

10120

Rocky Mountain Bigtooth Maple Ravine Woodland

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Forest and Woodland

Map Zones

17, 18, 21

Geographic Range

Northern and central Wasatch Mountains. Scattered occurrences in southwestern Utah, central Arizona, and New Mexico. Biophysical Setting (BpS) 1012 is believed to be rare to absent in map zone (MZ) 17 and completely absent from MZ12 (Nevada).

Biophysical Site Description

Rocky colluvial or alluvial soils with favorable soil moisture, from flat or gentle to steep slopes. Generally deep soils. Found on all aspects, but more commonly on south-facing slopes in MZ18 and more on lower slopes than exposed slopes or ridges. In MZ17 this type is more commonly found on north and east-facing slopes. Elevations range from ~5,000-8,000ft.

Vegetation Description

Generally dominated by *Acer grandidentatum* but may be mixed with *Quercus gambelii* or scattered conifers on drier sites or with *Acer negundo* or *Populus tremuloides* on moister sites. Understory may include elk sedge, snowberry, and various herbs. Maple stands are generally dense and often continuous, although may be patchy with various grass or herbs between clones. Open maple stands (of any seral stage) are uncommon. Mature stands are generally tall shrub to low tree height.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
ACGR3	<i>Acer grandidentatum</i>	Bigtooth maple
CAGE2	<i>Carex geyeri</i>	Geyer's sedge
SYOR2	<i>Symphoricarpos oreophilus</i>	Mountain snowberry

Species names are from the NRCS PLANTS database. Check species codes at <http://plants.usda.gov>.

Disturbance Description

Fire is the primary disturbance factor in this system, probably originating from the outside landscape. Fires are generally moderately infrequent and mixed-severity, with a fair component of stand-replacement. Bigtooth maple sprouts readily after fire, and recovery is generally rapid.

Insect and disease impacts are rare. Occasional avalanche, mud, or rock slides will have minor, localized effects on seral stages. Floods will occasionally create conditions for seedling establishment.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	137	37		
Moderate (Mixed)	82	63		
Low (Surface)				
All Fires	51	100		

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

This type is found on fairly large elevation bands between the valley grasslands and montane aspen/conifer or sagebrush stands. Disturbance patch sizes within this type are generally small, from a few acres to 100s of acres, and are influenced by topography and geology.

Adjacency or Identification Concerns

This BpS is mappable in MZ18; however, BpS 1012 is probably not mappable in MZ17 as experts do not think that bigtooth maple is found in MZs 12 and 17.

Often adjacent to and grading into the Rocky Mountain Gambel Oak - Mixed Montane Shrubland (1107), which will occur on slightly drier and more southern sites. May be just below the Rocky Mountain Montane Mixed Conifer BpS (1051, 1052) or Rocky Mountain Subalpine Spruce-fir or Aspen BpS (1056, 1057). This type is generally continuous maple patches; landscapes with scattered maple patches would be a different type.

Maple may be susceptible to non-native gypsy moth in today's ecology.

Literature suggests that bigtooth maple is replacing Gambel oak in the absence of fire, although personal observation suggests that both sprout equally well where they occur. Rather than replacing Gambel oak, bigtooth maple may be becoming a component within the oak system. Maple is more shade-tolerant than Gambel oak and can replace oaks during long fire-free intervals.

Issues or Problems

Native Uncharacteristic Conditions

Comments

MZs 17, 18 and 21 were combined during 2015 BpS Review.

For MZ21, this BpS was adopted as is by Missoula Fire Sciences Lab from MZ18. For MZ18, BpS 1012 from MZ17 was accepted with only minor revisions (S. Heide 19 May 2005). Some changes were made to the database record, including plant species additions and changes to fuel models. Beth Corbin and Stanley Kitchen worked on the model for MZ 17.

Succession Classes

Mapping Rules

Upper Layer Lifeform	Height (m)	Canopy Cover (%)									
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Herb	0-0.5	A	A	A	A	A	A	A	A	A	A
Herb	0.5-1.0	A	A	A	A	A	A	A	A	A	A
Herb	>1.0	A	A	A	A	A	A	A	A	A	A
Shrub	0-0.5	A	A	A	A	A	A	A	A	A	A
Shrub	0.5-1.0	A	A	A	A	A	A	A	A	A	A
Shrub	1.0-3.0	B	B	B	B	B	B	B	B	B	B
Shrub	>3.0	C	C	C	C	C	C	C	C	C	C
Tree	0-5	A	A	B	B	B	B	B	B	C	C
Tree	5-10	C	C	C	C	C	C	C	C	C	C
Tree	10-25	C	C	C	C	C	C	C	C	C	C
Tree	25-50	C	C	C	C	C	C	C	C	C	C
Tree	>50	C	C	C	C	C	C	C	C	C	C

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leaf form distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

Description

Class A 8 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
ACGR3	<i>Acer grandidentatum</i>	Bigtooth maple	Upper
CAGE2	<i>Carex geyeri</i>	Geyer's sedge	Lower
MARE11	<i>Mahonia repens</i>	Creeping barberry	Lower

Description

Post-replacement stage dominated by a mix of various herbs and grasses and low maple sprouts. Since bigtooth maple sprouts rapidly, the early seral stage will last <8yrs. This vegetation is not likely to carry fire. Large floods are stand-replacing events.

Maximum Tree Size Class

None

Class B 18 Mid Development 1 - Closed

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
ACGR3	Acer grandidentatum	Bigtooth maple	Upper
SYOR2	Symphoricarpos oreophilus	Mountain snowberry	Lower
CAGE2	Carex geyeri	Geyer's sedge	Lower
MARE11	Mahonia repens	Creeping barberry	Lower

Description

Mid-seral, closed stands of maple (sometimes associated with Gambel oak or other shrubs). Sprout sizes generally are ~1-3m high, with high canopy cover. Stem diameters are generally <3in. Understory herb and grass cover can range from very low (when shrub and litter cover is high) to fairly high. Replacement fire and flooding are stand-replacing events, whereas mixed-severity fire maintains vegetation structure.

Maximum Tree Size Class

None

Class C	74	Late Development 1 - Closed
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
ACGR3	Acer grandidentatum	Bigtooth maple	Upper
SYOR2	Symphoricarpos oreophilus	Mountain snowberry	Low-Mid
CAGE2	Carex geyeri	Geyer's sedge	Lower
MARE11	Mahonia repens	Creeping barberry	Lower

Description

Late seral, generally closed stands of maple. Stems are generally >3in in diameter, and stand heights are generally >3m. Overstory canopy cover is generally 30-80%; understory cover is similar to mid-seral. Scattered conifers can occur at this stage.

Maximum Tree Size Class

None

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:CLS	8
Mid1:CLS	9	Late1:CLS	29
Late1:CLS	30	Late1:CLS	999

Probabilistic Transitions

Disturbance Type	Disturbance occurs In	Moves vegetation to	Disturbance Probability	Return Interval (yrs)	Reset Age to New Class Start Age After Disturbance?	Years Since Last Disturbance
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Wind or Weather or Stress	Mid1:CLS	Early1:ALL	0.0025	400	Yes	0
Replacement Fire	Mid1:CLS	Early1:ALL	0.008	125	Yes	0
Mixed Fire	Mid1:CLS	Mid1:CLS	0.0133	75	No	0
Wind or Weather or Stress	Late1:CLS	Early1:ALL	0.0025	400	Yes	0
Replacement Fire	Late1:CLS	Early1:ALL	0.008	125	Yes	0
Mixed Fire	Late1:CLS	Late1:CLS	0.0133	75	No	0

References

Bradley, A.E., N.V. Noste and W.C. Fisher. 1992. Fire Ecology of Forests and Woodlands in Utah. GTR-INT-287. Ogden, UT: USDA Forest Service, Intermountain Research Station. 128 pp.

NatureServe. 2007. International Ecological Classification Standard: Terrestrial Ecological Classifications. NatureServe Central Databases. Arlington, VA. Data current as of 10 February 2007.

Uchytel, R.J. 1990. *Acer grandidentatum*. In: Fire Effects Information System, [Online]. USDA Forest Service. Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2004, July 6].