERIGYNIUM

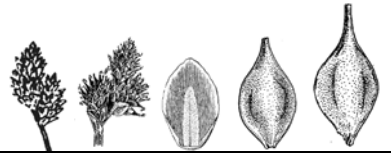
Names	Leaf width	Spikes	Scale	Perigynium (length × width)	In Rocky Mountain Region	
10. *Carex athrostachya* CAAT3 slenderbeak sedge	1–6 mm	2–20 Lower closely adjacent to next spike 20–30 pistillate flowers **bract >> inflorescence**	Light to medium brown perigynium light to medium color narrower & shorter than perigynium	3–5 mm × 1–2 mm Winged to base Stigmas 2	dry to moist margins, meadows & sloughs, valleys, n CO and w WY.	
15. *Carex bebbii* CABE2 Bebb's sedge	1–6 mm	2–20 very close to next spike or separated ¼–1 × spike length 20–30 pistillate flowers	Medium color perigynium medium green to brown color narrower & shorter than perigynium	2½–4 mm × 1–2½ mm Narrowly winged to base Stigmas 2	moist sites, Subalpine Zone or Montane zone, mountains or foothills or plains, c CO, ne WY, Black Hills, SD, & c & nw NE.	
29. *Carex cristatella* CACR7 crested sedge	Culm winged 2–10 mm	5–20 ± separated ¼–3 × spike length 30–50 pistillate flowers	Acuminate or short-awned light to medium color perigynium medium color narrower & shorter than perigynium	3–4½ mm × 1–2 mm Winged to apex **Jointed at junction of body & beak, beaks spreading in the spike** Stigmas 2	Few sites, foothills & plains, moist or wet meadows, woody, swamps, & sand dunes, w SD & c NE.	
36. *Carex ebenea* CAEB ebony sedge	1–6 mm	5–10 very close to next spike 10–20 pistillate flowers	**Dark brown to black perigynium dark** the head dark brown to black shorter than perigynium	**4½–>7 mm** × 1–2 mm Winged Stigmas 2	moist subalpine meadows throughout mountains, w CO and se WY; nw WY.	
38. *Carex egglestonii* CAEG Eggleston sedge	2–6 mm	2–10 very close to next spike 20–50 pistillate flowers	Medium color perigynium medium color narrower & shorter than perigynium	**6–8 mm** × 2–3½ mm Winged to the base **Margins of wing crinkled** Stigmas 2	In scattered populations, dry, open meadows, Subalpine Zone or upper Montane zone, w CO and se WY.	
49. *Carex haydeniana* CAHA6 cloud sedge	1–4 mm	2–10 very close to next spike 20–50 pistillate flowers	**Dark brown** perigynium medium color narrower & shorter than perigynium	**4–6½ mm** × 1½–3 mm Winged Sometimes spongy at base Stigmas 2	dry to moist tundra, Alpine Zone & upper Subalpine Zone, w CO and se-nw-nc WY.	
67. *Carex macloviana* CAMA9 thickhead sedge	1–6 mm	2–10 very close to next spike 20–50 pistillate flowers	With white-hyaline margins **dark** to medium **color** **perigynium dark brown** to copper brown; scale shorter than perigynium, **almost covering it**	3½–4½ mm × 1½–2 mm Winged Stigmas 2	dry to moist mountain meadows, subalpine & Montane zones, mountains, nw WY; less scattered, similar habitats, mountains, w CO, se WY, & sw WY.	
72. *Carex microptera* CAMI7 smallwing sedge	1–6 mm	5–20 very close to next spike or shortly separated up to 1 × spike length 20–50 pistillate flowers	**Dark brownish black** perigynium medium to light green to straw-colored tinged with light brown narrower & shorter than perigynium	3–5½ mm × 1–2½ mm Winged Stigmas 2	moist meadows, open margins, wetlands & riparian areas, & open slopes, Subalpine Zone & Montane zone, all mountains, CO and WY, including Black Hills, ne WY & w SD	
74. *Carex molesta* CAMO11 troublesome sedge	1–6 mm Leaf sheaths green-and-white mottled	2–10 shortly separated ¼–1 × spike length 10–30 pistillate flowers	light to medium color perigynium light to medium green narrower & shorter than perigynium reaching to base of beak	3–4½ mm × 1½–3 mm Winged to base Stigmas 2	In a few sites, dry to moist woodlands, foothills, & canyons, se & ne CO, w SD, & wc NE.	
77. *Carex nelsonii* CANE3 Nelson's sedge	2–6 mm lower leaf sheaths sometimes filamentose	2–5 very close to next spike 10–50 pistillate flowers	**Dark color** perigynium light to medium color narrower & shorter than perigynium	3–4½ mm × 1–2½ mm **Not winged** Stigmas 3	Dry to moist meadows, slopes, & snowmelt sites, Alpine Zone & high Subalpine Zone; mountains, ne & sw CO ; scattered, c & s CO and nw WY.	

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TABLE 1A. SCALE NARROWER THAN PERIGYNIUM (continued)

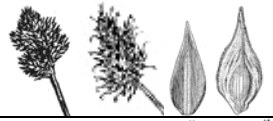
Names	Leaf width	Spikes	Scale	Perigynium (length × width)	In Rocky Mountain Region	
80. *Carex normalis* CANO greater straw sedge	2–8 mm Leaf sheaths green-and-white mottled	2–20 shortly separated ¼–3 × spike length 10–30 pistillate flowers	Medium color perigynium medium green to straw-colored shorter & narrower than perigynium	3–4½ mm × 1½–2½ mm Winged to base Stigmas 2	Dry to moist woodlands, Foothills & plains, occasionally prairies & ditches, Black Hills, SD	
82. *Carex nova* CANO3 new sedge	1–6 mm	2–5 very close to next spike **30–100 pistillate flowers**	**Dark color** **perigynium dark above** narrower & shorter than perigynium	3–4½ mm × 1½–3 mm **Not winged** short-beaked Stigmas 3	Moist slopes & meadows, Alpine Zone or Subalpine Zone, mountains, w CO, se WY, & nw WY.	
95. *Carex praeceptorum* CAPR4 teachers' sedge	1–4 mm	Usually 4–5 ranging 2–10 shortly separated ¼–1 × spike length **1–20 pistillate flowers**	Medium to **dark color** perigynium medium color narrower & shorter than perigynium	**1½–2½ mm** × ½–1½ mm **Not winged** Stigmas 2	Tundra or grassy slopes, alpine & upper subalpine ranges, nc CO & se WY, nw WY; scattered mountains, w CO	
99. *Carex preslii* CAPR8 Presl's sedge	1–6 mm	2–5 shortly separated ¼–1 × spike length 10–30 pistillate flowers	Medium to **dark color** perigynium light to medium color narrower & shorter than perigynium	3–4½ mm × 1½–2½ mm Winged Stigmas 2	In a few dry to moist sites, nw WY; Subalpine zone or Montane zone, mountains Habitat dry to moist.	
109. *Carex scoparia* CASC11 broom sedge	1–4 mm	2–20 shortly separated ¼–1 × spike length 30–100 pistillate flowers	Light color perigynium medium color narrower & shorter than perigynium exposing it	**4–6½ mm** × 1–2½ mm Winged to base Stigmas 2	Moist or wet wooded areas, sandy shores, low meadows, prairies, open swamps, or wet places, nw-nc NE & Black Hills, SD; & east side CO Front Range	
115. *Carex stenoptila* CAST4 smallwing sedge	1–4 mm	5–10 very close to next spike 10–30 pistillate flowers	Pale to medium chestnut-brown with lighter midrib perigynium medium straw-colored shorter than perigynium	**4½–6 mm** × 1–2 mm Narrowly winged Stigmas 2	A few scattered sites, dry montane forests, openings, & rocks, n-w CO, se-nw-nc WY.	

TABLE 1B. SCALE COVERING PERIGYNIUM BODY

Names	Leaf width	Spikes	Scale	Perigynium length×width	In Rocky Mountain Region	
8. *Carex arapahoensis* CAAR13 Arapaho sedge	1–4 mm	2–10 Lower closely adjacent to next spike 10–50 pistillate flowers	Medium color perigynium medium color with narrow hyaline margins above, **covering perigynium**	**4–6 mm** × 2–3 mm Winged to base Stigmas 2	Occasional populations, dry to moist rocky places, Alpine Zone & high Subalpine Zone, mountains, c & s CO and e UT.	
53. *Carex illota* CAIL sheep sedge	1–4 mm	2–10 very close to next spike **1–20 pistillate flowers**	**Dark color** **perigynium dark color** **spike appears dark** shorter than perigynium	2½–3½ mm × 1–1½ mm **Not winged** Stigmas 2	Wet sites, alpine & upper Subalpine Zones, w CO and se & nw WY.	
56. *Carex lachenalii* CALA10 twolipped sedge	1–4 mm	1–5 shortly separated ¼–1 × spike length 20–30 pistillate flowers	Medium color perigynium medium color shorter than perigynium	2–4½ mm × 1–2 mm **Not winged** Stigmas 2	wet meadows & streambanks, Alpine Zone & high Subalpine Zone, w CO, se WY, & nw WY.	

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TABLE 1B. SCALE COVERING PERIGYNIUM BODY (continued)

Names	Leaf width	Spikes	Scale	Perigynium (length × width)	In Rocky Mountain Region	
62. *Carex leporinella* CALE9 Siberian hare sedge	½–2 mm	2–10 shortly separated ¼–1 × spike length 10–30 pistillate flowers	medium to **dark reddish-brown;** perigynium medium brown color; slightly narrower & shorter than perigynium, mostly concealing perigynium	1½–3½ mm × 1–2 mm **Not winged** Stigmas 2	Dry to moist montane to subalpine slopes & meadows, mountains, nw WY.	
67. *Carex macloviana* CAMA9 thickhead sedge	1–6 mm	2–10 very close to next spike 20–50 pistillate flowers	With white-hyaline margins **dark** to medium **color perigynium dark brown** to copper brown; scale shorter than perigynium, **almost covering it**	3½–4½ mm × 1½–2 mm Winged Stigmas 2	dry to moist mountain meadows, subalpine & Montane zones, mountains, nw WY; less scattered, similar habitats, mountains, w CO, se WY, & sw WY.	
86. *Carex pachystachya* CAPA14 Chamisso sedge	2–6 mm	2–20 shortly separated ¼–1 × spike length **30–100 pistillate flowers**	**Dark brown to blackish brown** with green midrib **covering** & shorter than perigynium	**Spreading** 3½–5 mm × 1–2½ mm Winged to base Stigmas 2	Dry to moist meadows, open woods, & slopes, Subalpine Zone or Montane zone, mountains, nw WY & eastern slope, ne CO and se WY; less & scattered, w CO, sc WY, & nc WY.	
92. *Carex petasata* CAPE7 Liddon sedge	1–6 mm	2–10 shortly separated ¼–1 × spike length 20–50 pistillate flowers	Light to medium color perigynium medium color **covering perigynium**	**5–8 mm** × 1–2½ mm Narrowly winged Stigmas 2	Moderately moist to dry sites, Subalpine Zone or Montane zone, mountains, w WY; scattered, mountains, w CO and e WY.	
93. *Carex phaeocephala* CAPH2 dunhead sedge	½–4 mm	2–10 shortly separated ¼–1 × spike length 10–30 pistillate flowers	Medium to **dark color** perigynium medium to **dark color** covering perigynium or nearly so	4–5½ mm × 1–2½ mm Narrowly winged Stigmas 2	Dry to moist rocks, meadows, & open forests, Alpine Zone & upper Subalpine Zone, mountains, w CO and se-w-nc WY.	
94. *Carex platylepis* CAPL8 broadscale sedge	2–6 mm	5–10 shortly separated ¼–1 × spike length 20–50 pistillate flowers	Medium or **dark color** perigynium medium color **covering perigynium**	4–5 mm × 1½–2 mm Winged Stigmas 2	to dry to moist meadows, woods, & slopes, mountains, nw WY.	
98. *Carex praticola* CAPR7 meadow sedge	1–4 mm	2–10 separated ¼–1 × spike length 20–50 pistillate flowers	Medium color perigynium light green or whitish-green **covering perigynium**	**4½–7 mm** × 1½–2½ mm Winged to base Stigmas 2	open, moist to dry meadows, subalpine & Montane zone, mountains, nw WY; scattered, similar habitats, mountains, CO, & se-ne WY, &, Black Hills, ne WY & w SD.	

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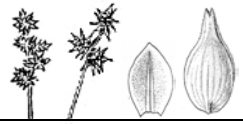
Table 2. Dry to moist mountain meadows. Bunch or short rhizomes, culms ≥ basal leaves, bract < inflorescence. All spikes gynaecandrous, upper & lower appear the same. Lower spike ± widely separated > 1 × spike length, sessile or nearly so

TABLE 2A. SCALE NARROWER THAN PERIGYNIUM

Names	Leaf width	Spikes	Scale	Perigynium (length × width)	In Rocky Mountain Region	
1. *Carex aenea* CAAE bronze sedge	2–4 mm sheaths green-and-white mottled	2–10 obovoid Lower separated 1–3 × spike length 20–30 pistillate flowers	Light to medium color perigynium light to medium green to brown covering or narrower than perigynium never shorter, usually concealing it	3½–6 mm × 1½–2½ mm Winged to base Stigmas 2	Wooded areas & ravines, forested sites, dry to moist, Montane zone, Black Hills, w SD	
6. *Carex angustior* CAAN23 prickley sedge	½–4 mm	2–5 Lower separated 1–3 × spike length 1–20 pistillate flowers	Light color perigynium light-margined with dark middle narrower & shorter than perigynium	**Spreading** 2–5 mm × ½–2 mm **Body not winged, beak sometimes winged** Stigmas 2	Scattered populations, moist meadows, Subalpine Zone & Montane zone, mountains, CO and nw WY	

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TABLE 2A. SCALE NARROWER THAN PERIGYNIUM (continued)

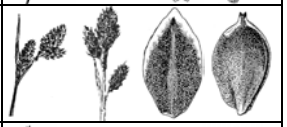
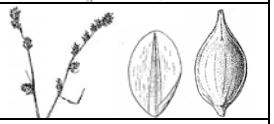
Names	Leaf width	Spikes	Scale	Perigynium (length × width)	In Rocky Mountain Region	
15. *Carex bebbii* CABE2 Bebb's sedge	1–6 mm	2–20 very close to next spike or separated ¼–1 × spike length 20–30 pistillate flowers	Medium color perigynium medium green to brown color narrower & shorter than perigynium	2½–4 mm × 1–2½ mm Narrowly winged to base Stigmas 2	moist sites, Subalpine Zone or Montane zone, mountains or foothills or plains, c CO, ne WY, Black Hills, SD, & c & nw NE	
17. *Carex bicknellii* CABI3 Bicknell's sedge	2–6 mm Leaf sheaths sometimes pubescent	2–10 Lower separated ¼–3 × spike length 10–20 pistillate flowers	Light to medium color perigynium light to medium straw-colored narrower & shorter than perigynium	**5–8½ mm** × 2½–5 mm Winged Stigmas 2	Dry to moist prairies & woods, foothills & plains, cw SD, nw NE, & w KS	
19. *Carex brevior* CABR10 fescue sedge	1–6 mm	2–10 Lower ± separated ¼–1 × spike length 10–20 pistillate flowers	Light to medium color perigynium light greenish-white to medium green narrower & somewhat shorter than perigynium	3½–5½ mm × 2½–3½ mm Winged Stigmas 2	dry to moist sites along east bases of mountains, n & s CO, nw WY; mountains, foothills, or plains, SD, NE, & KS, sometimes in shaded sites	
29. *Carex cristatella* CACR7 crested sedge	**Culm winged** 2–10 mm	5–20 ± separated ¼–3 × spike length 30–50 pistillate flowers	light to medium color perigynium medium color narrower & shorter than perigynium	3–4½ mm × 1–2 mm Winged to apex **Jointed at junction of body & beak, beaks spreading in the spike** Stigmas 2	Few sites, foothills & plains, moist or wet meadows, woody, swamps, & sand dunes, w SD & c NE	
44. *Carex foenea* CAFO3 silvertop sedge	1–4 mm	2–10 Gynaecandrous / pistillate Upper & lower appear the same separated 1–3 × spike length 1–20 pistillate flowers	Medium color perigynium medium color narrower & shorter than perigynium	3–6 mm × 1½–2½ mm narrowly winged Many-nerved Stigmas 2	Dry, shaded forested sites, foothills, montane, subalpine, & lower Alpine Zones, c & cw CO and Black Hills, e WY & w SD; less moist shaded sites; less common se WY, n CO, & sw CO	
54. *Carex interior* CAIN11 inland sedge	½–4 mm	2–10 separated 1–3 × spike length **1–10 pistillate flowers**	Medium to light color perigynium **dark color** narrower & shorter than perigynium	**Spreading** 1½–3½ mm × 1–2 mm **Not winged** Stigmas 2	Wet to moist sites, meadows & forests, mountains & foothills, w $^{2}/_{3}$ CO, nw WY, Black Hills, ne WY & w SD, &, nw-nc NE	
58. *Carex laeviculmis* CALA13 smooth-stem sedge	Culm weak & nodding 1–4 mm	2–10 widely separated 3–5 × spike length **1–10 pistillate flowers**	light-brown tinged midrib perigynium light to medium color narrower & shorter than perigynium	2½–4½ mm × 1–2 mm **Not winged** Stigmas 2	Rare to a few sites wet to moist, shaded montane stream banks, nw CO and nw WY	
72. *Carex microptera* CAMI7 smallwing sedge	1–6 mm	5–20 very close to next spike or shortly separated up to 1 × spike length 20–50 pistillate flowers	**Dark brownish black** perigynium medium to light green to straw-colored tinged with light brown narrower & shorter than perigynium	3–5½ mm × 1–2½ mm Winged Stigmas 2	Moist meadows, open margins, wetlands & riparian areas, & open slopes, Subalpine Zone & Montane zone, all mountains, CO & WY, Black Hills, ne WY, w SD	
74. *Carex molesta* CAMO11 troublesome sedge	1–6 mm Leaf sheaths green-and-white mottled	2–10 shortly separated ¼–1 × spike length 10–30 pistillate flowers	light to medium color perigynium light to medium green narrower & shorter than perigynium reaching to base of beak	3–4½ mm × 1½–3 mm Winged to base Stigmas 2	In a few sites, dry to moist woodlands, foothills, & canyons, se & ne CO, w SD, & wc NE	
80. *Carex normalis* CANO greater straw sedge	2–8 mm Leaf sheaths green-and-white mottled	2–20 shortly separated ¼–3 × spike length 10–30 pistillate flowers	Medium color perigynium medium green to straw-colored shorter & narrower than perigynium	3–4½ mm × 1½–2½ mm Winged to base Stigmas 2	Dry to moist woodlands, Foothills & plains, occasionally prairies & ditches, Black Hills, SD	
95. *Carex praeceptorum* CAPR4 teachers' sedge	1–4 mm	Usually 4–5 ranging 2–10 shortly separated ¼–1 × spike length **1–20 pistillate flowers**	Medium to **dark color** perigynium medium color narrower & shorter than perigynium	***1½–2½ mm*** × ½–1½ mm **Not winged** Stigmas 2	Tundra or grassy slopes, alpine & upper subalpine ranges, nc CO & se WY, nw WY; scattered mountains, w CO	

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TABLE 2A. SCALE NARROWER THAN PERIGYNIUM (continued)

Names	Leaf width	Spikes	Scale	Perigynium (length × width)	In Rocky Mountain Region	
109. *Carex scoparia* CASC11 broom sedge	1–4 mm	2–20 shortly separated ¼–1 × spike length 30–100 pistillate flowers	Light color perigynium medium color narrower & shorter than perigynium exposing it	**4–6½ mm** × 1–2½ mm Winged to base Stigmas 2	Moist or wet wooded areas, sandy shores, low meadows, prairies, open swamps, or wet places, nw-nc NE & Black Hills, SD; & east side CO Front Range	
119. *Carex tenera* CATE3 quill sedge	½–4 mm	2–10 well-separated 1–3 × spike length 30–100 pistillate flowers	Light to medium color light to medium straw-colored narrower & shorter than perigynium	3–4½ mm × 1½–2½ mm Winged to the base Stigmas 2	Dry to moist woods & meadows, foothills & lower Montane zone, mountains, Black Hills, ne WY & w SD; also w WY, nc WY, & sw SD	
131. *Carex xerantica* CAXE dryland sedge	2–4 mm	2–10 very close to next spike 30–50 pistillate flowers	Light to medium color perigynium medium green to golden-yellow covering perigynium or slightly narrower & shorter than perigynium	4–6½ mm × 2–3 mm Winged to base Stigmas 2	Dry sites under pines, foothills & lower Montane zone, scattered, w ½ CO, WY, SD, NE	

TABLE 2B. SCALE COVERING PERIGYNIUM BODY

Names	Leaf width	Spikes	Scale	Perigynium (length × width)	In Rocky Mountain Region	
1. *Carex aenea* CAAE bronze sedge	2–4 mm sheaths green-and-white mottled	2–10 obovoid Lower separated 1–3 × spike length 20–30 pistillate flowers	Light to medium color perigynium light to medium green or brown covering or narrower than perigynium never shorter, usually concealing perigynium	3½–6 mm × 1½–2½ mm Winged to base Stigmas 2	Wooded areas & ravines, forested sites, dry to moist, Montane zone, Black Hills, w SD	
3. *Carex albo-nigra* CAAL6 blackhead sedge	2–8 mm	2–5 Lower separated ¼–1 × spike length 1–20 pistillate flowers	**Dark color** with conspicuous white-hyaline margins above perigynium usually **dark color** ± covering perigynium	2½–3½ mm × 1½–2½ mm Not winged Stigmas 3	Dry to moist alpine tundra & openings, alpine willow thickets, unshaded to slight shade, Alpine Zone, CO, WY	
20. *Carex brunnescens* CABR15 brownish sedge	½–6 mm	Spikes 5–10 Lower separated 1–5 × spike length **5–10 pistillate flowers**	usually light color perigynium light color shorter than perigynium	1½–3 mm × 1–1½ mm **Not winged** Stigmas 2	In scattered shaded sites, moist or dry, mountains, CO and nc-nw WY	
31. *Carex deweyana* CADE9 Dewey sedge	Culm usually nodding 1–6 mm Sometimes **glaucous**	5–10 separated 1–3 × spike length 5–20 pistillate flowers	light to medium color perigynium light to medium green covering the perigynium body but shorter than the beak	3½–5½ mm × 1–2 mm Narrowly winged to **not winged** Stigmas 2	Dry to moist, wooded gulches, lower Montane zone & adjacent foothills around mountains, CO, nw WY, & Black Hills, e WY & w SD	
86. *Carex pachystachya* CAPA14 Chamisso sedge	2–6 mm	2–20 shortly separated ¼–1 × spike length **30–100 pistillate flowers**	**Dark brown to blackish brown** with green midrib **covering** & shorter than perigynium	**Spreading** 3½–5 mm × 1–2½ mm Winged to base Stigmas 2	Dry to moist meadows, open woods, & slopes, Subalpine Zone or Montane zone, mountains, nw WY & eastern slope, ne CO and se WY; less & scattered, w CO, sc WY, & nc WY	
92. *Carex petasata* CAPE7 Liddon sedge	1–6 mm	2–10 shortly separated ¼–1 × spike length 20–50 pistillate flowers	Light to medium color perigynium medium color **covering perigynium**	**5–8 mm** × 1–2½ mm Narrowly winged Stigmas 2	Moderately moist to dry sites, Subalpine Zone or Montane zone, mountains, w WY; scattered, mountains, w CO and e WY	
93. *Carex phaeocephala* CAPH2 dunhead sedge	½–4 mm	2–10 shortly separated ¼–1 × spike length 10–30 pistillate flowers	Medium to **dark color** perigynium medium to **dark color** covering perigynium or nearly so	4–5½ mm × 1–2½ mm Narrowly winged Stigmas 2	Dry to moist rocks, meadows, & open forests, Alpine Zone & upper Subalpine Zone, mountains, w CO and se-w-nc WY	

(CONTINUED ON NEXT PAGE)

TABLE 2B. SCALE COVERING PERIGYNIUM BODY (continued)

Names	Leaf width	Spikes	Scale	Perigynium (length × width)	In Rocky Mountain Region	
94. *Carex platylepis* CAPL8 broadscale sedge	2–6 mm	5–10 shortly separated ¼–1 × spike length 20–50 pistillate flowers	Medium or **dark color** perigynium medium color **covering perigynium**	4–5 mm × 1½–2 mm Winged Stigmas 2	to dry to moist meadows, woods, & slopes, mountains, nw WY	
98. *Carex praticola* CAPR7 meadow sedge	1–4 mm	2–10 separated ¼–1 × spike length 20–50 pistillate flowers	Medium color perigynium light green or whitish-green **covering perigynium**	**4½–7 mm** × 1½–2½ mm Winged to base Stigmas 2	open, moist to dry meadows, subalpine & Montane zone, mountains, nw WY; scattered, similar habitats, mountains, CO, & se-ne WY, &, Black Hills, ne WY & w SD	
131. *Carex xerantica* CAXE dryland sedge	2–4 mm	2–10 very close to next spike 30–50 pistillate flowers	Light to medium color perigynium medium green to golden-yellow, covering perigynium or slightly narrower & shorter than perigynium	4–6½ mm × 2–3 mm Winged to base Stigmas 2	Dry sites under pines, foothills & lower Montane zone, scattered, w ½ CO, WY, SD, NE	

(END OF TABLE 2)

Table 3. Some mature leaves 12 mm wide or wider

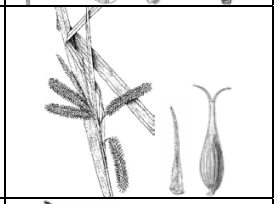
Name, Code Common Name	Culms	Leaf width	Scale	Perigynium	In Rocky Mountain Region	
18. *Carex blanda* CABL eastern woodland sedge	Not winged Bunch Bract > or < inflorescence, sometimes sheathing	**3–**15 mm	Light-colored fiddle shaped awned narrower and shorter than perigynium	3–4½ mm long 1–2 mm wide **Beak offset**	**Dry to moist** sites ne WY, w SD, sw SD, nw NE	
25. *Carex comosa* CACO8 longhair sedge	**Winged** Bunch Bract >> inflorescence	6–16 mm	Light- to medium-colored narrower and shorter than perigynium	5–8 mm long 1–2 mm wide **beak** with **long**-curved **teeth** (teeth 1½–2 mm long)	**Wet** meadows, swamps, sloughs nw-c NE, sw SD	
57. *Carex lacustris* CALA16 hairy sedge	Not winged **Long rhizomes** Bract > inflorescence Plant base purple-tinged	6–15 mm Sometimes glaucous	Medium- to light-colored acuminate to awned **covering** or shorter than perigynium	5½–7 mm long 2–3 mm wide **beak** with **short**-straight **teeth** (teeth <½ mm long)	**Very wet** swamps, sloughs, meadows w & c NE	
66. *Carex luzulina* CALU7 wingseed sedge	Not winged Bunch or short rhizomes Bract < inflorescence, rarely sheathing	**2–**14 mm	Medium- to **dark-**colored shorter than perigynium	3–5½ mm long 1–1½ mm wide	**Wet to moist** **Mountains** of nw WY	

Table 4. Some mature leaves > 6 mm wide. Wetland plants, in areas near open water or with a high water table at some season. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*)

Name, Code Common Name	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mtn. Region	
7. *Carex aquatilis* CAAQ water sedge	Bract > or = inflorescence sometimes with black or purple-black auricles	2–10 mm Stiff, w-shaped in cross-section. Sometimes **glaucous**	Upper and lower appear different, lower separated ¼–1 × length of spike, sessile or short peduncle ¼–½ × length of spike	**Dark** with light midrib, spikes usually bicolored green-and-black	1½–4 mm long 1–2½ mm wide Stigmas 2	Mountains w CO, w WY	
42. *Carex exsiccata* CAEX5 western inflated sedge	Bract > inflorescence	2–8 mm lower leaf sheaths filamentose	Upper and lower appear different, lowest separated ¼–1 × length of spike, sessile or nearly so	**Light-** to medium-colored	7–10 mm long 2–>3 mm wide Stigmas 3	Mountains nw CO	
66. *Carex luzulina* CALU7 wingseed sedge	Bract **<** **inflorescence**, rarely sheathing	2–14 mm lower leaf sheaths sometimes filamentose	Upper and lower **appear the same,** lowest separated **1–5 ×** length of spike, peduncle ½–1 × length of spike	Medium to **dark** purplish-brown to purplish-black	3–5½ mm long 1–1½ mm wide Stigmas 3	Mountains nw WY	
76. *Carex nebrascensis* CANE2 Nebraska sedge	Bract **> or <** **inflorescence** sometimes with black or purple-black auricles	2–12 mm **Conspicuously glaucous**	Upper and lower appear different, lowest separated ¼–1 × length of spike, peduncle ¼–½ × length of spike	**Dark** purple to brown-black with lighter midrib	2½–4 mm long 1½–2½ mm wide Stigmas 2	Mountains through WY, CO, w & sw SD, c & w NE	
110. *Carex scopulorum* CASC12 cliff sedge	Bract **< inflorescence** sometimes with black or purple-black auricles	1–8 mm lower leaf sheaths sometimes filamentose	Upper and lower appear different, lowest separated ¼–**3 ×** length of spike, peduncle ¼–1 × length of spike	**Dark** purple-black in color, spikes appearing very dark	2–4 mm long 1–2½ mm wide Stigmas 2	Often in **Alpine Zone**, Mountains of w CO, se WY, nw WY	
125. *Carex utriculata* CAUT beaked sedge	Bract > inflorescence Spongy-inflated at bases	4–12 mm	Upper and lower appear different, lowest separated ¼–**3 ×** length of spike, sessile or nearly so	**Light-** to medium-colored	3½–8 mm long 2–3½ mm wide **Beak with teeth** Stigmas 3	w CO, w WY, Black Hills of ne WY-wc SD	
128. *Carex vesicaria* CAVE6 blister sedge	Bract > inflorescence	2–8 mm lower leaf sheaths filamentose	Upper and lower appear different, lowest separated ½–3 × length of spike, sessile or nearly so	**Long-acuminate tip** medium-colored	3½–10 mm long 2½–3½ mm wide **Beak with teeth** Stigmas 3	Mountains nc-wc CO, nw-nc WY, s & nw CO	

Table 5. Some mature leaves > 6 mm wide. Wetland plants, in areas near open water or with a high water table at some season. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Bract below inflorescence shorter than inflorescence

Names	Culms	Leaves	Spikes	Scale	Perigynium	In Rocky Mtn. Region	
4. *Carex alopecoidea* CAAL8 foxtail sedge	>, =, or < basal leaves **Flattened & winged** Bunch Bract < inflorescence	2–10 mm	5–10, **All androgynous** Upper & lower appear the same Lower closely adjacent to next spike sessile or nearly so 10–30 pistillate flowers	Short-awned light color medium color narrower than perigynium	3–4½ mm × 2–3 mm Beak narrowly **winged** Body not winged Stigmas 2	moist or wet meadows, wooded areas & swamps, Black Hills, WY, SD	
29. *Carex cristatella* CACR7 crested sedge	**Winged** Bunch or short rhizomes Bract < inflorescence	2–10 mm	**All gynaecandrous** Upper & lower appear **the same** Lowest separated, sessile or nearly so 30–50 pistillate flowers	Light to medium in color	3–4½ mm × 1–2 mm **Winged** **Jointed at junction of body and beak**, **beaks spreading in the spike**	Foothills and plains w SD, c NE	
76. *Carex nebrascensis* CANE2 Nebraska sedge	> or = to basal leaves Short rhizomes or long rhizomes Sometimes with black or purple-black auricles	2–12 mm **Conspic-uously glaucous**	**Terminal staminate, lowest pistillate** Upper & lower appear **different** Lowest separated, **Peduncle** ¼–½ × spike length 30–100 pistillate flowers	**Dark** purple to brown-black with lighter midrib and narrow margins	2½–4 mm × 1½–2½ mm **Not winged**; beak short, ½-1 mm long, bidentate	Plains, foothills, and lower montane zone Mountains WY & CO, w & sw SD, c & w NE	
116. *Carex stipata* CAST5 owlfruit sedge	**Slightly winged** > or = to basal leaves Spongy at base Bunch or short rhizomes	2–12 mm Leaf sheaths sometimes cross-rugulose	**Head tight cluster, like a pincushion, spikes many** **All androgynous** Upper & lower appear **the same** **Lower spike very close** to next spike, sessile or nearly so **10–20 pistillate flowers**	Light to medium in color	**Spreading, triangular** 4–5½ mm × 1–2 mm Body **not winged**, sometimes beak narrowly winged	Foothills and lower mountain valleys nc-sw-se CO, nw & nc WY, Black Hills ne WY & w SD, w NE; possibly w KS	
124. *Carex tribuloides* CATR7 blunt broom sedge	**Winged** > or = to basal leaves Bunch	2–10 mm Leaf sheaths green-striate	**All gynaecandrous** Upper and lower appear **same** Lowest separated, Sessile or nearly so 30–50 pistillate flowers	Medium in color	3½–5½ mm × 1½–2½ mm **All winged**	Sandhills of nc NE	

Table 6. Some mature leaves > 6 mm wide. Wetland plants, in areas near open water or with a high water table at some season. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Bract below inflorescence longer than inflorescence. Leaf sheaths pubescent or glaucous

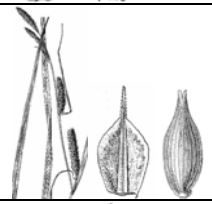
Name, Code, Common Name	Culms	Leaves	Spikes	Scale	Perigynium	In Rocky Mountain Region	
7. *Carex aquatilis* CAAQ water sedge	**Bunch or long rhizomes** sometimes with black or purple-black auricles	2–10 mm W-shaped in cross-section **sometimes pubescent, sometimes glaucous**	**Slender and long** Lower separated ¼–1 × length of spike Sessile or peduncle ¼–½ × length of spike	**Dark** with light midrib, spikes usually **bicolored** green-and-black	**Tip convex**, curved or triangular shape 1½–4 mm × 1–2½ mm Stigmas 2	Subalpine zone (rarely montane zone) Mountains w CO, w WY	
9. *Carex atherodes* CAAT2 slough sedge	**Long rhizomes**	2–12 mm Leaf sheaths **pubescent with long soft hairs** lower leaf sheaths sometimes filamentose	Lower **separated 1–3 ×** length of spike Sessile or nearly so	Usually **awned with a serrulate awn Light to medium** in color	**Tip concave, very long taper 6½–11 mm ×** 1½–2½ mm **Tip with widely divergent teeth** 1–3 mm long, ± equal to rest of beak Stigmas 3	Foothills, around edges Black Hills WY & SD, nw NE, Lower montane zone of n & c CO	
47. *Carex granularis* CAGR3 limestone meadow sedge	**Bunch Bract long-sheathing** red-dotted	3–12 mm Often **glaucous**	Lowest widely **separated** (sometimes nearly basal) **3–5 ×** length of spike	**Acuminate to short-awned White-hyaline** with a narrow, darker midrib	**Tip concave**, short taper 2–4 mm × 1–2½ mm **Very short-beaked** Stigmas 3	Foothills, plains, lower montane zone Northern Black Hills e WY & w SD, nw-nc NE	
57. *Carex lacustris* CALA16 hairy sedge	**Long rhizomes** Base of plant purple-tinged	6–15 mm Sometimes **glaucous** lower leaf sheaths filamentose	Lower **separated 1–3 ×** length of spike Peduncle 1–2 × length of spike	Acuminate to awned (< body) **Medium to light** in color	**Tip concave**, short or long taper **5½–7 mm ×** 2–3 mm **Beak short**, about 1 mm long, beak tip with straight, **short teeth** <½ mm × Stigmas 3	Plains, sand hills w & c NE	
76. *Carex nebrascensis* CANE2 Nebraska sedge	**Short or long rhizomes** sometimes with black or purple-black auricles	2–12 mm **Conspicuously glaucous**	Plump Lower separated ¼–1 × length of spike Peduncle ¼–½ × length of spike	**Dark** purple to brown-black with lighter midrib and narrow margins	**Tip convex, triangular shape** 2½–4 mm × 1½–2½ mm **Beak short**, ½-1 mm long, bidentate Stigmas 2	Plains, foothills, lower montane zone Mountains WY & CO, w & sw SD, c & w NE	

Table 7. Some mature leaves > 6 mm wide. Wetland plants, in areas near open water or with a high water table at some season. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Bract below inflorescence longer than inflorescence. Leaf sheaths neither pubescent nor glaucous

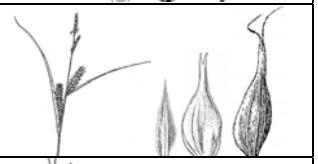
Name Code Common Name	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
7. *Carex aquatilis* CAAQ water sedge	> or = to basal leaves **Bunch or long rhizomes** Bract > or = to inflorescence sometimes with black or purple-black auricles	2–10 mm Stiff W-shaped cross-section	**Slender and long** Lower separated ¼–1 × length of spike Lower sessile or peduncle ¼–½ × length of spike 20–100 pistillate flowers	**Dark** with light midrib Spikes **bicolored** green-and-black	**Tip convex** with curved or triangular shape 1½–4 mm long 1–2½ mm wide Stigmas 2	Subalpine zone (rarely montane zone) Mountains of w CO & w WY	
25. *Carex comosa* CACO8 longhair sedge	**Winged** > or = to basal leaves **Bunch** **Bract >> inflorescence**	6–16 mm	Lower separated ¼–1 × length of spike Lower short peduncle ¼–½ × length of spike, **hanging or dangling** Lower perigynia **reflexed** 50–150 pistillate flowers	**Serrulate-awned** light to medium in color	Tip concave with long taper 5–8 mm long 1–2 mm wide Beak long, long-curved teeth 1½–2 mm long Stigmas 3	nw-c NE, sw SD	
42. *Carex exsiccata* CAEX5 western inflated sedge	> or = to basal leaves **Bunch or short rhizomes** Bract 1–1¾ × > inflorescence	2–8 mm Lower leaf sheaths filamentose	Lower separated ¼–1 × length of spike Lower sessile or nearly so 20–50 pistillate flowers	Light to medium in color	Tip concave with very long taper 7–10 mm long 2–>3 mm wide Stigmas 3	Mountains nw CO	
52. *Carex hystericina* CAHY4 bottlebrush sedge	< or = to basal leaves **Bunch or short rhizomes** **Bract 2–3 × >> inflorescence** sometimes sheathing >3 mm	2–10 mm Lower leaf sheaths filamentose	Lower separated 1–3 × length of spike Lower **dangling or drooping,** peduncle ½–1 × length of spike 30–100 pistillate flowers	**Long-awned** light in color	**Widely spreading** Tip concave with long taper 5–7½ mm long 1–2½ mm wide Beak with long teeth up to 1 mm long Stigmas 3	Foothills and along bases of mountains ne CO, e WY, s SD, w NE; s & w CO, nc WY, and w KS	
57. *Carex lacustris* CALA16 hairy sedge	>, =, or < basal leaves **Long rhizomes** Bract > inflorescence Base of plant purple-tinged	6–15 mm Lower leaf sheaths filamentose	Lower separated 1–3 × length of spike Lower peduncle 1–2 × length of spike 30–100 pistillate flowers	Acuminate to **awned** medium to light in color	Tip concave with short or long taper 5½–7 mm long 2–3 mm wide Beak with straight short teeth <½ mm long Stigmas 3	Plains & sand hills w & c NE	
101. *Carex retrorsa* CARE4 knotsheath sedge	< or = to basal leaves **Bunch or short rhizomes** **Bract 3–4 × >> inflorescence**	2–10 mm Lower leaf sheaths filamentose	Lower separated ¼–1 × length of spike Lower sessile or nearly so 50–150 pistillate flowers	Brown and green Acute to acuminate Not awned	**Widely spreading or reflexed** Tip concave with long taper 6½–10 mm long 2–3½ mm wide Stigmas 3	Foothills & montane zone nw & sw CO, Mountains of ne WY & w SD	
125. *Carex utriculata* CAUT beaked sedge	Bluntly triangular below spikes > or = to basal leaves **Short rhizomes or long rhizomes** spongy-inflated at bases Bract usually 1–1½ × >	4–12 mm	Lower separated ¼–3 × length of spike Lower sessile or nearly so 30–150 pistillate flowers	Acuminate to short-**awned** Light to medium in color	Tip concave with short taper 3½–8 mm long 2–3½ mm wide Beak with conspicuous teeth ½–1 mm long Stigmas 3	Foothills & Mountains up to the lower subalpine zone w CO, all WY, Black Hills ne WY & wc SD	
128. *Carex vesicaria* CAVE6 blister sedge	<or = to basal leaves **Bunch or short rhizomes or rarely long rhizomes** Bract 1–½ × > inflorescence	2–8 mm Lower leaf sheaths filamentose	Lower separated ½–3 × length of spike Lower sessile or nearly so 30–100 pistillate flowers	Long-acuminate Medium in color	Tip concave with long taper 3½–10 mm long 2½–3½ mm wide Beak with teeth ½–1 mm long Stigmas 3	Subalpine zone or montane zone in Mountains nc-wc CO, nw-nc WY, s & nw CO	

Table 8. Some mature leaves > 6 mm wide. Plants of dry to moist sites, water table always low. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*). Bract below inflorescence shorter than inflorescence

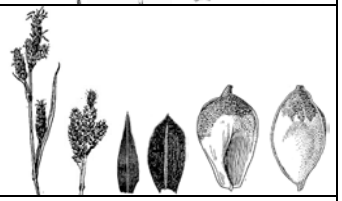
Name Code Common Name	Culms	Leaves	Spikes	Scale	Perigynium	In Rocky Mountain Region	
3. *Carex albo-nigra* CAAL6 blackhead sedge	Bunch or short rhizomes Bract < inflorescence sometimes with black or purple-black auricles	2–8 mm	Gynaecandrous / pistillate Upper and lower appear the same separated ¼–1 × length of spike sessile or short peduncle up to ½ × length of spike	Dark in color with conspicuous white-hyaline margins above **± covering perigynium**	Tip convex with curved shape 2½–3½ mm × 1½–2½ mm Stigmas 3	Dry to moist alpine tundra and openings in alpine willow thickets, alpine zone of CO, WY	
11. *Carex atrata* CAAT5 black sedge	Bunch Bract > or < inflorescence sometimes with black or purple-black auricles sometimes sheathing >3 mm	2–8 mm lower leaf sheaths sometimes filamentose	Gynaecandrous / pistillate Upper and lower appear the same separated ¼–5 × length of spike peduncle ½–1 × length of spike	Black with very narrow lighter margins and midrib covering or narrower or shorter than perigynium	Tip convex with curved or triangular shape 2½–5 mm × 1½–3 mm Stigmas 3	Subalpine meadows, alpine slopes, and edges of meadows, dry to moist, mountains of w CO and nw-nc WY	
16. *Carex bella* CABE3 beautiful sedge	Bunch or short rhizomes Bract about = to inflorescence sometimes with black or purple-black auricles long-sheathing >3 mm	2–8 mm	All gynaecandrous Nodding at maturity Upper and lower appear the same separated 1–3 × length of spike long peduncle 1–2 × length of spike	Dark purplish brown or purplish black, with conspicuous white-hyaline margins, spikes usually **conspicuously bicolored** narrower and shorter than perigynium	Tip convex with curved or triangular shape 3–4½ mm × 1½–2½ mm Stigmas 3	Moist aspen stands, moist open slopes, montane zone or lower subalpine zone, mountains of c & s CO, Black Hills of SD	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < inflorescence rarely sheathing	2–14 mm lower leaf sheaths sometimes filamentose	Staminate or androgynous / pistillate Upper and lower appear the same, lowest widely separated 1–5 × length of spike short peduncle ½–1 × length of spike	Medium to dark purplish-brown to purplish-black shorter than perigynium, sometimes also slightly narrower	**Tip concave** with long taper 3–5½ mm × 1–1½ mm Stigmas 3	Wet to moist areas in the mountains of nw WY	
100. *Carex raynoldsii* CARA6 Raynolds sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm	Staminate / pistillate Upper and lower appear **different**, lowest separated 1–3 × length of spike peduncle ½–1 × length of spike	Black with a narrow lighter midrib narrower and shorter than perigynium	Tip convex with curved or triangular shape 3–5 mm × 1½–2½ mm Stigmas 3	Moist to dry mountain meadows and slopes, subalpine zone and montane zone, nw-nc CO, se-nw-nc WY	
110. *Carex scopulorum* CASC12 cliff sedge	Short rhizomes or **long rhizomes** Bract < inflorescence sometimes with black or purple-black auricles	1–8 mm lower leaf sheaths sometimes filamentose	Gynaecandrous staminate or androgynous / pistillate Upper and lower appear **different**, lowest shortly separated ¼–3 × length of spike short peduncle ¼–1 × length of spike	Dark purple-black in color, spikes appearing very dark narrower and shorter than perigynium	Tip convex with curved or triangular shape 2–4 mm × 1–2½ mm Stigmas 2	Wet basins, moist protected tundra, alpine zone and upper subalpine zone, high mountains of w CO, se-nw WY	
112. *Carex spectabilis* CASP5 showy sedge	Bunch or short rhizomes or mat-forming Bract > or < inflorescence sometimes with black or purple-black auricles	2–6 mm	2–10 Staminate / pistillate Upper & lower appear **different** separated 1–3 × spike length on a short peduncle ½–1 × spike length	**Short-awned** medium to dark color with lighter margins & midrib perigynium light color narrower & shorter than perigynium	Tip convex with curved or triangular shape 3½–5 mm × 1½–2½ mm Not winged Stigmas 3	Dry to moist mountains, c-nc CO and nw WY Subalpine zone or Montane zone, mountains Habitat dry to moist.	
122. *Carex tolmiei* CATO14 Tolmie sedge	Short rhizomes or **long rhizomes** Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm lower leaf sheaths filamentose	Staminate or androgynous / pistillate Upper and lower appear **different**, lowest separated 1–3 × length of spike short peduncle ½–1 × length of spike	Dark reddish-brown **covering perigynium**, or slightly narrower and shorter	Tip convex with triangular shape 3–4 mm × 2–2½ mm Stigmas 3	Dry to moist sites, alpine zone or subalpine zone in mountains, nw WY, n CO, se WY	

Table 9. Some mature leaves > 6 mm wide. Plants of dry to moist sites, water table always low. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*). Bract below inflorescence longer than inflorescence

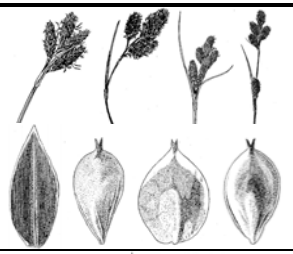
Names	Culms	Leaves	Spikes	Scale	Perigynium	In Rocky Mountain Region	
11. *Carex atrata* CAAT5 black sedge	> or = to basal leaves Bunch Bract > or < infl. sometimes with black or purple-black auricles sometimes sheathing	2–8 mm lower leaf sheaths sometimes filamentose	Gynaecandrous / pistillate Upper and lower appear **the same** Lower separated ¼–5 × length of spike peduncle ½–1 × length of spike **30–100 pistillate flowers**	Black with very narrow lighter margins and midrib	Tip convex with curved or triangular shape 2½–5 mm × 1½–3 mm Stigmas 3	Subalpine meadows, alpine slopes, edges of meadows, dry to moist, mountains w CO, nw & se -nc WY	
16. *Carex bella* CABE3 beautiful sedge	> basal leaves Bunch or short rhizomes Bract about = to infl. sometimes with black or purple-black auricles long-sheathing	2–8 mm	All gynaecandrous Nodding at maturity Upper and lower appear **the same** Lower separated 1–3 × length of spike long peduncle 1–2 × length of spike 10–30 pistillate flowers	Dark purplish brown or purplish black, with conspicuous white-hyaline margins, spikes usually **conspicuously bicolored**	Tip convex with curved or triangular shape 3–4½ mm × 1½–2½ mm Stigmas 3	Moist aspen stands, moist open slopes, montane zone or lower subalpine zone mountains of c & s CO, s Black Hills of SD	
42. *Carex exsiccata* CAEX5 western inflated sedge	> or = to basal leaves Bunch or short rhizomes Bract > infl. 1–1¾ × infl.	2–8 mm lower leaf sheaths filamentose	Staminate / pistillate Upper and lower appear different Lower separated ¼–1 × length of spike sessile or nearly so 20–50 pistillate flowers	**Light to medium** in color	**Tip concave** with very long taper ascending in spike 7–10 mm × 2–>3 mm Stigmas 3	Wet sites, mountains of nw CO	
100. *Carex raynoldsii* CARA6 Raynolds sedge	> or = to basal leaves Bunch or short rhizomes Bract > or < infl. sometimes with black or purple-black auricles	2–8 mm	Staminate / pistillate Upper and lower appear different Lower separated 1–3 × length of spike peduncle ½–1 × length of spike 10–50 pistillate flowers	Black with a narrow lighter midrib	Tip convex with curved or triangular shape 3–5 mm × 1½–2½ mm Stigmas 3	Moist to dry mountain meadows and slopes, subalpine zone and montane zone, nw-nc CO, se-nw-nc WY	
112. *Carex spectabilis* CASP5 showy sedge	Bunch or short rhizomes or mat-forming Bract > or < inflorescence sometimes with black or purple-black auricles	2–6 mm	2–10 Staminate / pistillate Upper & lower appear **different** separated 1–3 × spike length on a short peduncle ½–1 × spike length	**Short-awned** medium to dark color with lighter margins & midrib perigynium light color narrower & shorter than perigynium	Tip convex with curved or triangular shape 3½–5 mm × 1½–2½ mm Not winged Stigmas 3	Dry to moist mountains, c-nc CO and nw WY Subalpine zone or Montane zone, mountains Habitat dry to moist.	
122. *Carex tolmiei* CATO14 Tolmie sedge	> basal leaves Short rhizomes or **long rhizomes** Bract > or < infl. sometimes with black or purple-black auricles	2–8 mm lower leaf sheaths filamentose	2–10 Staminate or androgynous / pistillate Upper and lower appear different Lower separated 1–3 × length of spike short peduncle ½–1 × length of spike 10–50 pistillate flowers	Dark reddish-brown	Tip convex with triangular shape 3–4 mm × 2–2½ mm Stigmas 3	Dry to moist sites in alpine zone or subalpine zone in mountains, nw WY, n CO, se WY	

Table 10. Some mature leaves > 6 mm wide. Plants of dry to moist sites, water table always low. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Bract shorter than inflorescence

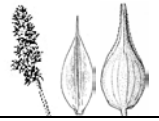
Names	Culms	Leaf width	Spikes	Scale	Perigynium length × width	In Rky. Mtn. Region	
4. *Carex alopecoidea* CAAL8 foxtail sedge	**Flattened & winged** Bunch Bract < infl.	2–10 mm	5–10, **All androgynous** Upper & lower appear the same Lower closely adjacent to next spike sessile or nearly so 10–30 pistillate flowers	Short-awned light color medium color narrower than perigynium	3–4½ mm × 2–3 mm Beak narrowly **winged** Body not winged Stigmas 2	moist or wet meadows, wooded areas & swamps, Black Hills, WY, SD	
16. *Carex bella* CABE3 beautiful sedge	Bunch or short rhizomes Bract ±= infl. sometimes with blackish auricles long-sheathing	2–8 mm	**2–5,** All gynaecandrous, **nodding** Upper & lower appear the same Lowest separated 1–3 × length of spike on a long peduncle 1–2 × length of spike	**Dark** purplish brown or purplish black **Conspicuously bicolored** narrower & shorter than perigynium	3–4½ mm × 1½–2½ mm Not winged beak abrupt, minute to short Stigmas 3	Moist aspen stands, open slopes, montane or lower subalpine zone, mountains, c & s CO, Black Hills, SD	
18. *Carex blanda* CABL eastern woodland sedge	Bunch Bract > or < infl. sometimes sheathing	3–15 mm	2–10, Staminate or androgynous / pistillate Upper & lower appear **different** Lowest widely separated >5 × length of spike on a long peduncle >2 × length of spike	**Light greenish-white** with a darker midrib **fiddle shaped Awned** narrower & shorter than perigynium	**Beak bent & recurved** 3–4½ mm × 1–2 mm Not winged Stigmas 3	Wooded banks & slopes, dry to moist sites, Black Hills & its foothills, ne WY & w SD, & on foothills & plains in sw SD, nw NE	
29. *Carex cristatella* CACR7 crested sedge	**Winged** Bunch or short rhizomes Bract < infl.	2–10 mm	**5–20,** All gynaecandrous Upper & lower appear the same Lowest ± separated ¼–3 × length of spike sessile or nearly so	Acuminate or short-awned **light to medium** in color narrower & shorter than perigynium	3–4½ mm × 1–2 mm **Winged** to apex **Jointed at junction of body & beak, beaks spreading in the spike** Stigmas 2	Foothills & plains in moist or wet meadows, woods, swamps, sand dunes, w SD, c NE	
48. *Carex gravida* CAGR4 heavy sedge	Bunch Bract none or < infl.	2–8 mm firm or stiff	**5–20** All androgynous Upper & lower appear the same Lowest shortly separated ¼–1 × length of spike sessile or nearly so	Acuminate to awn-tipped **medium to light** in color narrower & shorter than perigynium	3–6 mm × 2–3½ mm Not winged **Spongy at base** Stigmas 2	Ditches, edges of sloughs, open woods, usually moist sites, foothills & plains, ne WY, ne-se CO, w SD, nw & c NE, w KS	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < infl. rarely sheathing	2–14 mm lower leaf sheaths sometimes filamentose	**2–5** Staminate or androgynous / pistillate Upper & lower appear the same Lowest widely separated 1–5 × length of spike on a short peduncle ½–1 × length of spike	Medium to dark purplish-brown to purplish-black shorter than perigynium sometimes also slightly narrower	3–5½ mm × 1–1½ mm Not winged Stigmas 3	Wet to moist areas, mountains of nw WY	
70. *Carex meadii* CAME2 Mead's sedge	**Long rhizomes** Bract < or =ling infl. long-sheathing	2–8 mm lower leaf sheaths filamentose	**2–5** Staminate / pistillate Upper & lower appear **different** Lowest widely-separated long-pedunculate nearly basal	**Awned** narrowly hyaline-margined dark purple-brown to medium brown **as wide as perigynium &** shorter than it	2½–4½ mm × 1–2½ mm Not winged Stigmas 3	Foothills & plains, dry to moist, SD, NE	
80. *Carex normalis* CANO greater straw sedge	Bunch or short rhizomes Bract none or < infl.	2–8 mm Leaf sheaths green-and-white mottled	2–20 All gynaecandrous Upper & lower appear the same Lowest shortly separated ¼–3 × length of spike sessile or nearly so	Medium in color shorter & narrower than perigynium	3–4½ mm × 1½–2½ mm **Broadly winged to base Beak flat & serrulate to the tip** Stigmas 2	Dry to moist woodlands, Foothills & plains, prairies & ditches, Black Hills in SD (not in western U.S.)	
100. *Carex raynoldsii* CARA6 Raynolds sedge	Bunch or short rhizomes Bract > or < infl. sometimes with black or purple-black auricles	2–8 mm	**2–5** Staminate / pistillate Upper & lower appear **different** Lowest separated 1–3 × length of spike on a peduncle ½–1 × length of spike	Black with a narrow lighter midrib narrower & shorter than perigynium	Tip convex curved or triangular shape 3–5 mm × 1½–2½ mm Not winged Stigmas 3	Moist to dry mountain meadows & slopes, subalpine zone & montane zone, nw-nc CO, se-nw-nc WY	

Table 11. Some mature leaves > 6 mm wide. Plants of dry to moist sites, water table always low. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons.
Bract below inflorescence longer than inflorescence

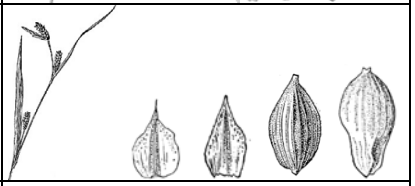
Name, Code Common Name	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
5. *Carex amphibola* CAAM8 eastern narrowleaf sedge	Bract > inflorescence long-sheathing	1–10 mm	2–5, Staminate / pistillate Upper & lower appear different Lowest separated 1–3 × length of spike peduncle ½–2 × length of spike **1–10 pistillate flowers**	**Awned** light yellow-green	3½–5½ mm × 1½–2½ mm Not winged Stigmas 3	Wooded areas, dry to moist, foothills & plains, nw NE	
16. *Carex bella* CABE3 beautiful sedge	Bract about = to inflorescence sometimes with black or purple-black auricles long-sheathing	2–8 mm	2–5, **All gynaecandrous** **Nodding** at maturity Upper & lower appear **the same** Lowest separated 1–3 × length of spike long peduncle 1–2 × length of spike 10–30 pistillate flowers	**Dark purplish brown or purplish black,** with conspicuous white-hyaline margins Spikes usually **conspicuously bicolored**	3–4½ mm × 1½–2½ mm Not winged Stigmas 3	Moist aspen stands, moist open slopes, montane zone or lower subalpine zone, mountains of c & s CO, s Black Hills of SD	
18. *Carex blanda* CABL eastern woodland sedge	Bract > or < inflorescence sometimes sheathing	3–15 mm	2–10 Staminate or androgynous / pistillate Upper & lower appear different Lowest widely separated >5 × length of spike long peduncle >2 × length of spike 1–30 pistillate flowers	**Awned** Light greenish-white **Fiddle shaped** white-hyaline with a darker midrib	**Beak bent, recurved** 3–4½ mm × 1–2 mm Not winged Stigmas 3	Wooded banks & slopes, dry to moist sites, Black Hills & its foothills, ne WY & w SD, sw SD, nw NE	
29. *Carex cristatella* CACR7 crested sedge	**Winged** Bract < inflorescence	2–10 mm	5–20, **All gynaecandrous** Upper & lower appear **the same** Lowest ± separated ¼–3 × length of spike sessile or nearly so 30–50 pistillate flowers	Acuminate or short-awned light to medium in color	3–4½ mm × 1–2 mm **Winged to apex** **Jointed at junction of body & beak, the beaks spreading** Stigmas 2	Foothills & plains in moist or wet meadows, woods, swamps, & sand dunes, w SD, c NE	
42. *Carex exsiccata* CAEX5 western inflated sedge	Bract 1–1¾ × > inflorescence	2–8 mm lower leaf sheaths filamentose	2–10 Staminate / pistillate Upper & lower appear different Lowest separated ¼–1 × length of spike sessile or nearly so 20–50 pistillate flowers	Light to medium in color	7–10 mm × 2–>3 mm Not winged Stigmas 3	Wet sites, mountains of nw CO	
47. *Carex granularis* CAGR3 limestone meadow sedge	Bract > inflorescence long-sheathing red-dotted	3–12 mm **Often glaucous**	2–10, Staminate / pistillate Upper & lower appear different Lowest widely separated (sometimes nearly basal) 3–5 × length of spike 10–50 pistillate flowers	Acuminate to **short-awned** White-hyaline with a narrow darker midrib	2–4 mm × 1–2½ mm Not winged Stigmas 3	Moist to wet sites in bogs, swamps, along ditches, river-bottom woods, foothills, plains, & lower montane zone, northern Black Hills, e WY & w SD, nw-nc NE	
100. *Carex raynoldsii* CARA6 Raynolds sedge	Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm	2–5 Staminate / pistillate Upper & lower appear different Lowest separated 1–3 × length of spike peduncle ½–1 × length of spike 10–50 pistillate flowers	**Black** with a narrow lighter midrib	3–5 mm × 1½–2½ mm Not winged Stigmas 3	Moist to dry mountain meadows & slopes, subalpine zone & montane zone, nw-nc CO, se-nw-nc WY	

Table 12. Some mature leaves < 1 mm wide. Wetland plants, in areas near open water or with a high water table at some season. Long rhizomes present

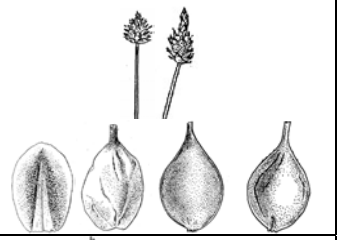
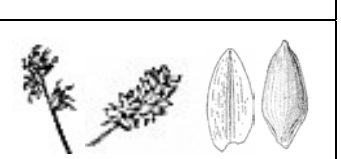
Name, Code Common Name	Culms	Leaf width	Spikes	Scale	Perigynium length × width	In Rocky Mountain Region	
24. *Carex capitata* CACA13 capitate sedge	Short rhizomes or long rhizomes Bract none or < inflorescence	½–2 mm	**Spike solitary** shiny brown or black short & broad globose or triangular androgynous 1–20 pistillate flowers	Medium to **dark** in color covering or narrower or shorter than perigynium	1½–4 mm × 1–2½ mm Not winged Stigmas 2	Alpine wetlands, mountains of c-sw CO, nw WY	
33. *Carex dioica* CADI northern bog sedge	Long rhizomes Bract none or < inflorescence	½–1 mm	**Spike solitary** staminate or pistillate or androgynous **Plants may be dioecious** 1–20 pistillate flowers	Medium in color shorter than perigynium	2½–4½ mm × 1½–2 mm Not winged Stigmas 2	Wet meadows or swamps, subalpine zone, high mountains of c CO, se-nw WY	
34. *Carex disperma* CADI6 soft leaved sedge	**Very slender & weak** Bunch or short rhizomes or long rhizomes Bract none or < inflorescence	½–4 mm	2–5 All androgynous Upper & lower appear the same lowest spike separated 3–5 × length of spike sessile or nearly so 1–10 pistillate flowers	Light to medium in color narrower & shorter than perigynium	2–3½ mm × 1–2 mm Not winged spongy at base Stigmas 2	Moist to wet, shaded forests & stream banks, montane zone, lower subalpine zone, mountains of CO, WY, Black Hills of WY & SD	
64. *Carex limosa* CALI7 mud sedge	Long, slender rhizomes **Bract >** or < inflorescence sometimes with black or purple-black auricles	½–4 mm	2–5 Staminate / pistillate Upper & lower appear **different** Lowest spike >13 mm long, reflexed & hanging separated 1–3 × length of spike on a peduncle ½–1 × length of spike 1–30 pistillate flowers	Medium to **dark** in color as long & wide as perigynium covering perigynium **Persistent**	Tip convex with triangular shape 2½–4½ mm × 1½–2½ mm Not winged Stigmas 3	Wet meadows, fens, limy fens, marshes, often rooted in mosses, subalpine zone in w CO, nw-nc WY	
71. *Carex microglochin* CAMI6 microglochin sedge	Short rhizomes or long rhizomes Bract none or < inflorescence	½–1 mm channeled or involute	**Spike solitary** androgynous 1–20 pistillate flowers	Light to medium in color shorter than perigynium **Deciduous**	**Reflexed** 3–5½ mm × ½–1 mm Not winged spongy at base **Hooked rachilla protruding from beak** Stigmas 3	Wet, subalpine willow stands, c & sw CO, nw WY, often rooted in mosses	
111. *Carex simulata* CASI2 short-beaked sedge	Long rhizomes Bract none or < inflorescence	½–4 mm	5–20 All androgynous; or all staminate or pistillate & **plants dioecious** Upper & lower appear the same lowest spike shortly separated ¼–1 × length of spike sessile or nearly so 1–20 pistillate flowers	Medium to dark brown covering perigynium	Tip concave with short taper 1½–3 mm × 1–2 mm **Narrowly winged at junction of beak & body** Sometimes spongy at base Stigmas 2	Wet meadows & swamps, foothills, montane zone & subalpine zone, mountains, c-nc CO, se-c-sw-nw-nc WY	
120. *Carex tenuiflora* CATE5 sparseflower sedge	**Very thin & weak** Short rhizomes or long rhizomes Bract none or < inflorescence	½–2 mm	2–5 All gynaecandrous Upper & lower appear the same lowest spike ± separated 1–5 × length of spike sessile or nearly so 1–10 pistillate flowers	Light in color hyaline with a narrow green midrib covering or shorter than perigynium	Tip convex with triangular shape 2–3½ mm × ½–2 mm Not winged Stigmas 2	Very wet "quaking fen" in the lower subalpine zone in c CO	

Table 13. Some mature leaves < 1 mm wide. Wetland plants, in areas near open water or with a high water table at some season. No long rhizomes present, bunch sedges or mat-forming

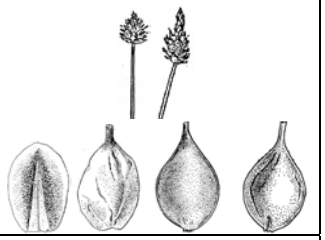
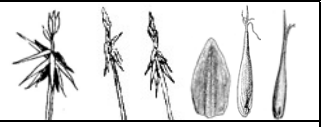
Names	Culms	Leaf width	Spikes	Scale	Perigynium length × width	In Rocky Mountain Region	
23. *Carex capillaris* CACA12 hair sedge	**Weak & hanging** Bunch or short rhizomes Bract > or < inflorescence bract long-sheathing	½–4 mm lower leaf sheaths sometimes filamentose	2–5 Staminate / pistillate Upper & lower appear **different** lowest separated 1–5 × length on a long peduncle >2 × length 1–20 pistillate flowers	Light in color shorter than perigynium	2–4½ mm × ½–1½ mm Stigmas 3	Wet, shaded sites on stream banks & willow stands, subalpine zone & upper montane zone, nc-sw CO, nw WY, Black Hills of SD	
24. *Carex capitata* CACA13 capitate sedge	Erect Short rhizomes or long rhizomes Bract none or scale-like	½–2 mm	**Spike solitary** short & broad globose or triangular androgynous 1–20 pistillate flowers	medium to **dark** in color **covering** or narrower or shorter than perigynium	1½–4 mm × 1–2½ mm Stigmas 2	**Alpine** wetlands, high mountains of c-sw CO, nw WY	
34. *Carex disperma* CADI6 soft leaved sedge	**Very slender & weak** Bunch or short rhizomes or long rhizomes Bract various or none always < inflorescence	½–4 mm	2–5 All androgynous Upper & lower appear the same lowest separated 3–5 × length sessile or nearly so 1–10 pistillate flowers	Light to medium in color narrower & shorter than perigynium	2–3½ mm × 1–2 mm spongy at base Stigmas 2	Moist to wet, shaded forests & stream banks, montane zone & lower subalpine zone, mountains of CO, WY, & the Black Hills of WY & SD	
54. *Carex interior* CAIN11 inland sedge	Bunch or short rhizomes Bract none or scale-like	½–4 mm	2–10, Gynaecandrous or staminate / pistillate Upper & lower appear the same lowest separated 1–3 × length usually sessile or short peduncle up to ½ × length 1–10 pistillate flowers	Medium to light in color narrower & shorter than perigynium	**Spreading** 1½–3½ mm × 1–2 mm Serrulate Stigmas 2	Wet to moist sites of meadows & forests, mountains & foothills, w CO, nw WY, Black Hills of ne WY & w SD, nw-nc NE	
63. *Carex leptalea* CALE10 bristlystalked sedge	Thin, erect or **nodding or flexuous** Bunch Bract none or scale-like	½–2 mm	**Spike solitary, very narrow** androgynous **3–10 pistillate flowers**	Light in color narrower & shorter than perigynium	2½–5 mm × ½–1½ mm spongy at base Stigmas 3	Wet or moist, shaded fens, canyon forests, & willow stands in subalpine, montane, & foothills zones in c CO, nw WY, & the Black Hills in SD	
71. *Carex microglochin* CAMI6 microglochin sedge	Short rhizomes or long rhizomes Bract none or scale-like	½–1 mm channeled or involute	**Spike solitary** androgynous 1–20 pistillate flowers	Light to medium in color shorter than perigynium deciduous (falling off early)	**Reflexed at maturity** 3–5½ mm × ½–1 mm **Hooked rachilla protruding from beak** Stigmas 3	Wet, subalpine willow stands, c & sw CO, nw WY, often rooted in mosses	
120. *Carex tenuiflora* CATE5 sparseflower sedge	**Very thin & weak** Short rhizomes or long rhizomes Bract none or scale-like	½–2 mm	2–5 All gynaecandrous Upper & lower appear the same lowest ± separated 1–5 × length sessile or nearly so 1–10 pistillate flowers	Light in color blunt to subacute **covering** or shorter than perigynium	2–3½ mm × ½–2 mm Stigmas 2	Very wet "quaking fen" in the lower subalpine zone in c CO	

Table 14. Some mature leaves < 1 mm wide. Plants of dry to moist sites, water table always low. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*). Long rhizomes present

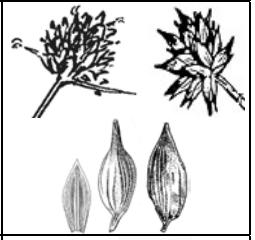
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
34. *Carex disperma* CADI6 soft leaved sedge	**Very slender & weak** Bunch or short rhizomes or long rhizomes Bract < inflorescence	½–4 mm	2–5, All androgynous Upper & lower appear the same **Lowest spike separated** 3–5 × length of spike Sessile or nearly so 1–10 pistillate flowers	Light to medium in color Narrower & shorter than perigynium	2–3½ mm × 1–2 mm Not winged Stigmas 2	Moist to wet, **shaded forests & stream banks**, montane zone & lower subalpine zone, mountains of CO, WY, Black Hills of WY & SD	
41. *Carex engelmannii* CAEN3 Engelmann's sedge	Long rhizomes Bract none or scale-like	¼–1 mm	**Spike solitary** Androgynous 20–50 pistillate flowers	Light to medium in color **Covering** or shorter than perigynium	3½–7 mm × 1½–2½ mm Not winged but very thin Stigmas 3	Dry to moist **Alpine** tundra in n & c CO, nw WY	
69. *Carex maritima* CAMA14 curved sedge	Usually long rhizomes Bract none or scale-like	½–4 mm	2–5, **in dense ball-like cluster** All Androgynous Upper & lower appear the same **Very close** to next spike Sessile or nearly so 1–20 pistillate flowers	Medium in color Narrower & shorter than perigynium	3–4½ mm × 1–2 mm Not winged Stigmas 2	Moist frost scars, late snowbank areas, **Alpine** zone, high subalpine zone, c CO, nw WY	
83. *Carex obtusata* CAOB4 blunt sedge	Long rhizomes Bract none or scale-like	½–2 mm **folded v-shaped**	**Spike solitary** Androgynous 1–10 pistillate flowers	light to medium in color shorter than perigynium & about the same width	3–5 mm × 1½–2½ mm Not winged Stigmas 3	Dry, open slopes, full sun or slight shade, subalpine zone or upper montane zone, mountains, c & w CO, nw & nc WY, Black Hills of NE WY & w SD	

Table 15. Some mature leaves < 1 mm wide. Plants of dry to moist sites, water table always low. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*). No long rhizomes present, bunch sedges or mat-forming. Spike solitary

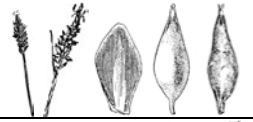
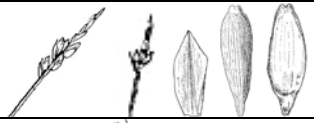
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
27. *Carex crandallii* CACR17 Pyrenees sedge	Bunch Bract none or scale-like	½–2 mm **Channeled or involute**	Spike solitary Androgynous 10–30 pistillate flowers	**Dark** to medium color with narrow lighter borders & midrib **Covering perigynium body &** shorter	Tip concave with long or very long taper 3–4½ mm × ½–1½ mm Not winged Stigmas 3	Moist rocky snowmelt slopes, alpine zone & high subalpine zone, mountains of w CO, w WY	
39. *Carex elynoides* CAEL3 Kobresia-like sedge	Bunch to mat-forming Bract none or scale-like	½–1 mm	Spike solitary androgynous 1–10 pistillate flowers	Medium in color **Covering perigynium**	Tip convex, triangular shape 2½–4½ mm × 1–2 mm Not winged **Slightly puberulent at base of beak** Stigmas 3	Forming dry to moist turf, alpine zone of w CO, WY	
50. *Carex hepburnii* CAHE16 Hepburn's sedge	Bunch Bract none or < inflorescence sometimes with black or purple-black auricles	½–1 mm	Spike solitary gynaecandrous or androgynous 1–20 pistillate flowers	Light to medium to dark in color Narrower & shorter than perigynium	Tip concave with short taper on a short stipe **4–6½ mm ×** 1½–3 mm Not winged Stigmas 2	High, rocky ridges on dry sites, Alpine zone, w CO, se & nw WY	
63. *Carex leptalea* CALE10 bristlystalked sedge	Bunch Bract none or scale-like	½–2 mm	Spike solitary androgynous **Very narrow** 3–10 pistillate flowers	Light in color Narrower & shorter than perigynium	**On a short stipe** Tip convex with triangular shape 2½–5 mm × ½–1½ mm Not winged Stigmas 3	Wet or moist, shaded fens, canyon forests, & willow stands in subalpine, montane, & foothills zones in c CO, nw WY, Black Hills in SD	
117. *Carex subnigricans* CASU7 nearlyblack sedge	Bunch or short rhizomes Bract none or scale-like	½–1½ mm	Spike solitary androgynous 10–50 pistillate flowers	Light to medium in color **Covering perigynium**	**On a short stipe** Tip concave with long taper 2½–4 mm × 1–1½ mm Not winged Stigmas 3	Moist meadows & moist rocky slopes, Alpine zone or subalpine zone, mountains of nw WY	

Table 16. Some mature leaves < 1 mm wide. Plants of dry to moist sites, water table always low. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*). No long rhizomes present, bunch sedges or mat-forming. Spikes more than one to a culm

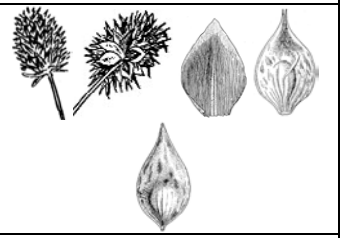
Names	Culms	Leaf width	Spikes	Scale	Perigynium length × width	In Rocky Mountain Region	
6. *Carex angustior* CAAN23 prickley sedge	> or = to basal leaves Bunch	½–4 mm	Gynaecandrous / pistillate Upper & lower appear the same Lower separated 1–3 × spike length, sessile or nearly so 1–20 pistillate flowers	Light in color narrower & shorter than perigynium	**Spreading** 2–5 mm × ½–2 mm Body not winged Tip deeply bidentate Stigmas 2	Moist meadows of the subalpine zone & montane zone, mountains, CO, nw WY	
20. *Carex brunnescens* CABR15 brownish sedge	> basal leaves Bunch	½–6 mm	All gynaecandrous Upper & lower appear the same Lower separated 1–5 × spike length, sessile or nearly so 5–10 pistillate flowers	white-hyaline with a thin green midrib usually light colored shorter than perigynium	1½–3 mm × 1–1½ mm Not winged Stigmas 2	Shaded sites, moist or dry, mountains, CO, nc-nw WY	
34. *Carex disperma* CADI6 soft leaved sedge	**Slender & weak < than**, = to, or > **basal leaves** Bunch, short or long rhizomes	½–4 mm	All androgynous Upper & lower appear the same lowest spike separated 3–5 × spike length, sessile or nearly so 1–10 pistillate flowers	Light to medium in color narrower & shorter than perigynium	2–3½ mm × 1–2 mm Not winged Stigmas 2	Moist to wet, shaded forests & stream banks, montane zone & lower subalpine zone, mountains, CO, WY, Black Hills of WY & SD	
54. *Carex interior* CAIN11 inland sedge	> basal leaves Bunch or short rhizomes	½–4 mm	Gynaecandrous or staminate / pistillate Upper & lower appear the same lowest spike separated 1–3 × spike length, usually sessile or short peduncle up to ½ × spike length; 1–10 pistillate flowers	Medium to light in color narrower & shorter than perigynium	Spreading in the spike 1½–3½ mm × 1–2 mm Not winged Stigmas 2	Wet to moist sites of meadows & forests, in mountains & foothills in w ⅔ CO, nw WY, Black Hills of ne WY & w SD, nw-nc NE	
62. *Carex leporinella* CALE9 Siberian hare sedge	> or = to basal leaves Bunch Bract sometimes with black or purple-black auricles	½–2 mm	All gynaecandrous or Staminate / gynaecandrous Upper & lower appear the same lowest spike shortly separated ¼–1 × spike length, sessile or nearly so 10–30 pistillate flowers	Medium to **dark** reddish-brown slightly narrower & shorter than perigynium mostly concealing perigynium	Tip convex with triangular shape 1½–3½ mm × 1–2 mm Not winged Stigmas 2	Dry to moist montane to subalpine slopes & meadows, mountains of nw WY	
91. *Carex perglobosa* CAPE12 Mt. Baldy sedge	> or = to basal leaves Bunch or short rhizomes	½–4 mm **often curled & drying at tips**	**Tight ± globose head** All androgynous Upper & lower appear the same Lower spike very close to next spike, sessile or nearly so 20–50 pistillate flowers	Light to medium in color covering perigynium	Tip convex, triangular shape or concave, short taper 4–5 mm × 2–3 mm Not winged Stigmas 2	Dry to moist scree slopes, alpine zone & upper subalpine zone, high mountains, c & sw CO	
93. *Carex phaeocephala* CAPH2 dunhead sedge	1–3 dm tall > or = to basal leaves erect Bunch	½–4 mm	All gynaecandrous Upper & lower appear the same lowest spike shortly separated ¼–1 × spike length sessile or nearly so 10–30 pistillate flowers	Medium to dark in color covering perigynium or nearly so	Tip concave with long taper 4–5½ mm × 1–2½ mm N**arrowly winged** Stigmas 2	Dry to moist rocks, meadows, & open forests in the alpine zone & upper subalpine zone, mountains, w CO, se-w-nc WY	
104. *Carex rossii* CARO5 Ross sedge	**< basal leaves Long-pedunculate carpellate spikes at the plant base** Bunch or mat	½–4 mm lower leaf sheaths sometimes filamentose ventrally	Staminate lowest spike pistillate Upper & lower appear **different Lowest spike basal & long-peduncled** 3–20 pistillate flowers	Light to medium in color shorter than perigynium & about as wide	Tip convex, triangular shape 2–4½ mm × 1–2½ mm Not winged **Short-pubescent or puberulent** Stigmas 3	Dry pine forests from foothills to lower subalpine zone, mountains of CO, w WY, & the Black Hills of ne WY & w SD	

Table 17. Some mature leaves < 1 mm wide. Plants of dry to moist sites, water table always low. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Long rhizomes present

Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
34. *Carex disperma* CADI6 soft leaved sedge	**Very slender & weak** Bunch or short rhizomes or long rhizomes Bract < inflorescence	½–4 mm	2–5 All androgynous Upper & lower appear the same lowest spike separated 3–5 × spike length sessile or nearly so 1–10 pistillate flowers	Light to medium in color narrower & shorter than perigynium	2–3½ mm × 1–2 mm Not winged Stigmas 2	Moist to wet, shaded forests & stream banks, montane zone & lower subalpine zone, mountains of CO, WY, & the Black Hills of WY & SD	
37. *Carex eburnea* CAEB2 bristleleaf sedge	**Long rhizomes between the bunches** Bract with no blade but long-sheathing	¼–1 mm	2–5, Staminate / pistillate Upper & lower appear **different** lowest spike separated 3–>5 × spike length on a long peduncle >2 × spike length 2–20 pistillate flowers	light in color shorter than perigynium	2–3 mm × 1–2 mm Not winged Stigmas 3	Wooded or partially shaded, dry, rocky or sandy foothills & plains & lower montane zone of the Black Hills of WY & SD, in sw SD, & nw NE	
83. *Carex obtusata* CAOB4 blunt sedge	Long rhizomes Bract none or scale-like	½–2 mm **folded, v-shaped**	**Spike solitary** Androgynous few-flowered 1–10 pistillate flowers	light to medium in color shorter than perigynium & about the same width	3–5 mm × 1½–2½ mm Not winged Stigmas 3	Dry, open slopes, in full sun or slight shade, subalpine zone or upper montane zone, mountains, c & w CO, nw & nc WY, & the Black Hills of ne WY & w SD	
114. *Carex stenophylla* CAST40 needleleaf sedge	Long rhizomes Bract none or scale-like	½–4 mm **involute**	2–10 All androgynous; or all staminate or pistillate & plants **dioecious** Upper & lower appear the same very close to next spike sessile or nearly so 1–10 pistillate flowers	Chestnut to light brown covering perigynium	2–3½ mm × 1½–2½ mm not winged Stigmas 2	Open dry slopes, hills, & dry prairies in foothills, plains, & montane zone in mountains throughout the region; except far western CO, se CO, & sw KS	

Table 18. Some mature leaves < 1 mm wide. Plants of dry to moist sites, water table always low. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. No long rhizomes present, bunch sedges or mat-forming. Bract below inflorescence longer than or equal to the inflorescence

Names	Culms	Leaf width	Spikes	Scale	Perigynium length × width	In Rocky Mountain Region	
45. *Carex geophila* CAGE dryland sedge	**Long-pedunculate carpellate spikes at the plant base** Bunch or mat-forming Bract leaf-like and > or < inflorescence Sometimes sheathing	½–4 mm lower leaf sheaths filamentose	1–5, Androgynous or staminate / pistillate Upper and lower appear **different** **Lowest basal & long-peduncled** 1–3 pistillate flowers	Light to medium in color shorter than perigynium	3–5 mm × 1½–2 mm Not serrulate Not winged **Pubescent** Stigmas 3	Dry sites under shrubs and in partial shade of conifers, foothills and lower montane zone, wc CO, se & n CO	
62. *Carex leporinella* CALE9 Siberian hare sedge	Bunch Bract > or < inflorescence sometimes with black or purple-black auricles	½–2 mm	2–10, All gynaecandrous or Staminate / gynaecandrous Upper and lower appear the same lowest spike shortly separated ¼–1 × spike length sessile or nearly so 10–30 pistillate flowers	Medium to **dark** reddish-brown slightly narrower and shorter than perigynium, mostly concealing perigynium	1½–3½ mm × 1–2 mm Not winged Stigmas 2	Dry to moist montane to subalpine slopes and meadows, mountains of nw WY	
104. *Carex rossii* CARO5 Ross sedge	**Long-pedunculate carpellate spikes at the plant base** Bunch or mat-forming	½–4 mm lower leaf sheaths sometimes filamentose ventrally	2–10, Staminate / pistillate **Lowest spike basal & long-peduncled & and widely separated** Upper and lower appear **different** 3–20 pistillate flowers	Obtuse, cuspidate, or awned light to medium in color shorter than perigynium and about as wide	2–4½ mm × 1–2½ mm Not winged **Short-pubescent or puberulent** Stigmas 3	Dry pine forests from foothills to lower subalpine zone, mountains of CO, w WY, and the Black Hills of ne WY & w SD	
118. *Carex sychnocephala* CASY manyhead sedge	Bunch **Bract 2–3 × > inflorescence**	½–4 mm mostly 1½–4 mm	2–20 All gynaecandrous Upper and lower appear the same very close to next spike sessile or nearly so 50–100 pistillate flowers	Light greenish-white narrower and shorter than perigynium	**Beak with very long taper from near the base** **4½–6½ mm ×** ½–1½ mm **Winged and serrulate to apex** Stigmas 2	Plains at the base of the east side of the front range in CO; might be adventive here	

Table 19. Some mature leaves < 1 mm wide. Plants of dry to moist sites, water table always low. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. No long rhizomes present, bunch sedges or mat-forming. Bract below inflorescence none or shorter than the inflorescence

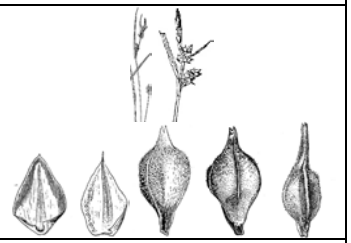
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w	In Rocky Mtn. Region	
6. *Carex angustior* CAAN23 prickley sedge	> or = to basal leaves Bunch Bract < infl.	½–4 mm	2–5, Gynaecandrous / pistillate Upper & lower appear the same Lower separated 1–3 × spike length sessile or nearly so 1–20 pistillate flowers	Light in color narrower & shorter than perigynium	**Perigynia spreading** Tip concave with long or very long taper 2–5 mm × ½–2 mm Beak some. **winged** Body not winged Stigmas 2	Moist meadows of the subalpine zone & montane zone in mountains of CO, nw WY	
20. *Carex brunnescens* CABR15 brownish sedge	> basal leaves Bunch Bract < infl.	½–6 mm	5–10, All gynaecandrous Upper & lower appear the same Lower separated 1–5 × spike length sessile or nearly so 5–10 pistillate flowers	Usually light colored shorter than perigynium	Tip concave with short taper 1½–3 mm × 1–1½ mm Not winged Stigmas 2	Shaded sites, moist or dry, in the mountains of CO, nc-nw WY	
34. *Carex disperma* CADI6 soft leaved sedge	**Very slender & weak** <, =, or > basal leaves Bunch or short or long rhizomes Bract < infl.	½–4 mm	2–5, All androgynous Upper & lower appear the same lowest spike separated 3–5 × spike length sessile or nearly so 1–10 pistillate flowers	Light to medium in color narrower & shorter than perigynium	Tip convex with triangular shape 2–3½ mm × 1–2 mm Not winged Stigmas 2	Moist to wet, shaded forests & stream banks, montane zone & lower subalpine zone, mountains of CO, WY, & Black Hills of WY & SD	
37. *Carex eburnea* CAEB2 bristleleaf sedge	> or = to basal leaves **Long rhizomes between the bunches** Bract with no blade but long-sheathing	¼–1 mm	2–5, Staminate / pistillate Upper & lower appear **different** lowest spike separated 3–>5 × spike length on peduncle >2 × spike length 2–20 pistillate flowers	Light in color shorter than perigynium	Tip concave with short taper 2–3 mm × 1–2 mm Not winged Stigmas 3	Wooded or partially shaded, dry, rocky or sandy foothills & plains & lower montane zone of the Black Hills of WY & SD, in sw SD, & nw NE	
43. *Carex filifolia* CAFI threadleaf sedge	**Narrow & ± weak** > or = to basal leaves Bunch or mat-forming Bract none or scale-like	¼–1 mm lower leaf sheaths filamentose	**Spike solitary** androgynous 1–20 pistillate flowers	Light to medium in color covering & shorter than perigynium	Tip convex with triangular shape 3–4½ mm × 1½–2½ mm Not winged **Puberulent above** Stigmas 3	Dry plains, foothills, & lower slopes of mountains throughout WY, n CO, w SD, & w NE; much less common in s & c CO & w KS	
62. *Carex leporinella* CALE9 Siberian hare sedge	> or = to basal leaves Bunch Bract > or < infl. sometimes with black or purple-black auricles	½–2 mm	2–10, All gynaecandrous or Staminate / gynaecandrous Upper & lower appear the same lowest spike separated ¼–1 × spike length, sessile or nearly so 10–30 pistillate flowers	Medium to **dark** reddish-brown slightly narrower & shorter than perigynium, mostly concealing	1½–3½ mm × 1–2 mm Not winged Stigmas 2	Dry to moist montane to subalpine slopes & meadows in the mountains of nw WY	
104. *Carex rossii* CARO5 Ross sedge	**< or = to basal leaves** Bunch or mat-forming	½–4 mm lower leaf sheaths sometimes filamentose	2–10, Staminate / pistillate Upper & lower appear different **Lowest spike basal & long-peduncled** Upper sometimes few-flowered 3–20 pistillate flowers	Light to medium in color shorter than perigynium & about as wide	2–4½ mm × 1–2½ mm Not winged **Short-pubescent or puberulent** Stigmas 3	Dry pine forests from foothills to lower subalpine zone in the mountains of CO, w WY, & the Black Hills of ne WY & w SD	
119. *Carex tenera* CATE3 quill sedge	> basal leaves **scabrous usually zig-zag in the infl.** Bunch Bract much less infl.	½–4 mm	Spikes globose, 2–10, All gynaecandrous Upper & lower spikes appear same lowest spike separated 1–3 × spike length, sessile or nearly so 30–100 pistillate flowers	Light to medium in color narrower & shorter than perigynium	3–4½ mm × 1½–2½ mm **Winged to the base** **Beak flat & winged** Stigmas 2	Dry to moist woods & meadows of foothills & lower montane zone of mountains in the Black Hills of NE WY & w SD; w WY, nc WY, & sw SD	
126. *Carex vallicola* CAVA3 Jackson Hole sedge	> basal leaves Bunch or short rhizomes Bract < infl.	½–4 mm	5–20, All androgynous Upper & lower appear the same lowest spike ± separated ¼–3 × spike length, sessile or nearly so 1–10 pistillate flowers	Light to medium in color shorter than perigynium	Tip concave with short taper 3–4½ mm × 1–2½ mm Not winged Stigmas 2	Dry hillsides or dense shrublands, foothills or montane zone, mountains, WY, w ⅔ of CO	

Table 20. Spike solitary. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*). Long rhizomes present

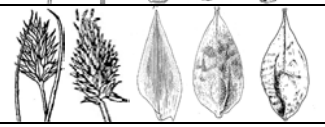
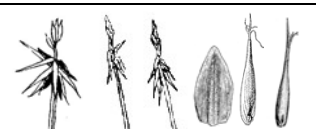
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w,	In Rocky Mtn. Region	
24. *Carex capitata* CACA13 capitate sedge	Short rhizomes or long rhizomes Bract none or scale-like	½–2 mm	androgynous 1–20 pistillate flowers	medium to **dark** color perigynium medium to dark color covering or narrower or shorter than perigynium	1½–4 × 1–2½ Not winged Stigmas 2	alpine wetlands, several populations scattered through high mountains, c-sw CO & nw WY.	
33. *Carex dioica* CADI northern bog sedge	Long rhizomes Bract none or scale-like	½–1 mm	staminate or pistillate or androgynous **Plants may be dioecious** 1–20 pistillate flowers	Medium color perigynium medium to **dark** color shorter than perigynium	2½–4½ × 1½–2 Not winged Stigmas 2	In wet meadows or swamps, Subalpine Zone, high mountains, c CO, se WY, & nw WY.	
41. *Carex engelmannii* CAEN3 Engelmann's sedge	Long rhizomes Bract none or scale-like	¼–1 mm	androgynous 20–50 pistillate flowers	Light to medium color perigynium light to medium color covering or shorter than perigynium	3½–7 × 1½–2½ Not winged Stigmas 3	Dry to moist Alpine tundra, n & c CO & nw WY.	
46. *Carex geyeri* CAGE2 elk sedge	Usually with long rhizomes Bract none or scale-like	1–4 mm sharply folded v-shaped over-wintering & curled & drying at tips	1–5 1–3 pistillate flowers	Light to medium color perigynium light to medium color covering perigynium	5–7 × 2½–>3 Not winged Stigmas 3	Shaded, dry to moist forests, Subalpine Zone, CO & se-nw-nc WY; less upper Montane zone, same distribution.	
71. *Carex microglochin* CAMI6 microglochin sedge	Short rhizomes or long rhizomes Bract none or scale-like	½–1 mm channeled or involute	androgynous 1–20 pistillate flowers	Light to medium color perigynium light yellowish shorter than perigynium deciduous	**Reflexed** at maturity 3–5½ × ½–1 Not winged **Hooked rachilla protruding from beak** Stigmas 3	Occasional to rare, wet, subalpine willow stands, c & sw CO & nw WY, often rooted, mosses.	
79. *Carex nigricans* CANI2 black alpine sedge	Long rhizomes Bract none or scale-like	1–6 mm	staminate or pistillate or androgynous **Plants may be dioecious** 20–50 pistillate flowers	**Dark brown to black** perigynium medium to **dark** color shorter than perigynium & about as wide	**Spreading to reflexed** 3½–5½ × ½–1½ Not winged	moist to wet alpine tundra & streamsides, Alpine Zone & Subalpine Zone, w CO & nw WY.	
83. *Carex obtusata* CAOB4 blunt sedge	Long rhizomes Bract none or scale-like	½–2 mm folded v-shaped	androgynous 1–10 pistillate flowers	light to medium color perigynium medium chestnut to **dark** blackish brown shorter than perigynium and about the same width	3–5 × 1½–2½ Not winged Stigmas 3	dry, open slopes, full sun or slight shade, Subalpine Zone or upper Montane zone, mountains, c & w CO, nw & nc WY, & Black Hills, ne WY & w SD.	
105. *Carex rupestris* CARU3 curly sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm Leaf tips curled & drying	androgynous 1–20 pistillate flowers	**Dark** to medium color perigynium medium color covering perigynium	3½–4½ × 1½–2 Not winged Stigmas 3	Dry ridgetops & windswept slopes, Alpine Zone & upper Subalpine Zone, high mountains, c-nc CO, se-nw-nc WY.	
108. *Carex scirpoidea* CASC10 northern singlespike sedge	Strongly purplish-tinged at base Short rhizomes or long rhizomes or mat-forming Bract < inflorescence sometimes with black or purple-black auricles	1–4 mm Leaf sheaths sometimes pubescent or filamentose	either androgynous or staminate or pistillate & **plant dioecious** 30–100 pistillate flowers	**Dark** color perigynium medium to **dark** color covering or slightly shorter than perigynium	2–3½ × 1–2 Not winged **Pubescent** Stigmas 3	Locally especially limestone or dolomite, snowmelt areas, calcareous fens, & moist rocky slopes, Alpine Zone & upper Subalpine Zone, high mountains, c CO & nw WY.	

Table 21. Spike solitary. Plants of high mountains, either the Alpine Zone (above timberline) or the Subalpine Zone (in or near forests dominated by subalpine fir, *Abies bifolia*, or Engelmann spruce, *Picea engelmannii*). No long rhizomes present, bunch sedges or mat-forming

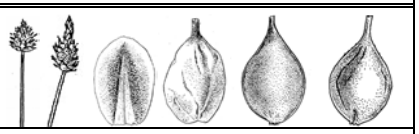
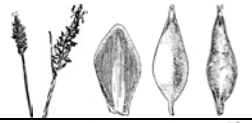
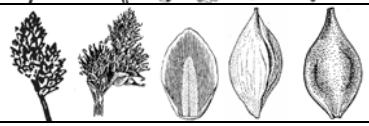
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
24. *Carex capitata* CACA13 capitate sedge	Short rhizomes or long rhizomes Bract none or scale-like	½–2 mm	androgynous 1–20 pistillate flowers	medium to dark color perigynium medium to dark color covering or narrower or shorter than perigynium	1½–4 mm × 1–2½ mm Not winged Stigmas 2	alpine wetlands, several populations scattered through high mountains, c-sw CO and nw WY.	
27. *Carex crandallii* CACR17 Pyrenees sedge	Bunch Bract none or scale-like	½–2 mm channeled or involute	androgynous 10–30 pistillate flowers	**Dark** to medium color perigynium **dark** color covering perigynium body & shorter than it	**With long stipe** 3–4½ mm × ½–1½ mm Not winged Stigmas 3	moist rocky snowmelt slopes, Alpine Zone & high Subalpine Zone, mountains, w CO and w WY.	
39. *Carex elynoides* CAEL3 Kobresia-like sedge	Bunch to mat-forming Bract none or scale-like	½–1 mm	androgynous 1–10 pistillate flowers	Medium color perigynium medium color covering perigynium	2½–4½ mm × 1–2 mm Not winged Stigmas 3	forming dry to moist turf throughout Alpine Zone, w CO and WY.	
50. *Carex hepburnii* CAHE16 Hepburn's sedge	Bunch Bract < infl. sometimes with black or purple-black auricles	½–1 mm	gynaecandrous or androgynous 1–20 pistillate flowers	Light to medium to **dark** perigynium light to medium color narrower & shorter than perigynium	4–6½ mm × 1½–3 mm **Beak narrowly winged** Stigmas 2	Occasional high, rocky ridges dry sites, Alpine Zone, w CO, se WY, & nw WY.	
56. *Carex lachenalii* CALA10 twolipped sedge	Bunch or short rhizomes Bract none or scale-like	1–4 mm	1–5 All gynaecandrous or Androgynous & lower gynaecandrous 20–30 pistillate flowers	Medium color perigynium medium color shorter than perigynium	2–4½ mm × 1–2 mm Not winged Stigmas 2	wet meadows & streambanks, Alpine Zone & high Subalpine Zone, w CO, se WY, & nw WY.	
63. *Carex leptalea* CALE10 bristlystalked sedge	Bunch Bract none or scale-like	½–2 mm	androgynous **very narrow** 3–10 pistillate flowers	Light color perigynium light yellow-green narrower & shorter than perigynium	2½–5 mm × ½–1½ mm Not winged Stigmas 3	Wet or moist, shaded sites: fens, canyon forests, & willow stands, subalpine, montane, & foothills zones, c CO, nw WY, & Black Hills, SD.	
71. *Carex microglochin* CAMI6 microglochin sedge	Short rhizomes or long rhizomes Bract none or scale-like	½–1 mm channeled or involute	androgynous 1–20 pistillate flowers	Light to medium color perigynium light yellowish shorter than perigynium deciduous	**Reflexed** 3–5½ mm × ½–1 mm Not winged **Hooked rachilla protruding from beak** Stigmas 3	Occasional to rare, wet, subalpine willow stands, c & sw CO and nw WY, often rooted, mosses.	
105. *Carex rupestris* CARU3 curly sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm Leaf tips curled & drying	androgynous 1–20 pistillate flowers	**Dark** to medium color perigynium medium color covering perigynium	3½–4½ mm × 1½–2 mm Not winged Stigmas 3	Dry ridgetops & windswept slopes, Alpine Zone & upper Subalpine Zone, high mountains, c-nc CO, se-nw-nc WY.	
108. *Carex scirpoidea* CASC10 northern singlespike sedge	**Purplish-tinged** Short or long rhizomes or mat Bract < infl. sometimes dark auricles	1–4 mm Leaf sheaths sometimes pubescent or filamentose	either androgynous or staminate or pistillate & plant dioecious 30–100 pistillate flowers	**Dark color** with white-hyaline margins perigynium medium to **dark** color covering or slightly shorter than perigynium	2–3½ mm × 1–2 mm Not winged **Pubescent** Stigmas 3	Snowmelt areas, limestone or dolomite, calcareous fens, & moist rocky slopes, Alpine Zone & upper Subalpine Zone, c CO and nw WY.	
117. *Carex subnigricans* CASU7 nearlyblack sedge	Bunch or short rhizomes Bract none or scale-like	½–1½ mm	androgynous 10–50 pistillate flowers	Light to medium color perigynium medium color covering perigynium	2½–4 mm × 1–1½ mm Not winged Stigmas 3	moist meadows & moist rocky slopes, high mountains, nw WY	

Table 22. Spike solitary. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Long rhizomes present

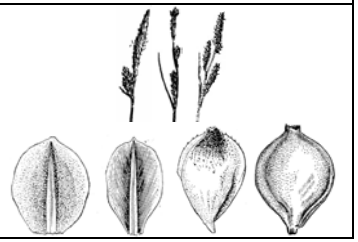
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
46. *Carex geyeri* CAGE2 elk sedge	>, <, or = to basal leaves Usually with long rhizomes Bract none or scale-like	1–4 mm sharply folded v-shaped over-wintering & curled & drying at tips	1–5 Usually one terminal staminate spike & 1 lower pistillate spike; Upper & lower appear different separated ¼–1 × spike length, sessile or nearly so 1–3 pistillate flowers	Light to medium color perigynium light to medium color covering perigynium	**5–7 mm** × 2½–>3 mm Not winged Stigmas 3	Shaded, dry to moist forests, Subalpine Zone, CO and se-nw-nc WY; less in upper Montane zone, same distribution.	
83. *Carex obtusata* CAOB4 blunt sedge	> or = to basal leaves Long rhizomes Bract none or scale-like	½–2 mm folded v-shaped	Spike solitary androgynous 1–10 pistillate flowers	Light to medium color perigynium medium chestnut to **dark blackish brown** Scale shorter than perigynium and about the same width	3–5 mm × 1½–2½ mm Not winged Stigmas 3	Dry, open slopes, full sun or slight shade, Subalpine Zone or upper Montane zone, mountains, c & w CO, nw & nc WY, & Black Hills, ne WY & w SD.	
87. *Carex parryana* CAPA18 Parry sedge	Usually > basal leaves Short rhizomes or long rhizomes Bract none or various, > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5; Spike sometimes solitary; plants **sometimes dioecious** Staminate or gynaecandrous or pistillate / staminate or pistillate; Upper & lower appear the same or different shortly separated ¼–1 × spike length, sessile or nearly so 10–100 pistillate flowers	Medium brown to **dark purple-brown** with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 mm × 1–2½ mm Not winged Stigmas 3	Dry to moist open sites, prairies, plains, & mountains, w $^{2}/_{3}$, CO, sw & e WY, & w & c NE.	

Table 23. Spike solitary. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. No long rhizomes present, bunch sedges or mat-forming

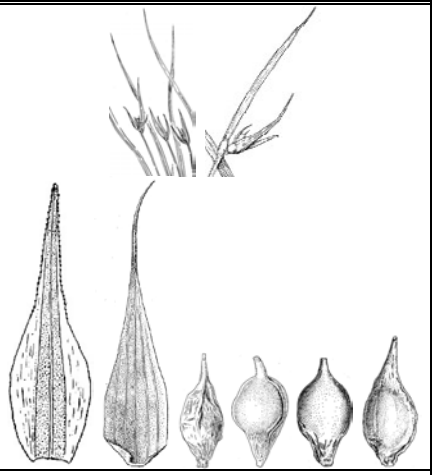
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
14. *Carex backii* CABA3 Back's sedge	**< basal leaves** Bunch or mat-forming by short rhizomes Bract none or scale-like	2–6 mm	1–5, All androgynous Upper & lower appear the same **Lowest long-separated, long-pedunculate, basal** 1–10 pistillate flowers	Light to medium color perigynium light to medium color **Leaf-like, much longer than & covering perigynium**	5–6½ mm × 2½–3 mm Not winged Stigmas 3	Dry sites, lower mountains & foothills, Black Hills, WY & SD, east slope Front Range ne CO, & nw NE; few sites, nw WY.	
43. *Carex filifolia* CAFI threadleaf sedge	**Narrow & ± weak** > or = to basal leaves Bunch or mat-forming Bract none or scale-like	¼–1 mm lower leaf sheaths filamentose	Spike solitary androgynous 1–20 pistillate flowers	light to medium color perigynium light color covering & shorter than perigynium	3–4½ mm × 1½–2½ mm Not winged **Puberulent above** Stigmas 3	Very dry plains, foothills, & lower slopes, mountains throughout WY, n CO, w SD, & w ne; much less s & c CO and w KS.	
45. *Carex geophila* CAGE dryland sedge	**< basal leaves** Bunch or mat-forming Bract leaf-like & > or < inflorescence sometimes sheathing	½–4 mm lower leaf sheaths filamentose	1–5, Androgynous or Staminate / pistillate Upper & lower appear different **Lowest long-separated, long-pedunculate, basal 1–3 pistillate flowers**	light to medium color perigynium light color shorter than perigynium	3–5 mm × 1½–2 mm Not winged **Pubescent** Stigmas 3	Dry sites under shrubs & partial shade, conifers, foothills & lower Montane zone, Gunnison basin, wc CO ; similar habitats, se & n CO .	
63. *Carex leptalea* CALE10 bristlystalked sedge	> basal leaves **Thin** Bunch Bract none or scale-like	½–2 mm	Spike solitary androgynous **Very narrow** 3–10 pistillate flowers	Light color perigynium light yellow-green narrower & shorter than perigynium	2½–5 mm × ½–1½ mm Not winged Stigmas 3	Wet or moist, shaded sites: fens, canyon forests, & willow stands, subalpine, montane, & foothills zones, c CO, nw WY, & Black Hills, SD.	
85. *Carex oreocharis* CAOR grassyslope sedge	**Stout Scabrous below spike** > or = to basal leaves Bunch or short rhizomes Bract none or scale-like	1–2 mm	Spike solitary androgynous 20–100 pistillate flowers	Light to medium color perigynium light to medium color shorter than perigynium ± same width **Lowest pistillate scale usually awned**	3–4½ mm × 1–1½ mm Not winged **Puberulent, especially above** Stigmas 3	Dry grasslands, foothills & Montane zone, eastern slope, mountains, NE & c CO and se WY.	
87. *Carex parryana* CAPA18 Parry sedge	Usually > basal leaves Short rhizomes or long rhizomes Bract none or various, > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5, Spike sometimes solitary; **Sometimes dioecious** Staminate or gynaecandrous or pistillate / staminate or pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length, sessile or nearly so 10–100 pistillate flowers	Medium brown to **dark purple-brown** with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 mm × 1–2½ mm Not winged Stigmas 3	Dry to moist open sites, prairies, plains, & mountains, w ⅔, CO, sw & e WY, & w & c NE.	

Table 24. More than one spike, all spikes androgynous or lowest spike androgynous, upper and lower appear the same or similar. Long rhizomes present

Names	Culms	Leaf width	Spikes	Scale	Perigynium length × width	In Rocky Mountain Region	
34. *Carex disperma* CADI6 soft leaved sedge	**Very slender & weak** Bunch or short or long rhizomes Bract < inflorescence	½–4 mm	2–5, all androgynous Upper & lower appear the same separated 3–5 × spike length sessile or nearly so 1–10 pistillate flowers	Light to medium color perigynium light to medium color narrower & shorter than perigynium	2–3½ mm × 1–2 mm Not winged Stigmas 2	moist to wet, shaded forests & stream banks, Montane zone & lower Subalpine Zone, mountains, CO, WY, & Black Hills, WY & SD.	
55. *Carex jonesii* CAJO Jones's sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm mostly basal	**Head densely cylindrical** 2–10, all androgynous Upper & lower spikes appear the same very close to next spike sessile or nearly so Spikes few-flowered 3–10 pistillate flowers	Medium to **dark** color perigynium medium to **dark** color shorter than perigynium	**With very long taper from the base** 3–4½ mm × 1–2 mm Not winged Nerved or ribbed Stigmas 2	Moist meadows, Subalpine Zone & Montane zone, mountains, c-nc CO & se WY; less nw WY.	
69. *Carex maritima* CAMA14 curved sedge	Usually long rhizomes Bract none or scale-like	½–4 mm	**Dense ball-like cluster** 2–5, all androgynous Upper & lower appear the same very close to next spike sessile or nearly so 1–20 pistillate flowers	Medium color perigynium medium to **dark** color narrower & shorter than perigynium	On a stipe 3–4½ mm × 1–2 mm Not winged Stigmas 2	Occasional moist frost scars & late snowbank areas, Alpine Zone & high Subalpine Zone, c CO and nw WY.	
96. *Carex praegracilis* CAPR5 silver sedge	Bract none or scale-like Usually with long rhizomes	1–4 mm Leaf sheaths dark brown to black	5–20 Plants sometimes dioecious & all staminate or pistillate; or Androgynous / staminate or androgynous or pistillate Upper & lower appear the same shortly separated ¼–1 × spike length, sessile or nearly so 10–30 pistillate flowers	Medium color perigynium medium straw-colored to **dark brownish-black covering perigynium & enclosing it**	3–4½ mm × 1–2 mm **Narrowly winged at junction of beak & body** Stigmas 2	moist to dry swales, prairies, plains, mountain slopes, open areas, & ditches throughout CO, WY, w SD, & w ne; se & ec CO and sw KS	
106. *Carex sartwellii* CASA8 Sartwell sedge	Long rhizomes Bract none or scale-like	2–6 mm Upper leaf sheaths green-nerved Ligule conspicuously tubular	10–20 Androgynous or staminate / androgynous Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 10–30 pistillate flowers	Medium color perigynium tan to light brown narrower & shorter than perigynium	2½–4 mm × 1½–2 mm Not winged Stigmas 2	Scattered sites, wet marshes, bogs, wet meadows, & sloughs, foothills, plains, & lower mountains, w & c NE, Black Hills, SD, se & nw WY, & c-nc CO .	
111. *Carex simulata* CASI2 short-beaked sedge	Long rhizomes Bract none or various < inflorescence	½–4 mm	5–20, All androgynous; or all staminate or pistillate & plants dioecious Upper & lower appear the same shortly separated ¼–1 × spike length, sessile or nearly so 1–20 pistillate flowers	Medium to **dark** brown perigynium medium color covering perigynium	1½–3 mm × 1–2 mm **Narrowly winged at junction of beak & body** Stigmas 2	Scattered, wet meadows & swamps, foothills, Montane zone & Subalpine Zone, mountains, c-nc CO and se-c-sw-nw-nc WY.	
114. *Carex stenophylla* CAST40 needleleaf sedge	Long rhizomes Bract none or scale-like	½–4 mm involute	2–10, All androgynous; or all staminate or pistillate & plants dioecious Upper & lower appear the same very close to next spike sessile or nearly so 1–10 pistillate flowers	Chestnut to light brown perigynium medium straw-colored to **dark** black color covering perigynium	2–3½ mm × 1½–2½ mm Not winged Stigmas 2	to very open dry slopes, hills, & dry prairies, foothills, plains, & Montane zone, mountains throughout region; except far western CO, se CO, & sw KS.	
127. *Carex vernacula* CAVE5 alpine blackheaded sedge	Short rhizomes or long rhizomes Bract none or scale-like	1½–4 mm Usually not curling or drying	**Dense ball-like cluster** 10–20, all androgynous Upper & lower appear the same very close to next spike sessile or nearly so 1–10 pistillate flowers	**dark-colored above** with lighter lower portion & midrib perigynium medium color covering perigynium	3½–5 mm × 1½–2 mm Not winged **Sometimes narrowly winged at junction of beak & body** Stigmas 2	Occasional to locally dry to moist tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO and nw WY.	

Table 25. More than one spike, all spikes androgynous or lowest spike androgynous, upper and lower appear the same or similar. No long rhizomes, bunch sedges or mat-forming. Wetland plants, areas near open water or with a high water table at some season

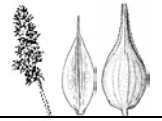
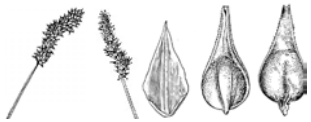
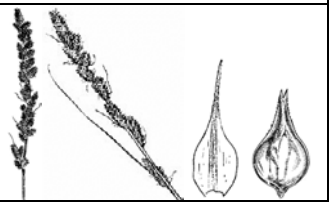
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mtn. Region	
4. *Carex alopecoidea* CAAL8 foxtail sedge	**Flattened & winged** Bunch Bract < inflorescence	2–10 mm	5–10, all androgynous Upper & lower appear the same Lower closely adjacent to next spike sessile or nearly so 10–30 pistillate flowers	light color perigynium medium color narrower than perigynium	3–4½ mm × 2–3 mm **Beak narrowly winged** body not winged Stigmas 2	moist or wet meadows, wooded areas & swamps, Black Hills, WY, SD	
30. *Carex cusickii* CACU5 Cusick's sedge	Bunch or short rhizomes Bract none or scale-like	2–6 mm **Leaf sheaths sometimes pubescent** leaf sheaths red-dotted or -banded	**Head interrupted, compound** 5–20, Staminate or androgynous / androgynous Upper & lower spikes appear the same separated 1–3 × spike length sessile or peduncle up to 1 × spike length 5–20 pistillate flowers	Medium to **dark** color medium to **dark** color covering perigynium	2½–4 mm × 1–2 mm Not winged Stigmas 2	A few sites, wet areas, mountains or foothills, c CO, nw WY, & w NE.	
32. *Carex diandra* CADI4 lesser panicled sedge	Bunch or short rhizomes Bract always << inflorescence	1–4 mm Leaf sheaths brown- or red-spotted	**Long, compound head** 10–20, all androgynous Upper & lower appear the same very close to next spike sessile or nearly so 1–10 pistillate flowers	Medium to **dark** color perigynium medium to **dark** color shorter than perigynium	2–3½ mm × 1–1½ mm Unwinged or very narrowly winged Stigmas 2	wet, unshaded subalpine willow stands, swamps, or wet meadows, mountains, n & w CO and nw WY.	
34. *Carex disperma* CADI6 soft leaved sedge	**Very slender & weak** Bunch or short or long rhizomes Bract < inflorescence	½–4 mm	2–5, all androgynous Upper & lower appear the same separated 3–5 × spike length sessile or nearly so 1–10 pistillate flowers	Light to medium color perigynium light to medium color narrower & shorter than perigynium	2–3½ mm × 1–2 mm Not winged Stigmas 2	moist to wet, shaded forests & stream banks, Montane zone & lower Subalpine Zone, mountains, CO, WY, & Black Hills, WY & SD	
48. *Carex gravida* CAGR4 heavy sedge	Bunch Bract < inflorescence	2–8 mm **firm or stiff**	5–20, all androgynous Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 1–20 pistillate flowers	medium to light color perigynium light green to medium brown narrower & shorter than perigynium	3–6 mm × 2–3½ mm Not winged Stigmas 2	Along ditches, edges, sloughs, &, open woods usually moist sites, foothills or plains, ne WY, ne-se CO, w SD, nw & c NE, & w KS.	
78. *Carex neurophora* CANE6 alpine nerve sedge	Bunch or short rhizomes Bract none or scale-like	2–6 mm Leaf sheaths sometimes wrinkled	**Tight cylindrical head** 5–10, all androgynous Upper & lower appear the same very close to next spike sessile or nearly so 10–30 pistillate flowers	Acute not hyaline medium color perigynium medium color shorter & broader than perigynium	3–4½ mm × 1–2 mm Not winged Stigmas 2	wet or moist meadows, Montane zone & Subalpine Zone, nc CO and nw WY.	
97. *Carex prairea* CAPR6 prairie sedge	Bunch or short rhizomes Bract<< inflorescence	1–4 mm Lower leaf sheaths red-dotted	5–20, all androgynous Upper & lower appear the same shortly or widely separated ¼–5 × spike length sessile or nearly so 10–30 pistillate flowers	light to medium reddish-brown perigynium light to medium brown color covering perigynium	2½–3½ mm × 1–2 mm Not winged Stigmas 2	marshes, wet meadows, & swamps, w & c NE Foothills & plains Habitat: wet.	
116. *Carex stipata* CAST5 owlfruit sedge	**Slightly winged** Bunch or short rhizomes Bract present or none, < inflorescence	2–12 mm Leaf sheaths sometimes cross-rugulose ventrally	**Tight cylindrical head** 10–>20, all androgynous Upper & lower spikes appear the same very close to next spike sessile or nearly so 10–20 pistillate flowers	Light to medium color light to medium yellow narrower & shorter than perigynium **Perigynia exposed & spike like a pincushion**	**Stiffly spreading** 4–5½ mm × 1–2 mm Body not winged sometimes beak narrowly winged Stigmas 2	swamps, wet woods, & wet swales, foothills & lower mountain valleys, scattered locations, nc-sw-se CO, nw & nc WY, Black Hills, ne WY & w SD, & w ne; possibly also, w KS.	
130. *Carex vulpinoidea* CAVU2 fox sedge	Bunch or short rhizomes Bract > or slightly < inflorescence	2–6 mm Leaf sheaths sometimes cross-rugulose **Firm or stiff**	**Head interrupted long cylinder** Spikes 5–>20, all androgynous Upper & lower spikes appear the same ± separated ¼–3 × spike length sessile or nearly so 20–50 pistillate flowers	**Conspicuously long-awned** light to medium color perigynium light to medium color narrower than perigynium	2–3½ mm × 1–2 mm Not winged except sometimes narrowly winged at junction of beak & body Stigmas 2	wet to moist sites, meadows, edges, swamps, moist ravines, & ditches, foothill valleys & plains, e WY, sw SD, & n-c ne; scattered & less NE CO, se CO, & sw CO .	

Table 26. More than one spike, all spikes androgynous or lowest spike androgynous, upper and lower appear the same or similar. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites. Scale covering perigynium or nearly so

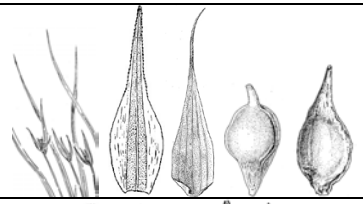
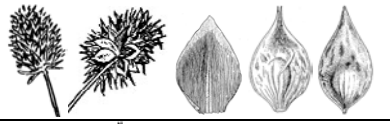
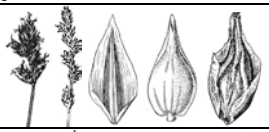
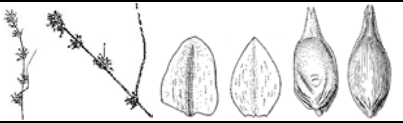
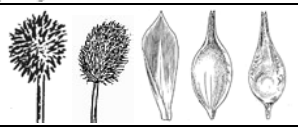
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
14. *Carex backii* CABA3 Back's sedge	Bunch or mat-forming by short rhizomes Bract none or scale-like	2–6 mm	1–5, all androgynous **lowest long-separated, long-pedunculate, basal** 1–10 pistillate flowers	Light to medium color perigynium light to medium color **leaf-like, much longer than & covering perigynium**	5–6½ mm × 2½–3 mm Not winged Stigmas 3	Unto dry sites, lower mountains & foothills, Black Hills, WY & SD,, east slope, front range, NE CO, &, nw ne; few sites, nw WY.	
55. *Carex jonesii* CAJO Jones's sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm mostly basal	**Head densely cylindrical** 2–10, all androgynous close to next spike, ± sessile 3–10 pistillate flowers	Medium to **dark** color perigynium medium to **dark** color shorter than perigynium	3–4½ mm × 1–2 mm Not winged Stigmas 2	Moist meadows, Subalpine Zone & Montane zone, mountains, c-nc CO & se WY; less nw WY.	
78. *Carex neurophora* CANE6 alpine nerve sedge	Bunch or short rhizomes Bract none or scale-like	2–6 mm Leaf sheaths sometimes wrinkled	**tight cylindrical head** 5–10, all androgynous very close to next spike, ± sessile 10–30 pistillate flowers	medium color perigynium medium color shorter & broader than perigynium	3–4½ mm × 1–2 mm Not winged Stigmas 2	wet or moist meadows, Montane zone & Subalpine Zone, nc CO and nw WY.	
84. *Carex occidentalis* CAOC2 western sedge	Bunch or short rhizomes Bract < inflorescence	1–4 mm	2–10, all androgynous shortly separated ¼–3 × spike length, ± sessile 1–20 pistillate flowers	Medium to light color perigynium medium colored covering perigynium, or somewhat narrower & shorter than perigynium	3–5 mm × 1–2 mm Not winged Stigmas 2	to dry to moist forests & slopes, foothills, montane, & Subalpine Zones, mountains, CO, including foothills & canyons, se CO ; nw CO, se WY, & nw WY.	
89. *Carex pedunculata* CAPE4 longstalk sedge	Bunch or short rhizomes or mat-forming	2–6 mm	2–5, Staminate or androgynous / androgynous or pistillate **Lowest widely separated, long-peduncled, basal** 1–20 pistillate flowers	light to medium color perigynium light to medium green covering perigynium	3½–5 mm × 1½–2½ mm Not winged **Puberulent** Stigmas 3	dry to moist woodlands, Black Hills, w SD.	
91. *Carex perglobosa* CAPE12 Mt. Baldy sedge	Bunch or short rhizomes Bract none or scale-like	½–4 mm often curled & drying at tips	**tight ± globose head** 5–20, all androgynous **lower spreading to reflexed** very close to next spike, ± sessile 20–50 pistillate flowers	Light to medium color perigynium light color covering perigynium	4–5 mm × 2–3 mm Not winged Stigmas 2	On dry to moist scree slopes, Alpine Zone & upper Subalpine Zone, high mountains, c & sw CO .	
96. *Carex praegracilis* CAPR5 silver sedge	Usually long rhizomes Bract none or scale-like	1–4 mm Leaf sheaths dark brown to black	5–20, sometimes dioecious; or Androgynous / staminate or androgynous or pistillate shortly separated ¼–1 × spike length, ± sessile 10–30 pistillate flowers	Medium color perigynium medium straw-colored to **dark** brownish-black covering perigynium & enclosing it	3–4½ mm × 1–2 mm Not winged Stigmas 2	moist to dry swales, prairies, plains, mountain slopes, open areas, & ditches throughout CO, WY, w SD, & w ne; se & ec CO and sw KS	
103. *Carex rosea* CARO22 rosy sedge	Bunch Bract < inflorescence	1–4 mm	2–10, all androgynous widely separated 1–5 × spike length, ± sessile 1–20 pistillate flowers	Light to medium color perigynium light to medium color shorter than perigynium	2–4½ mm × 1–2 mm Not winged Stigmas 2	In a few sites, moist to dry, open woodlands & meadows, & around Black Hills, ne WY & w SD Foothills & plains Habitat dry to moist.	
126. *Carex vallicola* CAVA3 Jackson Hole sedge	Bunch or short rhizomes Bract none < inflorescence	½–4 mm	5–20, all androgynous ± separated ¼–3 × spike length, ± sessile 1–10 pistillate flowers	Light to medium color perigynium light to medium color shorter than perigynium	3–4½ mm × 1–2½ mm Not winged Stigmas 2	dry hillsides or dense shrublands, foothills or Montane zone, mountains, w $^{2}/_{3}$, WY; occasional similar habitats, scattered sites, e $^{1}/_{3}$, WY & w $^{2}/_{3}$, CO .	
127. *Carex vernacula* CAVE5 alpine blackheaded sedge	Short rhizomes or long rhizomes Bract none or scale-like	1½–4 mm Usually not curling or drying	**Spherical ball-like head** 10–20, all androgynous very close to next spike, ± sessile 1–10 pistillate flowers	**dark**-colored above perigynium medium color covering perigynium	3½–5 mm × 1½–2 mm Not winged except sometimes narrowly winged at junction of beak & body Stigmas 2	Occasional to locally dry to moist tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO and nw WY.	

Table 27. More than one spike, all spikes androgynous or lowest spike androgynous, upper and lower appear the same or similar. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites. Scale narrower than perigynium

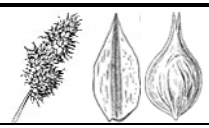
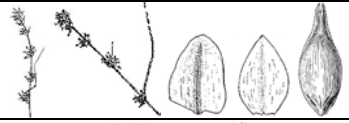
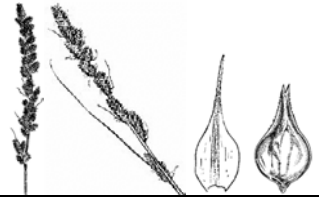
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w,	In Rocky Mtn. Region	
2. *Carex aggregata* CAAG2 glomerate sedge	Bunch or short rhizomes Bract < infl.	2–6 mm sheaths green-and-white mottled	5–20, all androgynous upper & lower appear the same Lower closely adjacent to next spike, sessile or nearly so 20–50 pistillate flowers	light to medium color perigynium medium color to **dark** green narrower than perigynium & just as long	3–4½ × 1½–2½ Beak serrulate & narrowly winged Beak winged to apex Stigmas 2	Woodlands, foothills & plains, dry to moist, NE SD, nw NE, c KS, dense to open wooded areas	
4. *Carex alopecoidea* CAAL8 foxtail sedge	**Flattened & winged** Bunch Bract < infl.	2–10 mm	5–10, all androgynous Upper & lower appear the same Lower closely adjacent to next spike, sessile or nearly so 10–30 pistillate flowers	light color perigynium medium color narrower than perigynium	3–4½ × 2–3 Beak narrowly winged Body not winged Stigmas 2	moist or wet meadows, wooded areas & swamps, Black Hills, WY, SD	
51. *Carex hoodii* CAHO5 Hood sedge	Bunch Bract < infl.	1–4 mm	**Head dense** 2–10, all androgynous Upper & lower spikes appear the same separated ¼–1 × spike length, sessile or nearly so 10–20 pistillate flowers	Medium chestnut-brown perigynium **dark** glossy brown narrower & shorter than perigynium	3–5½ × 1½–3 Winged or not Stigmas 2	Dry to moist forest openings & meadows, Subalpine Zone & Montane zone, nw & c CO, se-sw-nw-wc WY, ne WY & w SD	
55. *Carex jonesii* CAJO Jones's sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm mostly basal	**Head densely cylindrical** 2–10, all androgynous Upper & lower spikes appear the same very close to next spike, ± sessile 3–10 pistillate flowers	Medium to dark color perigynium medium to dark color shorter than perigynium	3–4½ × 1–2 Not winged Nerved or ribbed Stigmas 2	Moist meadows, Subalpine Zone & Montane zone, mountains, c-nc CO & se WY; less nw WY.	
75. *Carex muehlenbergii* CAMU4 Mühlenberg's sedge	Bunch or short rhizomes Bract none or various, **reflexed**	2–6 mm	2–10, all androgynous Upper & lower appear the same separated 1–3 × spike length sessile or nearly so 10–30 pistillate flowers	medium color perigynium medium narrower than perigynium; shorter than or as long as perigynium	3–4½ × 2–>3 Narrowly winged Stigmas 2	prairies, woodlands, roadside ditches, or moist sandy shores, nw NE; possibly, sw KS Foothills & plains Habitat dry to moist.	
78. *Carex neurophora* CANE6 alpine nerve sedge	Bunch or short rhizomes Bract none or scale-like	2–6 mm Leaf sheaths sometimes wrinkled	**Tight cylindrical head** 5–10, all androgynous Upper & lower appear the same very close to next spike sessile or nearly so 10–30 pistillate flowers	medium color perigynium medium color shorter & broader than perigynium	3–4½ × 1–2 Not winged Stigmas 2	wet or moist meadows, Montane zone & Subalpine Zone, nc CO and nw WY.	
84. *Carex occidentalis* CAOC2 western sedge	Bunch or short rhizomes Bract < infl.	1–4 mm	2–10, all androgynous Upper & lower appear the same shortly separated ¼–3 × spike length sessile or nearly so 1–20 pistillate flowers	Medium to light color perigynium medium colored covering perigynium, or somewhat narrower & shorter than perigynium	3–5 × 1–2 Not winged Stigmas 2	Dry to moist forests & slopes, foothills, montane, & Subalpine Zones, mountains, CO, including foothills & canyons, se CO ; nw CO, se WY, & nw WY.	
103. *Carex rosea* CARO22 rosy sedge	Bunch Bract < infl.	1–4 mm	2–10, all androgynous Upper & lower appear the same widely separated 1–5 × spike length sessile or nearly so 1–20 pistillate flowers	Light to medium color perigynium light to medium color shorter than perigynium	2–4½ × 1–2 Not winged Stigmas 2	Moist to dry open woodlands & meadows, & around Black Hills, ne WY & w SD Foothills & plains Habitat dry to moist.	
126. *Carex vallicola* CAVA3 Jackson Hole sedge	Bunch or short rhizomes Bract < infl.	½–4 mm	5–20, all androgynous Upper & lower appear the same ± separated ¼–3 × spike length sessile or nearly so 1–10 pistillate flowers	Light to medium color perigynium light to medium color shorter than perigynium	3–4½ × 1–2½ Not winged Stigmas 2	dry hillsides or dense shrublands, foothills or Montane zone, mountains, w $^2/_3$ WY; e $^1/_3$ WY & w $^2/_3$ CO	
130. *Carex vulpinoidea* CAVU2 fox sedge	Bunch or short rhizomes Bract > or slightly < infl.	**Stiff** 2–6 mm sheaths sometimes cross-rugulose	**Head a long cylinder** Spikes 5–>20, all androgynous Upper & lower spikes appear the same ± separated ¼–3 × spike length sessile or nearly so 20–50 pistillate flowers	light to medium color light to medium color narrower than perigynium	2–3½ × 1–2 Not winged except sometimes narrowly winged at junction of beak & body Stigmas 2	wet to moist sites, meadows, edges, swamps, moist ravines, & ditches, foothill valleys & plains, e WY, sw SD, & n-c ne; scattered & less ne CO, se CO, & sw CO .	

Table 28. Perigynium pubescent or puberulent. Spike solitary

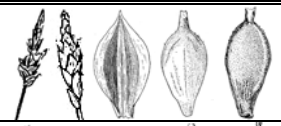
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
39. *Carex elynoides* CAEL3 Kobresia-like sedge	Bunch to mat-forming Bract none or scale-like	½–1 mm	Spike solitary, androgynous 1–10 pistillate flowers	Medium color perigynium medium color covering perigynium	2½–4½ mm × 1–2 mm Not winged Slightly puberulent at base of beak Stigmas 3	forming dry to moist turf throughout Alpine Zone, w CO and WY.	
43. *Carex filifolia* CAFI threadleaf sedge	**Narrow & ± weak** Bunch or mat-forming Bract none or scale-like	¼–1 mm lower leaf sheaths filamentose	Spike solitary, androgynous 1–20 pistillate flowers	light to medium color perigynium light color covering & shorter than perigynium	3–4½ mm × 1½–2½ mm Not winged Puberulent above Stigmas 3	Very dry plains, foothills, & lower slopes, mountains throughout WY, n CO, w SD, & w ne; much less s & c CO and w KS.	
45. *Carex geophila* CAGE dryland sedge	Bunch or mat-forming Bract leaf-like & > or < inflorescence or sometimes sheathing	½–4 mm lower leaf sheaths filamentose	1–5, Androgynous or Staminate / pistillate Upper & lower appear different **Lowest basal, long-peduncled, and widely separated** Upper few-flowered 1–3 pistillate flowers	light to medium color perigynium light color shorter than perigynium	3–5 mm × 1½–2 mm Not winged Pubescent Stigmas 3	dry sites under shrubs &, partial shade, conifers, foothills & lower Montane zone, Gunnison basin, wc CO ; similar habitats, se & n CO .	
85. *Carex oreocharis* CAOR grassyslope sedge	**Scabrous** Bunch or short rhizomes Bract none or scale-like	1–2 mm	Spike solitary, androgynous 20–100 pistillate flowers	Light to medium color perigynium light to medium color shorter than perigynium, and about the same width Lowest pistillate scale usually awned	3–4½ mm × 1–1½ mm Not winged Puberulent, especially above Stigmas 3	In dry grasslands, foothills & Montane zone, eastern slope, mountains, NE & c CO and se WY.	
108. *Carex scirpoidea* CASC10 northern singlespike sedge	Purplish-tinged Short rhizomes or **long rhizomes** or mat-forming Bract < inflorescence Bract sometimes with black or purple-black auricles	1–4 mm Leaf sheaths sometimes pubescent or filamentose	Spike solitary; either androgynous or staminate or pistillate & **plant dioecious** 30–100 pistillate flowers	**Dark** color with white-hyaline margins perigynium medium to **dark color** covering or slightly shorter than perigynium	2–3½ mm × 1–2 mm Not winged Pubescent Stigmas 3	Locally especially limestone or dolomite, snowmelt areas, calcareous fens, & moist rocky slopes, Alpine Zone & upper Subalpine Zone, high mountains, c CO and nw WY.	

Table 29. Perigynium pubescent or puberulent. Spikes more than one to a culm

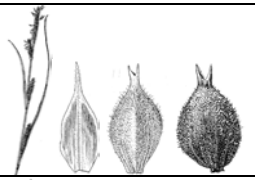
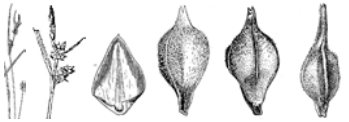
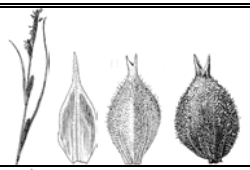
Names	Culms	Leaf width	Spikes	Scale	Perigynium length × width, mm	In Rocky Mtn. Region	
26. *Carex concinna* CACO10 low northern sedge	Bunch or short rhizomes Bract sometimes sheathing >3 mm	1–4 mm lower leaf sheaths sometimes filamentose ventrally	2–5, Staminate / pistillate Upper & lower appear different separated ¼–1 × spike length sessile or peduncle up to 2 × spike length 1–20 pistillate flowers	**Ciliate, puberulent dark** to medium color perigynium medium red-brown narrower & shorter than perigynium	2½–4 × 1–1½ Not winged Pubescent Stigmas 3	rare or overlooked, a few sites, moist forests, Subalpine Zone, c CO and nw WY &, Black Hills, SD.	
45. *Carex geophila* CAGE dryland sedge	Bunch or mat-forming Bract leaf-like & > or < inflorescence or sometimes sheathing >3 mm	½–4 mm lower leaf sheaths filamentose	1–5, Androgynous or Staminate / pistillate Upper & lower appear different **Lowest basal, long-peduncled, and widely separated** 1–3 pistillate flowers	light to medium color perigynium light color shorter than perigynium	3–5 × 1½–2 Not winged Pubescent Stigmas 3	**Dry** sites under shrubs &, partial shade, conifers, foothills & lower Montane zone, wc CO, se & n CO	
59. *Carex lanuginosa* CALA30 woolly sedge	**Scabrous below inflorescence Long rhizomes Bract usually > inflorescence**	2–6 mm Leaf sheaths purple-tinged & filamentose	2–5, Staminate / pistillate Upper & lower appear different separated ½–5 × spike length sessile or nearly so 20–100 pistillate flowers	medium color perigynium light brownish green narrower than perigynium	2½–4½ × 1½–2½ Not winged Densely pubescent Stigmas 3	**Wet** meadows, wet streamsides, ditches, open wetlands, & lowlands, prairies & plains, mountains up to lower Subalpine Zone, CO, WY, Black Hills, w SD, & w NE; nc SD, se CO, & sw KS.	
60. *Carex lasiocarpa* CALA11 woollyfruit sedge	**Long rhizomes** Bract > or < inflorescence	1–4 mm, **filiform with long hairlike tips** Leaf sheaths filamentose	2–5, Staminate / pistillate Upper & lower appear different separated 1–3 × spike length sessile or nearly so 10–50 pistillate flowers	medium to **dark** color perigynium light color narrower than perigynium	3–5 × 1½–2½ Not winged Pubescent Stigmas 3	Rare to **wet** sites such as fens or swamps, Subalpine Zone & upper Montane zone, n CO and nw WY.	
88. *Carex peckii* CAPE11 Peck's sedge	Bunch or short rhizomes Bract usually > inflorescence	1–4 mm	2–5, Staminate / pistillate Upper & lower appear different separated ¼–1 × spike length sessile or nearly so 1–20 pistillate flowers	light to medium color perigynium light to medium color much shorter than perigynium	3–4 × 1–1½ Not winged uniformly pubescent Stigmas 3	**Wet** sites, woods, thickets, shaded ravines, foothills & Montane zone, Black Hills, ne WY & w SD; ne CO, &, nc WY, nc NE, & sw SD	
89. *Carex pedunculata* CAPE4 longstalk sedge	Bunch or short rhizomes or mat-forming	2–6 mm	2–5, Staminate or androgynous / androgynous or pistillate Upper & lower same/different **Lowest basal, long-peduncled, and widely separated** 1–20 pistillate flowers	light to medium color perigynium light to medium green covering perigynium	3½–5 × 1½–2½ Not winged Puberulent Stigmas 3	Dry to moist woodlands, Black Hills, w SD.	
90. *Carex pensylvanica* CAPE6 sun sedge	Short rhizomes or long rhizomes or mat-forming Bract usually < inflorescence	1–6 mm lower leaf sheaths filamentose	2–5, Staminate or androgynous / pistillate Upper & lower appear different separated 1–3 × spike length sessile or nearly so 1–20 pistillate flowers	medium color perigynium medium green to yellow-green covering perigynium usually exceeding or equal to perigynium	2½–5 × 1½–2½ Not winged Uniformly puberulent Stigmas 3	Dry sites plains, hills, & open woods, foothills & lower Montane zone, mountains, nc WY south to ne NM; Black Hills, ne WY & w SD; wc CO, ne-se CO, &, w NE	
102. *Carex richardsonii* CARI Richardson's sedge	Bunch or short rhizomes **Bract no blade, long-sheathing 10–20 mm** Reddish with white-hyaline margins	2–4 mm	2–5, Staminate / pistillate Upper & lower appear different shortly separated ¼–3 × spike length on a peduncle ½–2 × spike length 20–30 pistillate flowers	light-medium-**dark** perigynium medium straw-colored to **dark** brown color longer than perigyn. & covering it	2–3 × 1–2 Not winged Appressed-pubescent Stigmas 3	dry to moist low prairies, ditches, & hillsides, & around Black Hills, ne WY & w SD Foothills & plains Habitat dry to moist.	
104. *Carex rossii* CARO5 Ross sedge	Bunch or mat-forming	½–4 mm lower leaf sheaths sometimes filamentose ventrally	2–10, Staminate / pistillate Upper & lower appear different **Lowest basal, long-peduncled, and widely separated** 3–20 pistillate flowers	light to medium color perigynium light to medium green shorter than perigynium and about as wide	2–4½ × 1–2½ Not winged Short-pubescent or puberulent 2-keeled Stigmas 3	dry pine forests from foothills to lower Subalpine Zone, mountains, CO, w WY, & Black Hills, ne WY & w SD.	

Table 30. Plants of wet sites in the high mountains, either the Alpine Zone or the Subalpine Zone. Long rhizomes present. Bract longer than inflorescence, often much longer

A. PERIGYNIUM PUBESCENT OR PUBERULENT

Names	Culms	Leaf width	Spikes	Scale	Perig. l × w, mm	In Rocky Mtn. Region	
59. *Carex lanuginosa* CALA30 woolly sedge	**Sharply triangular scabrous** Long rhizomes Bract usually > infl.	2–6 mm lower leaf sheaths purple-tinged & filamentose	2–5, Staminate / pistillate separated ½–5 × spike length sessile or nearly so 20–100 pistillate flowers	medium color perigynium light brownish green narrower than perigynium	2½–4½ × 1½–2½ Not winged **Densely pubescent** Stigmas 3	wet meadows, wet streamsides, ditches, open wetlands, & lowlands from prairies & plains up, mountains to lower Subalpine Zone, CO, WY, Black Hills, w SD, & w NE; nc SD, se CO, & sw KS.	
60. *Carex lasiocarpa* CALA11 woollyfruit sedge	**Obtusely triangular** Long rhizomes Bract > or < infl.	1–4 mm **filiform, involutely rolled, long hairlike tips** leaf sheaths filamentose	2–5, Staminate / pistillate separated 1–3 × spike length sessile or nearly so 10–50 pistillate flowers	medium to **dark** color perigynium light color narrower than perigynium	3–5 × 1½–2½ Not winged **Pubescent** Stigmas 3	Rare to wet sites such as fens or swamps, Subalpine Zone & upper Montane zone, n CO and nw WY.	

B. PERIGYNIUM GLABROUS

Names	Culms	Leaf width	Spikes	Scale	Perig. l × w, mm	In Rocky Mtn. Region	
7. *Carex aquatilis* CAAQ water sedge	Bunch or long rhizomes Bract > or = to infl. sometimes with black or purple-black auricles	2–10 mm Stiff w-shaped in cross-section **Sometimes pubescent or glaucous**	**slender & long** 2–10, Staminate / androgynous or pistillate Lower separated ¼–1 × spike length, sessile or short peduncle ¼–½ × spike length 20–100 pistillate flowers	**Dark** with light midrib perigynium light green color spikes **usually bicolored narrower & shorter than perigynium**	1½–4 × 1–2½ Not winged Stigmas 2	open, unshaded, cold, wet sites, Subalpine Zone, mountains, w CO and w WY, always, or near water table, very commonly associated with low willows	
13. *Carex aurea* CAAU3 golden sedge	**< 4 dm tall long-pedunculate basal spikes** Long rhizomes Bract > or < inflorescence **sheathing >3 mm**	1–6 mm	2–10, Gynaecandrous or staminate / pistillate Upper & lower appear different Lower separated 3–5 × spike length on a long peduncle 1–2 × spike length **1–10 pistillate flowers**	Whitish-green perigynium light orange to yellow-green to yellow-brown narrower & shorter than perigynium	**Inflated** 2–3½ × 1–2 Not winged Stigmas 2	moist or wet margins, meadows, canyon streams, or wetlands, often partial or deep shade, most lower mountains & foothills, w CO, throughout WY, Black Hills & sw foothills, SD, & nw ne; less commonly, lower Subalpine Zone higher same mountains.	
21. *Carex buxbaumii* CABU6 Buxbaum's sedge	Long rhizomes Bract > or < infl. sometimes with black or purple-black auricles	1–6 mm **Sometimes glaucous** lower leaf sheaths filamentose	2–5, Gynaecandrous / pistillate Upper & lower **appear the same** Lower ± separated ¼–3 × spike length, sessile or nearly so 10–50 pistillate flowers	**Dark** with a narrow lighter midrib perigynium light to medium color equal or longer than perigynium, ± covering it	2½–4½ × 1½–2½ Not winged Stigmas 3	Wet to moist aspen stands & wet meadows, Montane zone & Subalpine Zone, n & c CO and nw-sw WY; known from c NE to east, region.	
64. *Carex limosa* CALI7 mud sedge	Long slender rhizomes Bract > or < infl. sometimes with black -purple-black auricles	½–4 mm	2–5, Staminate / pistillate **reflexed & hanging** >13 mm × separated 1–3 × spike length, on a peduncle ½–1 × spike length; 1–30 pistillate flowers	medium to **dark** color perigynium light green as long & wide as perigynium, covering perigynium **persistent**	2½–4½ × 1½–2½ Not winged Stigmas 3	In wet areas: wet meadows, fens, limy fens, or marshes, often rooted, mosses, Subalpine Zone, w CO and nw-nc WY.	
65. *Carex livida* CALI livid sedge	Long rhizomes Bract > or < infl. long-sheathing >3 mm	1–4 mm **Strongly glaucous**	2–5, Gynaecandrous or Staminate / pistillate separated 1–3 × spike length on a peduncle ¼–2 × spike length **1–20 pistillate flowers**	Light or medium color perigynium light color shorter than perigynium, but mostly covering it	3–5 × 1–2 Not winged Stigmas 3	a few sites, very wet, cold fens & limy bogs, high mountains, c & nc CO and nw WY.	
107. *Carex saxatilis* CASA10 russet sedge	Long rhizomes Bract > or < infl. sometimes with black or purple-black auricles	1–6 mm lower leaf sheaths sometimes filamentose	2–5, Staminate / pistillate Lowest separated ¼–3 × spike length; **lower spike nodding**, on a long or short peduncle ½–2 × spike length 20–100 pistillate flowers	**Very dark color** perigynium medium color **narrower & shorter than perigynium**	3–5½ × 1½–2½ Not winged Stigmas 2 or 3	wet pond shores & wet willow stands, Subalpine Zone & lower Alpine Zone, high mountains, c CO ; scattered, same habitats, nw & se WY, & w CO .	

(CONTINUED ON NEXT PAGE)

B. PERIGYNIUM GLABROUS (Continued)

Names	Culms	Leaf width	Spikes	Scale	Perig. l × w, mm	In Rocky Mtn. Region	
125. *Carex utriculata* CAUT beaked sedge	**Obtusely triangular spongy bases** Short rhizomes or long rhizomes Bract usually 1–1½ × > infl.	4–12 mm	2–10, Staminate / pistillate ± separated ¼–3 × spike length sessile or nearly so 30–150 pistillate flowers	light to medium color perigynium light yellow-green to medium brown **narrower & shorter than perigynium**	3½–8 × 2–3½ Not winged Stigmas 3	Wet to very wet sites, foothills & mountains up to lower Subalpine Zone, often dominant under tall willows or dominant, sedge wetlands, w $^{2}/_{3}$, CO, all, WY but very se corner, &, Black Hills, ne WY & wc SD.	
128. *Carex vesicaria* CAVE6 blister sedge	Bunch or short rhizomes or long rhizomes Bract > infl. 1–½ × infl.	2–8 mm lower leaf sheaths filamentose	2–10, Staminate / pistillate separated ½–3 × spike length sessile or nearly so 30–100 pistillate flowers	medium color perigynium light yellow-green to medium brown **narrower & shorter than perigynium**	3½–10 × 2½–3½ Not winged Stigmas 3	Locally very wet sites, marshes & wet meadows, Subalpine Zone or Montane zone, mountains, nc-wc CO and nw-nc WY; scattered, s & nw CO .	

Table 31. Plants of wet sites in the high mountains, either the Alpine Zone or the Subalpine Zone. Long rhizomes present. Bract shorter than inflorescence

Names	Culms	Leaf width	Spikes	Scale	Perig. l × w, mm	In Rocky Mtn. Region	
13. *Carex aurea* CAAU3 golden sedge	**< 4 dm tall long-pedunculate basal spikes** Long rhizomes Bract > or < inflorescence **sheathing >3 mm**	1–6 mm	2–10, Gynaecandrous or staminate / pistillate Upper & lower appear different Lower separated 3–5 × spike length on a long peduncle 1–2 × spike length **1–10 pistillate flowers**	Whitish-green perigynium light orange to yellow-green to yellow-brown narrower & shorter than perigynium	**Inflated** 2–3½ × 1–2 Not winged Stigmas 2	moist or wet margins, meadows, canyon streams, or wetlands, often partial or deep shade, most lower mountains & foothills, w CO, throughout WY, Black Hills & sw foothills, SD, & nw ne; less commonly, lower Subalpine Zone higher same mountains.	
21. *Carex buxbaumii* CABU6 Buxbaum's sedge	Long rhizomes Bract > or < infl. sometimes with black or purple-black auricles	1–6 mm **Sometimes glaucous** lower leaf sheaths filamentose	2–5, Gynaecandrous / pistillate Upper & lower appear the same Lower ± separated ¼–3 × spike length, sessile or nearly so 10–50 pistillate flowers	**Dark** with a narrow lighter midrib perigynium light to medium color equal or longer than perigynium, ± covering it	2½–4½ × 1½–2½ Not winged Stigmas 3	Wet to moist aspen stands & wet meadows, Montane zone & Subalpine Zone, n & c CO and nw-sw WY; c NE	
59. *Carex lanuginosa* CALA30 woolly sedge	**Sharply triangular scabrous** Long rhizomes Bract usually > infl.	2–6 mm lower leaf sheaths purple-tinged & filamentose	2–5, Staminate / pistillate Upper & lower appear different separated ½–5 × spike length sessile or nearly so 20–100 pistillate flowers	medium color perigynium light brownish green narrower than perigynium	2½–4½ × 1½–2½ Not winged **Densely pubescent** Stigmas 3	wet meadows, wet streamsides, ditches, open wetlands, & lowlands from prairies & plains up, mountains to lower Subalpine Zone, CO, WY, Black Hills, w SD, & w ne; nc SD, se CO, & sw KS.	
60. *Carex lasiocarpa* CALA11 woollyfruit sedge	**Obtusely triangular** Long rhizomes Bract > or < infl.	1–4 mm **filiform, involutely rolled, long hairlike tips** leaf sheaths filamentose	2–5, Staminate / pistillate Upper & lower appear different separated 1–3 × spike length sessile or nearly so 10–50 pistillate flowers	medium to **dark** color perigynium light color narrower than perigynium	3–5 × 1½–2½ Not winged **Pubescent** Stigmas 3	Rare to wet sites such as fens or swamps, Subalpine Zone & upper Montane zone, n CO and nw WY.	

(CONTINUED ON NEXT PAGE)

Table 31. (Continued)

64. *Carex limosa* CALI7 mud sedge	Long slender rhizomes Bract > or < infl. sometimes with black or purple-black auricles	½–4 mm	2–5, Staminate / pistillate Upper & lower appear different **reflexed & hanging** separated 1–3 × spike length, on a peduncle ½–1 × spike length 1–30 pistillate flowers	medium to **dark** color perigynium light green color as long & wide as perigynium, covering perigynium **persistent**	2½–4½ × 1½–2½ Not winged Stigmas 3	In wet areas: wet meadows, fens, limy fens, or marshes, often rooted, mosses, Subalpine Zone, w CO and nw-nc WY.	
65. *Carex livida* CALI livid sedge	Long rhizomes Bract > or < infl. long-sheathing >3 mm	1–4 mm **Strongly glaucous**	2–5, Gynaecandrous or Staminate / pistillate Upper & lower appear different separated 1–3 × spike length on a peduncle ¼–2 × spike length **1–20 pistillate flowers**	Light or medium color perigynium light color shorter than perigynium, but mostly covering it	3–5 × 1–2 Not winged Stigmas 3	a few sites, very wet, cold fens & limy bogs, high mountains, c & nc CO and nw WY.	
107. *Carex saxatilis* CASA10 russet sedge	Long rhizomes Bract > or < infl. sometimes with black or purple-black auricles	1–6 mm lower leaf sheaths sometimes filamentose	2–5, Staminate / pistillate Upper & lower appear different shortly or distantly separated ¼–3 × spike length; **lower spike nodding**, on a long or short peduncle ½–2 × spike length 20–100 pistillate flowers	**Very dark color** perigynium medium color **narrower & shorter than perigynium**	3–5½ × 1½–2½ Not winged Stigmas 2 or 3	wet pond shores & wet willow stands, Subalpine Zone & lower Alpine Zone, high mountains, c CO; scattered, same habitats, nw & se WY, & w CO .	
110. *Carex scopulorum* CASC12 cliff sedge	Short rhizomes or long rhizomes Bract < infl. sometimes with black or purple-black auricles	1–8 mm sheaths sometimes filamentose	2–10, Gynaecandrous staminate or androgynous / pistillate Upper & lower appear different shortly separated ¼–3 × spike length, on a short peduncle ¼–1 × spike length 10–50 pistillate flowers	**Dark purple-black color perigynium usually dark** in upper ½, medium to light in lower ½ spikes appearing **very dark** narrower & shorter than perigynium	2–4 × 1–2½ Not winged Stigmas 2	wet basins & moist protected tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO, se WY, & nw WY.	

Table 32. Plants of wet sites in the high mountains, either the Alpine Zone or the Subalpine Zone. No long rhizomes, bunch sedges or mat-forming. Bract longer than inflorescence

Names	Culms	Leaf width	Spikes	Scale	Perig. l × w, mm	In Rocky Mtn. Region	
7. *Carex aquatilis* CAAQ water sedge	Bunch or long rhizomes Bract > or = to infl. sometimes with black or purple-black auricles	2–10 mm **Stiff** w-shaped in cross-section **Sometimes pubescent or glaucous**	**slender & long** 2–10, Staminate / androgynous or pistillate Lower separated ¼–1 × spike length, sessile or short peduncle ¼–½ × spike length 20–100 pistillate flowers	**Dark** with light midrib perigynium light green color spikes **usually bicolored** narrower & shorter than perigynium	1½–4 × 1–2½ Not winged Stigmas 2	open, unshaded, cold, wet sites, Subalpine Zone, mountains, w CO and w WY, always, or near water table, very commonly associated with low willows	
23. *Carex capillaris* CACA12 hair sedge	**Weak & hanging** Bunch or short rhizomes Bract > or < inflorescence **bract long-sheathing**	½–4 mm leaf sheaths sometimes filamentose	**Short** 2–5, Staminate / pistillate separated 1–5 × spike length on a long peduncle >2 × spike length **1–20 pistillate flowers**	light color perigynium light color shorter than perigynium	2–4½ × ½–1½ Beak serrulate Not winged Stigmas 3	wet, shaded sites stream banks & willow stands, Subalpine Zone & upper Montane zone, nc-sw CO and nw WY, commonly rooted, mosses; also known from a few sites, Black Hills, SD.	
42. *Carex exsiccata* CAEX5 western inflated sedge	Bunch or short rhizomes Bract 1–1¾ × inflorescence	2–8 mm leaf sheaths filamentose	2–10, Staminate / pistillate separated ¼–1 × spike length sessile or nearly so 20–50 pistillate flowers	Light to medium color perigynium light to medium color narrower & shorter than perigynium	**7–10** × 2–>3 Not winged Stigmas 3	Rare, a few wet sites, mountains, nw CO .	
61. *Carex lenticularis* CALE8 tufted sedge	Bunch Bract > inflorescence sometimes with black or purple-black auricles	1–4 mm	2–10, Gynaecandrous or Staminate / pistillate Lowest shortly spike separated ¼–1 × spike length, sessile or peduncle ¼–½ × spike length 30–100 pistillate flowers	**Dark color** perigynium light to medium color narrower & shorter than perigynium	1½–3½ × 1–2 Not winged Stigmas 2	Occasional or locally wet meadows & wet stream banks, Subalpine Zone or upper Montane zone, w CO, se WY, & nw-nc WY.	
68. *Carex magellanica* CAMA12 boreal bog sedge	Short rhizomes Bract < or slightly > inflorescence	1–6 mm	2–5, Staminate or gynaecandrous / pistillate separated 1–3 × spike length <13 mm long, **dangling or hanging** on a peduncle ½–1 × spike length; **1–20 pist. flowers**	light to medium color perigynium light color **narrower & longer than perigynium deciduous**	2–4 × 1–2½ Not winged Stigmas 3	Scattered wet lake shores & wet willow stands, Subalpine Zone, mountains, w CO and se WY.	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm leaf sheaths sometimes filamentose	**Narrow,** 2–5, Gynaecandrous or Staminate / pistillate Upper & lower appear the same ± separated ¼–1 × spike length on a short peduncle ¼–½ × spike length; 5–30 pistillate flowers	**Dark color** perigynium medium color narrower & shorter than perigynium	2–4½ × 1–2½ Not winged Stigmas 3	Moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO	
125. *Carex utriculata* CAUT beaked sedge	**Obtusely triangular spongy bases** Short rhizomes or long rhizomes Bract usually 1–1½ × > infl.	4–12 mm	2–10, Staminate / pistillate ± separated ¼–3 × spike length sessile or nearly so 30–150 pistillate flowers	light to medium color perigynium light yellow-green to medium brown narrower & shorter than perigynium	3½–8 × 2–3½ Not winged Stigmas 3	very wet sites, foothills & mountains up to lower Subalpine Zone, w ⅔ CO, all WY but very se corner, Black Hills, ne WY & wc SD	
128. *Carex vesicaria* CAVE6 blister sedge	Bunch or short rhizomes or long rhizomes Bract > infl. 1–½ × infl.	2–8 mm leaf sheaths filamentose	2–10, Staminate / pistillate separated ½–3 × spike length sessile or nearly so 30–100 pistillate flowers	medium color perigynium light yellow-green to medium brown narrower & shorter than perigynium	3½–10 × 2½–3½ Not winged Stigmas 3	Very wet sites, marshes & wet meadows, Subalpine Zone or Montane zone, mountains, nc-wc CO and nw-nc WY; scattered, s & nw CO .	
129. *Carex viridula* CAVI5 green sedge	Bract > inflorescence sometimes sheathing	1–4 mm leaf sheaths sometimes filamentose	2–10, Staminate / pistillate Lowest separated ¼–3 × spike length, sessile or short peduncle up to 1 × spike length 10–30 pistillate flowers	Light to medium color perigynium light to medium yellow-green narrower & shorter than perigynium	2–3½ × 1–1½ Not winged Stigmas 3	Rare to scattered, a few sites wet stream banks & shores, foothills & montane & Subalpine Zones, mountains, w CO, nw-nc WY, &, southern Black Hills, w SD.	

Table 33. Plants of wet sites in the high mountains, either the Alpine Zone or the Subalpine Zone. No long rhizomes, bunch sedges or mat-forming. Bract shorter than inflorescence

Names	Culms	Leaf width	Spikes	Scale	Perig. l × w, mm	In Rocky Mtn Region	
23. *Carex capillaris* CACA12 hair sedge	**Weak & hanging** Bunch or short rhizomes Bract > or < inflorescence **bract long-sheathing**	½–4 mm leaf sheaths sometimes filamentose	**Short** 2–5, Staminate / pistillate Upper & lower appear different separated 1–5 × spike length on a long peduncle >2 × spike length 1–20 pistillate flowers	light color perigynium light color shorter than perigynium	2–4½ × ½–1½ Beak serrulate Not winged Stigmas 3	wet, shaded sites stream banks & willow stands, Subalpine Zone & upper Montane zone, nc-sw CO and nw WY, commonly rooted, mosses; also known from a few sites, Black Hills, SD	
54. *Carex interior* CAIN11 inland sedge	Bunch or short rhizomes Bract none or scale-like	½–4 mm	2–10, Gynaecandrous or Staminate / pistillate Upper & lower appear **the same** separated 1–3 × spike length usually sessile or short peduncle up to ½ × spike length 1–10 pistillate flowers	Medium to light color **perigynium dark color** narrower & shorter than perigynium	**Spreading in the spike** 1½–3½ × 1–2 Not winged Stigmas 2	wet to moist sites, meadows & forests, mountains & foothills, w $^{2}/_{3}$ CO, nw WY, Black Hills, ne WY & w SD, &, nw-nc NE	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < inflorescence rarely sheathing	2–14 mm leaf sheaths sometimes filamentose	2–5, Staminate or androgynous / pistillate Upper & lower appear **the same** widely separated 1–5 × spike length on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to **dark** purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium, sometimes slightly narrower	3–5½ × 1–1½ Not winged Stigmas 3	wet to moist areas, mountains, nw WY	
68. *Carex magellanica* CAMA12 boreal bog sedge	Short rhizomes Bract < or slightly > inflorescence	1–6 mm	2–5, Staminate or gynaecandrous / pistillate Upper & lower appear different separated 1–3 × spike length <13 mm long **dangling or hanging** on a peduncle ½–1 × spike length 1–20 pistillate flowers	light to medium color perigynium light color **narrower & longer than perigynium deciduous**	2–4 × 1–2½ Not winged Stigmas 3	Scattered wet lake shores & wet willow stands, Subalpine Zone, mountains, w CO and se WY	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm leaf sheaths sometimes filamentose	**Narrow** 2–5, Gynaecandrous or Staminate / pistillate Upper & lower appear the same ± separated ¼–1 × spike length on a short peduncle ¼–½ × spike length 5–30 pistillate flowers	**Dark color** perigynium medium color narrower & shorter than perigynium	2–4½ × 1–2½ Not winged Stigmas 3	Moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO	
110. *Carex scopulorum* CASC12 cliff sedge	Short rhizomes or long rhizomes Bract < infl. sometimes with black or purple-black auricles	1–8 mm sheaths sometimes filamentose	2–10, Gynaecandrous staminate or androgynous / pistillate Upper & lower appear different shortly separated ¼–3 × spike length, on a short peduncle ¼–1 × spike length 10–50 pistillate flowers	**Dark purple-black perigynium usually dark** in upper ½, medium to light in lower ½, spikes appearing **very dark** narrower & shorter than perigynium	2–4 × 1–2½ Not winged Stigmas 2	wet basins & moist protected tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO, se WY, & nw WY	

Table 34. Plants of wet sites on the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Long rhizomes present. All mature leaves < 4 mm wide

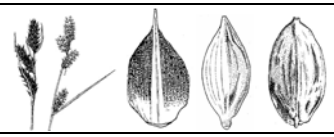
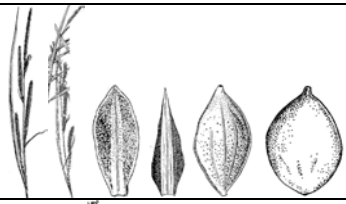
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mtn. Region	
13. *Carex aurea* CAAU3 golden sedge	**< 4 dm tall long-pedunculate basal spikes** Long rhizomes Bract > or < inflorescence **sheathing >3 mm**	1–6 mm	2–10, Gynaecandrous or staminate / pistillate Upper & lower appear different Lower separated 3–5 × spike length on a long peduncle 1–2 × spike length **1–10 pistillate flowers**	Whitish-green perigynium light orange to yellow-green to yellow-brown narrower & shorter than perigynium	**Inflated** 2–3½ × 1–2 Not winged Stigmas 2	moist or wet margins, meadows, canyon streams, or wetlands, often partial or deep shade, most lower mountains & foothills, w CO, throughout WY, Black Hills & sw foothills, SD, & nw ne; less commonly, lower Subalpine Zone higher same mountains.	
21. *Carex buxbaumii* CABU6 Buxbaum's sedge	Long rhizomes Bract > or < infl. sometimes with black or purple-black auricles	1–6 mm **Sometimes glaucous** lower leaf sheaths filamentose	2–5, Gynaecandrous / pistillate Upper & lower appear the same Lower ± separated ¼–3 × spike length, sessile or nearly so 10–50 pistillate flowers	**Dark** with a narrow lighter midrib perigynium light to medium color equal or longer than perigynium, ± covering it	2½–4½ mm × 1½–2½ mm Not winged Stigmas 3	Wet to moist aspen stands & wet meadows, Montane zone & Subalpine Zone, n & c CO and nw-sw WY; c NE	
28. *Carex crawei* CACR3 Crawe's sedge	Long rhizomes Bract < infl. **long-sheathing**	1–4 mm	2–5, Staminate / pistillate Upper & lower appear different widely separated 3–5 × spike length, on a peduncle ½–1 × spike length **Lowest nearly basal** 10–50 pistillate flowers	Medium red-brown perigynium light green to brown narrower & shorter than perigynium	3–4 mm × 1–2 mm Not winged Stigmas 3	Wet sites, meadows, swales, & ditches, foothills & plains, c & nw ne; a few sites, ec CO and se WY.	
40. *Carex emoryi* CAEM2 Emory's sedge	Long rhizomes Bract usually > or = to infl.	2–6 mm Leaf sheaths sometimes fibrous in age	**Long & narrow** 5–10, Staminate / pistillate Upper & lower appear different separated ¼–1 × spike length, sessile or nearly so 50–150 pistillate flowers	**Three-striped** with **dark** outside stripes & broad lighter midrib perigynium light to medium green to straw-colored narrower than perigynium	1½–3½ mm × 1–2 mm Not winged Stigmas 2	Wet swamps or along ditches, foothills & plains, NE CO, se WY, s SD, & w ne; isolated & less wet places, valleys & plains, ne WY, se & w CO, & w KS.	
59. *Carex lanuginosa* CALA30 woolly sedge	**Sharply triangular scabrous** Long rhizomes Bract usually > infl.	2–6 mm lower leaf sheaths purple-tinged & filamentose	2–5, Staminate / pistillate Upper & lower appear different separated ½–5 × spike length sessile or nearly so 20–100 pistillate flowers	medium color perigynium light brownish green narrower than perigynium	2½–4½ mm × 1½–2½ mm Not winged **Densely pubescent** Stigmas 3	Wet meadows, wet streamsides, ditches, open wetlands, & lowlands from prairies & plains up, mountains to lower Subalpine Zone, CO, WY, Black Hills, w SD, & w ne; nc SD, se CO, & sw KS.	
60. *Carex lasiocarpa* CALA11 woollyfruit sedge	**Obtusely triangular** Long rhizomes Bract > or < infl.	1–4 mm **filiform, involutely rolled, long hairlike tips** leaf sheaths filamentose	2–5, Staminate / pistillate Upper & lower appear different separated 1–3 × spike length sessile or nearly so 10–50 pistillate flowers	medium to **dark** color perigynium light color narrower than perigynium	3–5 mm × 1½–2½ mm Not winged **Pubescent** Stigmas 3	Rare wet sites such as fens or swamps, Subalpine Zone & upper Montane zone, n CO and nw WY.	
128. *Carex vesicaria* CAVE6 blister sedge	Bunch or short rhizomes or long rhizomes Bract > infl. 1–½ × infl.	2–8 mm leaf sheaths filamentose	2–10, Staminate / pistillate separated ½–3 × spike length sessile or nearly so 30–100 pistillate flowers	medium color perigynium light yellow-green to medium brown narrower & shorter than perigynium	3½–10 mm × 2½–3½ mm Not winged Stigmas 3	Very wet sites, marshes & wet meadows, Subalpine Zone or Montane zone, mountains, nc-wc CO and nw-nc WY; scattered, s & nw CO .	

Table 35. Plants of wet sites on the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Long rhizomes present. Some mature leaves > 4 mm wide

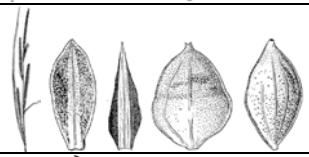
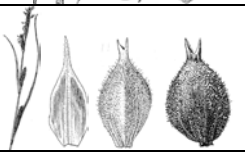
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mtn. Region	
9. *Carex atherodes* CAAT2 slough sedge	Long rhizomes Bract > inflorescence	**2–12 mm** Leaf sheaths **pubescent with long soft hairs,** sometimes filamentose	2–10, Staminate / androgynous or pistillate Upper & lower appear different Lower separated 1–3 × spike length, sessile or nearly so 30–100 pistillate flowers	light to medium color perigynium light yellow-green to brown narrower & shorter than perigynium	6½–11 × 1½–2½ **Tip with widely divergent teeth 1–3 long** Not winged Stigmas 3	Moderately wet to very wet, open sites, foothills & plains around edges, Black Hills, WY & SD &, nw ne; scattered, valleys & lower Montane zone, n & c CO .	
13. *Carex aurea* CAAU3 golden sedge	**< 4 dm tall long-pedunculate basal spikes** Long rhizomes Bract > or < inflorescence **sheathing >3 mm**	1–6 mm	2–10, Gynaecandrous or staminate / pistillate Upper & lower appear different Lower separated 3–5 × spike length on a long peduncle 1–2 × spike length; **1–10 pistillate flowers**	Whitish-green perigynium light orange to yellow-green to yellow-brown narrower & shorter than perigynium	**Inflated** 2–3½ × 1–2 Not winged Stigmas 2	moist or wet margins, meadows, canyon streams, or wetlands, often partial or deep shade, most lower mountains & foothills: w CO-all WY, Black Hills & sw foothills, SD, & nw NE; less commonly, lower Subalpine	
21. *Carex buxbaumii* CABU6 Buxbaum's sedge	Long rhizomes Bract > or < infl. sometimes with black or purple-black auricles	1–6 mm **Sometimes glaucous** lower leaf sheaths filamentose	2–5, Gynaecandrous / pistillate Upper & lower appear the same Lower ± separated ¼–3 × spike length, ± sessile 10–50 pistillate flowers	**Dark** with a narrow lighter midrib perigynium light to medium color equal or longer than perigynium, ± covering it	2½–4½ × 1½–2½ Not winged Stigmas 3	Wet to moist aspen stands & wet meadows, Montane zone & Subalpine Zone, n & c CO and nw-sw WY; c NE	
40. *Carex emoryi* CAEM2 Emory's sedge	Long rhizomes Bract usually > or = to infl.	2–6 mm Leaf sheaths sometimes fibrous in age	**Long & narrow** 5–10, Staminate / pistillate Upper & lower appear different separated ¼–1 × spike length, sessile or nearly so 50–150 pistillate flowers	**Three-striped** with **dark** outside stripes & broad lighter midrib perigynium light to medium green to straw-colored narrower than perigynium	1½–3½ × 1–2 Not winged Stigmas 2	Wet swamps or along ditches, foothills & plains, NE CO, se WY, s SD, & w ne; isolated & less wet places, valleys & plains, ne WY, se & w CO, & w KS.	
57. *Carex lacustris* CALA16 hairy sedge	Long rhizomes Bract > infl. Base of plant purple-tinged	**6–15 mm Sometimes glaucous** Leaf sheaths filamentose	2–10, Staminate / pistillate Upper & lower appear different separated 1–3 × spike length, peduncle 1–2 × spike length 30–100 pistillate flowers	medium to light color perigynium medium olive-green covering or shorter than perigynium	5½–7 × 2–3 Not winged **beak tip with straight, short teeth** Stigmas 3	In, very wet sites: swamps, sloughs, & wet meadows plains & sand hills, w & c NE.	
59. *Carex lanuginosa* CALA30 woolly sedge	**Sharply triangular scabrous** Long rhizomes Bract usually > infl.	2–6 mm lower leaf sheaths purple-tinged & filamentose	2–5, Staminate / pistillate Upper & lower appear different separated ½–5 × spike length sessile or nearly so 20–100 pistillate flowers	medium color perigynium light brownish green narrower than perigynium	2½–4½ × 1½–2½ Not winged **Densely pubescent** Stigmas 3	Wet meadows, wet streamsides, ditches, open wetlands, & lowlands from prairies & plains up, mountains to lower Subalpine Zone, CO, WY, Black Hills, w SD, & w ne; nc SD, se CO, & sw KS.	
76. *Carex nebrascensis* CANE2 Nebraska sedge	Short or long rhizomes Bract > or < infl. sometimes with black or purple-black auricles	**2–12 mm Conspicuously glaucous**	**Plump** 2–10, Staminate / pistillate Upper & lower appear different shortly separated ¼–1 × spike length, on a short peduncle ¼–½ × spike length 30–100 pistillate flowers	**Dark purple to brown-black** with lighter midrib & narrow margins perigynium light to medium straw-colored **scale red-dotted,** narrower & shorter than perigynium	2½–4 × 1½–2½ Not winged Stigmas 2	wet sites: swamps, wet streamsides, springs, alkaline meadows, wet swales, plains, foothills, & lower Montane zone mountains, throughout WY, most, CO, w & sw SD, & c & w NE.	
125. *Carex utriculata* CAUT beaked sedge	**Obtusely triangular spongy bases** Short or long rhizomes Bract usually 1–1½ × > infl.	**4–12 mm**	2–10, Staminate / pistillate ± separated ¼–3 × spike length, sessile or nearly so 30–150 pistillate flowers	light to medium color perigynium light yellow-green to medium brown narrower & shorter than perigynium	3½–8 × 2–3½ Not winged Stigmas 3	very wet sites, foothills & mountains up to lower Subalpine Zone, w ⅔ CO, all WY but very se corner, Black Hills, ne WY & wc SD	
128. *Carex vesicaria* CAVE6 blister sedge	Bunch or short rhizomes or long rhizomes Bract > infl. 1–½ × infl.	2–8 mm leaf sheaths filamentose	2–10, Staminate / pistillate separated ½–3 × spike length sessile or nearly so 30–100 pistillate flowers	medium color perigynium light yellow-green to medium brown narrower & shorter than perigynium	3½–10 × 2½–3½ Not winged Stigmas 3	Very wet sites, marshes & wet meadows, Subalpine Zone or Montane zone, mountains, nc-wc CO and nw-nc WY; scattered, s & nw CO .	

Table 36. Plants of wet sites on the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. No long rhizomes, bunch sedges or mat-forming. All mature leaves < 4 mm wide

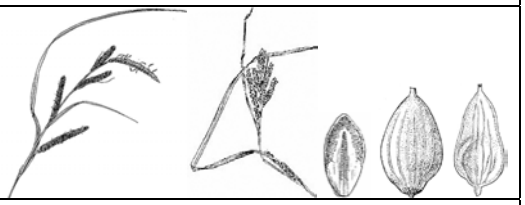
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mtn. Region	
23. *Carex capillaris* CACA12 hair sedge	**Weak & hanging** Bunch or short rhizomes Bract > or < infl. **bract long-sheathing**	½–4 mm leaf sheaths sometimes filamentose	**Short** 2–5, Staminate / pistillate separated 1–5 × spike length on a long peduncle >2 × spike length 1–20 pistillate flowers	light color perigynium light color shorter than perigynium	2–4½ × ½–1½ Not winged Stigmas 3	wet, shaded sites stream banks & willow stands, Subalpine Zone & upper Montane zone, nc-sw CO and nw WY, commonly rooted, mosses; also known from a few sites, Black Hills, SD	
61. *Carex lenticularis* CALE8 tufted sedge	Bunch Bract > infl. sometimes with black or purple-black auricles	1–4 mm	2–10, Gynaecandrous or Staminate / pistillate Lowest shortly spike separated ¼–1 × spike length, sessile or peduncle ¼–½ × spike length 30–100 pistillate flowers	**Dark color** perigynium light to medium color narrower & shorter than perigynium	1½–3½ × 1–2 Not winged Stigmas 2	Occasional or locally wet meadows & wet stream banks, Subalpine Zone or upper Montane zone, w CO, se WY, & nw-nc WY.	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm leaf sheaths sometimes filamentose	**Narrow** 2–5, Gynaecandrous or Staminate / pistillate Upper & lower appear the same ± separated ¼–1 × spike length on a short peduncle ¼–½ × spike length 5–30 pistillate flowers	**Dark color** perigynium medium color narrower & shorter than perigynium	2–4½ × 1–2½ Not winged Stigmas 3	Moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO	
88. *Carex peckii* CAPE11 Peck's sedge	Bunch or short rhizomes Bract usually > infl.	1–4 mm	2–5, Staminate / pistillate shortly separated ¼–1 × spike length, sessile or nearly so 1–20 pistillate flowers	light to medium color perigynium light to medium color much shorter than perigynium	3–4 × 1–1½ Not winged **uniformly pubescent** Stigmas 3	Wet sites, woods, thickets, shaded ravines, foothills & Montane zone, Black Hills, ne WY & w SD; ne CO, & nc WY, nc NE, & sw SD	
113. *Carex sprengelii* CASP7 Sprengel's sedge	Bunch or mat-forming Bract > or < infl.	2–6 mm Leaf sheaths filamentose	**Dangling-drooping** 2–10, Staminate / pistillate widely separated 1–5 × spike length, peduncle >2 × spike length 10–50 pistillate flowers	Light to medium color perigynium light straw-colored to medium green narrower than perigynium	5–6½ × 1½–2½ Not winged Stigmas 3	Moist or wet forests & streambanks, foothills & Montane zone, & around Black Hills, ne WY & w SD, &, nw ne; ne CO ; se WY, nw CO, sc CO, & nc WY	
128. *Carex vesicaria* CAVE6 blister sedge	Bunch or short rhizomes or long rhizomes Bract > infl. 1–½ × infl.	2–8 mm leaf sheaths filamentose	2–10, Staminate / pistillate separated ½–3 × spike length sessile or nearly so 30–100 pistillate flowers	medium color perigynium light yellow-green to medium brown narrower & shorter than perigynium	3½–10 × 2½–3½ Not winged Stigmas 3	Very wet sites, marshes & wet meadows, Subalpine Zone or Montane zone, mountains, nc-wc CO and nw-nc WY; scattered, s & nw CO .	
129. *Carex viridula* CAVI5 green sedge	Bract > infl. sometimes sheathing	1–4 mm leaf sheaths sometimes filamentose	2–10, Staminate / pistillate Lowest separated ¼–3 × spike length, sessile or short peduncle up to 1 × spike length 10–30 pistillate flowers	Light to medium color perigynium light to medium yellow-green narrower & shorter than perigynium	2–3½ × 1–1½ Not winged Stigmas 3	Rare to scattered, a few sites wet stream banks & shores, foothills & montane & Subalpine Zones, mountains, w CO, nw-nc WY, &, southern Black Hills, w SD.	

Table 37. Plants of wet sites on the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. No long rhizomes, bunch sedges or mat-forming. Some mature leaves > 4 mm wide. Bract longer than inflorescence

Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mtn. Region	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < infl. **rarely sheathing**	**2–14 mm** lower leaf sheaths sometimes filamentose	2–5, Staminate or androgynous / pistillate **Upper & lower appear the same** widely separated 1–5 × spike length, on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to **dark** purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium, sometimes slightly narrower	3–5½ mm × 1–1½ mm Not winged Stigmas 3	Locally wet to moist areas, mountains, nw WY.	
76. *Carex nebrascensis* CANE2 Nebraska sedge	Short or long rhizomes Bract > or < infl. sometimes with black or purple-black auricles	**2–12 mm Conspicuously glaucous**	**Plump** 2–10, Staminate / pistillate Upper & lower appear different shortly separated ¼–1 × spike length, on a short peduncle ¼–½ × spike length 30–100 pistillate flowers	**Dark purple to brown-black** with lighter midrib & narrow margins perigynium light to medium straw-colored **red-dotted** narrower & shorter than perigynium	2½–4 mm × 1½–2½ mm Not winged Stigmas 2	wet sites: swamps, wet streamsides, springs, alkaline meadows, wet swales, plains, foothills, & lower Montane zone mountains, throughout WY, most, CO, w & sw SD, & c & w NE.	
113. *Carex sprengelii* CASP7 Sprengel's sedge	Bunch or mat-forming Bract > or < infl.	2–6 mm Leaf sheaths filamentose	**Dangling-drooping** 2–10, Staminate / pistillate Upper & lower appear different widely separated 1–5 × spike length, peduncle >2 × spike length 10–50 pistillate flowers	Light to medium color perigynium light straw-colored to medium green narrower than perigynium	5–6½ mm × 1½–2½ mm Not winged Stigmas 3	Moist or wet forests & streambanks, foothills & Montane zone, & around Black Hills, ne WY & w SD, &, nw ne; ne CO ; se WY, nw CO, sc CO, & nc WY	

Table 38. Plants of wet sites on the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. No long rhizomes, bunch sedges or mat-forming. Some mature leaves > 4 mm wide. Bract shorter than inflorescence

Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mtn. Region	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < infl. **rarely sheathing**	**2–14 mm** lower leaf sheaths sometimes filamentose	2–5, Staminate or androgynous / pistillate **Upper & lower appear the same** widely separated 1–5 × spike length, on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to **dark** purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium, sometimes slightly narrower	3–5½ mm × 1–1½ mm Not winged Stigmas 3	Locally wet to moist areas, mountains, nw WY.	
76. *Carex nebrascensis* CANE2 Nebraska sedge	Short or long rhizomes Bract > or < infl. sometimes with black or purple-black auricles	**2–12 mm Conspicuously glaucous**	**Plump** 2–10, Staminate / pistillate Upper & lower appear different shortly separated ¼–1 × spike length, on a short peduncle ¼–½ × spike length 30–100 pistillate flowers	**Dark purple to brown-black** with lighter midrib & narrow margins perigynium light to medium straw-colored **red-dotted** narrower & shorter than perigynium	2½–4 mm × 1½–2½ mm Not winged Stigmas 2	Swamps, wet streamsides, springs, alkaline meadows, wet swales, plains, foothills, & lower Montane zone mountains, throughout WY, most, CO, w & sw SD, & c & w NE	
113. *Carex sprengelii* CASP7 Sprengel's sedge	Bunch or mat-forming Bract > or < infl.	2–6 mm Leaf sheaths filamentose	**Dangling-drooping** 2–10, Staminate / pistillate Upper & lower appear different widely separated 1–5 × spike length, peduncle >2 × spike length 10–50 pistillate flowers	Light to medium color perigynium light straw-colored to medium green narrower than perigynium	5–6½ mm × 1½–2½ mm Not winged Stigmas 3	Moist or wet forests & streambanks, foothills & Montane zone, & around Black Hills, ne WY & w SD, &, nw ne; ne CO ; se WY, nw CO, sc CO, & nc WY	
121. *Carex tetanica* CATE6 rigid sedge	Bunch or short rhizomes Bract < inflorescence Bract long-sheathing	2–6 mm	2–5, Staminate / pistillate Upper & lower appear different separated ¼–3 × spike length sessile or short peduncle 0–½ × spike length 1–30 pistillate flowers	purplish-brown above with lighter base & midrib perigynium medium-dark green	2–4 mm × 1½–2 mm Not winged Stigmas 3	Wet sites, swamps, wet meadows, & ditches, foothills & plains, nw & c NE.	
124. *Carex tribuloides* CATR7 blunt broom sedge	**Winged-triangular** Bunch Bract < inflorescence	2–10 mm Leaf sheaths green-striate	5–20, All gynaecandrous **Upper & lower appear the same** shortly separated ¼–1 × spike length sessile or nearly so 30–50 pistillate flowers	medium color perigynium medium green to straw-colored narrower & shorter than perigynium	3½–5½ mm × 1½–2½ mm **Winged to base & to apex** Stigmas 2	Wet sites, swamps, ditches, & wet prairies, sandhills, nc NE Foothills & plains	

Table 39. Dioecious plants *(almost always with long rhizomes – why?)*

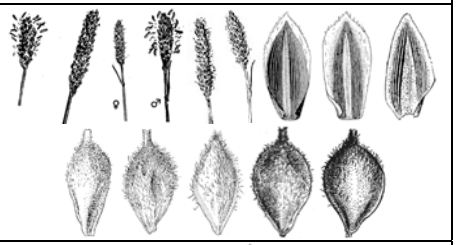
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mountain Region	
33. *Carex dioica* CADI northern bog sedge	Long rhizomes Bract none or scale-like	½–1 mm	**Spike solitary** staminate or pistillate or androgynous Plants may be dioecious Spike often few-flowered 1–20 pistillate flowers	Medium color perigynium medium to dark color shorter than perigynium	2½–4½ × 1½–2 not winged base tapered to a short stipe Conspicuously nerved Stigmas 2	In wet meadows or swamps, Subalpine Zone, high mountains, c CO, se WY, & nw WY.	
35. *Carex douglasii* CADO2 Douglas sedge	Long rhizomes Bract various or none > or < inflorescence	1–4 mm involute	**Head 1½–2½ cm broad** 5–20; Plants often dioecious Spikes all staminate or all pistillate, or Androgynous or staminate / pistillate Upper & lower spikes appear the same very close to next spike sessile or nearly so 10–30 pistillate flowers	Light to medium color light to medium straw-colored to light brown covering perigynium	3–4½ × 1½–2 not winged Sometimes lightly nerved Stigmas 2	dry, open alkaline flats & slopes, foothills, plains & lower Montane zone, throughout c & nw CO, s & c WY, & nw ne; less moist sites or outside this range, n WY, sw CO, & sw SD.	
79. *Carex nigricans* CANI2 black alpine sedge	Long rhizomes Bract none or scale-like	1–6 mm	**Spike solitary** staminate or pistillate or androgynous Plants may be dioecious Spike with 20–50 pistillate flowers	**Dark brown to black** perigynium medium to dark color shorter than perigynium & about as wide	3½–5½ × ½–1½ Not winged Nerveless & glabrous	moist to wet alpine tundra & streamsides, Alpine Zone & Subalpine Zone, w CO and nw WY.	
87. *Carex parryana* CAPA18 Parry sedge	**Short rhizomes** or long rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5; Spike sometimes solitary; plants sometimes dioecious Staminate or gynaecandrous or pistillate / staminate or pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length sessile or nearly so 10–100 pistillate flowers	Medium brown to **dark purple-brown** with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 × 1–2½ Serrulate not winged 2-ribbed Stigmas 3	Scattered, dry to moist open sites, prairies, plains, & mountains, w ⅔, CO, sw & e WY, & w & c NE.	
96. *Carex praegracilis* CAPR5 silver sedge	Long rhizomes Bract none or scale-like	1–4 mm Leaf sheaths dark brown to black	5–20; Plants sometimes dioecious & all staminate or pistillate; or Androgynous & lower staminate or androgynous or pistillate Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 10–30 pistillate flowers	Medium color perigynium medium straw-colored to dark brownish-black covering perigynium & enclosing it	3–4½ × 1–2 Serrulate not winged Stigmas 2	moist to dry swales, prairies, plains, mountain slopes, open areas, & ditches throughout CO, WY, w SD, & w ne; se & ec CO and sw KS	
108. *Carex scirpoidea* CASC10 northern singlespike sedge	Strongly purplish-tinged at base **Short rhizomes** or long rhizomes or **mat-forming** Bract none or various < inflorescence sometimes with black or purple-black auricles	1–4 mm Leaf sheaths sometimes pubescent or filamentose	**Spike solitary**; either androgynous or staminate or pistillate & plant dioecious; with 30–100 pistillate flowers	**Dark color** with white-hyaline margins perigynium medium to dark color covering or slightly shorter than perigynium	2–3½ × 1–2 Not winged **Pubescent** Stigmas 3	Locally especially limestone or dolomite, snowmelt areas, calcareous fens, & moist rocky slopes, Alpine Zone & upper Subalpine Zone, high mountains, c CO and nw WY.	
111. *Carex simulata* CASI2 short-beaked sedge	Long rhizomes Bract none or various < inflorescence	½–4 mm	5–20; All androgynous; or all staminate or pistillate & plants dioecious Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 1–20 pistillate flowers	Medium to **dark** brown perigynium medium color covering perigynium	1½–3 × 1–2 **Narrowly winged at junction of beak & body** Nerved or ribbed Stigmas 2	Scattered, wet meadows & swamps, foothills, Montane zone & Subalpine Zone, mountains, c-nc CO and se-c-sw-nw-nc WY.	
114. *Carex stenophylla* CAST40 needleleaf sedge	Long rhizomes Bract none or scale-like	½–4 mm involute	2–10; All androgynous; or all staminate or pistillate & plants dioecious Upper & lower appear the same very close to next spike sessile or nearly so 1–10 pistillate flowers	Chestnut to light brown perigynium medium straw-colored to dark black color covering perigynium	2–3½ × 1½–2½ not winged Stigmas 2	Open to very open dry slopes, hills, & dry prairies, foothills, plains, & Montane zone, mountains throughout region; except far western CO, se CO, & sw KS.	

Table 40. Plants of high elevations with black or very dark scales. Long rhizomes present. Wetland plants, areas near open water or with a high water table at some season. Spike solitary

Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mountain Region	
24. *Carex capitata* CACA13 capitate sedge	Short rhizomes or long rhizomes Bract none or scale-like	½–2 mm	Spike solitary shiny brown or black short & broad globose or triangular androgynous 1–20 pistillate flowers	hyaline with broad darker middle medium to dark color perigynium medium to dark color covering or narrower or shorter than perigynium	1½–4 × 1–2½ Prominently beaked not winged Stigmas 2	alpine wetlands, several populations scattered through high mountains, c-sw CO and nw WY.	
79. *Carex nigricans* CANI2 black alpine sedge	Long rhizomes Bract none or scale-like	1–6 mm	Spike solitary staminate or pistillate or androgynous **Plants may be dioecious** 20–50 pistillate flowers	Dark brown to black perigynium medium to dark color shorter than perigynium & about as wide	Spreading to reflexed 3½–5½ × ½–1½ Not winged Nerveless & glabrous	moist to wet alpine tundra & streamsides, Alpine Zone & Subalpine Zone, w CO and nw WY.	
87. *Carex parryana* CAPA18 Parry sedge	Short rhizomes or long rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5: Spike sometimes solitary; **plants sometimes dioecious** Staminate or gynaecandrous or pistillate / staminate or pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length sessile or nearly so 10–100 pistillate flowers	Medium brown to dark purple-brown with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 × 1–2½ Serrulate not winged very short-beaked 2-ribbed Stigmas 3	Scattered, dry to moist open sites, prairies, plains, & mountains, w 2/3, CO, sw & e WY, & w & c NE.	
105. *Carex rupestris* CARU3 curly sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm Leaf tips curled & drying	Spike solitary, closely-flowered, androgynous usually 6–15 pistillate flowers, ranging 1–20	Dark to medium color perigynium medium color covering perigynium	3½–4½ × 1½–2 Not winged Nerved or ribbed Stigmas 3	Dry ridgetops & windswept slopes, Alpine Zone & upper Subalpine Zone, high mountains, c-nc CO, se-nw-nc WY.	
108. *Carex scirpoidea* CASC10 northern singlespike sedge	**Strongly purplish-tinged at base** Short rhizomes or long rhizomes or mat-forming Bract none or various, < inflorescence sometimes with black or purple-black auricles	1–4 mm Leaf sheaths sometimes pubescent or filamentose	Spike solitary; either androgynous or staminate or pistillate & **plant dioecious**; 30–100 pistillate flowers	Dark color with white-hyaline margins perigynium medium to dark color covering or slightly shorter than perigynium	2–3½ × 1–2 Not winged Pubescent Stigmas 3	Locally especially limestone or dolomite, snowmelt areas, calcareous fens, & moist rocky slopes, Alpine Zone & upper Subalpine Zone, high mountains, c CO and nw WY.	

Table 41. Plants of high elevations with black or very dark scales. Long rhizomes present. Wetland plants, areas near open water or with a high water table at some season. More than one spike per culm

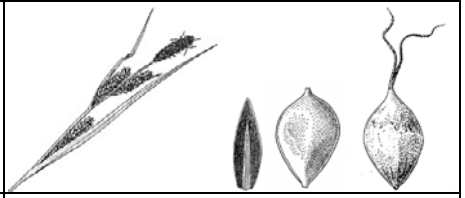
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mountain Region	
7. *Carex aquatilis* CAAQ water sedge	Bunch or long rhizomes Bract > or = to inflorescence sometimes with black or purple-black auricles	2–10 mm **Stiff, w-shaped in cross-section** Leaf sheaths sometimes pubescent sometimes glaucous Ligule triangular	2–10, **slender & long** Staminate / androgynous or pistillate; Upper & lower appear different; Lower separated ¼–1 × spike length, sessile or short peduncle ¼–½ × spike length 20–100 pistillate flowers	Dark with light midrib perigynium light green color spikes usually bicolored green-and-black narrower & shorter than perigynium	1½–4 × 1–2½ Not winged Stigmas 2	open, unshaded, cold, wet sites, Subalpine Zone, mountains, w CO and w WY, always, or near water table, very commonly associated with low willows	
21. *Carex buxbaumii* CABU6 Buxbaum's sedge	Long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–6 mm Sometimes glaucous lower leaf sheaths filamentose	2–5 Gynaecandrous / pistillate Upper & lower appear **the same** Lower ± separated ¼–3 × spike length sessile or nearly so 10–50 pistillate flowers	Dark with a narrow lighter midrib awned perigynium light to medium color about the same length or longer than perigynium almost covering it	2½–4½ × 1½–2½ Not winged Stigmas 3	Wet to moist aspen stands & wet meadows, Montane zone & Subalpine Zone, n & c CO and nw-sw WY; known from c NE to east, region.	
60. *Carex lasiocarpa* CALA11 woollyfruit sedge	Long rhizomes Bract > or < inflorescence	1–4 mm filiform involutely rolled with long hairlike tips Lower leaf sheaths filamentose ventrally	2–5 Staminate / pistillate Upper & lower appear different separated 1–3 × spike length sessile or nearly so 10–50 pistillate flowers	Acute to acuminate with a short beak medium to dark color perigynium light color narrower than perigynium	3–5 × 1½–2½ Not winged **Pubescent** Stigmas 3	Rare to wet sites such as fens or swamps, Subalpine Zone & upper Montane zone, n CO and nw WY.	
64. *Carex limosa* CALI7 mud sedge	Long slender rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	½–4 mm	2–5, Staminate / pistillate Upper & lower appear different reflexed & hanging >13 mm long separated 1–3 × spike length on a peduncle ½–1 × spike length 1–30 pistillate flowers	medium to dark color perigynium light green color as long & wide as perigynium covering perigynium persistent	2½–4½ × 1½–2½ Not winged Stigmas 3	In wet areas: wet meadows, fens, limy fens, or marshes, often rooted, mosses, Subalpine Zone, w CO and nw-nc WY.	
107. *Carex saxatilis* CASA10 russet sedge	Long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–6 mm lower leaf sheaths sometimes filamentose	2–5, Staminate / pistillate Upper & lower appear different shortly or distantly separated ¼–3 × spike length; lower spike nodding on a long or short peduncle ½–2 × spike length 20–100 pistillate flowers	Very dark color perigynium medium color narrower & shorter than perigynium	Shining 3–5½ × 1½–2½ Not winged Stigmas 2 or 3	wet pond shores & wet willow stands, Subalpine Zone & lower Alpine Zone, high mountains, c CO ; scattered, same habitats, nw & se WY, & w CO .	
110. *Carex scopulorum* CASC12 cliff sedge	Short rhizomes or long rhizomes Bract < inflorescence sometimes with black or purple-black auricles	1–8 mm lower leaf sheaths sometimes filamentose ventrally	2–10, Gynaecandrous - staminate - or androgynous / pistillate Upper & lower appear different shortly separated ¼–3 × spike length, on a short peduncle ¼–1 × spike length 10–50 pistillate flowers	Dark purple-black color perigynium usually dark in upper ½ medium to light in lower ½ so the spikes appearing very dark narrower & shorter than perigynium	Inflated 2–4 × 1–2½ Not winged Stigmas 2	wet basins & moist protected tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO, se WY, & nw WY.	
111. *Carex simulata* CASI2 short-beaked sedge	Long rhizomes Bract none or various < inflorescence	½–4 mm	5–20 All androgynous; or all staminate or pistillate & plants dioecious Upper & lower appear **the same** shortly separated ¼–1 × spike length sessile or nearly so 1–20 pistillate flowers	Medium to dark brown perigynium medium color covering perigynium	1½–3 × 1–2 **narrowly winged** at junction of beak & body Stigmas 2	Scattered, wet meadows & swamps, foothills, Montane zone & Subalpine Zone, mountains, c-nc CO and se-c-sw-nw-nc WY.	

Table 42. Plants of high elevations with black or very dark scales. Long rhizomes present. Plants of dry to moist sites, water table always low. Spike solitary

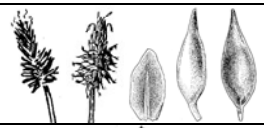
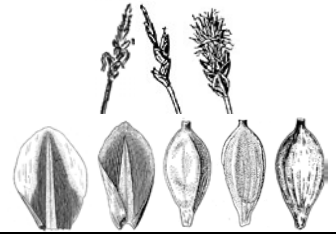
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mountain Region	
79. *Carex nigricans* CANI2 black alpine sedge	Long rhizomes Bract none or scale-like	1–6 mm	Spike solitary staminate or pistillate or androgynous Plants may be dioecious Spike with 20–50 pistillate flowers	Dark brown to black perigynium medium to dark color shorter than perigynium & about as wide	Spreading to reflexed 3½–5½ × ½–1½ Not winged	moist to wet alpine tundra & streamsides, Alpine Zone & Subalpine Zone, w CO and nw WY.	
87. *Carex parryana* CAPA18 Parry sedge	Short rhizomes or long rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5 Spike sometimes solitary; plants sometimes dioecious Terminal spike staminate or gynaecandrous or pistillate Lower staminate or pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length sessile or nearly so 10–100 pistillate flowers	Medium brown to dark purple-brown with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 × 1–2½ Serrulate not winged Stigmas 3	Scattered, dry to moist open sites, prairies, plains, & mountains, w ⅔, CO, sw & e WY, & w & c NE.	
105. *Carex rupestris* CARU3 curly sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm Leaf tips curled & drying	Spike solitary closely-flowered androgynous usually with 6–15 pistillate flowers ranging 1–20	Dark to medium color perigynium medium color covering perigynium	3½–4½ × 1½–2 Not winged Stigmas 3	Dry ridgetops & windswept slopes, Alpine Zone & upper Subalpine Zone, high mountains, c-nc CO, se-nw-nc WY.	
108. *Carex scirpoidea* CASC10 northern singlespike sedge	**Strongly purplish-tinged at base** Short rhizomes or long rhizomes or mat-forming Bract none or various < inflorescence sometimes with black or purple-black auricles	1–4 mm Leaf sheaths sometimes pubescent or filamentose	Spike solitary; either androgynous or staminate or pistillate & plant dioecious; with 30–100 pistillate flowers	Dark color with white-hyaline margins perigynium medium to dark color covering or slightly shorter than perigynium	2–3½ × 1–2 Not winged **Pubescent** Stigmas 3	Locally especially limestone or dolomite, snowmelt areas, calcareous fens, & moist rocky slopes, Alpine Zone & upper Subalpine Zone, high mountains, c CO and nw WY.	

Table 43. Plants of high elevations with black or very dark scales. Long rhizomes present. Plants of dry to moist sites, water table always low. More than one spike per culm

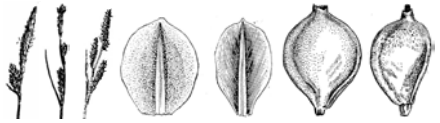
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mtn. Region	
21. *Carex buxbaumii* CABU6 Buxbaum's sedge	Long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–6 mm Sometimes glaucous lower leaf sheaths filamentose	2–5 Gynaecandrous / pistillate Upper & lower appear the same Lower ± separated ¼–3 × spike length sessile or nearly so 10–50 pistillate flowers	Dark with a narrow lighter midrib, **awned** perigynium light to medium color about the same length or longer than perigynium almost covering it	2½–4½ × 1½–2½ Not winged Stigmas 3	Wet to moist aspen stands & wet meadows, Montane zone & Subalpine Zone, n & c CO and nw-sw WY; known from c NE to east, region.	
55. *Carex jonesii* CAJO Jones's sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm mostly basal	Head tightly clustered densely cylindrical Spikes 2–10 Spikes all androgynous Upper & lower spikes appear the same very close to next spike sessile or nearly so Spikes few-flowered **3–10 pistillate flowers**	Medium to dark color perigynium medium to dark color shorter than perigynium	3–4½ × 1–2 Not winged Stigmas 2	Moist meadows, Subalpine Zone & Montane zone, mountains, c-nc CO & se WY; less nw WY.	
87. *Carex parryana* CAPA18 Parry sedge	Short rhizomes or long rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5; Spike sometimes solitary; plants sometimes dioecious Terminal spike staminate or gynaecandrous or pistillate Lower staminate or pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length sessile or nearly so 10–100 pistillate flowers	Medium brown to dark purple-brown with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 × 1–2½ Serrulate not winged Stigmas 3	Scattered, dry to moist open sites, prairies, plains, & mountains, w ⅔, CO, sw & e WY, & w & c NE.	
110. *Carex scopulorum* CASC12 cliff sedge	Short rhizomes or long rhizomes Bract < inflorescence sometimes with black or purple-black auricles	1–8 mm lower leaf sheaths sometimes filamentose	2–10 Gynaecandrous staminate or androgynous / pistillate Upper & lower appear different shortly separated ¼–3 × spike length on a short peduncle ¼–1 × spike length 10–50 pistillate flowers	Dark purple-black color perigynium usually dark in upper ½ medium to light in lower ½ so the spikes appearing very dark narrower & shorter than perigynium	Inflated 2–4 × 1–2½ Not winged Stigmas 2	wet basins & moist protected tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO, se WY, & nw WY.	
112. *Carex spectabilis* CASP5 showy sedge	Bunch or short rhizomes or mat-forming Bract > or < inflorescence sometimes with black or purple-black auricles	2–6 mm	2–10, Staminate / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length 10–30 pistillate flowers	Short-awned medium to dark color with lighter margins & midrib perigynium light color narrower & shorter than perigynium	3½–5 × 1½–2½ Not winged Stigmas 3	Scattered, moist areas, mountains, c-nc CO and nw WY Subalpine zone or Montane zone, mountains Habitat dry to moist.	
122. *Carex tolmiei* CATO14 Tolmie sedge	Short rhizomes or long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm lower leaf sheaths filamentose	2–10 Staminate or androgynous / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length 10–50 pistillate flowers	Dark reddish-brown perigynium light-colored below covering perigynium or slightly narrower & shorter	3–4 × 2–2½ Not winged Stigmas 3	to moist sites, nw WY; scattered, mountains, n CO and se WY Alpine zone or Subalpine Zone, mountains Habitat dry to moist.	
127. *Carex vernacula* CAVE5 alpine blackheaded sedge	Short rhizomes or long rhizomes Bract none or scale-like	1½–4 mm Usually not curling or drying	10–20, **Dense spherical ball-like cluster** all androgynous Upper & lower appear the same very close to next spike sessile or nearly so **1–10 pistillate flowers**	Obovate-oblanceolate broadest in upper ¼ dark-colored above with lighter lower portion & midrib perigynium medium color covering perigynium	3½–5 × 1½–2 Not winged except sometimes narrowly winged at junction of beak & body Stigmas 2	Occasional to locally dry to moist tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO and nw WY.	

Table 44. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Wetland plants, areas near open water or with a high water table at some season.
Head compound, with more than one spike to a node of the culm, with 5-20 spikes

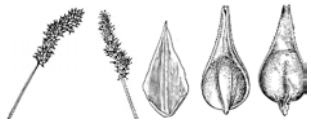
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mountain Region	
30. *Carex cusickii* CACU5 Cusick's sedge	Bunch or short rhizomes Bract none or scale-like	2–6 mm Leaf sheaths sometimes pubescent leaf sheaths red-dotted or –banded near the mouth	Head interrupted, compound Spikes 5–20 Staminate or androgynous / androgynous Upper & lower spikes appear the same separated 1–3 × spike length sessile or short peduncle up to 1 × spike length 5–20 pistillate flowers	Medium to dark color medium to dark color covering perigynium	2½–4 × 1–2 Beak serrulate not winged Stigmas 2	A few sites, wet areas, mountains or foothills, c CO, nw WY, & w NE.	
32. *Carex diandra* CADI4 lesser panicled sedge	Bunch or short rhizomes Bract always << inflorescence	1–3 mm (–4 mm) Leaf sheaths brown- or red-spotted	Spikes 10–20, in a long compound head (lower two or more to a node), all androgynous Upper & lower appear the same very close to next spike sessile or nearly so 1–10 pistillate flowers	Medium to dark color perigynium medium to dark color shorter than perigynium	2–3½ × 1–1½ Beak serrulate unwinged or very narrowly winged Stigmas 2	wet, unshaded subalpine willow stands, swamps, or wet meadows, mountains, n & w CO and nw WY.	

Table 45. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Wetland plants, areas near open water or with a high water table at some season. Head simple, with only one spike to a node, with 1–10 spikes

Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mountain Region	
7. *Carex aquatilis* CAAQ water sedge	Bunch or long rhizomes Bract > or = to inflorescence sometimes with black or purple-black auricles	2–10 mm, Stiff w-shaped in cross-section Leaf sheaths sometimes pubescent sometimes glaucous Ligule triangular	2–10, slender & long Staminate / androgynous or pistillate Upper & lower appear different Lower separated ¼–1 × spike length, sessile or short peduncle ¼–½ × spike length 20–100 pistillate flowers	Dark with light midrib perigynium light green color spikes usually bicolored green-and-black narrower & shorter than perigynium	1½–4 × 1–2½ Not winged Stigmas 2	open, unshaded, cold, wet sites, Subalpine Zone, mountains, w CO and w WY, always, or near water table, very commonly associated with low willows	
24. *Carex capitata* CACA13 capitate sedge	Short rhizomes or long rhizomes Bract none or scale-like	½–2 mm	Spike solitary shiny brown or black short & broad globose or triangular androgynous 1–20 pistillate flowers	hyaline with broad darker middle, medium to dark color perigynium medium to dark color covering or narrower or shorter than perigynium	1½–4 × 1–2½ not winged Stigmas 2	alpine wetlands, several populations scattered through high mountains, c-sw CO and nw WY.	
53. *Carex illota* CAIL sheep sedge	Short rhizomes Bract none or scale-like	1–4 mm	2–10, All gynaecandrous Upper & lower appear the same very close to next spike sessile or nearly so 1–20 pistillate flowers	Dark color perigynium dark color spike appears dark shorter than perigynium	2½–3½ × 1–1½ Not winged Nerved or ribbed Stigmas 2	Wet sites, alpine & upper Subalpine Zones, w CO and se & nw WY.	
61. *Carex lenticularis* CALE8 tufted sedge	Bunch Bract > inflorescence sometimes with black or purple-black auricles	1–4 mm	2–10, Gynaecandrous or Staminate / pistillate Upper & lower appear different lowest shortly spike separated ¼–1 × spike length sessile or peduncle ¼–½ × spike length 30–100 pistillate flowers	Dark color perigynium light to medium color narrower & shorter than perigynium	1½–3½ × 1–2 Not winged Stigmas 2	Occasional or locally wet meadows & wet stream banks, Subalpine Zone or upper Montane zone, w CO, se WY, & nw-nc WY.	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < inflorescence rarely sheathing	2–14 mm lower leaf sheaths sometimes filamentose	2–5, Staminate or androgynous / pistillate Upper & lower appear the same widely separated 1–5 × spike length, on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to dark purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium sometimes also slightly narrower	3–5½ × 1–1½ not winged Stigmas 3	Locally wet to moist areas, mountains, nw WY.	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm lower leaf sheaths sometimes filamentose	2–5, narrow, Gynaecandrous or Staminate / pistillate Upper & lower appear the same; lower ± separated ¼–1 × spike length, on a short peduncle ¼–½ × spike length 5–30 pistillate flowers	Dark color perigynium medium color narrower & shorter than perigynium	2–4½ × 1–2½ Serrulate not winged with a short beak Stigmas 3	moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO .	
108. *Carex scirpoidea* CASC10 northern singlespike sedge	Strongly purplish-tinged at base Short rhizomes or long rhizomes or mat-forming Bract none or various, < inflorescence sometimes with black or purple-black auricles	1–4 mm Leaf sheaths sometimes pubescent or filamentose	Spike solitary; either androgynous or staminate or pistillate & plant dioecious; with 30–100 pistillate flowers	Dark color with white-hyaline margins perigynium medium to dark color covering or slightly shorter than perigynium	2–3½ × 1–2 Not winged **Pubescent** Stigmas 3	Locally especially limestone or dolomite, snowmelt areas, calcareous fens, & moist rocky slopes, Alpine Zone & upper Subalpine Zone, high mountains, c CO and nw WY.	
110. *Carex scopulorum* CASC12 cliff sedge	Short rhizomes or long rhizomes Bract < inflorescence sometimes with black or purple-black auricles	1–8 mm lower leaf sheaths sometimes filamentose ventrally	2–10, Gynaecandrous – staminate - or androgynous / pistillate Upper & lower appear different shortly separated ¼–3 × spike length, on a short peduncle ¼–1 × spike length 10–50 pistillate flowers	Dark purple-black color perigynium usually dark in upper ½ medium to light in lower ½ so the spikes appearing very dark narrower & shorter than perigynium	Inflated 2–4 × 1–2½ Not winged Stigmas 2	wet basins & moist protected tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO, se WY, & nw WY.	

Table 46. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites, water table always low. Spike solitary

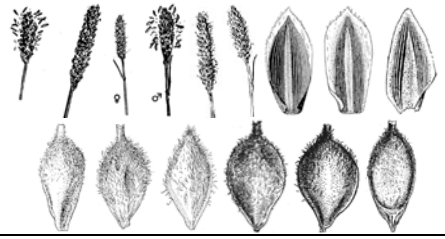
Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mountain Region	
27. *Carex crandallii* CACR17 Pyrenees sedge	Bunch Bract none or scale-like	½–2 mm channeled or involute	Spike solitary androgynous 10–30 pistillate flowers	Dark to medium color with narrow lighter borders & midrib perigynium dark color covering perigynium body & shorter than the perigynium length	3–4½ × ½–1½ Not winged Stigmas 3	moist rocky snowmelt slopes, Alpine Zone & high Subalpine Zone, mountains, w CO and w WY.	
50. *Carex hepburnii* CAHE16 Hepburn's sedge	Bunch Bract none or < inflorescence sometimes with black or purple-black auricles	½–1 mm	Spike solitary gynaecandrous or androgynous 1–20 pistillate flowers	Light to medium to dark color perigynium light to medium color narrower & shorter than perigynium	4–6½ × 1½–3 Beak serrulate & narrowly winged sometimes spongy at base or along sides Stigmas 2	Occasional high, rocky ridges dry sites, Alpine Zone, w CO, se WY, & nw WY.	
87. *Carex parryana* CAPA18 Parry sedge	Short rhizomes or long rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5; Spike sometimes solitary; plants **sometimes dioecious** Staminate or gynaecandrous or pistillate / staminate or pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length sessile or nearly so 10–100 pistillate flowers	Medium brown to dark purple-brown with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 × 1–2½ not winged Stigmas 3	Scattered, dry to moist open sites, prairies, plains, & mountains, w $^{2}/_{3}$, CO, sw & e WY, & w & c NE.	
105. *Carex rupestris* CARU3 curly sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm Leaf tips curled & drying	Spike solitary closely-flowered androgynous usually with 6–15 pistillate flowers ranging 1–20	Dark to medium color perigynium medium color covering perigynium	3½–4½ × 1½–2 Not winged Stigmas 3	Dry ridgetops & windswept slopes, Alpine Zone & upper Subalpine Zone, high mountains, c-nc CO, se-nw-nc WY.	
108. *Carex scirpoidea* CASC10 northern singlespike sedge	Strongly purplish-tinged at base Short rhizomes or long rhizomes or mat-forming Bract none or various < inflorescence sometimes with black or purple-black auricles	1–4 mm Leaf sheaths sometimes pubescent or filamentose	Spike solitary; either androgynous or staminate or pistillate & plant **dioecious**; with 30–100 pistillate flowers	Dark color with white-hyaline margins perigynium medium to dark color covering or slightly shorter than perigynium	2–3½ × 1–2 Not winged **Pubescent** Stigmas 3	Locally especially limestone or dolomite, snowmelt areas, calcareous fens, & moist rocky slopes, Alpine Zone & upper Subalpine Zone, high mountains, c CO and nw WY.	

Table 47. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites, water table always low. Spikes more than one to a culm. Terminal spike staminate. Scale covering perigynium body, beak may be protruding

Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
62. *Carex leporinella* CALE9 Siberian hare sedge	Bunch Bract > or < inflorescence sometimes with black or purple-black auricles	½–2 mm	2–10 All gynaecandrous or Staminate & lower gynaecandrous Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 10–30 pistillate flowers	With narrow hyaline margins medium to dark reddish-brown perigynium medium brown color slightly narrower & shorter than perigynium mostly concealing perigynium	1½–3½ mm long 1–2 mm wide Not winged Stigmas 2	Dry to moist montane to subalpine slopes & meadows, mountains, nw WY.	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < inflorescence rarely sheathing	**2–14 mm** lower leaf sheaths sometimes filamentose	2–5 Staminate or androgynous / pistillate Upper & lower appear the same widely separated 1–5 × spike length on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to dark purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium sometimes also slightly narrower	3–5½ mm long 1–1½ mm wide Serrulate not winged Stigmas 3	Locally wet to moist areas, mountains, nw WY.	
87. *Carex parryana* CAPA18 Parry sedge	Short rhizomes or long rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5 Spike sometimes solitary; plants sometimes dioecious Terminal spike staminate or gynaecandrous or pistillate Lower staminate or pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length sessile or nearly so 10–100 pistillate flowers	Medium brown to dark purple-brown with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 mm long 1–2½ mm wide not winged Stigmas 3	Scattered, dry to moist open sites, prairies, plains, & mountains, w $^{2}/_{3}$, CO, sw & e WY, & w & c NE.	
122. *Carex tolmiei* CATO14 Tolmie sedge	Short rhizomes or long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm lower leaf sheaths filamentose	2–10 Staminate or androgynous / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length 10–50 pistillate flowers	Dark reddish-brown perigynium light-colored below covering perigynium or slightly narrower & shorter	3–4 mm long 2–2½ mm wide Not winged Stigmas 3	to moist sites, nw WY; scattered, mountains, n CO and se WY Alpine zone or Subalpine Zone, mountains Habitat dry to moist.	

Table 48. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites, water table always low. Spikes more than one to a culm. Terminal spike staminate. Scale narrower and shorter than perigynium

Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mtn. Region	
26. *Carex concinna* CACO10 low northern sedge	Bunch or short rhizomes Bract sometimes sheathing >3 mm	1–4 mm lower leaf sheaths sometimes filamentose ventrally	2–5, Staminate / pistillate Upper & lower appear different slightly separated ¼–1 × spike length, sessile or peduncle up to 2 × spike length Relatively few-flowered 1–20 pistillate flowers	**Obtuse, ciliate puberulent** dark to medium color perigynium medium red-brown narrower & shorter than perigynium	2½–4 × 1–1½ Not winged **Pubescent** Stigmas 3	rare or overlooked, a few sites, moist forests, Subalpine Zone, c CO and nw WY &, Black Hills, SD.	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm lower leaf sheaths sometimes filamentose	2–5, narrow Gynaecandrous or Staminate / pistillate Upper & lower appear the same ± separated ¼–1 × spike length on a short peduncle ¼–½ × spike length; 5–30 pistillate flowers	Dark color perigynium medium color narrower & shorter than perigynium	2–4½ × 1–2½ not winged Stigmas 3	moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO .	
87. *Carex parryana* CAPA18 Parry sedge	Short rhizomes or long rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5 Spike sometimes solitary; plants sometimes dioecious Terminal spike staminate or gynaecandrous or pistillate Lower staminate or pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length sessile or nearly so 10–100 pistillate flowers	Medium brown to dark purple-brown with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 × 1–2½ not winged Stigmas 3	Scattered, dry to moist open sites, prairies, plains, & mountains, w $^{2}/_{3}$, CO, sw & e WY, & w & c NE.	
100. *Carex raynoldsii* CARA6 Raynolds sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm	2–5 Staminate / pistillate Upper & lower appear different separated 1–3 × spike length on a peduncle ½–1 × spike length 10–50 pistillate flowers	Black with a narrow lighter midrib perigynium light to medium green narrower & shorter than perigynium	3–5 × 1½–2½ Not winged Stigmas 3	Locally moist to dry mountain meadows & slopes, Subalpine Zone & Montane zone, nw-nc CO and se-nw-nc WY.	
110. *Carex scopulorum* CASC12 cliff sedge	Short rhizomes or long rhizomes Bract < inflorescence sometimes with black or purple-black auricles	1–8 mm lower leaf sheaths sometimes filamentose ventrally	2–10, Gynaecandrous – staminate - or androgynous / pistillate Upper & lower appear different shortly separated ¼–3 × spike length, on a short peduncle ¼–1 × spike length 10–50 pistillate flowers	Dark purple-black color perigynium usually dark in upper ½ medium to light in lower ½ so the spikes appearing very dark narrower & shorter than perigynium	2–4 × 1–2½ Not winged Stigmas 2	wet basins & moist protected tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO, se WY, & nw WY.	
112. *Carex spectabilis* CASP5 showy sedge	Bunch or short rhizomes or mat-forming Bract > or < inflorescence sometimes with black or purple-black auricles	2–6 mm	2–10 Staminate / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length 10–30 pistillate flowers	Short-awned medium to dark color with lighter margins & midrib perigynium light color narrower & shorter than perigynium	3½–5 × 1½–2½ Not winged Stigmas 3	Scattered, moist areas, mountains, c-nc CO and nw WY Subalpine zone or Montane zone, mountains Habitat dry to moist.	
122. *Carex tolmiei* CATO14 Tolmie sedge	Short rhizomes or long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm lower leaf sheaths filamentose	2–10, Staminate or androgynous / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length 10–50 pistillate flowers	Dark reddish-brown perigynium light-colored below covering perigynium or slightly narrower & shorter	3–4 × 2–2½ Not winged Stigmas 3	to moist sites, nw WY; scattered, mountains, n CO and se WY Alpine zone or Subalpine Zone, mountains Habitat dry to moist.	

Table 49. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites, water table always low. Spikes more than one to a culm. Terminal spike gynaecandrous. Scale covering perigynium body, beak may be protruding. Lower spikes gynaecandrous

Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
36. *Carex ebenea* CAEB ebony sedge	Bunch or short rhizomes Bract none or scale-like	1–6 mm	5–10 All gynaecandrous Upper & lower appear the same very close to next spike sessile or nearly so 10–20 pistillate flowers	Dark brown to black perigynium dark the head dark brown to black shorter than perigynium	4½–>7 mm long 1–2 mm wide Serrulate & winged beak slender & terete Stigmas 2	moist subalpine meadows throughout mountains, w CO and se WY; nw WY.	
62. *Carex leporinella* CALE9 Siberian hare sedge	Bunch Bract > or < inflorescence sometimes with black or purple-black auricles	½–2 mm	2–10 All gynaecandrous or Staminate & lower gynaecandrous Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 10–30 pistillate flowers	With narrow hyaline margins medium to dark reddish-brown perigynium medium brown color slightly narrower & shorter than perigynium mostly concealing perigynium	1½–3½ mm long 1–2 mm wide **Not winged** Stigmas 2	Dry to moist montane to subalpine slopes & meadows, mountains, nw WY.	
67. *Carex macloviana* CAMA9 thickhead sedge	Bunch Bract none or scale-like	1–6 mm	2–10 All gynaecandrous Upper & lower appear the same very close to next spike sessile or nearly so 20–50 pistillate flowers	With white-hyaline margins dark to medium color perigynium dark brown to copper brown shorter than perigynium almost covering it	3½–4½ mm long 1½–2 mm wide Winged Stigmas 2	dry to moist mountain meadows, subalpine & Montane zones, mountains, nw WY; less scattered, similar habitats, mountains, w CO, se WY, & sw WY.	
86. *Carex pachystachya* CAPA14 Chamisso sedge	Bunch Bract none or scale-like	2–6 mm	Head ovoid Spikes usually >5 ranging 2–20 Spikes all gynaecandrous Upper & lower spikes appear the same shortly separated ¼–1 × spike length sessile or nearly so 30–100 pistillate flowers	Dark brown to blackish brown with green midrib medium to dark color covering & shorter than perigynium	Spreading in the spike 3½–5 mm long 1–2½ mm wide winged to base Stigmas 2	dry to moist meadows, open woods, & slopes, Subalpine Zone or Montane zone, mountains, nw WY & eastern slope, front range, NE CO and se WY; less & scattered, w CO, sc WY, & nc WY.	
93. *Carex phaeocephala* CAPH2 dunhead sedge	Bunch Bract present or none, < inflorescence	½–4 mm	2–10 All gynaecandrous Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 10–30 pistillate flowers	Medium to dark color perigynium medium to dark color covering perigynium or nearly so	4–5½ mm long 1–2½ mm wide narrowly winged Stigmas 2	dry to moist rocks, meadows, & open forests, Alpine Zone & upper Subalpine Zone, mountains, w CO and se-w-nc WY.	
94. *Carex platylepis* CAPL8 broadscale sedge	Bunch or short rhizomes Bract none or various usually < inflorescence	2–6 mm	5–10 All gynaecandrous Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 20–50 pistillate flowers	Medium or dark color perigynium medium color covering perigynium	4–5 mm long 1½–2 mm wide winged Stigmas 2	to dry to moist meadows, woods, & slopes, mountains, nw WY.	

Table 50. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites, water table always low. Spikes more than one to a culm. Terminal spike gynaecandrous. Scale covering perigynium body, beak may be protruding. Lower spikes pistillate

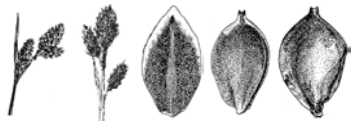
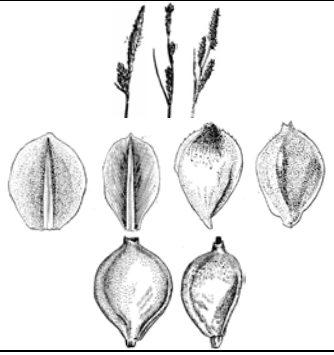
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
3. *Carex albo-nigra* CAAL6 blackhead sedge	Bunch or short rhizomes Bract < inflorescence sometimes with black or purple-black auricles	2–8 mm	2–5, Gynaecandrous / pistillate Upper & lower appear the same Lower separated ¼–1 × spike length sessile or short peduncle up to ½ × spike length 1–20 pistillate flowers	Dark color with conspicuous white-hyaline margins above perigynium usually dark color ± covering perigynium	2½–3½ mm long 1½–2½ mm wide Not winged Stigmas 3	Dry to moist alpine tundra & openings, alpine willow thickets, unshaded to slight shade, Alpine Zone, CO, WY.	
11. *Carex atrata* CAAT5 black sedge	Bunch Bract > or < inflorescence sometimes with black or purple-black auricles sometimes sheathing >3 mm	2–8 mm lower leaf sheaths sometimes filamentose ventrally	2–10, Gynaecandrous / pistillate Upper & lower appear the same Lower separated ¼–5 × spike length on a peduncle ½–1 × spike length 30–100 pistillate flowers	Black with very narrow lighter margins & midrib perigynium light to medium color covering or narrower or shorter than perigynium	2½–5 mm long 1½–3 mm wide Not winged Stigmas 3	subalpine meadows, alpine slopes, & edges, meadows, dry to moist, mountains, w CO and nw & se WY; less big horn mountains, nc WY.	
73. *Carex misandra* CAMI10 shortleaved sedge	Bunch Bract < inflorescence usually long-sheathing >3 mm	1–4 mm	2–5 Gynaecandrous / pistillate Upper & lower appear the same separated 1–5 × spike length on a drooping peduncle ½–2 × spike length 20–50 pistillate flowers	Dark color perigynium medium color shorter & wider than perigynium	4–5½ mm long 1–1½ mm wide not winged Stigmas 3	Dry to moist tundra slopes at a few sites, Alpine Zone & upper Subalpine Zone, nc CO and nw WY.	
87. *Carex parryana* CAPA18 Parry sedge	Short rhizomes or long rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5 Spike sometimes solitary; plants sometimes dioecious Terminal spike staminate or gynaecandrous or pistillate Lower staminate or pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length sessile or nearly so 10–100 pistillate flowers	Medium brown to dark purple-brown with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 mm long 1–2½ mm wide not winged Stigmas 3	Scattered, dry to moist open sites, prairies, plains, & mountains, w $^{2}/_{3}$, CO, sw & e WY, & w & c NE.	

Table 51. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites, water table always low. Spikes more than one to a culm. Terminal spike gynaecandrous. Scale narrower and shorter than perigynium. Lower spikes gynaecandrous

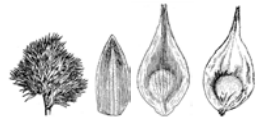
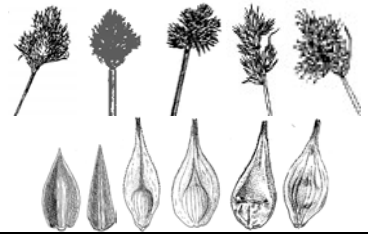
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
16. *Carex bella* CABE3 beautiful sedge	Bunch or short rhizomes Bract about = to inflorescence sometimes with black or purple-black auricles long-sheathing >3 mm	2–8 mm	2–5 All gynaecandrous nodding at maturity Upper & lower appear the same Lower separated 1–3 × spike length on a long peduncle 1–2 × spike length 10–30 pistillate flowers	Dark purplish brown or purplish black with conspicuous white-hyaline margins perigynium light greenish white to green color Spikes usually conspicuously bicolored narrower & shorter than perigynium	3–4½ mm long 1½–2½ mm wide **Not winged** Stigmas 3	moist aspen stands & moist open slopes, Montane zone or lower Subalpine Zone, mountains, c & s CO ; few sites, s Black Hills, SD.	
49. *Carex haydeniana* CAHA6 cloud sedge	Bunch or short rhizomes Bract none or leaf-like & < inflorescence sometimes with black or purple-black auricles	1–4 mm	2–10 All gynaecandrous Upper & lower appear the same very close to next spike sessile or nearly so 20–50 pistillate flowers	Dark brown perigynium medium color narrower & shorter than perigynium	4–6½ mm long 1½–3 mm wide Flat & scale-like winged Stigmas 2	dry to moist tundra, Alpine Zone & upper Subalpine Zone, w CO and se-nw-nc WY.	
72. *Carex microptera* CAMI7 smallwing sedge	Bract none or scale-like < inflorescence	1–6 mm	5–20 All gynaecandrous Upper & lower appear the same very close to next spike or shortly separated up to 1 × spike length sessile or nearly so 20–50 pistillate flowers	Dark brownish black perigynium medium to light green to straw-colored tinged with light brown narrower & shorter than perigynium	3–5½ mm long 1–2½ mm wide Beak winged Stigmas 2	moist meadows, open margins, wetlands & riparian areas, & open slopes, Subalpine Zone & Montane zone, all mountains, CO and WY, including Black Hills, ne WY & w SD; less dry sites, same range Bunch or short rhizomes.	
95. *Carex praeceptorum* CAPR4 teachers' sedge	Bunch or short rhizomes Bract none or various < inflorescence	1–4 mm	Usually 4–5 ranging 2–10 All gynaecandrous Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 1–20 pistillate flowers	Medium to dark color perigynium medium color narrower & shorter than perigynium	1½–2½ mm long ½–1½ mm wide **Not winged** Stigmas 2	Locally tundra or grassy slopes, alpine & upper subalpine ranges, park range, front range, & snowy range, nc CO & se WY, &, wind river mountains & Absaroka mountains, nw WY; less scattered mountains, w CO .	
99. *Carex preslii* CAPR8 Presl's sedge	Bunch Bract none or scale-like	1–6 mm	2–5 All gynaecandrous Upper & lower appear the same shortly separated ¼–1 × spike length sessile or nearly so 10–30 pistillate flowers	Medium to dark color perigynium light to medium color narrower & shorter than perigynium	3–4½ mm long 1½–2½ mm wide winged Stigmas 2	In a few dry to moist sites, nw WY Subalpine zone or Montane zone, mountains Habitat dry to moist.	

Table 52. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites, water table always low. Spikes more than one to a culm. Terminal spike gynaecandrous. Scale narrower and shorter than perigynium. Lower spikes pistillate

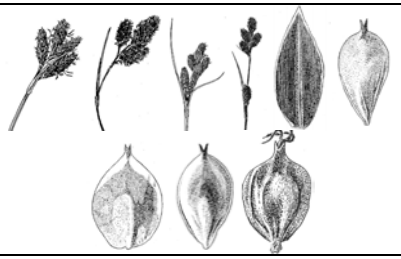
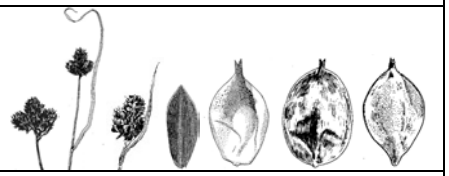
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
11. *Carex atrata* CAAT5 black sedge	Bunch Bract > or < inflorescence sometimes with black or purple-black auricles sometimes sheathing >3 mm	2–8 mm lower leaf sheaths sometimes filamentose ventrally	2–10 Gynaecandrous / pistillate Upper & lower appear the same Lower separated ¼–5 × spike length on a peduncle ½–1 × spike length 30–100 pistillate flowers	Black with very narrow lighter margins & midrib perigynium light to medium color covering or narrower or shorter than perigynium	2½–5 mm long 1½–3 mm wide Not winged Stigmas 3	subalpine meadows, alpine slopes, & edges, meadows, dry to moist, mountains, w CO and nw & se WY; less big horn mountains, nc WY.	
12. *Carex atrosquama* CAAT8 blackened sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–6 mm lower leaf sheaths sometimes filamentose ventrally	2–5, Gynaecandrous / pistillate Upper & lower spikes appear the same Lower separated ¼–3 × spike length, on a peduncle ½–2 × spike length 10–50 pistillate flowers	Black perigynium light to medium green narrower & shorter than perigynium	3–4 mm long 1½–2 mm wide Not winged Stigmas 3	open meadows, Alpine Zone or upper Subalpine Zone, mountains, w CO Habitat dry to moist.	
77. *Carex nelsonii* CANE3 Nelson's sedge	Short rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	2–6 mm lower leaf sheaths sometimes filamentose	2–5, Gynaecandrous / pistillate Upper & lower appear the same very close to next spike sessile or nearly so 10–50 pistillate flowers	Dark color perigynium light to medium color narrower & shorter than perigynium	3–4½ mm long 1–2½ mm wide not winged Stigmas 3	Dry to moist meadows, slopes, & snowmelt sites, Alpine Zone & high Subalpine Zone; fairly mountains, NE & sw CO ; scattered, c & s CO and, nw WY.	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm lower leaf sheaths sometimes filamentose	2–5, narrow Gynaecandrous or Staminate / pistillate Upper & lower appear the same ± separated ¼–1 × spike length on a short peduncle ¼–½ × spike length 5–30 pistillate flowers	Dark color perigynium medium color narrower & shorter than perigynium	2–4½ mm long 1–2½ mm wide not winged Stigmas 3	moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO .	
82. *Carex nova* CANO3 new sedge	Bunch or short rhizomes Bract none or leaf-like & > or < inflorescence sometimes with black or purple-black auricles	1–6 mm	2–5 broad-ovate with acute tip Gynaecandrous / pistillate Upper & lower appear the same very close to next spike sessile or nearly so 30–100 pistillate flowers	Dark color perigynium dark above narrower & shorter than perigynium	3–4½ mm long 1½–3 mm wide not winged Stigmas 3	moist slopes & meadows, Alpine Zone or Subalpine Zone, mountains, w CO, se WY, & nw WY.	
87. *Carex parryana* CAPA18 Parry sedge	Short rhizomes or long rhizomes Bract none or various > or < inflorescence sometimes with black or purple-black auricles	1–4 mm	1–5; Spike sometimes solitary; plants sometimes dioecious Staminate - gynaecandrous or pistillate / staminate - pistillate Upper & lower appear the same or different shortly separated ¼–1 × spike length, sessile or nearly so 10–100 pistillate flowers	Medium brown to dark purple-brown with prominent green midrib perigynium light straw-colored purple-tinged above covering or narrower or shorter than perigynium	2–4 mm long 1–2½ mm wide not winged Stigmas 3	Scattered, dry to moist open sites, prairies, plains, & mountains, w $^{2}/_{3}$, CO, sw & e WY, & w & c NE.	
110. *Carex scopulorum* CASC12 cliff sedge	Short rhizomes or long rhizomes Bract < inflorescence sometimes with black or purple-black auricles	1–8 mm lower leaf sheaths sometimes filamentose ventrally	2–10 Gynaecandrous staminate or androgynous / pistillate Upper & lower appear different shortly separated ¼–3 × spike length on a short peduncle ¼–1 × spike length 10–50 pistillate flowers	Dark purple-black color perigynium usually dark in upper ½ medium to light in lower ½ so the spikes appearing very dark narrower & shorter than perigynium	2–4 mm long 1–2½ mm wide Not winged Stigmas 2	wet basins & moist protected tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO, se WY, & nw WY.	

Table 53. Plants of high elevations with black or very dark scales. No long rhizomes, bunch sedges or mat-forming. Plants of dry to moist sites, water table always low. Spikes more than one to a culm. Terminal spike androgynous

Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
51. *Carex hoodii* CAHO5 Hood sedge	Bunch Bract none or various usually << inflorescence	1–4 mm	**Head dense, ovate**, <2 cm long Spikes 2–10 Spikes all androgynous Upper & lower spikes appear the same separated ¼–1 × spike length sessile or nearly so 10–20 pistillate flowers	Medium chestnut-brown dark glossy brown with a broad green margin narrower & shorter than perigynium	3–5½ mm long 1½–3 mm wide winged or not Stigmas 2	dry to moist forest openings & meadows, Subalpine Zone & Montane zone, nw & c CO, se-sw-nw-wc WY, &, bear lodge mountains & Black Hills, ne WY & w SD.	
55. *Carex jonesii* CAJO Jones's sedge	Short rhizomes or long rhizomes Bract none or scale-like	1–4 mm mostly basal	**Head tightly clustered, densely cylindrical** Spikes 2–10 Spikes all androgynous Upper & lower spikes appear the same very close to next spike sessile or nearly so Spikes few-flowered 3–10 pistillate flowers	Medium to dark color medium to dark color shorter than perigynium	3–4½ mm long 1–2 mm wide Not winged Stigmas 2	Moist meadows, Subalpine Zone & Montane zone, mountains, c-nc CO & se WY; less nw WY.	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < inflorescence rarely sheathing	2–14 mm lower leaf sheaths sometimes filamentose	2–5, Staminate or androgynous / pistillate Upper & lower appear the same widely separated 1–5 × spike length on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to dark purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium sometimes also slightly narrower	3–5½ mm long 1–1½ mm wide not winged Stigmas 3	Locally wet to moist areas, mountains, nw WY.	
112. *Carex spectabilis* CASP5 showy sedge	Bunch or short rhizomes or mat-forming Bract > or < inflorescence sometimes with black or purple-black auricles	2–6 mm	2–10, Staminate / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length 10–30 pistillate flowers	Short-awned medium to dark color with lighter margins & midrib perigynium light color narrower & shorter than perigynium	3½–5 mm long 1½–2½ mm wide Not winged Stigmas 3	Scattered, moist areas, mountains, c-nc CO and nw WY Subalpine zone or Montane zone, mountains Habitat dry to moist.	
122. *Carex tolmiei* CATO14 Tolmie sedge	Short rhizomes or long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm lower leaf sheaths filamentose	2–10, Staminate or androgynous / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length 10–50 pistillate flowers	Dark reddish-brown perigynium light-colored below covering perigynium or slightly narrower & shorter	3–4 mm long 2–2½ mm wide Not winged Stigmas 3	to moist sites, nw WY; scattered, mountains, n CO and se WY Alpine zone or Subalpine Zone, mountains Habitat dry to moist.	
127. *Carex vernacula* CAVE5 alpine blackheaded sedge	Short rhizomes or long rhizomes Bract none or scale-like	1½–4 mm Usually not curling or drying	10–20, **Densely aggregated into spherical ball-like cluster** all androgynous Upper & lower appear the same very close to next spike sessile or nearly so 1–10 pistillate flowers	Obovate-oblanceolate broadest in upper ¼ dark-colored above with lighter lower portion & midrib perigynium medium color covering perigynium	3½–5 mm long 1½–2 mm wide Not winged except sometimes narrowly winged at junction of beak & body Stigmas 2	Occasional to locally dry to moist tundra, Alpine Zone & upper Subalpine Zone, high mountains, w CO and nw WY.	

Table 54. Lower spikes dangling or drooping on a long peduncle. Long rhizomes present *(almost always staminate/pistillate –why?)*

Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
37. *Carex eburnea* CAEB2 bristleleaf sedge	**Long rhizomes between the bunches** Bract with no blade but long-sheathing	¼–1 mm	2–5 Staminate / pistillate Upper & lower appear different separated 3–>5 × spike length on a long peduncle >2 × spike length 2–20 pistillate flowers	Hyaline with darker midrib light color perigynium dark green to dark brown shorter than perigynium	2–3 mm long 1–2 mm wide Not winged Stigmas 3	In wooded or partially shaded, **dry, rocky or sandy** foothills & plains & lower Montane zone, Black Hills, WY & SD, sw SD, & nw NE.	
57. *Carex lacustris* CALA16 hairy sedge	Long rhizomes Bract > inflorescence Base of plant purple-tinged	6–15 mm Sometimes glaucous lower leaf sheaths filamentose	2–10 Staminate / pistillate Upper & lower appear different separated 1–3 × spike length on a peduncle 1–2 × spike length 30–100 pistillate flowers	Acuminate to awned medium to light color perigynium medium olive-green covering or shorter than perigynium	5½–7 mm long 2–3 mm wide Not winged Stigmas 3	In, very wet sites: swamps, sloughs, & wet meadows plains & sand hills, w & c NE.	
64. *Carex limosa* CALI7 mud sedge	Long, slender rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	½–4 mm	2–5 Staminate / pistillate Upper & lower appear different reflexed & hanging >13 mm long separated 1–3 × spike length on a peduncle ½–1 × spike length 1–30 pistillate flowers	Obtuse to minutely awn-tipped medium to dark color perigynium light green color as long & wide as perigynium covering perigynium persistent	2½–4½ mm long 1½–2½ mm wide Not winged Stigmas 3	In wet areas: wet meadows, fens, limy fens, or marshes, often rooted, mosses, Subalpine Zone, w CO and nw-nc WY.	
70. *Carex meadii* CAME2 Mead's sedge	> or = to basal leaves erect Long rhizomes Bract < or =ling inflorescence long-sheathing >3 mm	2–8 mm lower leaf sheaths filamentose	2–5 Staminate / pistillate Upper & lower appear different widely-separated long-pedunculate nearly basal 1–30 pistillate flowers	Blunt, awned, narrowly hyaline-margined dark purple-brown to medium brown perigynium light to medium yellow-green to brown as wide as perigynium & shorter than it	2½–4½ mm long 1–2½ mm wide Not winged Stigmas 3	SD, NE Foothills & plains **dry to moist.**	
107. *Carex saxatilis* CASA10 russet sedge	Long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–6 mm lower leaf sheaths sometimes filamentose	2–5 Staminate / pistillate Upper & lower appear different shortly or distantly separated ¼–3 × spike length; lower spike nodding on a long or short peduncle ½–2 × spike length 20–100 pistillate flowers	Very dark color perigynium medium color **narrower & shorter than perigynium**	3–5½ mm long 1½–2½ mm wide Not winged Stigmas 2 or 3	wet pond shores & wet willow stands, Subalpine Zone & lower Alpine Zone, high mountains, c CO ; scattered, same habitats, nw & se WY, & w CO .	
122. *Carex tolmiei* CATO14 Tolmie sedge	Short rhizomes or long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm lower leaf sheaths filamentose	2–10 Staminate or androgynous / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length 10–50 pistillate flowers	Dark reddish-brown perigynium light-colored below covering perigynium or slightly narrower & shorter	3–4 mm long 2–2½ mm wide Not winged Stigmas 3	to moist sites, nw WY; scattered, mountains, n CO and se WY Alpine zone or Subalpine Zone, mountains **dry to moist.**	

Table 55. Lower spikes dangling or drooping on a long peduncle. No long rhizomes, bunch sedges or mat-forming. Wetland plants, areas near open water or with a high water table at some season. Plants of high mountains, either the Alpine Zone or the Subalpine Zone

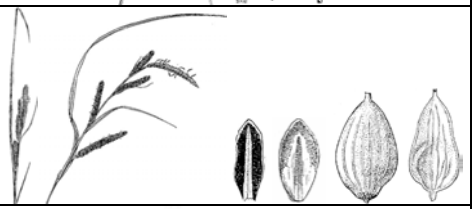
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
23. *Carex capillaris* CACA12 hair sedge	weak & drooping or hanging off adjacent vegetation Bunch or short rhizomes Bract > or < inflorescence bract long-sheathing >3 mm	½–4 mm lower leaf sheaths sometimes filamentose	2–5, short, Staminate / pistillate Upper & lower appear different separated 1–5 × spike length on a long peduncle >2 × spike length 1–20 pistillate flowers	With rounded hyaline tip light color perigynium light color so spikes often nearly invisible against associated vegetation shorter than perigynium	2–4½ × ½–1½ not winged Stigmas 3	wet, shaded sites stream banks & willow stands, Subalpine Zone & upper Montane zone, nc-sw CO and nw WY, commonly rooted, mosses; also known from a few sites, Black Hills, SD.	
42. *Carex exsiccata* CAEX5 western inflated sedge	Bunch or short rhizomes Bract > inflorescence 1–1¾ × inflorescence	2–8 mm lower leaf sheaths filamentose	2–10, Staminate / pistillate Upper & lower appear different separated ¼–1 × spike length sessile or nearly so 20–50 pistillate flowers	Light to medium color perigynium light to medium color narrower & shorter than perigynium	**7–10 ×** 2–>3 Not winged Stigmas 3	Rare, a few wet sites, mountains, nw CO .	
52. *Carex hystericina* CAHY4 bottlebrush sedge	Bunch or short rhizomes Bract > inflorescence sometimes sheathing >3 mm	2–10 mm lower leaf sheaths filamentose	2–5, Staminate or androgynous / pistillate Upper & lower appear different separated 1–3 × spike length on a dangling or drooping peduncle ½–1 × spike length 30–100 pistillate flowers	Long-awned light color perigynium medium green to straw-colored glossy narrower & shorter than perigynium	**Widely spreading to horizontal in the spike** **5–7½ ×** 1–2½ Long-beaked not winged Stigmas 3	wet sites, sloughs, swamps, & along ditches, foothills & along bases, mountains, NE CO, e 1/3 WY, s SD, & w ne; less s & w CO, nc WY, & w KS.	
61. *Carex lenticularis* CALE8 tufted sedge	Bunch Bract > inflorescence sometimes with black or purple-black auricles	1–4 mm	2–10, Gynaecandrous or Staminate / pistillate Upper & lower appear different lowest shortly spike separated ¼–1 × spike length sessile or peduncle ¼–½ × spike length 30–100 pistillate flowers	Dark color perigynium light to medium color narrower & shorter than perigynium	1½–3½ × 1–2 Not winged Stigmas 2	Occasional or locally wet meadows & wet stream banks, Subalpine Zone or upper Montane zone, w CO, se WY, & nw-nc WY.	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < inflorescence rarely sheathing	2–14 mm lower leaf sheaths sometimes filamentose	2–5, Staminate or androgynous / pistillate Upper & lower appear the same widely separated 1–5 × spike length on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to dark purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium sometimes also slightly narrower	3–5½ × 1–1½ not winged Stigmas 3	Locally wet to moist areas, mountains, nw WY.	
68. *Carex magellanica* CAMA12 boreal bog sedge	Short rhizomes Bract < or slightly > inflorescence	1–6 mm	2–5, Staminate or gynaecandrous / pistillate Upper & lower appear different separated 1–3 × spike length <13 mm long dangling or hanging on a peduncle ½–1 × spike length 1–20 pistillate flowers	Long-attenuate light to medium color perigynium light color narrower & longer than perigynium not covering perigynium deciduous	2–4 × 1–2½ Not winged Stigmas 3	Scattered wet lake shores & wet willow stands, Subalpine Zone, mountains, w CO and se WY.	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm lower leaf sheaths sometimes filamentose	2–5, narrow, Gynaecandrous or Staminate / pistillate Upper & lower appear the same ± separated ¼–1 × spike length on a short peduncle ¼–½ × spike length 5–30 pistillate flowers	Dark color perigynium medium color narrower & shorter than perigynium	2–4½ × 1–2½ not winged Stigmas 3	moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO .	

Table 56. Lower spikes dangling or drooping on a long peduncle. No long rhizomes, bunch sedges or mat-forming. Wetland plants, areas near open water or with a high water table at some season. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Perigynium > 5 mm long

Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
25. *Carex comosa* CACO8 longhair sedge	**Triangular, winged on the angles** > or = to basal leaves erect Bunch Bract much > inflorescence	6–16 mm	2–10 Staminate / pistillate Upper & lower appear different separated ¼–1 × spike length on a short peduncle ¼–½ × spike length Lower hanging or dangling Lower perigynia reflexed in the spike 50–150 pistillate flowers	Long & narrow serrulate-awned light to medium color perigynium light to medium yellow-green narrower & shorter than perigynium	**5–8 mm long** 1–2 mm wide Not winged Stigmas 3	In wet meadows, swamps, & sloughs, nw-c ne; few sites, sw SD.	
42. *Carex exsiccata* CAEX5 western inflated sedge	Bunch or short rhizomes Bract > inflorescence 1–1¾ × inflorescence	2–8 mm lower leaf sheaths filamentose	2–10 Staminate / pistillate Upper & lower appear different separated ¼–1 × spike length sessile or nearly so 20–50 pistillate flowers	Light to medium color perigynium light to medium color narrower & shorter than perigynium	**7–10 mm long** 2–>3 mm wide Not winged Stigmas 3	Rare, a few wet sites, mountains, nw CO .	
52. *Carex hystericina* CAHY4 bottlebrush sedge	Bunch or short rhizomes Bract > inflorescence sometimes sheathing >3 mm	2–10 mm lower leaf sheaths filamentose	2–5 Staminate or androgynous / pistillate Upper & lower appear different separated 1–3 × spike length on a dangling or drooping peduncle ½–1 × spike length 30–100 pistillate flowers	Long-awned light color perigynium medium green to straw-colored glossy narrower & shorter than perigynium	**Widely spreading to horizontal in the spike** **5–7½ mm long** 1–2½ mm wide Long-beaked not winged Stigmas 3	wet sites, sloughs, swamps, & along ditches, foothills & along bases, mountains, NE CO, e ⅓ WY, s SD, & w ne; less s & w CO, nc WY, & w KS.	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < inflorescence rarely sheathing	2–14 mm lower leaf sheaths sometimes filamentose	2–5 Staminate or androgynous / pistillate Upper & lower appear the same widely separated 1–5 × spike length on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to dark purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium sometimes also slightly narrower	3–5½ mm long 1–1½ mm wide not winged Stigmas 3	Locally wet to moist areas, mountains, nw WY.	
101. *Carex retrorsa* CARE4 knotsheath sedge	Bunch or short rhizomes Bract much > inflorescence	2–10 mm lower leaf sheaths filamentose	2–20 Gynaecandrous or Staminate / pistillate Upper & lower appear different shortly separated ¼–1 × spike length sessile or nearly so 50–150 pistillate flowers	Brown & green acute to acuminate not awned perigynium light yellow-green to medium green narrower & shorter than perigynium	**Widely spreading or reflexed in spike** **6½–10 mm long** 2–3½ mm wide Not winged Stigmas 3	Marshes, wet meadows, or sloughs, foothills & Montane zone, nw & sw CO, &, bear lodge mountains & Black Hills, ne WY & w SD.	
113. *Carex sprengelii* CASP7 Sprengel's sedge	Bunch or mat-forming Bract > or < inflorescence	2–6 mm lower leaf sheaths filamentose	2–10 Staminate / pistillate Upper & lower appear different widely separated 1–5 × spike length dangling-drooping when mature on a long peduncle >2 × spike length 10–50 pistillate flowers	Light to medium color perigynium light straw-colored to medium green narrower than perigynium	5–6½ mm long 1½–2½ mm wide Not winged Stigmas 3	moist or wet forests & streambanks, foothills & Montane zone, & around Black Hills, ne WY & w SD, &, nw ne; somewhat disjunct, cool shaded ravines, foothills east side, front range, NE CO ; a few locations, se WY, nw CO, sc CO, & nc WY.	

Table 57. Lower spikes dangling or drooping on a long peduncle. No long rhizomes, bunch sedges or mat-forming. Wetland plants, areas near open water or with a high water table at some season. Plants of the lower slopes of mountains, foothills, intermountain valleys, intermountain plains, mesas, or canyons. Perigynium < 5 mm long

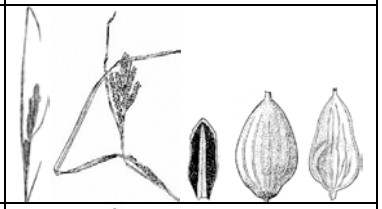
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
23. *Carex capillaris* CACA12 hair sedge	weak & drooping or hanging off adjacent vegetation Bunch or short rhizomes Bract > or < inflorescence bract long-sheathing >3 mm	½–4 mm lower leaf sheaths sometimes filamentose	2–5 short Staminate / pistillate Upper & lower appear different separated 1–5 × spike length on a long peduncle >2 × spike length 1–20 pistillate flowers	With rounded hyaline tip light color perigynium light color so spikes often nearly invisible against associated vegetation shorter than perigynium	2–4½ mm long ½–1½ mm wide not winged Stigmas 3	wet, shaded sites stream banks & willow stands, Subalpine Zone & upper Montane zone, nc-sw CO and nw WY, commonly rooted, mosses; also known from a few sites, Black Hills, SD.	
47. *Carex granularis* CAGR3 limestone meadow sedge	Bunch Bract > inflorescence long-sheathing >3 mm red-dotted	3–12 mm often glaucous	2–10 Staminate / pistillate Upper & lower appear different widely separated 3–5 × spike length upper pistillate sessile or short peduncle up to ½ × spike length 10–50 pistillate flowers	White-hyaline with a narrow darker midrib acuminate to short-awned medium color perigynium medium color shorter than perigynium sometimes narrower	2–4 mm long 1–2½ mm wide not winged Stigmas 3	In moist to wet sites, bogs, swamps, along ditches, &, river-bottom woods, foothills, plains, & lower Montane zone, northern Black Hills, e WY & w SD, &, nw-nc NE.	
61. *Carex lenticularis* CALE8 tufted sedge	Bunch Bract > inflorescence sometimes with black or purple-black auricles	1–4 mm	2–10 Gynaecandrous or Staminate / pistillate Upper & lower appear different lowest shortly spike separated ¼–1 × spike length sessile or peduncle ¼–½ × spike length 30–100 pistillate flowers	Dark color perigynium light to medium color narrower & shorter than perigynium	1½–3½ mm long 1–2 mm wide Not winged Stigmas 2	Occasional or locally wet meadows & wet stream banks, Subalpine Zone or upper Montane zone, w CO, se WY, & nw-nc WY.	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < inflorescence rarely sheathing	2–14 mm lower leaf sheaths sometimes filamentose	2–5 Staminate or androgynous / pistillate Upper & lower appear the same widely separated 1–5 × spike length on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to dark purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium sometimes also slightly narrower	3–5½ mm long 1–1½ mm wide not winged Stigmas 3	Locally wet to moist areas, mountains, nw WY.	
68. *Carex magellanica* CAMA12 boreal bog sedge	Short rhizomes Bract < or slightly > inflorescence	1–6 mm	2–5 Staminate or gynaecandrous / pistillate Upper & lower appear different separated 1–3 × spike length <13 mm long dangling or hanging on a peduncle ½–1 × spike length 1–20 pistillate flowers	Long-attenuate light to medium color perigynium light color narrower & longer than perigynium not covering perigynium deciduous	2–4 mm long 1–2½ mm wide Not winged Stigmas 3	Scattered wet lake shores & wet willow stands, Subalpine Zone, mountains, w CO and se WY.	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm lower leaf sheaths sometimes filamentose	2–5 narrow Gynaecandrous or Staminate / pistillate Upper & lower appear the same ± separated ¼–1 × spike length on a short peduncle ¼–½ × spike length 5–30 pistillate flowers	Dark color perigynium medium color narrower & shorter than perigynium	2–4½ mm long 1–2½ mm wide not winged Stigmas 3	moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO .	

Table 58. Lower spikes dangling or drooping on a long peduncle. No long rhizomes, bunch sedges or mat-forming. Terminal spike gynaecandrous

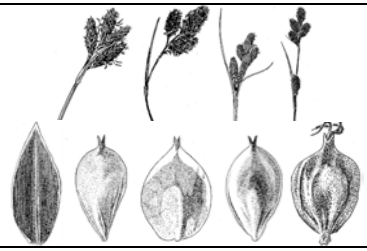
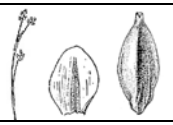
Names	Culms	Leaf width	Spikes	Scale	Perigynium	In Rocky Mountain Region	
11. *Carex atrata* CAAT5 black sedge	Bunch Bract > or < inflorescence sometimes with black or purple-black auricles sometimes sheathing >3 mm	2–8 mm lower leaf sheaths sometimes filamentose ventrally	2–10 Gynaecandrous / pistillate Upper & lower appear the same Lower separated ¼–5 × spike length on a peduncle ½–1 × spike length 30–100 pistillate flowers	Black with very narrow lighter margins & midrib perigynium light to medium color covering or narrower or shorter than perigynium	2½–5 mm long 1½–3 mm wide Not winged Stigmas 3	subalpine meadows, alpine slopes, & edges, meadows, dry to moist, mountains, w CO and nw & se WY; less big horn mountains, nc WY.	
16. *Carex bella* CABE3 beautiful sedge	Bunch or short rhizomes Bract about = to inflorescence sometimes with black or purple-black auricles long-sheathing >3 mm	2–8 mm	2–5 All gynaecandrous nodding at maturity Upper & lower appear the same Lower separated 1–3 × spike length on a long peduncle 1–2 × spike length 10–30 pistillate flowers	Dark purplish brown or purplish black with conspicuous white-hyaline margins perigynium light greenish white to green color Spikes usually conspicuously bicolored narrower & shorter than perigynium	3–4½ mm long 1½–2½ mm wide Not winged Stigmas 3	moist aspen stands & moist open slopes, Montane zone or lower Subalpine Zone, mountains, c & s CO ; few sites, s Black Hills, SD.	
73. *Carex misandra* CAMI10 shortleaved sedge	Bunch Bract < inflorescence usually long-sheathing >3 mm	1–4 mm	2–5 Gynaecandrous / pistillate Upper & lower appear the same separated 1–5 × spike length on a drooping peduncle ½–2 × spike length 20–50 pistillate flowers	Dark color perigynium medium color shorter & wider than perigynium	4–5½ mm long 1–1½ mm wide not winged Stigmas 3	Dry to moist tundra slopes at a few sites, Alpine Zone & upper Subalpine Zone, nc CO and nw WY.	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm lower leaf sheaths sometimes filamentose	2–5 narrow Gynaecandrous or Staminate / pistillate Upper & lower appear the same ± separated ¼–1 × spike length on a short peduncle ¼–½ × spike length 5–30 pistillate flowers	Dark color perigynium medium color narrower & shorter than perigynium	2–4½ mm long 1–2½ mm wide not winged Stigmas 3	moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO .	

Table 59. Lower spikes dangling or drooping on a long peduncle. No long rhizomes, bunch sedges or mat-forming. Terminal spike staminate or androgynous

Names	Culms	Leaf width	Spikes	Scale	Perigynium l × w, mm	In Rocky Mountain Region	
37. *Carex eburnea* CAEB2 bristleleaf sedge	**Long rhizomes between the bunches** Bract with no blade but long-sheathing	¼–1 mm	2–5, Staminate / pistillate Upper & lower appear different separated 3–>5 × spike length on a long peduncle >2 × spike length; 2–20 pistillate flowers	Hyaline with darker midrib light color perigynium dark green to dark brown shorter than perigynium	2–3 × 1–2 Not winged Stigmas 3	In wooded or partially shaded, dry, rocky or sandy foothills & plains & lower Montane zone, Black Hills, WY & SD, sw SD, & nw NE.	
47. *Carex granularis* CAGR3 limestone meadow sedge	Bunch Bract > inflorescence long-sheathing >3 mm red-dotted	3–12 mm often glaucous	2–10, Staminate / pistillate Upper & lower appear different widely separated 3–5 × spike length upper pistillate sessile or short peduncle up to ½ × spike length 10–50 pistillate flowers	White-hyaline with a narrow darker midrib acuminate to short-awned medium color perigynium medium color shorter than perigynium sometimes narrower	2–4 × 1–2½ not winged Stigmas 3	In moist to wet sites, bogs, swamps, along ditches, &, river-bottom woods, foothills, plains, & lower Montane zone, northern Black Hills, e WY & w SD, &, nw-nc NE.	
66. *Carex luzulina* CALU7 wingseed sedge	Bunch or short rhizomes Bract < inflorescence rarely sheathing	2–14 mm lower leaf sheaths sometimes filamentose	2–5, Staminate or androgynous / pistillate Upper & lower appear the same widely separated 1–5 × spike length, on a short peduncle ½–1 × spike length 20–50 pistillate flowers	Medium to dark purplish-brown to purplish-black perigynium light green to yellow-green shorter than perigynium sometimes also slightly narrower	3–5½ × 1–1½ not winged Stigmas 3	Locally wet to moist areas, mountains, nw WY.	
81. *Carex norvegica* CANO2 Norway sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	1–4 mm lower leaf sheaths sometimes filamentose	2–5, narrow, Gynaecandrous or Staminate / pistillate Upper & lower appear the same ± separated ¼–1 × spike length, on a short peduncle ¼–½ × spike length; 5–30 pistillate flowers	Dark color perigynium medium color narrower & shorter than perigynium	2–4½ × 1–2½ not winged Stigmas 3	moist aspen forests, forest openings, & wet tundra, upper montane, subalpine, & Alpine Zones, mountains, n & c CO and nw WY; less s & wc CO .	
89. *Carex pedunculata* CAPE4 longstalk sedge	**producing long-pedunculate carpellate spikes from the plant base** Bunch or short rhizomes or mat-forming	2–6 mm	2–5, Staminate or androgynous / androgynous or pistillate Upper & lower appear the same or different **widely separated,** long-peduncled basal, often few-flowered 1–20 pistillate flowers	Scabrous-awned light to medium color perigynium light to medium green covering perigynium	3½–5 × 1½–2½ Not winged **Puberulent** Stigmas 3	dry to moist woodlands, Black Hills, w SD.	
100. *Carex raynoldsii* CARA6 Raynolds sedge	Bunch or short rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm	2–5, Staminate / pistillate Upper & lower appear different separated 1–3 × spike length on a peduncle ½–1 × spike length 10–50 pistillate flowers	Black with a narrow lighter midrib perigynium light to medium green narrower & shorter than perigynium	3–5 × 1½–2½ Not winged Stigmas 3	Locally moist to dry mountain meadows & slopes, Subalpine Zone & Montane zone, nw-nc CO and se-nw-nc WY.	
112. *Carex spectabilis* CASP5 showy sedge	Bunch or short rhizomes or mat-forming Bract > or < inflorescence sometimes with black or purple-black auricles	2–6 mm	2–10, Staminate / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length 10–30 pistillate flowers	Short-awned medium to dark color with lighter margins & midrib perigynium light color narrower & shorter than perigynium	3½–5 × 1½–2½ Not winged Stigmas 3	Scattered, moist areas, mountains, c-nc CO and nw WY Subalpine zone or Montane zone, mountains Habitat dry to moist.	
113. *Carex sprengelii* CASP7 Sprengel's sedge	Bunch or mat-forming Bract > or < inflorescence	2–6 mm lower leaf sheaths filamentose	2–10, Staminate / pistillate Upper & lower appear different widely separated 1–5 × spike length dangling-drooping when mature on a long peduncle >2 × spike length 10–50 pistillate flowers	Light to medium color perigynium light straw-colored to medium green narrower than perigynium	5–6½ × 1½–2½ Not winged Stigmas 3	moist or wet forests & streambanks, foothills & Montane zone, & around Black Hills, ne WY & w SD, &, nw ne; somewhat disjunct, cool shaded ravines, foothills east side, front range, NE CO ; a few locations, se WY, nw CO, sc CO, & nc WY.	
122. *Carex tolmiei* CATO14 Tolmie sedge	Short rhizomes or long rhizomes Bract > or < inflorescence sometimes with black or purple-black auricles	2–8 mm lower leaf sheaths filamentose	2–10, Staminate or androgynous / pistillate Upper & lower appear different separated 1–3 × spike length on a short peduncle ½–1 × spike length; 10–50 pistillate flowers	Dark reddish-brown perigynium light-colored below covering perigynium or slightly narrower & shorter	3–4 × 2–2½ Not winged Stigmas 3	to moist sites, nw WY; scattered, mountains, n CO and se WY Alpine zone or Subalpine Zone, mountains Habitat dry to moist.	