

Research Natural Areas of the Northern Region: Status & Needs Assessment

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INTRODUCTION

A MAJOR OBJECTIVE of the Forest Service Research Natural Area (RNA) program is to maintain a representative array of all significant natural ecosystems as baseline areas for research and monitoring (Forest Service Manual 4063, USDA Forest Service 1991). The National Forest Management Act of 1976 directs the agency to establish research natural areas typifying important forest, shrubland, grassland, alpine, and aquatic ecosystems. In addition to their value as reference areas for research and monitoring, RNAs help maintain biological diversity and healthy ecosystems on national forests by conserving assemblages of common and rare species, undisturbed plant communities, aquatic systems, and unique landscape features such as wetlands and ancient cedar groves.

To achieve these objectives, the 1983 Northern Regional Guide (USDA Forest Service 1983) included a matrix of habitat types, community types, and aquatic features targeted for inclusion in the Northern Region research natural area system. Within each of four analysis areas (northern Idaho, western Montana, central and eastern Montana, North and South Dakota), filled target cells were identified and unfilled target assignments were made to each National Forest.

Since 1983, much progress has been made toward a comprehensive research natural area system in the Northern Region. Many RNAs have been formally established (from 13 in 1983 to 67 in 1996) and 50 others are proposed, primarily through the forest planning process (Table 1, Figures 1-2).

NEED FOR PROGRAM UPDATE

Our knowledge of the Region's ecological features has changed since 1983. Field inventories have been performed in many RNAs, often identifying plant communities and species not previously known from a particular site. In some cases, types targeted for a specific RNA or national forest were absent. Researchers have produced new or revised classifications for various vegetation types of the Northern Region; notable examples include the forest vegetation of northern Idaho, wetland and peatland communities in Montana and Idaho, and alpine communities in southwestern Montana. RNA examples are needed of many of these vegetation types for inclusion in a natural areas network that fully represents the natural variety occurring within the Northern Region.

TABLE 1. Research Natural Areas (RNAs) in the Northern Region. “pRNA” signifies *proposed* research natural area; all others are formally established. RNA locations are shown on Figs. 1 and 2. See Appendix A for summaries of the ecological features within each RNA.

NORTHERN IDAHO			
■Clearwater National Forest			
Aquarius RNA	3900	Salmon Mountain pRNA	1923
Bald Mountain RNA	365	Square Mountain Creek pRNA	709
Bull Run Creek RNA	373	Upper Newsome Creek pRNA	1201
Chateau Falls RNA	200	Warm Springs Creek RNA	530
Dutch Creek RNA	303		
Fenn Mountain pRNA	ca. 600	WESTERN MONTANA	
Four-Bit Creek RNA	392	■Bitterroot National Forest	
Grave Peak RNA	360	Bass Creek pRNA	1984
Lochsa River RNA	1281	Bitterroot Mt. Snow Avalanche RNA	1758
Rhodes Peak pRNA	ca. 310	Bitterroot River RNA	40
Sneakfoot Meadows RNA	1965	Boulder Creek RNA	1042
Steep Lakes RNA	784	East Fork Bitterroot RNA	298
		Lower Lost Horse Canyon RNA	1601
■Idaho Panhandle National Forests		Sawmill Creek RNA	270
Binarch Creek RNA	660	Upper Lost Horse Canyon RNA	1720
Bottle Lake RNA	260		
Canyon Creek RNA	982	■Flathead National Forest	
Hunt Girl Creek RNA	1505	Coram RNA	839
Five Lakes Butte RNA	310	East Shore RNA	646
Kaniksu Marsh RNA	195	Little Bitterroot RNA	200
Montford Creek RNA	292	LeBeau pRNA	5720
Pond Peak RNA	270	Swan River pRNA	682
Potholes RNA	274	Tuchuck RNA	2062
Red Horse pRNA	ca. 1000		
Round Top Mtn. pRNA (Washington)	212	■Kootenai National Forest	
Scotchman No. 2 RNA	1270	Big Creek RNA	190
Smith Creek RNA	1340	Hoskins Lake RNA	380
Snowy Top RNA	835	Lower Ross Creek pRNA	910
Spion Kop RNA	465	Norman-Parmenter pRNA	1300
Tepee Creek RNA	746	Pete Creek Meadows RNA	155
Theriault Lake RNA	120	Ulm Peak RNA	690
Three Ponds RNA	240	Wolf-Weigel RNA	250
Upper Fishhook RNA	320		
Upper Priest River pRNA	ca. 650	■Lolo National Forest	
Upper Shoshone Creek	1407	Barktable Ridge pRNA	341
		Carlton Ridge RNA	920
■Nez Perce National Forest		Council Grove RNA	160
Alum Beds pRNA	ca. 600	Petty Creek RNA	310
Bill's Creek pRNA	ca. 30	Plant Creek RNA	258
Elk Creek pRNA	6984	Pyramid Peak RNA	520
Fish Lake RNA	760	Sheep Mountain Bog RNA	105
Lightning Creek pRNA	ca. 2600	Shoofly Meadows pRNA	ca. 700
Little Granite Creek pRNA	ca. 6100	Squaw Creek pRNA	ca. 700
Moose Meadow Creek RNA	1000		
No Business Creek RNA	1360	CENTRAL & EASTERN MONTANA	
O'Hara Creek RNA	7000		

■ *Beaverhead-Deerlodge National Forest*

Basin Creek RNA	1014
Bernice RNA	451
Cattle Gulch pRNA	ca. 640
Cave Mountain pRNA	4554
Cliff Lake RNA	2301
Cottonwood Creek RNA	128
Dexter Basin RNA	1109
Dry Mountain RNA	507
Elkhorn Lake pRNA	ca. 1660
Goat Flat pRNA	ca. 1340
Horse Prairie RNA	196
Lost Park RNA	618
Sapphire Divide RNA	1399
Skull- O'Dell RNA	2543
Thunderbolt Mountain RNA	792
Windy Ridge RNA	235

Sheyenne Springs RNA	57
Two Top-Big Top Mesa RNA	70

■ *Custer National Forest*

Line Creek Plateau pRNA	ca. 22,000
Lost Water Canyon RNA	3645
Poker Jim RNA	363

■ *Gallatin National Forest*

Black Butte pRNA	510
East Fork Mill Creek pRNA	882
Mount Ellis pRNA	1290
Obsidian Sands pRNA	390
Palace Butte pRNA	1350
Passage Creek pRNA	1097
Sliding Mountain pRNA	1463
Wheeler Ridge pRNA	640

■ *Helena National Forest*

Cabin Gulch pRNA	2200
Granite Butte pRNA	408
Indian Meadows pRNA	1060
Red Mountain pRNA	1901

■ *Lewis and Clark National Forest*

Bartleson Peak RNA	1601
Big Snowy pRNA	ca. 3140
Minerva Creek pRNA	330
O'Brien Creek RNA	715
Onion Park RNA	1209
Paine Gulch RNA	2405
Wagner Basin RNA	965
Walling Reef RNA	835

NORTH & SOUTH DAKOTA

■ *Custer National Forest*

Limber Pine RNA	681
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FIGURE 1. Research Natural Areas on National Forests of northern Idaho.

FIGURE 2. Research Natural Areas on National Forests of Montana.

These changes necessitate a major revision of the 1983 Regional Guide matrix. This document provides the basis for updating the 1983 Regional Guide direction for RNAs. Included is a summary of natural features within the current RNA network, a priority listing of missing elements, and recommendations to individual national forests which may be able to fill these gaps. Information on each RNA was obtained from data in the Biological and Conservation Database (BCD) maintained by the R1/INT Natural Area Program in Missoula. Additional information was obtained from establishment reports/records, field surveys and research studies. Review comments on earlier versions of the assessment have been incorporated into this document.

Reference to RNAs in the following sections refers to both established and proposed research natural areas.

FORMAT

The document is divided into six major sections:

Section I is a general assessment of Forest Service RNA representation within 16 *sections* occurring within the boundaries of the Northern Region (Table 2, Figure 3). A broader assessment of natural areas within the *provinces* (Bailey 1980) of the entire geographic region and across all ownerships would be a useful followup to this document. Sections are fairly uniform biophysical regions nested within a hierarchical ecological classification framework for the United States (McNab and Avers 1994, Bailey 1980). A more detailed assessment at the *subsection* level would be appropriate for identifying broad biological and physical gaps in the RNA network (subsection delineations have been completed by the Forest Service).

TABLE 2. Hierarchical framework of ecological units (McNab and Avers 1994, Bailey 1980).

<i>Analysis scale</i>	<i>Ecological unit</i>
Ecoregion	
Global	DOMAIN
Continental	DIVISION
Regional	PROVINCE
Subregion	SECTION(used in this assessment)
	SUBSECTION
Landscape	LANDTYPE ASSOCIATION
Land unit	LANDTYPE
	LANDTYPE PHASE

Section II summarizes the current network of RNAs within *forest* (Eyre 1980) and *rangeland* (Shiflet 1994) cover types. This provides a general overview of the current RNA network based on existing vegetation cover.

Section III is a detailed, fine-scale assessment of the vegetation types present within Northern Region RNAs. The vegetation types were taken from published classifications of habitat types and community types, and from plant community lists developed by state natural heritage programs. Types used in this assessment are generally equivalent to habitat types (that is, site classification using late successional vegetation; e.g., Pfister et al. 1977). A number of persistent seral types (such as the *Pinus contorta/Vaccinium scoparium* type) are also discussed. Early successional community types or disturbance types have generally not been included. A number of other apparently unique plant assemblages reported by various investigators have also not been included due to lack of supporting data.

A hierarchical framework, from broad vegetation classes to specific community elements, is used (Table 2 and Appendix B). The framework was adapted by the Northern Region Natural Areas Program from a scheme originally devised by UNESCO (1973) and later modified by Driscoll et al. (1984) and The Nature Conservancy (1994). Upper levels of the classification are divided by broad physiognomic distinctions of vegetation. Lower levels are based on species composition. This standardized approach is used nationally by natural heritage programs. It permits evaluations at various scales (e.g., groupings of similar plant communities) and allows comparisons with areas outside of the Northern Region. The upper four levels of the classification are presented in Table 3. This assessment includes level 5 (*alliances*), roughly equivalent to the *series* level used in *habitat type* classifications, and level 6 (*community elements*). In contrast to community elements, habitat types are a site classification based on potential vegetation. In an attempt to mesh The Nature Conservancy and habitat type approaches, habitat types were considered to be approximately equivalent to plant associations (a type of community element), and reflect the later stages of forest succession. For non-forest types, the community element forms the basic classification unit but the successional status of many shrub and grass communities, especially those occurring in wetlands, is unclear.

TABLE 3. Example of the classification hierarchy (*Abies lasiocarpa/Clintonia uniflora* plant association).

Physiognomic levels:

Level 1	CLASS -- Forest
Level 2	SUBCLASS -- Mainly evergreen forest
Level 3	GROUP -- Temperate and subpolar evergreen forest
Level 4	FORMATION -- Evergreen forest with conical crowns

Floristic levels:

Level 5	ALLIANCE -- <i>Abies lasiocarpa</i> Forest
Level 6	COMMUNITY ELEMENT -- <i>Abies lasiocarpa/Clintonia uniflora</i> Forest

Section IV is an assessment of aquatic and wetland features within RNAs. A conceptual classification framework is presented based on major aquatic and wetland types. The presence of each type within RNAs is summarized.

Section V is a preliminary classification of geologic and landform features of the Northern Region. The proposed classification would provide a consistent framework for identifying abiotic components within existing RNAs and identify gaps in the RNA system.

Section VI is a summary of research natural area recommendations for each national forest in the Northern Region. The status of RNA targets assigned in 1983 is reviewed (filled, unfilled, reassigned), followed by updated 1995 target recommendations based on this assessment.

Appendix A summarizes major ecological features of RNAs in the Northern Region. *Appendix B* outlines the complete vegetation classification hierarchy used in this assessment. *Appendix B* also serves as the index to specific vegetation types discussed in *Section III*.

FIGURE 3. Ecoregions of the Northern Region and vicinity with section delineations (Bailey et al. 1994). See text for map unit names.

I: SUBREGION (SECTION) ASSESSMENT

Within each section occurring within the Northern Region, there is at least one research natural area. However, many community elements are missing from the current network of established and proposed RNAs.

The Northern Region contains portions of two Domains (*Humid* and *Dry*) (McNab and Avers 1994). This is a major division of the US running roughly north and south through eastern North and South Dakota, and marks the transition between tall grass and mixed grass prairie. The only national forest unit within the Humid Domain is the Sheyenne National Grassland, which has one small RNA (Sheyenne Springs).

Northern Region portions of the Dry Domain are subdivided into two Divisions (*Temperate Steppe*, *Temperate Steppe-Mountains*). Four RNAs are located in the Temperate Steppe Division; three of these are on eastern parts of the Custer National Forest; one is on the southern Nez Perce National Forest.

The Temperate Steppe-Mountains Division encompasses the majority of national forests and research natural areas (109 RNAs). Three Provinces and 12 Sections occur within the Division.

200 HUMID TEMPERATE DOMAIN

250 Prairie Division

Total number of RNAs - 1

251 Prairie Parkland (Temperate) Province

Total number of RNAs - 1

251A RED RIVER VALLEY SECTION

Potential natural vegetation - tallgrass prairie, wet prairie, northern floodplain forest.

Assessment - this section encompasses the Sheyenne National Grasslands. Sheyenne Springs RNA is the sole RNA, most of which is a wetland. Missing are examples of the bluestem prairie, wet prairie, and floodplain forest which historically covered much of this section.

300 DRY DOMAIN

Total number of RNAs - 113

330 Temperate Steppe Division

Total number of RNAs - 4

331 Great Plains - Palouse Dry Steppe Province

Total number of RNAs - 4

331A PALOUSE PRAIRIE SECTION

Potential natural vegetation - fescue-wheatgrass, western ponderosa pine forest.

Assessment - a single RNA (Elk Creek) is located in this section, most of which is non-National Forest land.

331F NORTHWESTERN GREAT PLAINS SECTION

Potential natural vegetation - wheatgrass-needlegrass.

Assessment - two RNAs on the Little Missouri National Grassland occur within this section. Additional natural area examples of the mixed-grass prairie and hardwood draws are recommended.

331G POWDER RIVER BASIN SECTION

Potential natural vegetation - grama-needlegrass-wheatgrass, eastern ponderosa pine forest.

Assessment - Poker Jim RNA in eastern Montana is the single Forest Service natural area in this section. Additional natural areas typifying ponderosa pine forests and woodlands and mixed-grass prairie are recommended.

M330 Temperate Steppe Regime Mountains Division

Total number of RNAs - 109

M331 Southern Rocky Mountains Steppe -- Open Woodland

-- Coniferous Forest -- Alpine Meadow Province

Total number of RNAs - 10

M331A YELLOWSTONE HIGHLANDS SECTION

Potential natural vegetation - Douglas-fir forest, wheatgrass-needlegrass shrub steppe.

Assessment - this section encompasses Yellowstone National Park and the surrounding mountains and valleys. Eight RNAs on the Gallatin NF and the proposed Line Creek Plateau RNA on the Custer NF occur north and west of the Park, providing good coverage of the montane, subalpine and alpine communities present in this section.

M331B BIGHORN MOUNTAINS SECTION

Potential natural vegetation - Douglas-fir forest, wheatgrass-needlegrass shrub steppe.

Assessment - in the Northern Region, Lost Water Canyon is the only RNA present in this section. It features extensive Douglas-fir forests, limber pine woodlands, and subalpine forest and grassland types. Most of the section lies south of the Region in the Bighorn Mountains of Wyoming. There, two RNAs have been established featuring Douglas-fir, Rocky Mountain juniper, sagebrush, and grassland communities (Ryan et al. 1994).

M332 Middle Rocky Mountains Steppe -- Coniferous Forest

-- Alpine Meadow Province

Total number of RNAs - 57

M332A IDAHO BATHOLITH SECTION

Potential natural vegetation - Douglas-fir forest, wheatgrass-needlegrass shrub steppe.

Assessment - 16 RNAs on the Bitterroot, Clearwater, and Nez Perce NFs occur within this section. Included are moist to dry conifer forests, upper elevation grasslands and wetlands, timberline forest, and small areas of alpine habitat. Overall, the RNAs provide a good representation of the diversity present.

M332B BITTERROOT VALLEY SECTION

Potential natural vegetation - Douglas-fir forest, western ponderosa pine forest, foothill prairie.

Assessment - 13 RNAs, mostly on the Bitterroot NF, but also on the Beaverhead-Deerlodge, Helena, and Lolo, are present. Representation of montane and subalpine forest is good. Under-represented are low-elevation prairie and ponderosa pine forest and woodland communities.

M332C ROCKY MOUNTAIN FRONT SECTION

Potential natural vegetation - Douglas-fir forest, western spruce-fir forest, foothills prairie.

Assessment - Two RNAs (Wagner Basin, Walling Reef) on the Lewis and Clark NF have been established in this section. These RNAs feature limber pine and quaking aspen woodlands, and montane and subalpine grasslands. Wagner Basin encompasses a large spring and wetland complex. Under-represented are montane forest types, especially those dominated by spruce.

M332D BELT MOUNTAINS SECTION

Potential natural vegetation - foothills prairie, Douglas-fir and lodgepole pine forest.

Assessment - Nine RNAs on the Helena and Lewis and Clark NFs occur in this section, and encompass much of the diversity present. A wide range of forest types are included, ranging from lodgepole pine to spruce to Douglas-fir and ponderosa pine. Alpine tundra, wetlands, and grasslands are also present.

M332E BEAVERHEAD MOUNTAINS SECTION

Potential natural vegetation - sagebrush steppe, Douglas-fir forest.

Assessment - 14 RNAs are present in this section on the Beaverhead-Deerlodge NF. A large number of forest, shrub and grassland types are included within RNAs. Missing are examples of some low-elevation and floodplain communities.

M332G BLUE MOUNTAINS SECTION

Potential natural vegetation - grand fir, lodgepole pine, ponderosa pine forests.

Assessment - four RNAs in the Hells Canyon area east of the Snake River are proposed. Several other RNAs are present west of the river in Oregon (Pacific Northwest Region). Representation of the diversity within this section appears to be good. For example, Little Granite Creek RNA

encompasses about 6000 acres and spans nearly 8,000 feet of elevation from the base of Hell's Canyon to subalpine forest in the Seven Devils Mountains.

**M333 Northern Rocky Mountains Forest-Steppe
-- Coniferous Forest -- Alpine Meadow Province**

Total number of RNAs - 72

M333A OKANOGAN HIGHLANDS SECTION

Potential natural vegetation - Douglas-fir forest, cedar-hemlock-pine forest.

Assessment - this section includes 11 RNAs on the Kaniksu NF. Present are significant tracts of moist-wet conifer forest, wetlands, and grassy balds.

M333B FLATHEAD VALLEY SECTION

Potential natural vegetation - Douglas-fir and western ponderosa pine forests.

Assessment - 8 RNAs on the Flathead, Kaniksu, and Kootenai NFs are present in the Flathead Valley Section. Representation is fair. Included are montane and subalpine forests, several lakes and ponds, and wetlands. Notable is the proposed LeBeau RNA (Flathead and Kootenai NFs), a large natural area encompassing a highly diverse landscape.

M333C NORTHERN ROCKIES SECTION

Potential natural vegetation - Douglas-fir forest, foothills prairie.

Assessment - four RNAs on the Flathead NF are included. While these areas include many forest types, additional sites should be considered as this section contains highly productive forest lands which have been intensively managed for timber. The section also contains numerous sensitive plant and animal species and rare plant communities, some of which are present within Swan River RNA.

M333D BITTERROOT MOUNTAINS SECTION

Potential natural vegetation - cedar-hemlock-pine forest.

Assessment - a wide variety of habitats are included within the 21 RNAs found in this section (Idaho Panhandle, Kootenai, Lolo NFs). Representation is generally good.

II: FOREST & RANGELAND COVER TYPES OF THE NORTHERN REGION

Forest Cover Types – Nineteen forest cover types (as defined by the Society of American Foresters, Eyre 1980) are included within national forests of the Northern Region, and at least one example of each is present within an RNA. The most common forest cover types within research natural areas are:

SAF 206 (Engelmann spruce--Subalpine fir),
SAF 210 (Interior Douglas-fir),
SAF 218 (Lodgepole Pine), and
SAF 208 (Whitebark Pine).

Poorly represented within RNAs are paper birch, Rocky Mountain juniper, red alder, and bur oak cover types, but their absence is in part due to their limited occurrence on national forest lands.

Rangeland Cover Types – Of the 38 rangeland cover types (Shiflet 1994) present within the Northern Region, 14 are absent from any Northern Region RNA. An additional six cover types occur within RNAs with a total representation of less than 100 acres. The most common rangeland cover types within RNAs (5 or more occurrences) are:

SRM 102 (Idaho fescue),
SRM 103 (green fescue),
SRM 304 (Idaho fescue-bluebunch wheatgrass),
SRM 306 (Idaho fescue-slender wheatgrass, SRM 313 (tufted hairgrass-sedge, and
SRM 315 (big sagebrush-Idaho fescue).

Thirty-eight rangeland cover types occur in the Northern Region (Shiflet 1994). The number of types within each area are: Pacific Northwest - 5, Northern Rocky Mountains - 24, Great Basin -1, and Northern Great Plains - 8. Conversely, fourteen rangeland cover types have no RNA representation, and an additional six types are represented by less than 100 acres.

Acreages in parentheses indicate that the data are incomplete.

SAF Forest Cover Types

Group - NORTHERN INTERIOR (BOREAL)

SAF 252 - Paper Birch

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	1	260
Western Montana	0	0
Central-Eastern Montana	-	-
North & South Dakota	0	0
NORTHERN REGION	1	260

Group - HIGH ELEVATIONS

SAF 205 - Mountain Hemlock

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	6	1090
Western Montana	2	700
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	8	1790

SAF 206 - Engelmann Spruce - Subalpine Fir

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	20	8720
Western Montana	22	(5600)
Central-Eastern Montana	24	8845
North & South Dakota	-	-

NORTHERN REGION 66 (23,165)

SAF 208 - Whitebark Pine

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	8	1025
Western Montana	9	2470
Central-Eastern Montana	11	5710
North & South Dakota	-	-
NORTHERN REGION	28	9205

Group - MIDDLE ELEVATIONS (INTERIOR)

SAF 210 - Interior Douglas-Fir

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	18	(7025)
Western Montana	18	4200
Central-Eastern Montana	19	13,135
North & South Dakota	-	-
NORTHERN REGION	(55)	(24,360)

SAF 212 - Western Larch

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	2	10
Western Montana	9	2550
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	11	2560

SAF 213 - Grand Fir

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	19	(5250)
Western Montana	7	1070
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	26	(6320)

SAF 215 - Western White Pine

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	9	455
Western Montana	-	-
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	9	455

SAF 217 - Aspen

Analysis Area *No. of RNAs* *Acreage*

Northern Idaho	1	40
Western Montana	2	35
Central-Eastern Montana	6	115
North & South Dakota	1	5
NORTHERN REGION	10	195

SAF 218 - Lodgepole Pine

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	14	4110
Western Montana	12	(2450)
Central-Eastern Montana	20	9520
North & South Dakota	-	-
NORTHERN REGION	46	(16,080)

SAF 219 - Limber Pine

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	5	1550
North & South Dakota	1	30
NORTHERN REGION	6	1580

SAF 220 - Rocky Mountain Juniper

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	1	20
North & South Dakota	1	45
NORTHERN REGION	2	65

Group - NORTH PACIFIC

SAF 221 - Red Alder

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	1	370
Western Montana	-	-
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	1	370

<i>SAF 224 - Western Hemlock</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	7	(1330)
Western Montana	3	550
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	10	(1880)

<i>SAF 227 - Western Redcedar -- Western Hemlock</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	5	820
Western Montana	3	270
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	8	1090

<i>SAF 228 - Western Redcedar</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	8	1850
Western Montana	6	910
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	14	2760

Central-Eastern Montana	-	-
North & South Dakota	1	15
NORTHERN REGION	1	15

<i>SAF 237 - Interior Ponderosa Pine</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	5	(4005)
Western Montana	11	1200
Central-Eastern Montana	4	560
North & South Dakota	-	-
NORTHERN REGION	20	(5765)

Group - LOW ELEVATIONS (INTERIOR)

<i>SAF 235 - Cottonwood -- Willow</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	2	(90)
Western Montana	3	180
Central-Eastern Montana	1	20
North & South Dakota	0	0
NORTHERN REGION	6	(290)

<i>SAF 236 - Bur Oak</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-

SRM Rangeland Cover Types

PACIFIC NORTHWEST COVER TYPES

Within the Northern Region, this area contains portions of Idaho west of the Rocky Mountains. Five RNAs on the Nez Perce NF are present (four in the Hells Canyon area and Elk Creek RNA in the Gospel Hump Wilderness). On the periphery of this area, the Green Fescue cover type (SRM 103) is present in a number of RNAs in northern Idaho.

SRM 101 - Bluebunch Wheatgrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	2	(250)
Western Montana	-	-
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	2	(250)

SRM 102 - Idaho Fescue

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	5	(550)
Western Montana	-	-
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	5	(550)

SRM 103 - Green Fescue

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	5	295
Western Montana	0	0
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	5	295

SRM 109 - Ponderosa Pine - Shrubland

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
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Northern Idaho	3	(850)
Western Montana	-	-
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	3	(850)

SRM 110 - Ponderosa Pine - Grassland

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	3	(1280)
Western Montana	-	-
Central-Eastern Montana	-	-
North & South Dakota	-	-
NORTHERN REGION	3	(1280)

NORTHERN ROCKY MOUNTAINS COVER TYPES

Twenty-three rangeland cover types occur in this area, which includes the mountains and valleys of western Montana and central and western Montana. The most extensive rangeland areas occur in southwestern Montana, in part on the Beaverhead-Deerlodge National Forest.

SRM 301 - Bluebunch Wheatgrass - Blue Grama

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

SRM 302 - Bluebunch Wheatgrass - Sandberg Bluegrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	1	20
North & South Dakota	-	-
NORTHERN REGION	1	20

SRM 303 - Bluebunch Wheatgrass - Western Wheatgrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-

Western Montana	-	-
Central-Eastern Montana	2	(20)
North & South Dakota	0	0
NORTHERN REGION	2	(20)

<i>SRM 304 - Idaho Fescue - Bluebunch Wheatgrass</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	2	50
Western Montana	1	80
Central-Eastern Montana	8	755
North & South Dakota	-	-
NORTHERN REGION	11	885

<i>SRM 305 - Idaho Fescue - Richardson Needlegrass</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

<i>SRM 306 - Idaho Fescue - Slender Wheatgrass</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	0	0
Central-Eastern Montana	9	590
North & South Dakota	-	-
NORTHERN REGION	9	590

<i>SRM 307 - Idaho Fescue - Threadleaf Sedge</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

<i>SRM 308 - Idaho Fescue - Tufted Hairgrass</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	0	0
Central-Eastern Montana	3	1095
North & South Dakota	-	-
NORTHERN REGION	3	1095

<i>SRM 309 - Idaho Fescue - Western Wheatgrass</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

<i>SRM 310 - Needleandthread - Blue Grama</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

<i>SRM 311 - Rough Fescue - Bluebunch Wheatgrass</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	0	0
Western Montana	0	0
Central-Eastern Montana	1	20
North & South Dakota	-	-
NORTHERN REGION	1	20

<i>SRM 312 - Rough Fescue - Idaho Fescue</i>		
<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	0	0

Western Montana	1	20
Central-Eastern Montana	2	205
North & South Dakota	-	-
NORTHERN REGION	3	225

SRM 313 - Tufted Hairgrass - Sedge

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	0	0
Western Montana	0	0
Central-Eastern Montana	9	(180)
North & South Dakota	-	-
NORTHERN REGION	9	(180)

SRM 314 - Big Sagebrush - Bluebunch Wheatgrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	1	80
Western Montana	0	0
Central-Eastern Montana	2	180
North & South Dakota	-	-
NORTHERN REGION	3	260

SRM 315 - Big Sagebrush - Idaho Fescue

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	1	80
Western Montana	0	0
Central-Eastern Montana	8	540
North & South Dakota	-	-
NORTHERN REGION	9	620

SRM 316 - Big Sagebrush - Rough Fescue

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	1	15
Central-Eastern Montana	1	70
North & South Dakota	-	-
NORTHERN REGION	2	85

SRM 317 - Bitterbrush - Bluebunch Wheatgrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	0	0
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

SRM 318 - Bitterbrush - Idaho Fescue

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	0	0
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

SRM 319 - Bitterbrush - Rough Fescue

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	0	0
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

SRM 320 - Black Sagebrush - Bluebunch Wheatgrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

SRM 321 - Black Sagebrush - Idaho Fescue

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	0	0

SRM 322 - Curleaf Mountain-Mahogany - Bluebunch Wheatgrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	3	220
Western Montana	0	0
Central-Eastern Montana	1	200
North & South Dakota	-	-
NORTHERN REGION	4	420

SRM 323 - Shrubby Cinquefoil - Rough Fescue

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
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Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	3	225
North & South Dakota	-	-
NORTHERN REGION	3	225

SRM 324 Threetip Sagebrush - Idaho Fescue

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	1	160
North & South Dakota	-	-
NORTHERN REGION	1	160

GREAT BASIN COVER TYPES

A single cover type is included here. The *Tall Forb* type occurs throughout the Rocky Mountains, but typically covers only small areas on wet sites and has not been consistently identified in surveys. To avoid duplication, other types characteristic of the Great Basin, such as Black Sagebrush, are included as types defined for the Northern Rocky Mountains by the SRM (Shiflet 1994).

SRM 409 - Tall Forb

This type has not been consistently identified in RNA inventories and no summary is possible at this time.

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	?	?
Western Montana	?	?
Central-Eastern Montana	?	?
North & South Dakota	-	-
NORTHERN REGION	??	

N. GREAT PLAINS COVER TYPES

Eight cover types are tentatively included on national grasslands and the Ashland and Sioux Districts of the Custer National Forest. RNA representation is poor in this area.

SRM 601 - Bluestem Prairie

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	2	30
NORTHERN REGION	2	30

SRM 603 - Prairie Sandreed - Needlegrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	1	10
NORTHERN REGION	1	10

SRM 606 - Wheatgrass - Bluestem - Needlegrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	-	-
North & South Dakota	0	0
NORTHERN REGION	0	0

SRM 607 - Wheatgrass - Needlegrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
NORTHERN REGION	0	0

SRM 608 - Wheatgrass - Grama - Needlegrass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	0	0
NORTHERN REGION	0	0

SRM 609 - Wheatgrass - Grama

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-

Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	0	0
NORTHERN REGION	0	0

SRM 612 - Sagebrush - Grass

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	2	180

North & South Dakota	2	160
NORTHERN REGION	4	340

SRM 615 - Wheatgrass - Saltgrass - Grama

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>Acreage</i>
Northern Idaho	-	-
Western Montana	-	-
Central-Eastern Montana	0	0
North & South Dakota	0	0
NORTHERN REGION	0	0

III: VEGETATION TYPES WITHIN NORTHERN REGION RESEARCH NATURAL AREAS

Specific information on 76 alliances and 210 community elements is included in this assessment (Tables 4 and 6). Of the community elements, 37% are rated as adequately represented within the current RNA system. These figures reflect the majority of alliances and types believed to be present on the national forests and national grasslands of the Northern Region. However, not all geographic areas or vegetation types within the Region have been well-studied, and it is a certainty that classifications will change and expand in the future. This is especially true for shrubland, grassland, wetland, aquatic, and alpine vegetation types. A number of potential or poorly defined types are listed but excluded from the analysis as little or no information was available to quantify their distribution within RNAs.

TABLE 4. Number of vegetation types and community elements discussed in detail in this report. The percentage of community elements adequately represented within RNAs (and with a low priority for additional representation within RNAs) are listed in parentheses.

<i>Class</i>	<i>Subclasses</i>	<i>Groups</i>	<i>Formations</i>	<i>Alliances</i>	<i>Community Elements</i>
Closed Forest	2	3	8	15	102 (52%)
Woodland	2	3	5	6	16 (6%)
Shrubland	3	4	5	22	40 (33%)
Dwarf Shrubland	2	3	3	4	7 (0%)
Herbaceous Vegetation	5	8	9	29	45 (22%)
<i>Totals</i>	14	21	30	76	210 (37%)

No single reference or source covers all the vegetation types described for the Northern Region. To compile this document, plant community lists generated by natural heritage programs in Idaho, Montana, and North Dakota were consulted (a list for South Dakota was not available) (Table 5). These programs provided community rarity rankings as well. Published and unpublished research reports were next consulted to narrow the list of community elements to those reported from or expected to occur on national forests. These sources were valuable for describing the habitat features, geographic extent, and abundance of a particular type.

TABLE 5. Vegetation classification references used for the assessment. Complete citations follow Section VI. Not referenced are natural heritage program plant community lists.

<i>Reference</i>	<i>Vegetation type(s)</i>	<i>Geographic area</i>
Bamberg and Major 1968	alpine	central and western Montana
Choate and Habeck	alpine	northwest Montana
Cooper et al. 1991	forest and woodland	northern Idaho
Cooper 1975	forest and woodland	Yellowstone National Park
Cooper and Lesica 1992	alpine	southwest Montana
Cooper and Pfister 1985	forest and woodland	central and eastern Montana
Girard et al. 1989	forest and woodland	southwest North Dakota
Hansen et al. 1991	riparian and wetland types	Montana
Hansen and Hoffman 1988	forest, shrubland, grassland	se Montana, ND, SD
Johnson and Billings 1962	alpine	south-central Montana
Mueggler and Stewart 1980	shrubland, grassland	western Montana
Moseley 1985	alpine	east-central Idaho
Pierce 1986	wetlands	west-central Montana
Pfister et al. 1977	forest and woodland	western Montana
Roberts 1980	forest and woodland	north-central Montana
South 1980	forest, shrubland, grassland	south-central Montana
Steele et al. 1983	forest and woodland	eastern Idaho, western Wyoming
Steele et al. 1981	forest and woodland	central Idaho
USDA Forest Service, n.d.	forest, shrubland, grassland	Little Missouri National Grasslands

Community elements, the finest level of the classification, correspond to habitat types (i.e., site classification using potential vegetation), and plant associations and community types (terms commonly used by natural heritage programs). *Alliances* roughly correspond to “series” as used in habitat type classifications (e.g., *Pinus ponderosa* series). In this report, an emphasis is placed on late successional communities which reflect specific site conditions. This approach, similar to habitat type classifications, was used because existing classifications in the Northern Region and field surveys of RNAs have been based almost entirely on this concept. From a practical standpoint, this approach has value, as communities may change over time but site conditions typically remain fairly constant. Therefore, identification and mapping can be completed at a single point in time without the necessity of remapping after fire, diseases, or other changes affect the current vegetation cover. Ideally, both potential and existing vegetation types should be identified when possible. The assessment also includes a number of mid-successional or persistent seral community types and riparian types whose longevity on a given site may be uncertain. A truly representative system of RNAs would include a wide range of successional stages and the processes which contribute to their formation.

TABLE 6. Vegetation classification hierarchy - Level 1 to Level 4.

<i>Level 1</i> CLASS	<i>Level 2</i> SUBCLASS	<i>Level 3</i> GROUP	<i>Level 4</i> FORMATION
FOREST (trees with >60% canopy cover)	Mainly evergreen forest	Temperate and subpolar needle-leaved forest	- Evergreen forest with rounded crowns - Evergreen forest with conical crowns
	Mainly deciduous forests	Cold-deciduous forests with evergreen trees trees	- Cold-deciduous broad-leaved forests with evergreen needle-leaved trees - Cold-deciduous needle-leaved forests with evergreen needle-leaved
		Cold-deciduous broad-leaved forests without evergreen trees	- Temperate lowland and submontane broad-leaved cold-deciduous forest - Montane or boreal cold-deciduous forest - Subalpine or subpolar cold- deciduous forest - Cold-deciduous alluvial forest
WOODLANDS (trees with 10-60% canopy cover)	Mainly evergreen woodland	Evergreen needle-leaved woodland	- Evergreen needle-leaved woodland with conical crowns - Evergreen needle-leaved woodland with rounded crowns
	Mainly deciduous woodland	Cold-deciduous woodland with evergreen trees	- Mixed deciduous/evergreen needle-leaved woodland
		Cold-deciduous woodland without evergreen trees	- Broad-leaved deciduous woodland - Needle-leaved deciduous woodland
SHRUBLANDS (shrubs 0.5-5m tall and with 10% or greater canopy cover)	Mainly evergreen shrubland	Needle-leaved and microphyllous shrubland	- Evergreen microphyllous shrubland
	Mainly deciduous shrubland	Cold-deciduous shrubland	- Temperate deciduous shrubland - Deciduous alluvial shrubland - Shrub peatland
	Extremely xeromorphic (subdesert) shrubland	Mainly evergreen shrubland Deciduous shrubland	-- - Deciduous subdesert shrubland with <10% succulent cover
DWARF SHRUBLAND (shrubs less than 0.5m tall and greater than 10% canopy cover)	Mainly evergreen dwarf shrubland	Closed dwarf shrubland	- Evergreen creeping or matted dwarf shrubland
	Mainly deciduous dwarf shrubland	Cold-deciduous and dwarf shrubland	- Cold-deciduous caespitose dwarf shrubland

<i>Level 1</i> CLASS	<i>Level 2</i> SUBCLASS	<i>Level 3</i> GROUP	<i>Level 4</i> FORMATION
HERBACEOUS VEGETATION (trees or shrubs with less than 10% canopy cover)	Tall grassland (over 1m tall)	Tall grassland without a woody layer (trees, shrubs <10% cover)	- Tall grassland consisting mainly of sod grasses - Tall grassland consisting mainly of bunch grasses
	Medium tall grassland (0.5-1m tall)	Medium tall grassland without a woody layer (trees, shrubs <10% cover)	- Medium tall grassland consisting mainly of bunch grasses
	Short grassland	Short grassland without a woody layer (trees, shrubs <10% cover)	- Short grasslands consisting mainly of sod grasses
		Mesophytic grassland	- Alpine and subalpine meadows of higher latitudes (Alpine grasslands) (Alpine turf) (Alpine cushion plants) (Alpine snowbeds) (Alpine wetlands)
	Forb-dominated vegetation	Tall forbs (often over 1m tall) Low forbs (1m or less tall)	-- - Mainly perennial flowering forbs and ferns - Mainly annual forbs
	Hydrophytic vegetation	Rooted emergent and herbaceous mat vegetation	- Temperate to polar formations
		Floating and submergent vegetation (rooted and nonrooted, supported by water)	- Temperate to polar formations
DESERTS & OTHER SCARCELY VEGETATED AREAS ^{1/}	Scarcely vegetated rocks and screes	Scarcely vegetated rocks	- Scarcely vegetated rocks (plants rooting in fissures) - Chasmophytic vegetation - Cryptogamic mat on rocks
		Scarcely vegetated screes	- Lowland and submontane scree - Montane and subalpine scree - Alpine scree
	Scarcely vegetated cobbles, gravel, sand, silt or clay accumulations	Scarcely vegetated cobbles and gravels	- Lacustrine/riverine cobbles and gravels
		Scarcely vegetated sand accumulations	- Lacustrine/riverine sand deposits - Scarcely vegetated sand dunes - Bare sand dunes

<i>Level 1</i> CLASS	<i>Level 2</i> SUBCLASS	<i>Level 3</i> GROUP	<i>Level 4</i> FORMATION
		Scarcely vegetated mud flats	- Non-calcareous mud flats - Calcareous marl flats
	Scarcely vegetated eroding slopes (badlands)	Eroding clays	

1/ This class is not included in the assessment at this time due to lack of information. It is included here as a possible framework for future field inventories.

For each type, a global and state *rarity ranking* is given, based on a ranking strategy developed by The Nature Conservancy (1994) (Table 7). This information can assist protection efforts but rarity alone is insufficient to judge conservation needs, as undisturbed sites for common community elements can be quite difficult to locate.

TABLE 7. Community rarity ranking definitions. G = global rank, S = state rank.

G1 or S1	<i>Critically imperiled</i> because of extreme rarity (very few remaining acres) or because of some factor(s) making it especially vulnerable to extirpation.
G2 or S2	<i>Imperiled</i> because of rarity (few remaining acres) or because of some factor(s) making it especially vulnerable to extirpation.
G3 or S3	<i>Rare or uncommon</i> for high-quality occurrences.
G4 or S4	<i>Apparently secure</i> , with many high-quality occurrences.
G5 or S5	<i>Demonstrably secure</i> and essentially ineradicable under present conditions.

For each community element, RNAs are listed which contain the element. The acreage of the type within the RNA is listed if known. The number of RNAs featuring each type and the acreage are totaled for the Northern Region. Distribution of each type in the Region is subdivided into one of four analysis areas (Table 8). The subdivisions used correspond to those used in the 1983 Northern Region Guide.

TABLE 8. Northern Region analysis areas and national forests.

<i>Analysis area</i>	<i>National Forest</i>
NORTHERN IDAHO	Coeur d'Alene, Kaniksu, and St. Joe (Idaho Panhandle NFs) Clearwater Nez Perce
WESTERN MONTANA	Bitterroot Flathead Kootenai Lolo
CENTRAL AND EASTERN MONTANA	Beaverhead-Deerlodge Custer (Beartooth and Ashland Districts) Gallatin Helena Lewis and Clark
NORTH AND SOUTH DAKOTA	Custer National Forest (Little Missouri, Cedar River, Grand River, and Sheyenne National Grasslands).

KEY TO VEGETATION TYPE ASSESSMENTS

No. of RNAs the presence of each type within an established or proposed research natural area is summarized by the number of representations of that type within each analysis area.

Occurrence occurrence of the type is an indication of its relative extent (i.e., number of acres) within a specific vegetation class such as forest, woodland, or subclass. For example, a type with a *major* occurrence within the forest class will cover large areas of the analysis area, while major occurrence types within the hydrophytic vegetation subclass (wetlands) will cover much smaller total areas due to their small extent on the overall landscape.

The following qualitative terms are used to describe a type's occurrence within vegetation classes and subclasses of each analysis area:

absent - type essentially lacking from analysis area.

incidental - type either rare or more common outside of Northern Region and where found, occupying only small areas. May be important from a biological conservation perspective.

minor - type may be locally common, or widespread but occupying only small areas.

major - widely distributed type usually covering large land areas or a common type within its vegetation class, subclass, etc.

Acreage class summarizes the spatial extent (based on number of acres) of a particular community element or feature within RNAs in each analysis area. The following codes are used:

- absent from analysis area
- 0 present in analysis area, but no examples within natural areas
- + 1-10 acres

- 1 11-100 acres
- 2 101-1000 acres
- 3 greater than 1000 acres
- ? size unknown.

RNA name - acres the known or estimated acreage of a community element within specific research natural areas. Numbers in parentheses are estimated acres. A double dash (--) indicates that no acreage data were available.

Priority rankings are assigned to each community element to identify conservation priorities and to identify the need for representation in natural areas proposed in the future. The ranking is based on the number and extent of each community element within research natural areas. As this assessment addresses only representation, an emphasis is placed on building a system of RNAs that encompass the ecological diversity present on national forests of the Northern Region. RNAs may also figure in local and regional conservation planning, but this aspect is not discussed here. Types which are adequately represented are present in sufficient number and cover a large enough area to provide for (a) functioning ecosystems, and (b) valid research opportunities.

Low rankings are given to features adequately represented within the current system, and typically, additional examples are not needed.

Moderate rankings are assigned to types either under-represented, or types that are incidental in occurrence (i.e., only occupy small areas), and not represented in any natural area. Additional examples are usually recommended.

High priority rankings are given to types having major or minor occurrence within a particular ecosystem type but which are essentially absent from any natural area. Field surveys targeting these types are recommended. Rarity is also considered in the priority ranking, with higher conservation value given to communities having global or state rankings of 1-3.

Class - CLOSED FOREST (trees over 5m tall with 61-100% canopy cover)

Subclass - Mainly evergreen forest

Group - Temperate and subpolar needle-leaved forest

Formation - Evergreen forest with rounded crowns (5-50 m tall)

**Whitebark Pine
Forest & Woodland
Alliance**
(*Pinus albicaulis*)

Three timberline types are defined for north Idaho and Montana. Natural areas representation is good but with some geographic gaps (e.g., southwestern Montana).

Pinus albicaulis Forest

Assessment - type is marginally represented in natural areas across its range in north Idaho and western Montana; adequately represented in central Montana.

Rarity (global/MT/ID) - G5/S5/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	1	2	Salmon Mountain-250
Western Montana	minor	2	2	Bass Creek-30
				Upper Lost Horse-80
Central-Eastern Montana	major	4	3	Cave Mountain-600
				Granite Butte-30
				Line Creek Plateau-2980
				Sapphire Divide-430
North & South Dakota	absent	-	-	-
NORTHERN REGION		7	3	4400 acres

Pinus albicaulis-*Abies lasiocarpa* Forest

Assessment - common timberline type and well-represented in Northern Region RNAs.

Rarity (global/MT/ID) - G5/S5/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
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Northern Idaho	minor	7	2	Canyon Creek-5 Elk Creek-5 Little Granite Creek-400 Rhodes Peak-110 Salmon Mountain-390 Snowy Top-20 Square Mountain-30
Western Montana	major	5	2	Bass Creek-50 Bitterroot Mtn-240 Carlton Ridge-20 Lower Lost Horse-40 Upper Lost Horse-80
Central-Eastern Montana	major	6	3	Cave Mountain-440 Dexter Basin-40 Elkhorn Lake-860 Red Mountain-250 Sapphire Divide-30 Wheeler Ridge-30
North & South Dakota	absent	-	-	-
NORTHERN REGION		18	3	3040 acres

Pinus albicaulis/Vaccinium scoparium Forest

Assessment - upper subalpine forest type in central Montana. Marginal representation from only two RNAs (Helena and Gallatin NFs); additional example recommended from Beaverhead-Deerlodge NF.

Rarity (global/MT/ID) - G4/S4/S4

Priority - moderate.

National Forest assignment - Beaverhead-Deerlodge.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	
Western Montana	absent	-	-	
Central-Eastern Montana	minor	2	2	Granite Butte-20 Palace Butte-160
North & South Dakota	absent	-	-	
NORTHERN REGION		2	2	180 acres

Lodgepole Pine
Forest
Alliance

(*Pinus contorta*)

Two forest types are identified in the Northern Region where lodgepole pine is the indicated climax: *Pinus contorta* /*Purshia tridentata* (Gallatin NF) and *Pinus contorta* /*Vaccinium scoparium* (Nez Perce

NF). A persistent seral community type (*P. contorta* /*Vaccinium cespitosum*) found in central Montana is also included in this analysis. Other seral lodgepole pine community types have been defined, but to date have not been specifically identified within RNAs.

Pinus contorta /*Purshia tridentata* Forest

Assessment - type of limited distribution restricted to Madison River alluvium derived from obsidian volcanic materials. Adequately represented within Obsidian Sands RNA, Gallatin NF.

Rarity (global/MT/ID) Ranking - G3/S3/-

Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	incid	1	2	Obsidian Sands-390
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	2	390 acres

Pinus contorta /*Vaccinium cespitosum* Forest

Assessment - this persistent seral type occurs in central Montana and central Idaho but has not been consistently identified during RNA field surveys. The type is reported from at least one RNA on the Beaverhead-Deerlodge NF and is likely present in other natural areas. It may typically be identified as the *Abies lasiocarpa* /*Vaccinium cespitosum* forest type in field surveys. Inventories should verify the presence/absence of this type in existing natural areas on east-side NFs in Montana and on the Nez Perce NF in Idaho.

Rarity (global/MT/ID) - G5/S5/S4

Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	minor	0	0	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	1	1?	Bernice--
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	1?	

Pinus contorta /*Vaccinium occidentale* Forest

Assessment - poorly defined type of peatlands and wetland margins, and not consistently identified in field surveys.

Rarity (global/MT/ID) - G2?/S?/S2?

Priority - moderate; re-evaluate existing RNAs in north Idaho and western Montana.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	0?	-	-
Western Montana	minor	0?	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	-	-

Pinus contorta/Vaccinium scoparium Forest

Assessment - only *Pinus contorta* climax type reported for north Idaho; reported as a seral type for Montana and Wyoming but may achieve climax status on certain sites. Type is restricted to southern and eastern portions of Nez Perce NF. Sites are subalpine and have excessively drained shallow soils which limit regeneration of shade-tolerant species. Recommend one example from Nez Perce NF.

Priority - moderate (northern Idaho).

Rarity (global/MT/ID) - G5/S5/S4

National Forest assignment - Nez Perce.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	0	0	-
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

**Ponderosa Pine
Forest & Woodland
Alliance**
(*Pinus ponderosa*)

Five forest and four woodland types have been identified in classifications of Northern Region national forests and grasslands. In northern Idaho, ponderosa pine is the climax tree on only limited areas, occurring on the warmest and driest sites capable of supporting tree growth. In both Idaho and western Montana, undisturbed sites within this series are increasingly difficult to locate due to grazing pressure, timber harvests, and exotic plants. In eastern Montana, a single RNA (Poker Jim, Custer NF) contains the only natural area example of ponderosa pine communities from that part of the state. Additional sites are needed to illustrate the range of types

found there. In central Montana, ponderosa pine types are best represented in Minerva Creek RNA. In North and South Dakota, no RNAs have been established featuring examples of this series, but the Deer Draw nominated RNA contains several ponderosa pine types. Because of limited representation in Northern Region natural areas, a *high* priority should be placed on protecting additional forest and woodland examples, especially in Montana and the Dakotas.

Pinus ponderosa/Agropyron spicatum Woodland

Assessment - type is well-represented in northern Idaho natural areas on Nez Perce NF. RNA examples from Montana are marginal in terms of quality and extent and 2-3 additions are recommended. This is a low-elevation type subject to invasion by exotic plant species such as spotted knapweed (*Centaurea maculosa*). Many stands have also been logged, resulting in conversion to grasslands.

Rarity (global/MT/ID/ND) - G4/S3/S3/S2S3

Priority - high (Montana, North and South Dakota).

National Forest assignment - Bitterroot, Custer, Helena, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	4	3	Alum Beds-- Elk Creek-1050 Little Granite Creek-250 No Business Creek-40
Western Montana	minor	1	1	Squaw Creek-50
Central-Eastern Montana	minor	1	1?	Poker Jim--
North & South Dakota	minor	0	0	-
NORTHERN REGION		6	3	(1390 acres)

Pinus ponderosa/Carex heliophila Woodland

Assessment - a minor type on the Ashland and Sioux Districts (Custer NF), and lacking from any Northern Region natural area. Reported elevations average about 4000 feet. The type also occurs in the Black Hills of South Dakota.

Rarity (global/MT/ID/ND) - G3/S3/-/S?

Priority - high (central and eastern Montana, North and South Dakota).

National Forest assignment - Custer.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	minor	0	0	-
NORTHERN REGION		0	0	

Pinus ponderosa/Cornus stolonifera Woodland

Assessment - a type of low elevation alluvial terraces primarily in western Montana and often in private ownership. Livestock grazing is nearly ubiquitous and as a result, sites suitable for natural areas are rare. The two current examples (Bitterroot River and Council Grove RNAs) have been altered by exotic weeds (especially spotted knapweed) and additional representations would be desirable. East of the Divide, examples may occur on the Lewis and Clark and Helena NFs.

Rarity (global/MT/ID) - G3/S2/-

Priority - high (Montana).

National Forest assignment - Helena, Lewis and Clark, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	2	1	Bitterroot River-10 Council Grove-90
Central-Eastern Montana	minor	0	0	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	100 acres

Pinus ponderosa/Festuca idahoensis Forest

Assessment - In eastern Montana, this type is represented only at Poker Jim RNA, Ashland District, Custer NF. Western Montana has a small RNA example from the Bitterroot NF. Northern Idaho examples are within proposed RNAs in the Hell's Canyon area. Additional examples are needed in Montana; suitable sites may occur on the Lolo, Bitterroot, Helena, and Custer NFs.

Rarity (global/MT/ID) - G4/S3/S2

Priority - high (Montana).

National Forest assignment - Bitterroot, Custer, Helena, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	2	Lightning Creek-- Little Granite Creek-250
Western Montana	major	1	1	Sawmill Creek-30
Central-Eastern Montana	minor	1	1	Poker Jim-60
North & South Dakota	absent	-	-	-
NORTHERN REGION		4	2	(340 acres)

Pinus ponderosa/Juniperus communis Forest

Assessment - this incidental type occurs on the Sioux District, Custer NF, in both extreme southeastern Montana and northwestern South Dakota. Reported elevation is about 4000 feet.

Rarity (global/MT/ID/ND) - G4/S3/-/S?

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-

Central-Eastern Montana	incid	0	0	-
North & South Dakota	incid	0	0	-
NORTHERN REGION	0	0		

Pinus ponderosa/Physocarpus malvaceous Forest

Assessment - type of limited occurrence in north Idaho on north aspects at elevations below 3000 feet.

Rarity (global/MT/ID) - G3/S2/S1

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	2	2	Elk Creek-350 Little Granite Creek-50
Western Montana	incid?	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	2	400 acres

Pinus ponderosa/Prunus virginiana Forest

Assessment - type of moist ravines, streambanks, and slopes on the Ashland and Sioux Districts, Custer NF. Undisturbed stands are difficult to locate due to often heavy livestock and wildlife use. The single natural area example of small extent is inadequate to fully represent this type.

Rarity (global/MT/ID/ND) - G4/S3/-/S?

Priority - high (central-eastern Montana, North and South Dakota).

National Forest assignment - Custer.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	1	1	Poker Jim-60
North & South Dakota	minor	0	0	-
NORTHERN REGION		1	1	60 acres

Pinus ponderosa/Purshia tridentata Woodland

Assessment - in Montana, type occurs near Plains, Darby, Helena, and in the Kootenai River canyon. However, most sites are located at low elevations below national forest boundaries and have been disturbed by timber harvests, livestock, or exotic weeds. Possible natural area sites on the Bitterroot NF were surveyed in 1994 but no suitable areas were located. This target was formally dropped for the Bitterroot NF in September 1994.

Rarity (global/MT/ID) - G5/S2/S1

Priority - high (Montana).

National Forest assignment - Helena (tentative).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Pinus ponderosa/Symphoricarpos albus Forest

Assessment - type is absent from any natural areas in western Montana; representative sites may occur on Bitterroot and Lolo NFs on low-elevation benches. However, good quality sites may be difficult to locate as the type is uncommon (and often replaced by the Douglas-fir/snowberry type on slightly wetter sites) or has been subject to timber harvest or livestock grazing. The type is represented within one proposed RNA in central Montana (Minerva Creek, Lewis and Clark NF) and one RNA in eastern Montana (Poker Jim, Custer NF).

Rarity (global/MT/ID) - G4G5/S3/S3

Priority - moderate (western Montana).

National Forest assignment - Bitterroot.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	1	2	Little Granite Creek-200
Western Montana	incid	0	0	-
Central-Eastern Montana	minor	2	2	Minerva Creek-200 Poker Jim-60
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	2	460 acres

Formation - Evergreen forest with conical crowns (trees 5-50m tall)

Grand Fir

Forest
Alliance

(Abies grandis)

Eleven forest types have been identified for this series in northern Idaho and western Montana, 3 of which are major, 4 minor, and 4 incidental. All but 2 forest types are well-represented in Northern Region RNAs; needed are 1-2 examples from western Montana of the *Abies grandis/Xerophyllum tenax* type (minor), and one example of the *Abies grandis/Athyrium filix-femina* type (incidental). In Idaho, one example of the *Abies grandis/Adiantum pedatum* type is suggested from the Nez Perce NF.

Abies grandis/Acer glabrum Forest

Assessment - incidental type more common in west-central Idaho (Intermountain Region).

Rarity (global/MT/ID) - G4/S3/S2

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	2	Little Granite Creek-250
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	2	250 acres

Abies grandis/Adiantum pedatum Forest

Assessment - incidental type likely present but not identified in existing Nez Perce RNAs as small stringers along streams.

Rarity (global/MT/ID) - G1?/-/S1

Priority - moderate.

National Forest assignment - Nez Perce (plus re-evaluate existing RNAs).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	+	No Business Creek-5
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	+	5 acres

Abies grandis/Asarum caudatum Forest

Assessment - major type well-represented in Northern Region natural areas, with examples from 3 of 5 north Idaho NFs (type is most common on Nez Perce NF).

Rarity (global/MT/ID) - G4/-/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	7	3	Aquarius-270 Binarch Creek-40 Bull Run Creek-40 No Business Creek-100 Red Horse-- Upper Newsome-1160 Warm Springs Creek-80
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		7	3	(1690 acres)

Abies grandis/Athyrium filix-femina Forest

(includes *Abies grandis/Senecio triangularis Forest*)

Assessment - adequate (but minimal) representation in Idaho, where type occurs adjacent to streams and other wet sites south of the range of western redcedar. In Montana, type is newly defined and found in Seeley-Swan Valley. Recommend one example from Flathead or Lolo NFs.

Rarity (global/MT/ID) - G3/S2/S3

Priority - moderate (western Montana).

National Forest assignment - Flathead, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	1	Upper Newsome-20 Warm Springs Creek-30
Western Montana	incid	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	50 acres

Abies grandis/Clintonia uniflora Forest

Assessment - well-represented major type in northern Idaho and western Montana.

Rarity (global/MT/ID) - G5/S4/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	17	3	Aquarius-480 Binarch Creek-20 Bottle Lake-10 Bull Run Creek-40 Chateau Falls-30 Elk Creek-5

					Kaniksu Marsh-10 Little Granite Creek-60 Lochsa River-920 No Business Creek-500 O'Hara Creek-1470 Red Horse--
					Spion Kop-70 Three Ponds-60 Upper Fishhook-10 Upper Shoshone-130 Warm Springs Creek-60
Western Montana	major	8	2		Bass Creek-160 East Shore-60 LeBeau-200
					Lower Lost Horse-60 Lower Ross Creek-50 Norman-Parmenter-50 Petty Creek-30 Swan River-100
Central-Eastern Montana	absent	-	-	-	
North & South Dakota	absent	-	-	-	
NORTHERN REGION		25	3		(4585 acres)

Abies grandis/Coptis occidentalis Forest

Assessment - only one example on Nez Perce NF of this incidental type. Also incidental in Intermountain Region (Payette and Salmon NFs). Main range in Northern Region is on Nez Perce NF between South Fork Clearwater and Salmon Rivers.

Rarity (global/MT/ID) - G2/-/S2

Priority - moderate.

National Forest assignment - Nez Perce.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	1	No Business Creek-90
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	1	90 acres

Abies grandis/Linnaea borealis Forest

Assessment - adequately represented in Northern Region but small acreage (less than 100 acres) in north Idaho RNAs. More extensive on Boise NF.

Rarity (global/MT/ID) - G4G5/S4/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	3	1	Chateau Falls-10 No Business Creek-5 Warm Springs Creek-30
Western Montana	minor	4	2	Bass Creek-180 LeBeau-200 Lower Lost Horse-60 Petty Creek-60
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		7	2	545 acres

Abies grandis/Physocarpus malvaceus Forest

Assessment - adequately represented type. Additional examples at north end of its range would occur on Coeur d'Alene NF.

Rarity (global/MT/ID) - G4/-/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	7	2	Aquarius-270 Bull Run Creek-40 Chateau Falls-40 Elk Creek-210 No Business Creek-140 Red Horse-- Warm Springs Creek-60
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		7	2	(760 acres)

Abies grandis/Spiraea betulifolia Forest

Assessment - type has adequate natural area representation, and is more common in west-central Idaho (Intermountain Region).

Rarity (global/MT/ID) - G3/-/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	4	2	Aquarius-110 Elk Creek-350 Little Granite Creek-40 Warm Springs Creek-60
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-

North & South Dakota	absent	-	-	-
NORTHERN REGION		4	2	560 acres

Abies grandis/Taxus brevifolia Forest

Assessment - uncommon type occurring sporadically on western portions of the Nez Perce NF and in eastern Oregon and Washington.

Rarity (global/MT/ID) - G2/-/S2

Priority - high (northern Idaho).

National Forest assignment - Nez Perce.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	0	0	-
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Abies grandis/Vaccinium globulare Forest

Assessment - incidental type well-represented in natural areas (ca. 700 acres at Elk Creek RNA, Nez Perce NF). More common to south on Boise NF.

Rarity (global/MT/ID) - G4/-/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	3	2	Dutch Creek-60 Elk Creek-700 Little Granite Creek-200
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	2	960 acres

Abies grandis/Xerophyllum tenax Forest

Assessment - minor type with sufficient northern Idaho examples. One or two additional replicates should be sought in western Montana as only 14 acres are presently included. Best candidate areas are on the western portion of the Lolo or Bitterroot NFs.

Rarity (global/MT/ID) - G4/S4/S2

Priority - moderate (western Montana).

National Forest assignment - Bitterroot, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	4	2	Elk Creek-140 No Business Creek-10 O'Hara Creek-130 Warm Springs Creek-60
Western Montana	minor	2	1	Barktable Ridge-10 East Shore-5
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		6	2	355 acres

Subalpine Fir Forest Alliance (*Abies lasiocarpa*)

Subalpine fir is the most common alliance in the subalpine zone of Montana. In Idaho, the alliance is less prominent due to a smaller acreage of high-elevation lands and a climate more favorable to competing trees such as *Abies grandis*, *Thuja plicata*, and *Tsuga heterophylla*. Twenty-one subalpine fir forest types are included in this assessment. Overall, representation of subalpine fir types within natural areas is good, both in terms of the large numbers and acreage of RNAs featuring this series. However, eight types have been assigned a *moderate* priority rating due to their absence or under-representation from a particular analysis area.

Abies lasiocarpa/*Alnus sinuata* Forest

Assessment - three examples of small size. May be present in existing RNAs but not identified due to its typical distribution as small-sized patches. Similar to the more common *Abies lasiocarpa*/*Linnaea borealis* forest type found on slightly warmer sites.

Rarity (global/MT/ID) - G4/S4/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	1	+	Bass Creek-5
Central-Eastern Montana	minor	5	1	East Fork Mill Creek-10 Indian Meadows-10 Palace Butte-5 Sliding Mountain-40 Walling Reef-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		6	1	80 acres

Abies lasiocarpa/Arnica cordifolia Forest

Assessment - marginal geographic representation of this minor type. Needed are 1-2 additional examples; best candidate areas are on the southern Beaverhead-Deerlodge NF (elevations between 7600-8400 feet) and in the Little Belt Mountains (Lewis and Clark NF) at 6900-7600 feet.

Rarity (global/MT/ID) - G5/S5/S4

Priority - moderate (central Montana).

National Forest assignment - Beaverhead-Deerlodge, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	3	3	Line Creek Plateau-990 Lost Water Canyon-140 Mount Ellis-170
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	3	1300 acres

Abies lasiocarpa/Calamagrostis canadensis Forest

Assessment - widespread type on moist sites adequately represented across its geographic range in the Northern Region.

Rarity (global/MT/ID) - G5/S5/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	6	2	Fish Lake-5 Moose Meadow-15 Salmon Mountain-30 Smith Creek-300 Sneakfoot Meadows-200 Square Mountain-100
Western Montana	major	5	2	Bitterroot Mtn-70 East Shore-60 LeBeau-200 Pete Creek -20
Central-Eastern Montana	major	10	2	Upper Lost Horse-460 Indian Meadows-50 Lost Park-150 Mount Ellis-10 O'Brien Creek-100 Onion Park-340 Palace Butte-80 Red Mountain-110 Skull-Odell-390 Thunderbolt Mtn-40 Wheeler Ridge-60

North & South Dakota	absent	-	-	-
NORTHERN REGION		21	3	2790 acres

Abies lasiocarpa/Calamagrostis rubescens Forest

Assessment - current representation adequate but does not encompass geographic range of type (one additional example on Lewis and Clark NF is suggested). Type is common along Rocky Mountain Front on limestone substrates at elevations between 5800-6300 feet. Type also occurs on Beaverhead-Deerlodge NF (Centennial Mountains) and southward in central and southeastern Idaho and western Wyoming.

Rarity (global/MT/ID) - G5/S4/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	1	Square Mountain-20
Western Montana	incid	0	0	-
Central-Eastern Montana	minor	3	2	Indian Meadows-20 Lost Park-250 Sliding Mountain-20
North & South Dakota	absent	-	-	-
NORTHERN REGION		4	2	310 acres

Abies lasiocarpa/Caltha biflora Forest

Assessment - incidental type on wet sites. May occur as unmapped stringers and wet openings in already established natural areas.

Rarity (global/MT/ID) - G3/-/S3

Priority - low, but existing natural areas in Idaho should be re-examined for the presence of this type.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	2	Moose Meadow-200
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	2	200 acres

Abies lasiocarpa/Carex geyeri Forest

Assessment - minor type on driest sites of the subalpine fir series. Single small example from Gallatin NF inadequate. Recommend 1-2 additional RNA examples, probably on Lewis and Clark and Helena NFs (Little Belt and Big Belt Mountains, 6700-7100 feet elevation), or Gallatin NF (south aspects between 6600-7700 feet). Type also occurs in central Idaho and northwest Wyoming.

Rarity (global/MT/ID) - G4G5/S4/S5

Priority - moderate (central Montana).

National Forest assignment - Helena, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	1	+	Square Mountain-10
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	1	+	Passage Creek-5
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	15 acres

Abies lasiocarpa/Clematis columbiana Forest

Assessment - only two examples of this minor type are present in RNAs. The proposed Big Snowy RNA (Lewis and Clark NF) may provide another example. Type is restricted to calcareous substrates, and is often associated with the *Abies lasiocarpa/Arnica cordifolia* type which occurs on cooler or moister sites, and which is also under-represented.

Rarity (global/MT/ID) - G4/S3/-

Priority - moderate (central and eastern Montana).

National Forest assignment - Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	2	2	Lost Water Canyon-120 Paine Gulch-150
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	2	270 acres

Abies lasiocarpa/Clintonia uniflora Forest

Assessment - large number and acreage from examples in north Idaho and western Montana. Adequate representation in all but central Montana, where type is confined to areas near the Continental Divide in Glacier National Park and north portions of Lewis and Clark NF (Rocky Mountain Division).

Rarity (global/MT/ID) - G5/S5/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	7	3	Canyon Creek-40 Hunt Girl Creek-410 Little Granite Creek-100 No Business Creek-30 O'Hara Creek-570 Smith Creek-300 Steep Lakes-40

Western Montana	major	13	3	Bass Creek-20 Bitterroot Mtn-330 Boulder Creek-100 Carlton Ridge-30 Coram-540 LeBeau-500 Lower Lost Horse-60 Norman-Parmenter-200 Pete Creek-80 Pyramid Peak-30 Swan River -210 Tuchuck-250 Wolf-Weigel-30
Central-Eastern Montana	incid	0	0	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		20	3	3870 acres

Abies lasiocarpa/Coptis occidentalis Forest

Assessment - incidental type on Nez Perce NF at elevations between 5150-6650 feet. Similar to *Abies grandis/Coptis occidentalis* type but found on cooler sites.

Rarity (global/MT/ID) - G4/-/S3

Priority - moderate (north Idaho).

National Forest assignment - Nez Perce.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	2	Moose Meadow-110
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	2	110 acres

Abies lasiocarpa/Galium triflorum Forest

Assessment - widespread type, especially on Gallatin NF, where all RNA examples are found, and Lewis and Clark, Helena, and Beaverhead-Deerlodge NFs. Also occurs on west side NFs (Lolo, Bitterroot). 1-2 western Montana examples and one or more central Montana examples outside of the Gallatin NF are recommended.

Rarity (global/MT/ID) - G4/S4/-

Priority - moderate (Montana).

National Forest assignment - Bitterroot, Lolo, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	0	0	-
Central-Eastern Montana	major	3	2	Mount Ellis-20 Palace Butte-70 Passage Creek-30
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	2	120 acres

Abies lasiocarpa/Linnaea borealis Forest

Assessment - adequate natural areas representation across geographic range of this type.*Rarity (global/MT/ID)* - G5/S5/S5*Priority* - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	major	6	2	Bass Creek-110 LeBeau-500 Lower Lost Horse-50 Pete Creek-40 Upper Lost Horse-50 Wolf-Weigel-150
Central-Eastern Montana	major	7	2	Bernice-20 Black Butte-50 East Fork Mill Creek-100 O'Brien Creek-100 Palace Butte-70 Passage Creek-340 Skull-Odell-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		13	2	1590 acres

Abies lasiocarpa/Luzula hitchcockii Forest

Assessment - adequate representation of this widespread high-elevation type.*Rarity (global/MT/ID)* - G5/S5/S5*Priority* - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	8	3	Elk Creek-5 Fenn Mountain-15 Hunt Girl Creek-300 Little Granite Creek-40 Salmon Mountain-770 Snowy Top-80 Square Mountain-30 Steep Lakes-5
Western Montana	major	5	2	Bass Creek-80 Carlton Ridge-370 Sheep Mountain-30 Tuchuck-410 Upper Lost Horse-90

Central-Eastern Montana	major	5	3	Dexter Basin-500 Goat Flats-- Sapphire Divide-640 Skull-Odell-580 Walling Reef-50
North & South Dakota	absent	-	-	-
NORTHERN REGION		18	3	(3995 acres)

Abies lasiocarpa/Menziesia ferruginea Forest

Assessment - common subalpine forest type with adequate natural areas representation across its geographic range.

Rarity (global/MT/ID) - G5/S5/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	14	3	Bald Mountain-150 Canyon Creek-300 Fish Lake-5 Hunt Girl Creek-420 Little Granite Creek-420 Moose Meadow-190 No Business Creek-110 O'Hara Creek-430 Scotchman No. 2-280 Smith Creek-510 Sneakfoot Meadows-1280
30				Square Mountain- Steep Lakes-170 Upper Shoshone-190
Western Montana	major	9	3	Bass Creek-260 Bitterroot Mtn-250 Carlton Ridge-320 LeBeau-400 Lower Ross Creek-40 Pyramid Peak-5 Sheep Mountain-40 Tuchuck-640 Upper Lost Horse-350
Central-Eastern Montana	major	4	2	Indian Meadows-180 Red Mountain-170 Skull-Odell-5 Thunderbolt Mtn-40
North & South Dakota	absent	-	-	-
NORTHERN REGION		27	3	7185 acres

Abies lasiocarpa/Oplopanax horridum Forest

Assessment - uncommon type on mid-elevation (3900-5000 feet) wetland sites within the Flathead and Kootenai River drainages. Not present in any Forest Service natural areas but known from

Glacier National Park in the North Fork Flathead River drainage. Field evaluation needed which considers RNA opportunities in Glacier National Park Glacier View RD, Flathead NF.

Rarity (global/MT/ID) - G3/S2/S2

Priority - high (western Montana).

National Forest assignment - Flathead.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	incid	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Abies lasiocarpa - Pinus albicaulis/Vaccinium scoparium Forest

Assessment - well-represented type of upper subalpine zones east of Continental Divide. Typically replaced by *Abies lasiocarpa/Luzula hitchcockii* type in western Montana, but reported from Bitterroot NF.

Rarity (global/MT/ID) - G5/S5/S?

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	minor	0	0	-
Central-Eastern Montana	major	11	3	Black Butte-140 Dexter Basin-160 Elkhorn Lake-320 Granite Butte-20 Line Creek Plateau-2515 Palace Butte-160 Passage Creek-110 Red Mountain-200 Skull-Odell-80 Thunderbolt Mtn-90 Wheeler Ridge-460
North & South Dakota	absent	-	-	-
NORTHERN REGION		11	3	4255 acres

Abies lasiocarpa/Rhododendron albiflorum Forest

Assessment - uncommon high-elevation type in Idaho with adequate representation in two RNAs on Kaniksu NF.

Rarity (global/MT/ID) - G4/-/S2

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	2	2	Smith Creek-300 Snowy Top-300
Western Montana	absent	-	-	-

Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	2	600 acres

Abies lasiocarpa/Ribes montigenum Forest

Assessment - minor type reported from three ranges in southern Montana: Pryor Mountains, Centennial Mountains, and Gravelly Range. Two current RNA examples are from Pryors and Gravelly Mountains.

Rarity (global/MT/ID) - G5/S4/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	2	1	Cave Mountain-50 Lost Water Canyon-50
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	100 acres

Abies lasiocarpa/Streptopus amplexifolius Forest

Assessment - adequate representation in north Idaho RNAs of this wet forest type.

Rarity (global/MT/ID) - G4/S3/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	5	2	Canyon Creek-20 Fenn Mountain-5 Fish Lake-80 Moose Meadow-5 Smith Creek-100
Western Montana	absent ^{1/}	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		5	2	210 acres

^{1/} similar to *Abies lasiocarpa/Calamagrostis canadensis* ht, *Galium triflorum* phase, and *Abies lasiocarpa/Galium triflorum* ht. described by Pfister et al.(1977). Montana natural area examples have been kept in Pfister's type for this analysis, but future mapping and description should consider identifying these sites as the *Abies lasiocarpa/Streptopus amplexifolius* ht, in accordance with Cooper et al. (1991) and Hansen et al. (1991).

Abies lasiocarpa/Vaccinium cespitosum Forest

Assessment - current examples are adequate for western Montana, but single site for central-eastern Montana is insufficient. Recommend one example on Lewis and Clark NF (Little Belts) and one on Beaverhead-Deerlodge NF. Type is incidental on Nez Perce NF (south and west portions).

Rarity (global/MT/ID) - G5/S5/S3

Priority - moderate (central and eastern Montana).

National Forest assignment - Beaverhead-Deerlodge, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	minor	2	2	East Fork Bitterroot-120 LeBeau-200
Central-Eastern Montana	minor	1	2	Indian Meadows-130
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	2	450 acres

Abies lasiocarpa/Vaccinium globulare Forest

Assessment - well-represented from Gallatin NF (6 RNAs). Common in southeast Idaho and western Wyoming.

Rarity (global/MT/ID) - G5/S4/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	1	Little Granite Creek-100
Western Montana	incid	1	1	Pyramid Peak-50
Central-Eastern Montana	major	6	2	Black Butte-110 Mount Ellis-360 O'Brien Creek-110 Palace Butte-70 Passage Creek-20 Wheeler Ridge-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		8	2	830 acres

Abies lasiocarpa/Vaccinium scoparium Forest

Assessment - well-represented type across most of its range in Montana (near and east of Continental Divide). Also reported as locally common south and west of Eureka on the Kootenai NF. Incidental in Idaho on the southern Nez Perce NF and the Seven Devils Mountains.

Rarity (global/MT/ID) - G5/S5/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	2	Little Granite Creek-600
Western Montana	minor	3	1	Carlton Ridge-50 Petty Creek-20 Upper Lost Horse-80
Central-Eastern Montana	major	14	3	Black Butte-130 Cliff Lake-130 Goat Flat-- Granite Butte-30

				Indian Meadows-10 Line Creek Plateau-870 Lost Park-100 O'Brien Creek-110 Onion Park-650 Palace Butte-70 Passage Creek-15 Skull-Odell-1190 Thunderbolt Mtn-220 Wheeler Ridge-20
North & South Dakota	absent	-	-	-
NORTHERN REGION		18	3	(4395 acres)

Abies lasiocarpa/Xerophyllum tenax Forest

Assessment - common type in Northern Region and well-represented in natural areas.

Rarity (global/MT/ID) - G5/S5/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	17	3	Bald Mountain-20 Canyon Creek-150 Elk Creek-700 Fenn Mountain-30 Fish Lake-570 Hunt Girl Creek-200 Moose Meadow-430 No Business Creek-110 O'Hara Creek-420 Rhodes Peak-90 Roundtop Mtn-150 Scotchman No. 2-290 Smith Creek-390 Sneakfoot Meadows-320 Snowy Top-80 Square Mountain-200 Steep Lakes-80 Upper Shoshone-180
Western Montana	major	9	3	Bass Creek-230 Bitterroot Mtn-400 Carlton Ridge-40 LeBeau-300 Lower Lost Horse-730 Norman-Parmenter-100 Pyramid Peak-100 Sheep Mountain-20 Upper Lost Horse-120
Central-Eastern Montana	major	7	3	Dexter Basin-110 Granite Butte-90 Indian Meadows-320 Mount Ellis-560 O'Brien Creek-110

				Red Mountain-480 Thunderbolt Mtn-220
North & South Dakota	absent	-	-	-
NORTHERN REGION		33	3	8340 acres

**Spruce
Forest
Alliance**
(*Picea engelmannii*, *P. glauca*, and
hybrids)

Eleven habitat types identified for Northern Region national forests, mainly in Flathead Valley (Flathead and Kootenai NFs) and in central and eastern Montana. Series is essentially absent from northern Idaho but common in central Idaho and Wyoming. Within Montana natural areas, all but one type (*Picea/Smilacina stellata*) is present with at least one occurrence. To strengthen central Montana representation, recommend one additional RNA featuring spruce communities along the Rocky Mountain Front (Lewis and Clark NF).

Picea/Clintonia uniflora Forest

Assessment - type is well-represented in RNAs across main range of its distribution in northwestern Montana.

Rarity (global/MT/ID) - G4/S4/-

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	6	2	Hoskins Lake-90 LeBeau-100 Lower Lost Horse-15 Petty Creek-10 Plant Creek-40 Swan River-60
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		6	2	315 acres

Picea/Cornus stolonifera Forest

Assessment - newly defined wetland forest type occurring as stringers along streams. May be present in other natural areas but unmapped.

Rarity (global/MT/ID) - G3/S3/S2

Priority - low (verify presence in existing RNAs).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-

Western Montana	minor	2	1	LeBeau-20 Swan River-5
Central-Eastern Montana	minor	2	1	East Fork Mill Creek-10 Sliding Mountain-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		4	1	45 acres

Picea/Equisetum Forest

Assessment - type usually found as narrow band adjacent to streams. Locally common on south side of Little Belt Mountains (Lewis and Clark NF), and a botanical area (Jumping Creek) is proposed which features this type. Other examples should be looked for in existing natural areas.

Rarity (global/MT/ID) - G3G4/S3/S2

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	minor	2	2	East Fork Bitterroot-30 LeBeau-20
Central-Eastern Montana	minor	5	1	Basin Creek-20 Indian Meadows-15 Onion Park-5 Palace Butte-5 Passage Creek-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		6	2	105 acres

Picea/Galium triflorum Forest

Assessment - type is adequately represented across its range (most common on Gallatin NF), but only single small RNA example in western Montana.

Rarity (global/MT/ID) - G4G5/S4S5/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	1	+	Sawmill Creek-10
Central-Eastern Montana	major	3	2	Bartleson Peak-30 Basin Creek-300 Sliding Mountain-70
North & South Dakota	absent	-	-	-
NORTHERN REGION		4	2	410 acres

Picea/Linnaea borealis Forest

Assessment - type well-represented in central-eastern Montana; sole example from western Montana marginally adequate but type is uncommon west of Divide.

Rarity (global/MT/ID) - G4/S4/-

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	1	1	Hoskins Lake-90
Central-Eastern Montana	major	6	3	Bartleson Peak-170 Basin Creek-300 Bernice-20 Cliff Lake-460 Paine Gulch-40 Sliding Mountain-200
North & South Dakota	absent	-	-	-
NORTHERN REGION		7	3	980 acres

Picea/Lysichiton americanum Forest

Assessment - uncommon wetland forest type covering small areas of the Flathead NF (Swan Lake RD). Additional examples may be present within candidate botanical areas featuring wetlands.

Rarity (global/MT/ID) - G2/S2/-

Priority - high.

National Forest assignment - Flathead.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	incid	1	+	Swan River-5
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	+	5 acres

Picea/Physocarpus malvaceous Forest

Assessment - type restricted to Gallatin NF and adequately represented within three RNAs.

Rarity (global/MT/ID) - G4/S3/-

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	3	2	East Fork Mill Creek-40 Passage Creek-20 Sliding Mountain-400
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	2	460 acres

Picea/Senecio streptanthifolius Forest

Assessment - uncommon type restricted to limestone areas of southwestern and central Montana. Additional site from Beaverhead-Deerlodge NF recommended (e.g., reported from Morrison Lake).

Rarity (global/MT/ID) - G4/S2/-

Priority - moderate (central and eastern Montana).

National Forest assignment - Beaverhead-Deerlodge.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	2	3	Bartleson Peak-1100 Big Snowy--
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	3	(1100 acres)

Picea/Smilacina stellata Forest

Assessment - no examples within Northern Region natural areas. Need for 2-3 examples; recommend one from Beaverhead-Deerlodge NF and 1-2 from Lewis and Clark or Helena NFs.

Rarity (global/MT/ID) - G4/S4/-

Priority - high (central and eastern Montana).

National Forest assignment - Beaverhead-Deerlodge, Helena, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Picea/Vaccinium cespitosum Forest

Assessment - common type in Flathead Valley and along Rocky Mountain Front. Significant acreage within Basin Creek RNA, Beaverhead-Deerlodge NF. Recommend one Rocky Mountain Front example (Lewis and Clark NF), as part of an RNA featuring spruce types.

Rarity (global/MT/ID) - G4/S4/-

Priority - moderate (central and eastern Montana).

National Forest assignment - Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	1	1	LeBeau-100
Central-Eastern Montana	minor	1	2	Basin Creek-295
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	2	395 acres

**Douglas-Fir
Forest & Woodland
Alliance**
(*Pseudotsuga menziesii*)

Twelve forest and four woodland types are identified within national forests of the Northern Region. Overall representation within natural areas is good, with only a few missing types or types under-represented across their geographic range. Emphasis should be to identify potential natural areas featuring low-elevation Douglas-fir/bunchgrass communities.

Pseudotsuga menziesii/Agropyron spicatum Woodland

Assessment - widespread type across much of the Northern Region and adequately represented within natural areas. However, this type is subject to disturbance from livestock grazing, exotic species invasion, and altered fire patterns, so additional examples, especially from western Montana, are recommended.

Rarity (global/MT/ID) - G4G5/S4/S3

Priority - moderate (Montana).

National Forest assignment - Bitterroot, Flathead.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	2	2	Elk Creek-350 Warm Springs Creek-30
Western Montana	minor	2	2	Sawmill Creek-70 Squaw Creek-70
Central-Eastern Montana	minor	5	3	Bernice-25 Cabin Gulch-1440 Cattle Gulch-80 Cliff Lake-130 Lost Water Canyon-130
North & South Dakota	absent	-	-	-
NORTHERN REGION		9	3	2285 acres

Pseudotsuga menziesii/Arctostaphylos uva-ursi Forest

Assessment - type is adequately represented by three RNA examples from Lewis and Clark and Helena NFs.

Rarity (global/MT/ID) - G4/S4/-

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	3	2	Bartleson Peak-90 Cabin Gulch-110 Paine Gulch-280

North & South Dakota	absent	-	-	-
NORTHERN REGION		3	2	480 acres

Pseudotsuga menziesii/Arnica cordifolia Forest

Assessment - to date, only a single RNA example is present (from Pryor Mountains), and a broader geographic representation in Montana is needed. Two examples are recommended, one from Beaverhead-Deerlodge NF and one from Helena or Lewis and Clark (Jefferson Division) NFs. The type is common on Challis NF (Intermountain Region) in east-central Idaho.

Rarity (global/MT/ID) - G5/S4/S3

Priority - high (central and eastern Montana).

National Forest assignment - Beaverhead-Deerlodge, Helena, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	major	1	2	Lost Water Canyon-450
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	2	450 acres

Pseudotsuga menziesii/Calamagrostis rubescens Forest

Assessment - most common Douglas-fir type in Montana and very well-represented in RNAs.

Rarity (global/MT/ID) - G5/S5/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	3	2	Fish Lake-20
				Little Granite Creek-150
				Warm Springs Creek-30
Western Montana	major	10	3	Bass Creek-50
				Big Creek-30
				Boulder Creek-50
				LeBeau-400
				Little Bitterroot-160
				Lower Lost Horse-50
				Norman-Parmenter-300
				Plant Creek-10
				Sawmill Creek-10
				Wolf-Weigel-30
Central-Eastern Montana	major	9	2	Bernice-60
				Cabin Gulch-80
				Cliff Lake-520
				Cottonwood Creek-20
				Horse Prairie-5
				Indian Meadows-100
				Passage Creek-5
				Red Mountain-30
North & South Dakota	absent	-	-	Sliding Mountain-70
				-

NORTHERN REGION	22	3	2180 acres
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Pseudotsuga menziesii/Carex geyeri Forest

Assessment - adequate RNA representation, especially in central-eastern Montana, where type is most common. Incidental on Nez Perce NF, but more common in central Idaho.

Rarity (global/MT/ID) - G5/S4/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	minor	2	1	Pyramid Peak-60 Sheep Mountain-10
Central-Eastern Montana	minor	6	2	Bernice-60 East Fork Mill Creek-10 Indian Meadows-40 Lost Water Canyon-400 Mount Ellis-10 Passage Creek-50
North & South Dakota	absent	-	-	-
NORTHERN REGION		8	2	640 acres

Pseudotsuga menziesii/Cornus stolonifera Woodland

Assessment - minor type of low-elevation stream and river floodplains in Montana defined in recent wetland classifications. Not presently known from any Northern Region natural areas; one example recommended from each Montana analysis area. Existing RNAs should also be resurveyed for the presence of this type.

Rarity (global/MT/ID) - G3/S2/-

Priority - high (Montana).

National Forest assignment - Beaverhead-Deerlodge, Flathead, Helena.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Pseudotsuga menziesii/Festuca idahoensis Woodland

Assessment - adequate representation from central-eastern Montana; single example from western Montana threatened by exotic species (spotted knapweed, leafy spurge). Additional high-quality examples recommended for western Montana.

Rarity (global/MT/ID) - G5/S4/S3

Priority - high (western Montana).

National Forest assignment - Bitterroot, Flathead.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	incid	1	1	Warm Springs Creek-60
Western Montana	minor	1	1	Squaw Creek-80
Central-Eastern Montana	minor	7	2	Bernice-25 Dry Mountain-75 Horse Prairie-5 Indian Meadows-20 Lost Water Canyon-160 Paine Gulch-100 Sliding Mountain-70
North & South Dakota	absent	-	-	-
NORTHERN REGION		9	2	595 acres

Pseudotsuga menziesii/Festuca scabrella Woodland

Assessment - poorly represented type across its Northern Region range. Need for additional representations in Montana.

Rarity (global/MT/ID) - G4/S4/-

Priority - high (Montana).

National Forest assignment - Flathead, Kootenai, Lewis and Clark (eastern portions).

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	absent	0	0	-
Western Montana	minor	1	+	Plant Creek-5
Central-Eastern Montana	minor	1	2	Cabin Gulch-420
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	2	425 acres

Pseudotsuga menziesii/Juniperus communis Forest

Assessment - type is sufficiently represented within RNAs across its geographic range in Montana. Also present in east-central Idaho.

Rarity (global/MT/ID) - G5/S4/S3

Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	major	6	3	Cattle Gulch-140 Dry Mountain-290 Line Creek Plateau-2640 Lost Water Canyon-170 Mount Ellis-15 Paine Gulch-280

North & South Dakota	absent	-	-	-
NORTHERN REGION		6	3	3535 acres

Pseudotsuga menziesii/Linnaea borealis Forest

Assessment - well-represented in RNAs across its Montana range.

Rarity (global/MT/ID) - G4/S4/S1

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	major	8	2	Bass Creek-30 Big Creek-40 Hoskins Lake-30 LeBeau-400 Little Bitterroot-5 Lower Lost Horse-120 Petty Creek-50 Plant Creek-10
Central-Eastern Montana	major	4	2	Bernice-125 East Fork Mill Creek-70 Paine Gulch-280 Passage Creek-110
North & South Dakota	absent	-	-	-
NORTHERN REGION		12	3	1270 acres

Pseudotsuga menziesii/Physocarpus malvaceous Forest

Assessment - widely distributed type found on all but Lewis and Clark NF. Many representations in Northern Region natural areas but examples lacking from several east-side Forests.

Rarity (global/MT/ID) - G5/S5/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	14	3	Aquarius-480 Binarch Creek-100 Bottle Lake-10 Bull Run Creek-30 Chateau Falls-120 Elk Creek-1780 Kaniksu Marsh-5 Lightning Creek-- Little Granite Creek-500 Lochsa River-115 No Business Creek-150 O'Hara Creek-1110 Red Horse-- Three Ponds-60
Western Montana	major	12	3	Bass Creek-90 Boulder Creek-200

				Coram-300 East Shore-220 LeBeau-400 Lower Lost Horse-240 Lower Ross Creek-60 Norman-Parmenter-300 Petty Creek-10 Plant Creek-170 Sawmill Creek-30 Wolf-Weigel-20
Central-Eastern Montana	minor	5	3	East Fork Mill Creek-560 Line Creek Plateau-140 Lost Water Canyon-350 Passage Creek-300 Sliding Mountain-70
North & South Dakota	absent	-	-	-
NORTHERN REGION		31	3	(7920 acres)

Pseudotsuga menziesii/Spiraea betulifolia Forest

Assessment - marginal representation in Montana (low number of examples and small acreage). Should be looked for on Lolo, Lewis and Clark, and Helena NFs.

Rarity (global/MT/ID) - G5/S4/S5

Priority - moderate (Montana).

National Forest assignment - Helena, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	2	2	Elk Creek-350 Warm Springs Creek-60
Western Montana	minor	1	1	Petty Creek-20
Central-Eastern Montana	minor	2	2	Lost Water Canyon-500 Paine Gulch-280
North & South Dakota	absent	-	-	-
NORTHERN REGION		5	3	1210 acres

Pseudotsuga menziesii/Symphoricarpos albus Forest

Assessment - common habitat type in Montana and also present in central Idaho and northwestern Wyoming. Regionwide, current examples are adequate.

Rarity (global/MT/ID) - G5/S5/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	4	2	Elk Creek-350 Little Granite Creek-200 No Business Creek-5 Red Horse--
Western Montana	major	7	2	Big Creek-30 East Shore-170

				Lower Lost Horse-40 Petty Creek-10 Sawmill Creek-10 Squaw Creek-150 Wolf-Weigel-10
Central-Eastern Montana	major	4	2	Cabin Gulch-90 Cliff Lake-70 Paine Gulch-100 Wagner Basin-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		15	3	(1245 acres)

Pseudotsuga menziesii/Symphoricarpos oreophilus Forest

Assessment - uncommon Northern Region type from Beaverhead-Deerlodge NF. More common in central Idaho. Recommend additional natural area example from Beaverhead-Deerlodge NF.

Rarity (global/MT/ID) - G5/S3/S3

Priority - moderate.

National Forest assignment - Beaverhead-Deerlodge.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	2	2	Cattle Gulch-20 Cliff Lake-130
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	2	150 acres

Pseudotsuga menziesii/Vaccinium cespitosum Forest

Assessment - productive type of relatively low elevations. Need for example from north Idaho. Additional samples from Montana are desirable as many examples of this type have been altered by timber harvest.

Rarity (global/MT/ID) - G5/S5/S2; "open" phase - G3/S3/?

Priority - high (northern Idaho), moderate (central and eastern Montana).

National Forest assignment - Lewis and Clark, Nez Perce.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	0	0	-
Western Montana	major	3	2	Big Creek-100 LeBeau-400 Petty Creek-60
Central-Eastern Montana	minor	2	1	Indian Meadows-10 Sliding Mountain-70
North & South Dakota	absent	-	-	-
NORTHERN REGION		5	2	640 acres

Pseudotsuga menziesii/Vaccinium globulare Forest

Assessment - marginal RNA representation in central-eastern Montana (single RNA example from Helena NF). Lewis and Clark NF (Jefferson Division) may have candidate sites. Target filled for western Montana.

Rarity (global/MT/ID) - G5/S5/S1

Priority - moderate (central and eastern Montana).

National Forest assignment - Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	+	Three Ponds-5
Western Montana	major	7	2	Bass Creek-10 Big Creek-60 Boulder Creek-300 Lower Lost Horse-120 Petty Creek-60 Plant Creek-10 Pyramid Peak-200
Central-Eastern Montana	minor	1	+	Indian Meadows-5
North & South Dakota	absent	-	-	-
NORTHERN REGION		9	2	770 acres

Western Redcedar
Forest
Alliance
(*Thuja plicata*)

Eleven forest types are identified for north Idaho and northwestern Montana. Within Idaho RNAs and special interest areas, there is a good representation of major and minor types. In Montana, there are a number of missing or poorly represented types. Inventories of old-growth ("ancient") western redcedar groves, such as completed by the Idaho Panhandle NFs are recommended. Significant groves should be included in natural areas where possible. Also needed are ecological inventories of existing botanical areas featuring western redcedar groves.

Thuja plicata/Adiantum pedatum Forest

Assessment - there is adequate RNA representation of this uncommon type found primarily on St. Joe and Clearwater NFs.

Rarity (global/MT/ID) - G2/-/S2

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	5	3	Aquarius-1310 Chateau Falls-5 Dutch Creek-60 Four-Bit-60 O'Hara Creek-1200
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		5	3	2635 acres

Thuja plicata/Asarum caudatum Forest

Assessment - common type in north Idaho and sufficiently represented in Idaho RNAs. In Montana, type is reported from Kootenai NF, Cabinet RD.

Rarity (global/MT/ID) - G4/S1/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	5	2	Aquarius-325 Binarch Creek-10 Bull Run Creek-170 Dutch Creek-90 Four-Bit-100
Western Montana	incid	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		5	2	695 acres

Thuja plicata/Athyrium filix-femina Forest

Assessment - adequate representation in north Idaho RNAs. Suggested are 1-2 western Montana examples; best candidate forests are Kootenai, Flathead, Lolo, and possibly Bitterroot.

Rarity (global/MT/ID) - G3/S3/S3

Priority - high (western Montana).

National Forest assignment - Flathead, Kootenai, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	12	2	Aquarius-70 Binarch Creek-5 Bull Run Creek-60 Canyon Creek-10 Dutch Creek-20 Four-Bit-60 Hunt Girl Creek-20 Montford Creek-30 Potholes-60 Three Ponds-5

				Upper Fishhook-160 Upper Priest River-150
Western Montana	minor	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		12	2	650 acres

Thuja plicata/Clintonia uniflora Forest

Assessment - major type well-represented within RNAs.

Rarity (global/MT/ID) - G5/S4/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	9	3	Aquarius-400 Binarch Creek-5 Bull Run Creek-40 Dutch Creek-120 Four-Bit-170 Lochsa River-460 O'Hara Creek-1630 Upper Fishhook-160 Warm Springs Creek-30
Western Montana	major	8	2	Big Creek-30 East Shore-70 Hoskins Lake-130 LeBeau-150 Lower Lost Horse-10 Lower Ross Creek-60 Norman-Parmenter-140 Swan River-150
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		17	3	3755 acres

Thuja plicata/Coptis occidentalis Forest

Assessment - incidental type tentatively identified for northern Idaho but needs further refinement and sampling.

Rarity (global/MT/ID) - G?/-/S?

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Thuja plicata/Dryopteris Forest

Assessment - single example of this incidental type from Aquarius RNA, Clearwater NF.

Rarity (global/MT/ID) - G1?/-/S1

Priority - moderate.

National Forest assignment - Clearwater.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	1	Aquarius-60
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	1	60 acres

Thuja plicata/Equisetum Forest

Assessment - single small acreage example reported from Potholes RNA, Kaniksu NF. Type is incidental and probably never occupies large continuous areas. Existing natural areas should be re-examined for the presence of this uncommon type.

Rarity (global/MT/ID) - G?/-/S1

Priority - moderate.

National Forest assignment - Idaho Panhandle.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	+	Potholes-5
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	+	5 acres

Thuja plicata/Gymnocarpium dryopteris Forest

Assessment - adequately represented across geographic range in Idaho. Example needed for western Montana; type is best developed on Kootenai and Lolo NFs. Portions of Gilt Edge Cedar Grove, Superior RD, Lolo NF, feature this type.

Rarity (global/MT/ID) - G3/S3/S2

Priority - high (western Montana).

National Forest assignment - Kootenai, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	3	2	Aquarius-60 Bull Run Creek-40 Four-Bit-15
Western Montana	minor	0	0	-
Central-Eastern Montana	absent	-	-	-

North & South Dakota	absent	-	-	-
NORTHERN REGION		3	2	115 acres

Thuja plicata/Lysichiton americanum Forest

Assessment - incidental but distinctive type covering small acreages; adequate representation in north Idaho; may also occur in northwest Montana.

Rarity (global/MT/ID) - G4/S?/S2

Priority - moderate.

National Forest assignment - Kootenai (tentative).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	3	1	Aquarius-10 Potholes-5 Upper Priest River-20
Western Montana	incid?	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	1	35 acres

Thuja plicata/Oplopanax horridum Forest

Assessment - well-represented within north Idaho and western Montana RNAs/SIAs.

Rarity (global/MT/ID) - G3/S3/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	7	2	Aquarius-50 Binarch Creek-10 Canyon Creek-10 Hunt Girl Creek-80 Montford Creek-40 Potholes-10 Upper Priest River-50
Western Montana	minor	4	2	LeBeau-10 Lower Ross Creek-150 Norman-Parmenter-20 Swan River-60
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		11	2	490 acres

Thuja plicata/Physocarpus malvaceus Forest

Assessment - no examples of this incidental type reported but may occur as unmapped inclusions within existing natural areas on moist slopes.

Rarity (global/MT/ID) - G?/-/S?

Priority - low (re-evaluate existing RNAs in north Idaho).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Western Hemlock
Forest
Alliance
(*Tsuga heterophylla*)

Seven forest types within this series have been defined. Three types cover extensive landscape areas, while four are considered incidental. In Montana, the *Tsuga heterophylla*/*Clintonia uniflora* forest type is most common, and occurs on the Kootenai and Flathead NFs. Natural areas representation is good for nearly all major and minor western hemlock types in both north Idaho and Montana. Missing are examples of several incidental types, which should first be sought within existing natural areas.

Tsuga heterophylla/*Adiantum pedatum* Forest

Assessment - poorly defined, incidental type in northern Idaho, similar to the more common *Thuja plicata*/*Adiantum pedatum* forest type. It is found on wet sites on the St. Joe and Clearwater NFs and may occur within existing natural areas.

Rarity (global/MT/ID) - G?/-/S? (not on Idaho Conservation Data Center list)

Priority - low (re-evaluate existing RNAs).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Tsuga heterophylla/*Asarum caudatum* Forest

Assessment - well-represented in north Idaho natural areas. In Montana, reported to occur on the Cabinet RD, Kootenai NF, but may be such a minor type that inclusion within a natural area is impractical.

Rarity (global/MT/ID) - G3/S2/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	8	2	Binarch Creek-200 Canyon Creek-40 Montford Creek-90 Potholes-60 Red Horse-- Spion Kop-70 Three Ponds-15 Upper Shoshone-60
Western Montana	incid	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		8	2	(535 acres)

Tsuga heterophylla/Athyrium filix-femina Forest

Assessment - an uncommon incidental type in northern Idaho, and reported from two RNAs on the Coeur d'Alene NF.

Rarity (global/MT/ID) - G2/-/S2

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	2	1	Montford Creek-20 Upper Shoshone-60
Western Montana	incid	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	80 acres

Tsuga heterophylla/Clintonia uniflora Forest

Assessment - the most common western hemlock type in the Northern Region, and well-represented from 17 natural areas.

Rarity (global/MT/ID) - G5/S3/S5

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	13	3	Binarch Creek-100 Bottle Lake-220 Canyon Creek-250 Hunt Girl Creek-40 Kaniksu Marsh-50 Montford Creek-100 Potholes-60 Red Horse-- Spion Kop-70 Tepee Creek-750 Three Ponds-40 Upper Priest River-150

Western Montana	major	5	2	Upper Shoshone-60 Coram-5 LeBeau-300 Lower Ross Creek-490 Norman-Parmenter-140 Ulm Peak-50
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		18	3	(2875 acres)

Tsuga heterophylla/Gymnocarpium dryopteris Forest

Assessment - widespread type with adequate northern Idaho natural area examples. Montana example is a small area within a single botanical area.

Rarity (global/MT/ID) - G3/S2/S3

Priority - moderate (western Montana).

National Forest assignment - Kootenai.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	6	2	Canyon Creek-40 Hunt Girl Creek-40 Kaniksu Marsh-40 Montford Creek-60 Upper Priest River-150 Upper Shoshone-60
Western Montana	incid	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		6	2	390 acres

Tsuga heterophylla/Menziesia ferruginea Forest

Assessment - incidental type with a restricted geographic distribution in northern Idaho (reported from elevations above 5000 feet in the Selkirk Range) and present in one RNA.

Rarity (global/MT/ID) - G2/-/S1

Priority - moderate.

National Forest assignment - Kaniksu.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	1	Canyon Creek-30
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	1	30 acres

Tsuga heterophylla/Oplopanax horridum Forest

Assessment - incidental type reported for one north Idaho RNA. Best development of type is on Clearwater NF along the North Fork of the Clearwater River upstream from Dworshak Reservoir.

Rarity (global/MT/ID) - G4/-/S2

Priority - moderate.

National Forest assignment - Clearwater.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	2	1	Montford Creek-20 Upper Shoshone-40
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	60 acres

Tsuga heterophylla/Xerophyllum tenax Forest

Assessment - a poorly described type occupying coolest and driest sites within this series and lacking any natural area examples. Type also occurs on the Olympic Peninsula of Washington.

Rarity (global/MT/ID) - G2/-/S1

Priority - moderate (northern Idaho).

National Forest assignment - Idaho Panhandle.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

**Mountain Hemlock
Forest**

Alliance

(Tsuga mertensiana)

This alliance is associated with strongly maritime climates in northern Idaho and western Montana between Lolo Pass and Libby along the Idaho-Montana border (Lolo and Kootenai NFs). Five habitat types have been identified. Natural areas representation is mostly adequate in Idaho, but marginal in Montana (two RNAs only).

Tsuga mertensiana/Clintonia uniflora Forest

Assessment - absent from any northern Idaho natural areas, but reported as extensive on the St. Joe, Coeur d'Alene, and northern Clearwater NFs, at elevations between 4800-5700 feet. At least two examples are recommended for inclusion within natural areas.

Rarity (global/MT/ID) - G3/S2/S3

Priority - high (northern Idaho).

National Forest assignment - Clearwater, Idaho Panhandle.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	0	0	-
Western Montana	incid	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Tsuga mertensiana/Luzula hitchcockii Forest

Assessment - high-elevation type represented by three small-acreage RNA examples in Idaho, and one RNA in Montana.

Rarity (global/MT/ID) - G4/S3/S2

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	3	1	Bald Mountain-5 Steep Lakes-5 Therault Lake-10
Western Montana	incid	1	2	Ulm Peak-220
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		4	2	240 acres

Tsuga mertensiana/Menziesia ferruginea Forest

Assessment - common mountain hemlock type and adequately represented in Northern Region natural areas.

Rarity (global/MT/ID) - G4/S3/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	6	2	Bald Mountain-70 Five Lakes Butte-70 Pond Peak-100 Steep Lakes-120 Therault Lake-80 Upper Shoshone-250
Western Montana	minor	2	2	Barktable Ridge-40 Ulm Peak-230
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		8	2	960 acres

Tsuga mertensiana/Streptopus amplexifolius Forest

Assessment - the wettest type in the series, restricted to the St. Joe and northern Clearwater NFs between 5000-6000 feet. Occurs in Five Lakes Butte RNA (St. Joe NF), and may be present as small patches along streams in other natural areas but not identified as a distinct occurrence.

Rarity (global/MT/ID) - G2/-/S2

Priority - moderate.

National Forest assignment - Clearwater.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	1	Five Lakes Butte-20 Therault Lake-5
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	25 acres

Tsuga mertensiana/Xerophyllum tenax Forest

Assessment - common type adequately present within Idaho and Montana natural areas.

Rarity (global/MT/ID) - G4/S4/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	major	5	2	Five Lakes Butte-120 Pond Peak-130 Steep Lakes-5 Therault Lake-20 Upper Shoshone-250
Western Montana	minor	2	2	Barktable Ridge-290 Ulm Peak-150
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		7	2	965 acres

Subclass - *Mainly deciduous forests*

Overall, deciduous broad-leaved forests are under-represented within Northern Region natural areas. Deciduous forests within the Region are mostly associated with river floodplains and woody draws. Scattered groves of quaking aspen (*Populus tremuloides*) are present, but usually clearly seral to conifers. Major species include green ash (*Fraxinus pennsylvanica*) and cottonwoods (*Populus angustifolia*, *P. deltoides*, *P. trichocarpa*). Small areas of deciduous woodland

dominated by hackberry (*Celtis reticulata*) occur in the Hells Canyon area (e.g., Bill's Creek proposed RNA). Deciduous woodlands dominated by green ash occur in eastern Montana and the Dakotas (Custer NF). Small areas of bur oak (*Quercus macrocarpa*) woodland occur on the Little Missouri and Sheyenne National Grasslands of North Dakota. Black ash (*Fraxinus nigra*), a species of wet sites, is reported from eastern North Dakota. An uncommon red alder/maidenhair fern (*Alnus rubra*/*Adiantum pedatum*) community occupying 370 acres is reported from Aquarius RNA.

Group - Cold-deciduous forests with evergreen trees (or shrubs)

Formation - Cold-deciduous broad-leaved forests with evergreen trees

Quaking Aspen
Forest & Woodland
Types
(*Populus tremuloides*)



A number of forest types dominated by quaking aspen have been defined within the Northern Region. The presence and extent of these types within natural areas is largely unknown.

	Rarity ranking			
	<u>Global</u>	<u>MT</u>	<u>ID</u>	<u>ND</u>
<i>Populus tremuloides</i> / <i>Amelanchier alnifolia</i>	G5	S3	-	S2?
<i>Populus tremuloides</i> / <i>Calamagrostis canadensis</i>	G3	S2	-	-
<i>Populus tremuloides</i> / <i>Calamagrostis rubescens</i>	G5	S4	S5	-
<i>Populus tremuloides</i> / <i>Carex geyeri</i>	G4	S?	-	-
<i>Populus tremuloides</i> / <i>Cornus stolonifera</i>	G3	S3	-	-
<i>Populus tremuloides</i> / <i>Heracleum lanatum</i>	G3	S2	-	-
<i>Populus tremuloides</i> / <i>Juniperus communis</i>	G4	S?	-	-
<i>Populus tremuloides</i> / <i>Osmorhiza occidentalis</i>	G4	S3	-	-
<i>Populus tremuloides</i> / <i>Prunus virginiana</i>	G3	S2	-	S?
<i>Populus tremuloides</i> / <i>Spiraea betulifolia</i>	G4	S4	-	-
<i>Populus tremuloides</i> / <i>Symphoricarpos albus</i>	G3	S3	-	-
<i>Populus tremuloides</i> / <i>Symphoricarpos oreophilus</i>	G5	S3	S?	-
<i>Populus tremuloides</i> /Tall Forb	G5	S3	S?	-

An additional two woodland types are reported from North Dakota:

<i>Populus tremuloides</i> / <i>Corylus cornuta</i>	G?	-	-	S2?
<i>Populus tremuloides</i> /Mixed grass	G?	-	-	S?

A summary of the known occurrence of all quaking aspen-dominated communities within Northern Region RNAs follows.

Populus tremuloides communities (summary of all types)

Assessment - additional natural area examples are recommended, especially in central-eastern Montana and the Dakotas. In those areas, quaking aspen tends to form larger, longer-lived clones than stands in western Montana and north Idaho that are usually clearly seral to conifers.

Priority - moderate (central and eastern Montana, North and South Dakota).

National Forest assignment - Custer.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid?	0	0	-
Western Montana	minor	1	+	Squaw Creek-5
Central-Eastern Montana	minor	6	1	Bernice-5 Cliff Lake-30 Horse Prairie-5 Indian Meadows-20 Wagner Basin-30 Walling Reef-10
North & South Dakota	minor	1	+	Sheyenne Springs-5
NORTHERN REGION		8	2	110 acres

Formation - *Cold-deciduous needle-leaved forests with evergreen needle-leaved trees*

Alpine Larch
Forest & Woodland
Alliance
(*Larix lyallii*)

The series features a single habitat type found at high-elevations (timberline) in Montana and rarely in eastern Idaho (e.g., Bitterroot Mountains, Northwest Peak). No examples occur within Idaho natural areas but the type is well-represented in Montana.

Larix lyallii-*Abies lasiocarpa* Mixed Forest

Assessment - timberline type adequately represented by a number of large acreage examples in Northern Region natural areas.

Rarity (global/MT/ID) - G4/S4/S1

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	2	2	Grave Peak-200 Salmon Mountain-130
Western Montana	minor	4	2	Bass Creek-30 Carlton Ridge-90

				Tuchuck-680 Upper Lost Horse-390
Central-Eastern Montana	minor	3	2	Dexter Basin-70 Goat Flat-- Sapphire Divide-200
North & South Dakota	absent	-	-	-
NORTHERN REGION		9	3	(1790 acres)

Group - *Cold-deciduous broad-leaved forests without evergreen trees*

Formation - *Temperate lowland and submontane broad-leaved cold-deciduous forest*

Green Ash
Forest & Woodland
Alliance
(*Fraxinus pennsylvanica*)

This alliance occurs along floodplains and woody draws in eastern Montana and the Dakotas. Green ash draws are important wildlife habitat and threatened by livestock grazing and heavy deer browsing. No Forest Service natural area examples but sites dominated by green ash are present in several US Fish and Wildlife Service RNAs along the Missouri River in eastern Montana. Three forest types have been identified.

Fraxinus pennsylvanica - (*Ulmus americana*)/*Prunus virginiana* Forest

Assessment - occurs on Little Missouri and Sheyenne National Grasslands, Custer NF. Natural area examples may be difficult to find because of livestock and wildlife browsing and the decline of American elm from Dutch elm disease.

Rarity (global/MT/ID/ND) - G3/S1/-/S?

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

Fraxinus pennsylvanica/Prunus virginiana Forest

Assessment - occurs on Little Missouri National Grassland and Ashland RD, Custer NF.

Rarity (global/MT/ID/ND) - G3/S3/-/S?

Priority - high (central-eastern Montana, North and South Dakota).

National Forest assignment - Custer.

Fraxinus pennsylvanica/Symphoricarpos occidentalis Forest

Assessment - type of Little Missouri National Grassland, Custer NF. Undergrowth dominance by snowberry may reflect removal of more palatable shrubs by browsers and soil compaction associated with livestock use during wet periods.

Rarity (global/MT/ID/ND) - G?/-/-/S?
Priority - moderate (North and South Dakota).
National Forest assignment - Custer.

Bur Oak
Forest & Woodland
Alliance
(*Quercus macrocarpa*)



Bur oak occurs on the Little Missouri and Sheyenne National Grasslands in North Dakota, but no Northern Region RNA examples exist. Montana also has a localized occurrence of bur oak, but the population is confined to non-Forest Service lands. In the western Dakotas, five types are reported:

- Quercus macrocarpa*/*Amelanchier alnifolia* Woodland
- Quercus macrocarpa*/*Corylus cornuta* Woodland
- Quercus macrocarpa*/*Prunus virginiana* Woodland
- Quercus macrocarpa*-*Tilia americana* Forest and Woodland
- Quercus macrocarpa*/Mixed Grass Sparse Woodland

Rarity (global/ND) - G1-G3/S1-S3 (range of all types)
Priority - high (all types, North and South Dakota).
National Forest assignment - Custer.

Formation - *Cold-deciduous alluvial forest*

Cottonwood
Forest
Types
(*Populus* spp.)

The *Populus angustifolia*/*Cornus stolonifera* and *Populus deltoides*/*Cornus stolonifera* community types occur on riparian sites east of the Continental Divide in Montana. Within Northern Region RNAs, a single small *P. deltoides*/*Cornus stolonifera* example is reported for Poker Jim RNA, Custer NF. Additional examples of this and *P. angustifolia* types may occur at low-elevations of the

Gallatin and Custer NFs, but opportunities for Forest Service natural areas may be limited. These targets may be best filled by the US Fish and Wildlife Service within the Charles M. Russell National Wildlife Refuge, as several islands on the

Missouri River are established RNAs. West of the Divide, these types are replaced by the *Populus trichocarpa*/*Cornus stolonifera* community type. *Priority* - moderate (central and eastern Montana). *National Forest assignment* (*P. angustifolia*/*Cornus stolonifera*, *P. deltoides*/*Cornus stolonifera*) - Custer.

Populus trichocarpa/*Cornus stolonifera* Alluvial Forest

Assessment - widespread riparian type of river floodplains in western Montana and northern Idaho. Overall, type is threatened by development, high levels of livestock and wildlife use, and exotic weeds. Additional high-quality examples are recommended, if possible. Natural areas should incorporate and allow for hydrologic processes that create and maintain sites favorable to cottonwood establishment.

Priority - moderate (western Montana).

National Forest assignment - Bitterroot, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	2	Spion Kop-90 Upper Priest River--
Western Montana	major	3	1	Bitterroot River-5 Council Grove-20 Norman-Parmenter-60
Central-Eastern Montana	incid	1	1	Wagner Basin-20
North & South Dakota	absent	-	-	-
NORTHERN REGION		6	2	195 acres

Class - WOODLANDS (trees over 5m tall with 10-60% canopy cover)

Subclass - Mainly evergreen woodland

Group - Evergreen needle-leaved woodland

Formation - Evergreen needle-leaved woodland with rounded crowns

Rocky Mountain Juniper
Woodland
Alliance

(*Juniperus scopulorum*)

Juniperus scopulorum/Agropyron spicatum Woodland

Assessment - present on Ashland District, Custer NF, on moderate to steep north slopes. Small acreage (20 acres) present in Cottonwood Creek RNA, Beaverhead-Deerlodge NF.

Rarity (global/MT/ID) - G4/S4/-

Priority - moderate (central and eastern Montana).

National Forest assignment - Custer.

Juniperus scopulorum/Cornus stolonifera Woodland

Assessment - type of low-elevation floodplains and foothill canyons in western and central Montana. No Northern Region natural area examples.

Rarity (global/MT/ID) - G4/S4/-

Priority - high (central and eastern Montana).

National Forest assignment - Beaverhead-Deerlodge.

Juniperus scopulorum/Oryzopsis micrantha Woodland

Assessment - present as a minor type on the Sioux RD, Custer NF, on north slopes of shale or scoria. Included within Limber Pine RNA, Custer NF (North Dakota). Type also reported from eastern Montana.

Rarity (global/MT/ID/ND) - G4/S3/-/S3

Priority - low.

**Limber Pine
Woodland
Alliance**
(*Pinus flexilis*)

Three types associated with dry, continental climatic conditions occur in the Region. North Dakota's only known limber pine stand is within the Limber Pine RNA on the Custer NF. In central-eastern Montana, examples of 2 limber pine types are absent from any natural area, and RNA examples of the limber pine/Idaho fescue type are limited to a small portion of its geographic range. Additional examples within this series are recommended, and Lewis and Clark Caverns State Park near Whitehall, Montana, may offer high-quality examples of the *Pinus flexilis/Agropyron spicatum* and *P. flexilis/Festuca idahoensis* habitat types.

Pinus flexilis/Agropyron spicatum Woodland

Assessment - 1-2 examples recommended for Montana from Helena or Beaverhead-Deerlodge NFs.

Rarity (global/MT/ID) - G4/S3/-

Priority - moderate (central-eastern Montana).

National Forest assignment - Beaverhead-Deerlodge, Helena.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	1	2	Paine Gulch-250
North & South Dakota	incid	1	1	Limber Pine-30
NORTHERN REGION		2	2	280 acres

Pinus flexilis/Festuca idahoensis Woodland

Assessment - adequate representation, but no examples from Beaverhead-Deerlodge or Helena NFs. Suggest one additional example from Beaverhead-Deerlodge NF.

Rarity (global/MT/ID) - G5/S4/S2

Priority - moderate (central-eastern Montana).

National Forest assignment - Beaverhead-Deerlodge.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	5	2	Line Creek Plateau-80 Lost Water Canyon-190 Paine Gulch-250 Wagner Basin-180 Walling Reef-145
North & South Dakota	absent	-	-	-
NORTHERN REGION		5	2	845 acres

Pinus flexilis/Juniperus communis Woodland

Assessment - in Montana, type is reported as common in Pryor Mountains and east side of Beartooth Plateau (Beartooth RD, Custer NF). Type also known from Beaverhead-Deerlodge and Lewis and Clark NFs. Occurs on south aspects and calcareous substrates. One example known from Walling Reef RNA (Lewis and Clark NF).

Rarity (global/MT/ID) - G5/S4/S3

Priority - moderate (central and eastern Montana). Verify presence or absence from existing natural areas.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	1	1	Walling Reef-80
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	1	80 acres

Class - SHRUBLANDS (*shrubs 0.5-5m tall and with 10% or greater canopy cover*)

Overall, upland shrublands are a poorly represented ecosystem type within Northern Region natural areas. In western Montana and northern Idaho, upland shrublands comprise only a small portion of total national forest lands. In central and eastern Montana and the Dakotas, shrub communities are more common. Natural areas protection is complicated by the nearly ubiquitous presence of livestock, especially on the national grasslands. Natural area examples of many of the following shrubland types are more appropriate on BLM or US Fish & Wildlife Service lands. Overall, the Beaverhead-Deerlodge and Custer NFs may provide the best opportunities for natural areas featuring upland shrublands. Shrub-dominated wetlands are better represented, and a sizable number of RNAs feature willow and other wetland shrub community types.

Subclass - *Mainly evergreen shrubland*

Group - *Needle-leaved and microphyllous shrubland*

Formation - *Evergreen microphyllous shrubland*

**Silver Sagebrush
Shrubland
Alliance
(*Artemisia cana*)**

Northern Region natural area examples occur at Two Top-Big Top Mesa RNA and Limber Pine RNA (Custer NF, North Dakota). Additional example from Custer NF recommended. Series also reported for southeastern Montana, but unknown how extensive on Custer NF.

***Artemisia cana/Agropyron smithii* Shrubland**

Assessment - present at Limber Pine RNA and on Big Top mesa (Two Top-Big Top RNA). Other sites may occur on the Ashland District, Custer NF.

Rarity (global/MT/ID/ND) - G4/S3/-/S3?

Priority - moderate (central and eastern Montana).

National Forest assignment - Custer.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	major	0	0	-
North & South Dakota	minor	2	1	Limber Pine-100 TwoTop-Big Top-5
NORTHERN REGION		2	1	105 acres

Artemisia cana/Festuca idahoensis Shrubland

Assessment - not reported from any Northern Region RNAs, but may be present within Poker Jim RNA and on the Ashland District, Custer NF.

Rarity (global/MT/ID) - G4/S4/S2

Priority - moderate (central and eastern Montana).

National Forest assignment - Custer.

**Big Sagebrush
Shrubland
Alliance
(*Artemisia tridentata*)**

Five big sagebrush shrubland types are reported for Northern Region national forests. Priority rankings are moderate to high because of the generally small number of natural area examples. An assessment based on three subspecies (*A. tridentata* ssp. *tridentata*, *A. tridentata* ssp. *vaseyana*, *A. tridentata* ssp. *wyomingensis*) is not possible at this time.

Artemisia tridentata/Agropyron smithii Shrubland

Assessment - extensive type of eastern Montana and the Dakotas, but only a single small example present at Two Top-Big Top RNA.

Rarity (global/MT/ID/ND) - G5/S5/-/S3?

Priority - moderate (central and eastern Montana, North and South Dakota).

National Forest assignment - Custer.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	major	0	0	-
North & South Dakota	minor	1	+	TwoTop-Big Top-5
NORTHERN REGION		1	+	5 acres

Artemisia tridentata/Agropyron spicatum Shrubland

Assessment - extensive type in Montana but with marginal natural area representation. Cliff Lake RNA (Beaverhead-Deerlodge NF) contains the largest example of this type. Additional examples are recommended from Montana.

Rarity (global/MT/ID/ND) - G5/S5/S4/S3?

Priority - moderate (Montana).

National Forest assignment - Custer, Beaverhead-Deerlodge, Helena.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	1	Little Granite Creek-80
Western Montana	minor	0	0	-
Central-Eastern Montana	major	2	2	Cattle Gulch-40 Cliff Lake-140
North & South Dakota	minor	1	1	Limber Pine-20
NORTHERN REGION		4	2	280 acres

Artemisia tridentata-Atriplex confertifolia Shrubland

Assessment - A single example of this low-elevation type is included within Limber Pine RNA, Little Missouri National Grassland.

Rarity (global/MT/ID/ND) - G4/S?/-/S2S3?

Priority - moderate (North Dakota).

National Forest assignment - Custer.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	minor	1	1	Limber Pine-30
NORTHERN REGION		1	1	30 acres

Artemisia tridentata/Festuca idahoensis Shrubland

Assessment - Adequate representation of type except in western Montana.

Rarity (global/MT/ID) - G5/S4/S4

Priority - moderate (western Montana).

National Forest assignment - Bitterroot.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	1	1	Little Granite Creek-80
Western Montana	minor	0	0	-
Central-Eastern Montana	major	8	2	Cliff Lake-200 Cottonwood Creek-50 Dry Mountain-70 Horse Prairie-40 Line Creek Plateau-40 Passage Creek-10 Poker Jim-60 Sliding Mountain-70
North & South Dakota	absent	-	-	-
NORTHERN REGION		9	2	620 acres

Artemisia tridentata/Festuca scabrella Shrubland

Assessment - single RNA examples from each Montana analysis area are inadequate; recommend additional example from Lewis and Clark NF (type is uncommon in western Montana). Type is

most abundant north of 46° north latitude where *F. scabrella* replaces *F. idahoensis* as major associate with big sagebrush.

Rarity (global/MT/ID) - G4/S4/-

Priority - high (central and eastern Montana).

National Forest assignment - Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	1	1	Sawmill Creek-15
Central-Eastern Montana	minor	1	1	Cabin Gulch-70
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	85 acres

Curlleaf Mountain
Mahogany
Shrubland Alliance
(*Cercocarpus ledifolius*)

Cercocarpus ledifolius/Agropyron spicatum Shrubland

Assessment - Great Basin type most common on limestone-derived soils. Present in three Nez Perce RNAs. In Montana, high-quality examples reported from Lewis and Clark Caverns State Park, and possibly the Beaverhead-Deerlodge NF.

Rarity (global/MT/ID) - G5/S4/S4

Priority - moderate (central and eastern Montana).

National Forest assignment - Beaverhead-Deerlodge (tentative).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	3	2	Elk Creek-140 Little Granite Creek-50 No Business Creek-30
Western Montana	incid	0	0	-
Central-Eastern Montana	minor	1	2	Cattle Gulch-200
North & South Dakota	absent	-	-	-
NORTHERN REGION		4	2	420 acres

Subclass - *Mainly deciduous shrubland*

Group - *Cold-deciduous shrubland*

Formation - *Temperate deciduous shrubland*

Major deciduous shrubland types are discussed individually below. A number of minor types have been defined for which little information exists on their occurrence within natural areas:

Acer glabrum Shrubland

Amelanchier alnifolia Shrubland

Betula occidentalis Shrubland

Cornus stolonifera Shrubland

Crataegus douglasii Shrubland

Crataegus succulenta Shrubland

Elaeagnus commutata Shrubland

Prunus virginiana Shrubland

Rosa woodsii Shrubland

Spiraea douglasii Shrubland

Symphoricarpos albus Shrubland.

**Greenbush
Shrubland****Alliance**

(*Glossopetalon nevadense*)

A single type (*Glossopetalon nevadense*/*Agropyron spicatum* Shrubland) has been defined for this alliance. The type is a minor type of low-elevation mountain slopes in Idaho, primarily on the southern Nez Perce NF and within Hells Canyon National Recreation Area.

Rarity (global/MT/ID) - G5/-/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	4	1	Alum Beds-- Elk Creek-10 Little Granite Creek-5 No Business Creek-10
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		4	1	(25 acres)

**Shrubby Cinquefoil
Shrubland****Alliance**

(*Potentilla fruticosa*)

This alliance is widespread east of Continental Divide at mid-to high-elevations and on fairly dry to very wet sites. Natural areas representation is marginal. Four types have been identified, plus a poorly defined *Potentilla fruticosa*/*Carex*

type of peatlands and mineral soil wetlands in central Montana (not included in this document).

Potentilla fruticosa/Andropogon scoparius Shrubland

Assessment - no natural area examples within the Northern Region. The type is reported from the Little Missouri National Grasslands.

Rarity (global/MT/ID/ND) - G?/-/-/S3?

Priority - high (North and South Dakota).

National Forest assignment - Custer.

Potentilla fruticosa/Deschampsia cespitosa Shrubland

Assessment - one small RNA example from Helena NF.

Rarity (global/MT/ID) - G4/S4/S3

Priority - high (central and eastern Montana).

National Forest assignment - Beaverhead-Deerlodge, Helena, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid?	0	0	-
Western Montana	incid?	0	0	-
Central-Eastern Montana	minor	1	+	Indian Meadows-5
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	+	5 acres

Potentilla fruticosa/Festuca idahoensis Shrubland

Assessment - one RNA example occurs on the Lewis and Clark NF.

Rarity (global/MT/ID) - G4/S3/S1

Priority - high (central and eastern Montana).

National Forest assignment - Gallatin, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	incid?	0	0	-
Central-Eastern Montana	minor	1	1	Bartleson Peak-25
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	1	25 acres

Potentilla fruticosa /Festuca scabrella Shrubland

Assessment - two RNA examples are present on the Lewis and Clark NF.

Rarity (global/MT/ID) - G4/S4/-

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
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Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	2	2	Paine Gulch-10 Walling Reef-190
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	2	200 acres

Antelope Bitterbrush
Shrubland
Alliance
(*Purshia tridentata*)

The alliance is restricted to sites west of or near Continental Divide in Montana. No natural area examples of any of the three defined shrubland types are present, and suitable sites on national forest lands are unlikely.

Purshia tridentata/Agropyron spicatum Shrubland

Assessment - occurs at low elevations mostly outside of national forest lands. Type is locally common in southern Bitterroot Valley of western Montana.

Rarity (global/MT/ID) - G4/S3/-

Priority - low.

Purshia tridentata/Festuca idahoensis Shrubland

Assessment - suitable natural area examples may not occur on national forest lands in Montana.

Rarity (global/MT/ID) - G4G5/S3/-

Priority - low.

Purshia tridentata/Festuca scabrella Shrubland

Assessment - type may occur on western Swan Lake RD, Flathead NF (west of Flathead Lake), but suitable natural area site may not exist.

Rarity (global/MT/ID) - G4/S3/-

Priority - high (western Montana).

National Forest assignment - Flathead (tentative).

Skunkbush Sumac
Shrubland
Alliance
(*Rhus aromatica*)

Rhus aromatica/Agropyron spicatum Shrubland

Assessment - present in Limber Pine RNA, Custer NF, and in eastern Montana.

Rarity (global/MT/ID/ND) - G4/S4/-/S?

Priority - moderate (central and eastern Montana, North and South Dakota).

National Forest assignment - Custer

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	minor	1	+	Limber Pine-5
NORTHERN REGION		1	+	

Rhus aromatica/Festuca idahoensis Shrubland

Assessment - occurs on Ashland RD, Custer NF, but absent from any natural areas.

Rarity (global/MT/ID/ND) - G/S3/-/S?

Priority - moderate (central and eastern Montana, North and South Dakota).

National Forest assignment - Custer

Rhus aromatica/Muhlenbergia cuspidata Sparse Shrubland

Assessment - absent from any natural area; present on Little Missouri National Grassland.

Rarity (global/MT/ID/ND) - G?/-/-/S?

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

Buffaloberry
Shrubland
Alliance
(*Shepherdia argentea*)

A single minor type (*Shepherdia argentea* Shrubland) of draws in eastern Montana and the Dakotas (Custer NF). Also present on low-elevation floodplains in southwestern Montana but incidental or absent on national forests. The type is not present in any Northern Region RNA.

Rarity (global/MT/ID/ND) - G4/S4/-/S?

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

Western Snowberry
Shrubland
Alliance
(*Symphoricarpos occidentalis*)

Symphoricarpos occidentalis Shrubland

Assessment - single type defined for this alliance which occurs on Little Missouri National Grassland and in eastern Montana. There are no examples from any Northern Region RNAs.

Rarity (global/MT/ID/ND) - G4?/S4?/-/S4?

Priority - moderate.

National Forest assignment - Custer.

Formation - *Deciduous alluvial shrubland*

This formation includes communities dominated by willows (*Salix* spp.), alders (*Alnus* spp.), and other species associated with riparian ecosystems. Identification and mapping of types within existing RNAs has been inconsistent. Overall, representation of tall-shrub communities within natural areas is generally good. Representation of subalpine communities dominated by dwarf willows (e.g., *Salix wolfii*) is marginal. Surveys within existing natural areas are recommended to verify the presence or absence of these types which may have been overlooked during previous field surveys.

**Mountain Alder
Alluvial Shrubland
Alliance**
(*Alnus incana*)

Common streamside type in north Idaho and western Montana; incidental in North Dakota.

Rarity (global/MT/ID/ND) - G4/S3/S3?/S2?

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	3	1	Kaniksu Marsh-5 Potholes-20 Upper Priest River-10
Western Montana	minor	3	1	LeBeau-10 Squaw Creek-2 Swan River-20
Central-Eastern Montana	incid	0	0	-
North & South Dakota	incid	0	0	-
NORTHERN REGION		6	1	67 acres

**Sitka Alder
Alluvial Shrubland
Alliance**
(*Alnus sinuata*)

Common streamside type in western part of Region. Species is an early colonizer of disturbed sites. Included here is the *Alnus sinuata*/*Montia cordifolia* Shrubland type found in Idaho.

Rarity (global/MT/ID) - G3?/S3?/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
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Northern Idaho	minor	4	1	Elk Creek-20 Fenn Mountain-10 Steep Lakes-30 Upper Newsome-20
Western Montana	minor	2	2	Bitterroot Mtn-100 Squaw Creek-5
Central-Eastern Montana	minor	1	1	Sliding Mountain-70
North & South Dakota	absent	-	-	-
NORTHERN REGION		7	2	255 acres

**Bebbs Willow
Alluvial Shrubland
Alliance**
(*Salix bebbiana*)

Two RNA examples are reported (Bitterroot River RNA, Bitterroot NF; Basin Creek RNA, Beaverhead-Deerlodge NF) but type is likely present in other natural areas.

Rarity (global/MT/ID/ND) - G4/S3/-/S?

Priority - low (re-evaluate existing RNAs).

**Undergreen Willow
Alluvial Shrubland
Alliance**
(*Salix commutata*)

Upper elevation type reported from two north Idaho RNAs.

Rarity (global/MT/ID/ND) - G5/-/S3

Priority - low (re-evaluate existing RNAs).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	1	Fenn Mountain-10 Snowy Top-15
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	25 acres

**Drummond Willow
Alluvial Shrubland
Alliance**
(*Salix drummondiana*)

Type is reported from three RNAs, but may occur in other north Idaho and Montana natural areas.

Rarity (global/MT/ID) - G3/S3/-

Priority - low (re-evaluate existing RNAs).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid?	0	0	-
Western Montana	minor	1	+	Wolf-Weigel-5
Central-Eastern Montana	minor	2	1	O'Brien Creek-100 Onion Park-20
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	1	125 acres

Sandbar Willow
Alluvial Shrubland
Alliance
(*Salix exigua*)

Three small RNA examples known, but type is likely present in other RNAs.
Rarity (global/MT/ID/ND) - G5/S4/S2/S?
Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	0	0	-
Western Montana	minor	2	+	Bitterroot River-5 Council Grove-5
Central-Eastern Montana	minor	1	+	Wagner Basin-5
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	1	15 acres

Geyer Willow
Alluvial Shrubland
Alliance
(*Salix geyeriana*)

Salix geyeriana/Calamagrostis canadensis Alluvial Shrubland

Rarity (global/MT/ID) - G5/S4/S4

Priority - low. Re-evaluate existing RNAs, especially those with Salix geyeriana/Carex utriculata type, as the two are often intermixed.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	0	0	-
Western Montana	minor	1	1	East Fork Bitterroot-50
Central-Eastern Montana	minor	1	1	Horse Prairie-5
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	55 acres

Salix geyeriana/Carex utriculata Alluvial Shrubland

Rarity (global/MT/ID) - G5/S5/S4

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	0	0	-
Western Montana	major	1	1	East Fork Bitterroot-50
Central-Eastern Montana	major	4	1	Basin Creek-40 Horse Prairie-5

				Indian Meadows-10 Lost Park-35
North & South Dakota	absent	-	-	-
NORTHERN REGION		5	2	140 acres

Watson Willow
Alluvial Shrubland
Alliance
(*Salix lutea*)

Salix lutea/Calamagrostis canadensis Alluvial Shrubland

Rarity (global/MT/ID) - G3/S3/S?

Priority - moderate (re-evaluate existing natural areas).

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	minor	0	0	-
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Salix lutea/Carex utriculata Alluvial Shrubland

Rarity (global/MT/ID) - G3/S3/S?

Priority - moderate (re-evaluate existing natural areas).

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	minor	0	0	-
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	1	+	Wagner Basin-5
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	+	5 acres

Planeleaf Willow
Alluvial Shrubland
Alliance
(*Salix planifolia*)

Salix planifolia/Carex aquatilis Alluvial Shrubland

Wetland type of upper montane and subalpine zones in central and southwestern Montana and adequately represented in RNAs. A high-elevation *Salix planifolia*/*Carex paysonis* alpine wetland type has been defined within Line Creek Plateau candidate RNA by Lesica (1993).

Rarity (global/MT/ID) - G4/S3/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	incid	0	0	-
Central-Eastern Montana	minor	3	1	Lost Park-35 Mount Ellis-5 Skull-Odell-20
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	1	60 acres

Wolf Willow Alluvial Shrubland Alliance (*Salix wolfii*)

Salix wolfii/*Carex aquatilis* Alluvial Shrubland

Type of upper elevations primarily in southwestern Montana. Additional RNA examples recommended.

Rarity (global/MT/ID) - G4/S3/S4

Priority - high (Montana).

National Forest assignment - Beaverhead-Deerlodge

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	0	0	-
Western Montana	incid	0	0	-
Central-Eastern Montana	minor	1	+	Palace Butte-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	+	

Salix wolfii/*Deschampsia cespitosa* Alluvial Shrubland

Rarity (global/MT/ID) - G4/S3/S2

Priority - high (Montana).

National Forest assignment - Beaverhead-Deerlodge

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	absent	-	-	-

NORTHERN REGION

0

0

Formation - Shrub peatland

This formation includes sites on peatland soils supporting uncommon plant communities and a large number of sensitive and special concern species. Representation within natural areas is fair but the total number of acres is small. Two alliances which require additional field surveys to assess their distribution and composition are not included in this report:

Potentilla fruticosa Peatland (central Montana)

Vaccinium occidentale Peatland (west-central Montana)

**Bog Birch
Peatland
Alliance
(*Betula glandulosa*)**

Bog birch/sedge communities are one of the dominant vegetation types associated with peatlands in Montana and Idaho. Slender sedge (*Carex lasiocarpa*) is the characteristic undergrowth species. More minerotrophic, better aerated sites dominated by bog birch typically have beaked sedge (*Carex utriculata*) as a major herbaceous associate. In several calcareous fens of eastern North Dakota, *Carex aquatilis* is associated with bog birch. There, an example of this uncommon type is included within Sheyenne Springs RNA.

Rarity (global/MT/ID/ND) - G3?/S3?/S?/S1

Priority - moderate (northern Idaho, Montana).

National Forest assignment - Helena, Idaho Panhandle, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	1	Kaniksu Marsh-5 Potholes-10
Western Montana	minor	2	1	LeBeau-20 Swan River-10
Central-Eastern Montana	incid	0	0	-
North & South Dakota	incid	1	+	Sheyenne Springs-5
NORTHERN REGION		5	1	50 acres

**Small-leaved Laurel
Peatland
Alliance
(*Kalmia microphylla*)**

Kalmia microphylla/Carex Peatland

Assessment - sporadic type of acidic peatlands or wet sites adjacent to ponds and seeps. Common undergrowth species include *Carex aquatilis* and at higher elevations, *Carex scopulorum*. A single small example is reported from one RNA, and the type is also known from Shoofly Meadows candidate RNA, Lolo NF.

Rarity (global/MT/ID) - G3/S3/-

Priority - moderate; reevaluate existing natural areas (western Montana).

National Forest assignment - Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent?	0	0	-
Western Montana	minor	1	+	Upper Lost Horse-2
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	+	2 acres

Hoary Willow
Peatland
Alliance
(*Salix candida*)

Salix candida/Carex utriculata Peatland

Assessment - uncommon type associated with peatlands in Montana. In most peatlands, however, *Salix candida* often occurs as a minor component of the more common *Betula glandulosa* type which tends to be the dominant shrub. Additional examples are recommended for central and eastern Montana (Lewis and Clark NF) and western Montana (Kootenai and Flathead NFs). Several acres of this type are present within the proposed Hidden Lake Botanical Area, Kootenai NF.

Rarity (global/MT/ID) - G2/S2/-

Priority - high (Montana; re-evaluate existing RNAs).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

Subclass - *Extremely xeromorphic (subdesert) shrubland*

Group - *Deciduous shrubland*

Formation - *Deciduous subdesert shrubland with less than 10% succulent cover*

Greasewood
Shrubland
Alliance
(*Sarcobatus vermiculatus*)

Incidental type of low elevation, alkaline sites on Custer National Forest in eastern Montana and Little Missouri National Grassland.

Sarcobatus vermiculatus/Agropyron smithii Shrubland

Assessment - no natural area examples are reported from the Northern Region.

Rarity (global/MT/ID/ND) - G4/S4/-/S4

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

Sarcobatus vermiculatus/Agropyron spicatum Shrubland

Assessment - type is present at Limber Pine RNA (50 acres), and occurs in eastern Montana.

Rarity (global/MT/ID/ND) - G3/S3/-/S?

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

Sarcobatus vermiculatus/Distichlis spicata Shrubland

Assessment - type reported for North Dakota. There are no natural area examples.

Rarity (global/MT/ID/ND) - G3G4?/-/S3S4

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

Class - DWARF SHRUBLAND (shrubs less than 0.5m tall and greater than 10% canopy cover)

Subclass - Mainly evergreen dwarf shrubland

Group - Closed dwarf shrubland (typically greater than 60% shrub canopy cover)

Formation - Evergreen creeping or matted dwarf shrubland

Horizontal Juniper

Dwarf Shrubland

Alliance
(*Juniperus horizontalis*)

Two types are identified for Montana and Dakota portions of Custer NF; natural areas representation is minimal or absent.

Juniperus horizontalis/Andropogon scoparius Dwarf Shrubland

Assessment - absent from any Northern Region RNA.

Rarity (global/MT/ID/ND) - G4/S3?/-/S3?

Priority - moderate (central-eastern Montana, North and South Dakota).

National Forest assignment - Custer.

Juniperus horizontalis/Carex heliophila Dwarf Shrubland

Assessment - small area (5 acres) present in Limber Pine RNA.

Rarity (global/MT/ID/ND) - G4/S4/-/S?

Priority - moderate (central-eastern Montana, North and South Dakota).

National Forest assignment - Custer.

Subclass - *Mainly deciduous dwarf shrubland*

Group - *Cold-deciduous and dwarf shrubland*

Formation - *Cold-deciduous cespitose dwarf shrubland*

Absent from natural areas are three dwarf sagebrush types either restricted to low-elevations or uncommon in the Northern Region:

Artemisia longiloba/Festuca idahoensis Dwarf Shrubland

Artemisia pedatifida/Agropyron spicatum Dwarf Shrubland

Artemisia pedatifida/Festuca idahoensis Dwarf Shrubland.

These types may occur on Beaverhead-Deerlodge NF in extreme southwestern Montana, but are more likely on BLM lands. In general, dwarf sagebrush types are more common in central Idaho and the Great Basin. In Montana, they represent interesting occurrences near their geographic limit.

Black Sagebrush
Dwarf Shrubland
Alliance
(*Artemisia arbuscula*)

No examples of any black sagebrush types are reported within Northern Region natural areas. For the assessment, *Artemisia nova* communities are included within this series.

Artemisia arbuscula/Agropyron smithii Dwarf Shrubland

Assessment - present on Little Missouri National Grassland.

Rarity (global/MT/ID/ND) - G3/-/-/S?

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

Artemisia arbuscula/Agropyron spicatum Dwarf Shrubland

Assessment - examples may occur in southwestern Montana and in and near Yellowstone National Park (Gallatin NF), and in east-central Idaho (Intermountain Region).

Rarity (global/MT/ID/ND) - G4/S3/S3/S?

Priority - moderate (central and eastern Montana, North and South Dakota).

National Forest assignment - Beaverhead-Deerlodge, Custer, Gallatin.

Artemisia arbuscula/Festuca idahoensis Dwarf Shrubland

Assessment - examples occur in southwestern Montana and in and near Yellowstone National Park (Gallatin NF), and in east-central Idaho (Intermountain Region).

Rarity (global/MT/ID/ND) - G5/S3/S4/S?

Priority - moderate (central and eastern Montana, North and South Dakota).

National Forest assignment - Beaverhead-Deerlodge, Gallatin.

**Threetip Sagebrush
Dwarf Shrubland
Alliance
(*Artemisia tripartita*)**

The single Northern Region RNA example of *Artemisia tripartita/Festuca idahoensis* shrubland is included within Horse Prairie RNA, Beaverhead-Deerlodge NF. One additional example is recommended if possible, from Beaverhead-Deerlodge NF or BLM lands. The type is also reported from central Idaho. An uncommon *Artemisia tripartita/Festuca scabrella* type has been reported from west-central Montana (Blackfoot River drainage, P. Lesica, pers. comm.), but to date all known occurrences are from private land.

Artemisia tripartita/Festuca idahoensis Dwarf Shrubland

Assessment - ca. 160 acres are featured at Horse Prairie RNA. One additional example is recommended if possible, from Beaverhead-Deerlodge NF or BLM lands in southwestern Montana.

Rarity (global/MT/ID) - G5/S3/S1

Priority - moderate (central and eastern Montana).

National Forest assignment - Beaverhead-Deerlodge.

Class - *HERBACEOUS VEGETATION (trees or shrubs with less than 10% canopy cover)*

Grasslands occur on every national forest in the Northern Region but are most extensive east of the Continental Divide in Montana and in the Dakotas. Some major types are well-represented within natural areas, however most types are absent or inadequately represented. In general, additional examples of high condition native grasslands in every series are recommended for consideration as natural areas due to their rarity and susceptibility to degradation by livestock, exotic species, and agriculture.

Subclass - *Tall grassland (over 1m tall)*

Group - *Tall grassland without a woody layer (trees and shrubs less than 10% cover)*

Four tall grassland alliances are discussed below. Natural area examples are lacking, and additional RNA examples are recommended from the Custer NF.

Formation - *Tall grassland consisting mainly of sod grasses*

Big Bluestem
Grassland
Alliance
(*Andropogon gerardii*)

This once abundant component of tallgrass prairie is now confined to scattered remnant patches. In the Northern Region, these occur mostly on the Sheyenne National Grassland. No natural area examples exist.
Rarity (global/MT/ID/ND) - G2G3?/S2?/-/S1S2?
Priority - high.
National Forest assignment - Custer.

Sand Bluestem
Grassland
Alliance
(*Andropogon hallii*)

There are small acreages of this type in Limber Pine RNA (5 acres) and Sheyenne Springs RNA (5 acres), Custer NF (North Dakota).
Rarity (global/MT/ID/ND) - G3?/S2?/-/S2
Priority - moderate.
National Forest assignment - Custer.

Prairie Sandreed

Grassland

Alliance
(*Calamovilfa longifolia*)

A small area (10 acres) of this type occurs at Limber Pine RNA, Little Missouri National Grassland.
Rarity (global/MT/ID) - G3G4/S3/-/S2
Priority - moderate.
National Forest assignment - Custer.

Formation - Tall grassland consisting mainly of bunch grasses

Basin Wildrye
Grassland
Alliance
(*Elymus cinereus*)

This type usually occupies only small areas at lower elevations. No extensive examples are known from natural areas in the Region.
Rarity (global/MT/ID) - G4/S3/S3
Priority - moderate (re-evaluate existing RNAs).

Subclass - Medium tall grassland (0.5-1m tall)

Group - Medium tall grassland without a woody layer (trees, shrubs less than 10% cover)

Formation - Medium tall grassland consisting mainly of bunch grasses

Bluebunch Wheatgrass
Grassland
Alliance
(*Agropyron spicatum*)

A major grassland alliance found in all analysis areas, but generally poorly represented within natural areas. Four types are assigned a *high* priority.

Agropyron spicatum - *Agropyron smithii* Grassland

Assessment - two natural area examples are known from central and eastern Montana. Additional examples may occur on eastern portions of Gallatin and Lewis and Clark NFs.

Rarity (global/MT/ID) - G5/S4/-

Priority - high.

National Forest assignment - Gallatin, Lewis and Clark.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	absent	-	-	-
Central-Eastern Montana	minor	2	1	Cattle Gulch-20 Poker Jim--
North & South Dakota	minor	0	0	-
NORTHERN REGION		2	1	(20 acres)

Agropyron spicatum - Bouteloua curtipendula Grassland

Assessment - type reported for Ashland RD, Custer NF; no RNA examples.

Rarity (global/MT/ID) - G4G5/S3/-

Priority - high.

National Forest assignment - Custer.

Agropyron spicatum - Bouteloua gracilis Grassland

Assessment - type found east of the Continental Divide in Montana. No natural area examples are known.

Rarity (global/MT/ID) - G5/S4/-

Priority - high.

National Forest assignment - Gallatin NF.

Agropyron spicatum - Carex filifolia Grassland

Assessment - type occurs on Ashland RD, Custer NF. No natural area examples are known.

Rarity (global/MT/ID) - G4/S4/-

Priority - high.

National Forest assignment - Custer.

Agropyron spicatum - Opuntia polyacantha Grassland

Assessment - type is reported from a single RNA (Alum Beds) on the Nez Perce NF.

Rarity (global/MT/ID) - G1G2/-/S1

Priority - moderate.

National Forest assignment - Nez Perce.

Agropyron spicatum - Poa sandbergii Grassland

Assessment - 2 north Idaho RNAs and one central and eastern Montana RNA.

Rarity (global/MT/ID) - G4/S4/S5?

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	2	Alum Beds-- Little Granite Creek-250

Western Montana	absent	-	-	-
Central-Eastern Montana	minor	1	1	Cattle Gulch-20
North & South Dakota	minor	-	-	-
NORTHERN REGION		3	2	(270 acres)

**Little Bluestem
Grassland
Alliance**
(*Andropogon scoparius*)

Andropogon scoparius - *Carex filifolia* Grassland

Assessment - type of national grasslands in North Dakota. 20 acres reported for Limber Pine RNA.

Rarity (global/MT/ID/ND) - G4/S3/-/S3?

Priority - moderate.

National Forest assignment - Custer (Little Missouri NG).

**Idaho Fescue
Grassland
Alliance**
(*Festuca idahoensis*)

The alliance is a major grassland type in the Northern Region. Currently, six types are reported from natural areas; four additional types are absent from any RNAs.

Festuca idahoensis - *Agropyron caninum* Grassland

Assessment - a common grassland type of mid-elevation meadows and well-represented in RNAs.

Rarity (global/MT/ID) - G4/S4/-

Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	absent	-	-	-
Western Montana	incid	0	0	-
Central-Eastern Montana	major	9	2	Black Butte-40 Cave Mountain-200 Cliff Lake-220 East Fork Mill Creek-15 Mount Ellis-20 O'Brien Creek-15 Onion Park-20 Passage Creek-10 Sliding Mountain-50
North & South Dakota	absent	-	-	-
NORTHERN REGION		9	2	590 acres

Festuca idahoensis - *Agropyron smithii* Grassland

Assessment - type of central and eastern Montana; may occur within Poker Jim RNA, Custer NF.

Rarity (global/MT/ID) - G4/S4/-

Priority - high.

National Forest assignment - Beaverhead-Deerlodge, Helena.

Festuca idahoensis - *Agropyron spicatum* Grassland

Assessment - well-represented grassland type in central Montana. Marginal representation in western Montana.

Rarity (global/MT/ID) - G4/S4/S3

Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	4	2	Bull Run Creek-20 Lightning Creek -- Little Granite Creek-250 No Business Creek-30
Western Montana	minor	1	1	Sawmill Creek-80
Central-Eastern Montana	major	8	2	Bernice-10 Cliff Lake-200 Cottonwood Creek-50 Dry Mountain-70 Lost Park-25 Poker Jim-50 Sliding Mountain-50 Wagner Basin-300
North & South Dakota	absent	-	-	-
NORTHERN REGION		13	3	(1135 acres)

Festuca idahoensis - *Carex filifolia* Grassland

Assessment - type of central and eastern Montana; no natural area examples.

Rarity (global/MT/ID) - G3?/S3/-

Priority - high.

National Forest assignment - Beaverhead-Deerlodge.

Festuca idahoensis - *Carex heliophila* Grassland

Assessment - type found in eastern Montana on Ashland RD, Custer NF.

Rarity (global/MT/ID) - G4/S4/-

Priority - high (eastern Montana).

National Forest assignment - Custer.

Festuca idahoensis - *Carex scirpoidea* Grassland

Assessment - type tentatively defined for the Pryor Mountains of south-central Montana by Mueggler and Stewart (1980), and present within Lost Water Canyon RNA. Also present within Cave Mountain RNA, Beaverhead-Deerlodge NF.

Rarity (global/MT/ID) - G2/S2/-

Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	absent	-	-	
Western Montana	absent	-	-	
Central-Eastern Montana	minor	2	2	Cave Mountain-- Lost Water Canyon-600
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	2	(600 acres)

Festuca idahoensis - *Deschampsia cespitosa* Grassland

Assessment - additional natural area examples of this type are desirable, especially from western Montana.

Rarity (global/MT/ID/ND) - G3G4/S3/-/S2

Priority - moderate (western Montana).

National Forest assignment - Bitterroot, Lolo.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	absent	-	-	-
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	3	3	Cave Mountain-1060 O'Brien Creek-15 Onion Park-20
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	3	1095 acres

Festuca idahoensis - *Koeleria cristata* Grassland type

Assessment - this type is reported from two RNAs in the Hells Canyon area.

Rarity (global/MT/ID) - G4/-/S3

Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	minor	2	1	Alum Beds-- Little Granite Creek-150
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1	(150 acres)

Festuca idahoensis - *Stipa richardsonii* Grassland

Assessment - type occurs on Gallatin NF and in Yellowstone National Park; no natural area examples known from the Northern Region.

Rarity (global/MT/ID) - G4/S3/-

Priority - high.

National Forest assignment - Gallatin.

Festuca idahoensis/Symphoricarpos albus Grassland

Assessment - uncommon type on western portions of Nez Perce NF. One RNA example is reported from the Nez Perce NF.

Rarity (global/MT/ID) - G2/-/S1

Priority - moderate (northern Idaho).

National Forest assignment - Nez Perce.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	1	1	Little Granite Creek-150
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	1	150 acres

Rough Fescue
Grassland
Alliance
(*Festuca scabrella*)

Rough fescue grasslands occur near the Continental Divide in Montana. To date, only several RNAs have been established which feature this type, and additional natural areas are recommended.

Festuca scabrella - Agropyron spicatum Grassland

Assessment - single RNA example (Granite Butte RNA, Helena NF) of this highly productive type is inadequate. Additional high quality examples recommended, and candidate sites may occur on Flathead, Lewis and Clark, and Lolo NFs.

Rarity (global/MT/ID) - G4/S4/S3

Priority - moderate (Montana).

National Forest assignment - Flathead, Lewis and Clark, Lolo.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid?	0	0	-
Western Montana	minor	0	0	-
Central-Eastern Montana	major	2	1?	Granite Butte-20 Windy Ridge--
North & South Dakota	absent	-	-	-
NORTHERN REGION		2	1?	(20 acres)

Festuca scabrella - Festuca idahoensis Grassland

Assessment - productive type on moister sites than *F. scabrella - Agropyron spicatum* type. Nearly all of natural area acreage is located at Granite Butte RNA, Helena NF and Windy Ridge RNA, Beaverhead-Deerlodge NF. Additional examples recommended from national forests in Montana, both east and west of Continental Divide

Rarity (global/MT/ID) - G4G5/S4/S1

Priority - moderate (Montana).

National Forest assignment - Flathead, Lewis and Clark, Lolo.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	incid?	0	0	-
Western Montana	minor	1	1	Sawmill Creek-20
Central-Eastern Montana	major	3	2	Granite Butte-200 Wagner Basin-5 Windy Ridge--
North & South Dakota	absent	-	-	-
NORTHERN REGION		4	2	(225 acres)

Green Fescue
Grassland
Alliance
(*Festuca viridula*)

Uncommon upper montane and subalpine grassland type of northern Idaho, forming grassy "balds". Examples present within five RNAs on the Clearwater and Idaho Panhandle NFs.
Rarity (global/MT/ID) - G?/-/S2S3
Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	minor	5	2	Bald Mountain-35 Canyon Creek-20 Roundtop-50 Snowy Top-120 Upper Shoshone-70
Western Montana	absent	-	-	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		5	2	295 acres

Needleandthread
Grassland
Alliance
(*Stipa comata*)

Stipa comata - *Carex filifolia* Grassland

Assessment - 300 acres of this type are present at Limber Pine RNA (North Dakota).

Rarity (global/MT/ID/ND) - G5/S4/-/S3

Priority - moderate (eastern Montana, North Dakota)

National Forest assignment - Custer.

Subclass - *Short grassland*

Group - *Short grassland without a woody layer (trees and shrubs with less than 10% cover)*

Formation - *Short grassland consisting mainly of sod grasses*

Two grassland alliances dominated by sod-forming grasses are discussed below. Two additional alliances (*Agropyron dasystachyum* Grassland, *Bouteloua gracilis* Grassland) are not reported from any Northern Region RNAs. Existing natural areas in eastern Montana and the Dakotas should be re-examined for their presence.

**Western Wheatgrass
Grassland
Alliance
(*Agropyron smithii*)**

Examples of the alliance are known from two RNAs in North Dakota. Two minor habitat types on North and South Dakota portions of the Custer National Forest have been defined.

***Agropyron smithii* - *Carex filifolia* Grassland**

Assessment - occurs in North and South Dakota portions of Custer NF; 20 acres reported from Limber Pine RNA.

Rarity (global/MT/ID/ND) - G2?/S2/-/S3?

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

***Agropyron smithii* - *Stipa viridula* Grassland**

Assessment - occurs on Little Missouri National Grassland; no natural area examples are known.

Rarity (global/MT/ID/ND) - G4?/S4/-/S3?

Priority - moderate (North and South Dakota).

National Forest assignment - Custer.

**Inland Saltgrass
Grassland
Alliance
(*Distichlis spicata*)**

Type occurs on Little Missouri NG and eastern Montana; no natural area examples are reported.

Rarity (global/MT/ID/ND) - G4/S3/S1/S3S4

Priority - moderate (eastern Montana, North and South Dakota)

National Forest assignment - Custer.

Formation - *Short grassland consisting mainly of bunch grasses*

Four minor alliances are reported for Montana: *Agrostis scabra* Grassland, *Hordeum jubatum* Grassland, *Poa cusickii* Grassland, and *Poa secunda* Grassland. No natural area examples are reported, but examples may occur in existing RNAs.

Group - *Mesophytic grassland*

Formation - *Alpine and subalpine meadows of higher latitudes*

No classification encompassing the entire Northern Region has been developed for alpine plant communities. For this analysis, all available alpine vegetation studies from Montana and Idaho were examined to develop an initial list of alpine vegetation types. To better describe the diversity of alpine types found in the Region and, a *subformation* level has been added to the classification. Subformations correspond to *physiognomic types* described for alpine habitats in southwestern Montana by Cooper and Lesica (1992).

In north Idaho, truly alpine conditions are limited to small areas of the Nez Perce NF (within wilderness), Kaniksu NF (small areas in Selkirk Mountains), and Clearwater NF (e.g., Rhodes Peak proposed RNA). Montana has a larger acreage of alpine habitat, and much is protected within wilderness. Although no alpine RNAs are present on western Montana national forests, wildernesses such as the Bob Marshall and Selway-Bitterroot, and Glacier National Park contain extensive alpine terrain and afford excellent research opportunities.

Descriptive information on alpine communities is lacking from most natural areas. Presently, alpine formations occur within seven central Montana proposed RNAs and four north Idaho RNAs:

<i>Montana</i>	<i>Elev. Range (ft)</i>	<i>Location</i>
Big Snowy	8000 - 8681	Big Snowy Mountains, central Montana, Lewis and Clark NF
Cave Mountain	8800 - 10281	Gravelly Range, southwestern Montana, Beaverhead-Deerlodge NF
Elkhorn Lake	8100 - 10294	East Pioneer Mountains, southwestern Montana, Beaverhead-Deerlodge NF
Goat Flat	8200 - 9840	Anaconda Range, southwestern Montana, Beaverhead-Deerlodge NF
Line Creek	7400 - 10100	Beartooth Mountains, south-central Montana, Custer NF
Palace Butte	7200 - 10333	Gallatin Range, south-central Montana, Gallatin NF
Red Mountain	6000 - 9411	Lewis and Clark Range, west-central Montana, Helena NF

<i>Idaho</i>		
Fenn Mountain	6200 - 8021	Bitterroot Mountains, Clearwater NF
Grave Peak	6850 - 8282	Bitterroot Mountains, Clearwater NF
Rhodes Peak	6440 - 7930	Bitterroot Mountains, Clearwater NF
Snowy Top	5060 - 7572	Selkirk Mountains, Idaho Panhandle NFs (Kaniksu NF)

The following alpine subformations, alliances, and community elements have been identified within the Northern Region. Except as noted, little information is available on their occurrence within RNAs.

Subformation - *Alpine grasslands*

Alpine grasslands are found at lower elevations of the alpine zone and may continue downward into the subalpine. Typically, this subformation occupies highly productive sites with deep soils and relatively warm temperatures. Dominant species are mostly robust grasses.

- *Festuca idahoensis* Alpine Grassland Alliance (discussed under medium-tall grassland formation; alliance includes *Festuca ovina* communities)
 - *Festuca idahoensis*-*Deschampsia cespitosa* Alpine Grassland
 - *Festuca idahoensis*/*Geum rossii* Alpine Grassland
 - *Festuca idahoensis*/*Potentilla diversifolia* Alpine Grassland
- *Deschampsia cespitosa* Alpine Grassland Alliance
 - *Deschampsia cespitosa*/*Potentilla diversifolia* Alpine Grassland
- *Hesperochloa kingii* Alpine Grassland Alliance
 - *Hesperochloa kingii*/*Oxytropis campestris* Alpine Grassland
- *Luzula spicata* Alpine Grassland Alliance

Subformation - *Alpine turf*

Alpine turf types occupy wind-scoured ridgetops and slope shoulders. Vegetation is a nearly continuous sod of short-statured, fibrous-rooted graminoids (especially Carices). Soils are moderately well-developed.

- *Calamagrostis purpurescens* Alpine Turf Alliance
 - *Carex elynoides* Alpine Turf Alliance
 - *Carex scirpoidea* Alpine Turf Alliance
 - *Carex scirpoidea*/*Potentilla diversifolia* Alpine Turf
 - *Carex scirpoidea*/*Geum rossii* Alpine Turf
-

Subformation - *Alpine cushion plants*

Cushion plant communities are found on cold, wind-exposed ridgetops and saddles. Sites are dry due to removal of snow cover and rocky, poorly developed soils. Forbs and low mat-forming shrubs are typical dominant species.

- *Carex nardina* Alpine Alliance
 - *Carex rupestris* Alpine Alliance
 - *Carex rupestris*/*Potentilla ovina* Alpine Community
 - *Dryas octopetala* Alpine Alliance
 - *Dryas octopetala*/*Carex rupestris* Alpine Community
 - *Dryas octopetala*/*Polygonum viviparum* Alpine Community
 - *Geum rossii* Alpine Alliance
 - *Geum rossii*/*Arenaria obtusiloba* Alpine Community
 - *Kobresia myosuroides* Alpine Alliance
 - *Potentilla ovina* Alpine Alliance
 - *Salix arctica* Alpine Alliance
 - *Salix arctica*/*Polygonum bistortoides* Alpine Community
 - *Saxifraga oppositifolia* Alpine Alliance
-

Subformation - *Alpine snowbeds*

These sites are associated with leeward snow deposition resulting in additional moisture, shortened growing seasons, and cold, wet soils.

- *Carex nigricans* Alpine Alliance (discussed below)
- *Carex paysonis* Alpine Alliance
- *Cassiope mertensiana* Alpine Alliance
 - *Cassiope mertensiana*/*Carex paysonis* Alpine Snowbed
- *Juncus drummondii* Alpine Alliance
 - *Juncus drummondii*/*Antennaria lanata* Alpine Snowbed
- *Juncus parryi* Alpine Alliance (discussed below)
 - *Juncus parryi*/*Erigeron ursinus* Alpine Snowbed
- *Phyllodoce empetriiformis*, *P. glandulifera* Alpine Alliance

- *Phyllodoce empetrifomis*/*Antennaria lanatum* Alpine Snowbed

•*Salix glauca* Alpine Alliance

- *Salix glauca*/*Deschampsia cespitosa* Alpine Alliance

Subformation - *Alpine wetlands*

This subformation is characterized by sedges, forbs, and dwarf willows. Mosses may be abundant. Soils are usually saturated for much of the short growing season.

•*Carex scopulorum* Alpine Wetland Alliance (discussed below)

- *Carex scopulorum*/*Caltha leptosepala* Alpine Wetland

•*Deschampsia cespitosa* Alpine Wetland Alliance

- *Deschampsia cespitosa*/*Caltha leptosepala* Alpine Wetland

•*Salix planifolia* Alpine Wetland Alliance (discussed under alluvial shrubland formation)

- *Salix planifolia*/*Carex paysonis* Alpine Wetland Alliance

•*Salix reticulata* Alpine Wetland Alliance

- *Salix reticulata*/*Caltha leptosepala* Alpine Wetland

Subformation - *Alpine rocklands*

Characteristic are boulder fields, scree slopes, cliffs, and permanent ice and snowfields. Vascular plant cover is sparse; lichens are often common on rock surfaces.

Black Alpine Sedge
Alpine
Alliance
(*Carex nigricans*)

Species is a sod-forming sedge of moist alpine habitats.
Rarity (global/MT/ID) - G?/S?/S4
Priority - moderate (western Montana).
National Forest assignment - Bitterroot.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	+	Rhodes Peak-2 Square Mountain-2
Western Montana	minor	0	0	-
Central-Eastern Montana	incid	1	1?	Goat Flat--

North & South Dakota	absent	-	-	-
NORTHERN REGION		3	1?	(4 acres)

**Rocky Mountain Sedge
Alpine Wetland
Alliance**
(*Carex scopulorum*)

Type of high-elevation wetlands.
Rarity (global/MT/ID) - G4/S4/S3
Priority - moderate (Montana).
National Forest assignment - Custer or Beaverhead-Deerlodge (alliance may occur in Line Creek Plateau and Goat Flat pRNAs).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	+	Rhodes Peak-2 Square Mountain-5
Western Montana	incid	1	+	Upper Lost Horse-1
Central-Eastern Montana	incid	0	0	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		3	+	8 acres

**Parry's Rush
Alpine
Alliance**
(*Juncus parryi*)

Type of alpine turf and timberline sites. Most common on sites where late-melting snowdrifts accumulate.
Rarity (global/MT/ID) - G?/S?/S4
Priority - moderate (western Montana).
National Forest assignment - Bitterroot (good example within Medicine Point candidate RNA).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	2	+?	Rhodes Peak-5 Square Mountain--
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	2	1	Elkhorn Lake-10 Granite Butte-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		4	1	(25 acres)

Subclass - *Forb-dominated vegetation*

Forb-dominated communities have not been comprehensively identified or mapped within natural areas. Ongoing field surveys should verify the presence of the three tall forb types, nine low forb types, and one annual forb type identified by natural heritage programs in the Region.

Formation - *Tall forbs (often over 1m tall)*

The following tall forb series have been identified for Idaho and Montana:

Mertensia ciliata Tall Forb Alliance

Senecio triangularis Tall Forb Alliance

Veratrum spp. Tall Forb Alliance

Group - *Low forbs (1m or less tall)*

Formation - *Mainly perennial flowering forbs, and ferns*

The following low forb alliances have been identified for Idaho:

Caltha leptosepala Low Forb Alliance

Eriogonum pauciflorum Low Forb Alliance

Eriogonum sphaerocephalum Low Forb Alliance

Eriogonum thymoides Low Forb Alliance

Phlox pulvinata Low Forb Alliance

Potentilla brevifolia Low Forb Alliance

Potentilla diversifolia Low Forb Alliance

Tanacetum nuttallii Low Forb Alliance

Xerophyllum tenax Low Forb Alliance

Formation - *Mainly annual forbs*

An annual forb type may occur at low-elevations on the Custer NF in Montana and North Dakota:

Salicornia rubra Annual Forb Alliance

Subclass - *Hydrophytic vegetation*

Included in the subclass are wetland and aquatic herbaceous community types. Wetland types have been fairly well-defined, but a systematic classification of aquatic communities has not been undertaken for the Northern Region.

Group - Rooted emergent and herbaceous mat vegetation

Formation - Temperate to polar formations

Four incidental types identified for Montana are absent from any natural area or occupy only very small areas and are difficult to map.

Carex aperta Wetland - incidental in northwest Montana

Carex interior Wetland - small patches within fens; rarely dominant

Carex limosa Wetland - small patches within fens; dominant only on very small microsites (e.g., water-filled depressions within fens)

Carex simulata Wetland - incidental type of fens in southwest Montana.

Phalaris arundinacea, an invasive species and a major threat to the integrity of marsh and fen wetlands, is included in this assessment only to characterize its current extent in RNAs.

A number of wetland alliances have been identified but little information on their occurrence within RNAs was available:

Eleocharis acicularis Wetland - incidental type occupying small areas only

Glyceria borealis Wetland

Juncus balticus Wetland - small area reported from Walling Reef RNA (Lewis & Clark NF and likely present in other RNAs)

Muhlenbergia richardsonis Wetland

Phragmites communis Wetland

Scirpus cespitosus Wetland - uncommon type of calcareous fens in northwestern Montana

Scirpus maritimus Wetland

Scirpus olneyi Wetland

Scirpus pungens Wetland

Scirpus validus Wetland

Sparganium spp. Wetland

Zizania aquatica Wetland.

Bluejoint Reedgrass

Wetland

Alliance

(*Calamagrostis canadensis*)

Common wetland type of low to mid-elevations.

Adequately represented within natural areas.

Rarity (global/MT/ID) - G4/S3/S2

Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
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Northern Idaho	minor	4	2	Fish Lake-10 Moose Meadow-30 Sneakfoot Meadows-60 Square Mountain-20
Western Montana	minor	3	1	Pete Creek-5 Sheep Mountain-2 Shoofly Meadows--
Central-Eastern Montana	minor	2	+	Indian Meadows-20 Skull-Odell-30
North & South Dakota	incid	0	0	-
NORTHERN REGION		9	2	(177 acres)

**Water Sedge
Wetland
Alliance**
(*Carex aquatilis*)

Widespread wetland type in Idaho and Montana.
Additional natural area site recommended for western Montana.
Rarity (global/MT/ID) - G4/S3/S2
Priority - moderate (Montana).
National Forest assignment - Bitterroot.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	3	1	Fenn Mountain-5 Sneakfoot Meadows-60 Therault Lake-2
Western Montana	minor	1	+	Shoofly Meadows--
Central-Eastern Montana	minor	2	1	Basin Creek-10 Skull-Odell-40
North & South Dakota	incid	0	0	-
NORTHERN REGION		5	2	(117 acres)

**Slender Sedge
Wetland
Alliance**
(*Carex lasiocarpa*)

Slender sedge is a common sedge of peatlands and marshy basins in northwestern Montana. Slender sedge is less common as a dominant in Idaho. The alliance could be subdivided into a *Carex lasiocarpa* Wetland Alliance and a *Carex lasiocarpa*-Moss Wetland Alliance. The former type describes basin sites that typically dry late in the season; mosses are sparse. The latter describes peatlands (fens) maintained by a constant water supply; mosses form a nearly continuous ground cover. RNAs listed below may

include areas better classified as
Carex buxbaumii and *Carex*
lanuginosa Wetland Alliances.

Rarity (global/MT/ID) - G5/S4/S2
Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	minor	2	1	Bottle Lake-10 Smith Creek-30
Western Montana	major	4	1	Hoskins Lake-10 LeBeau-20 Pete Creek-20 Swan River-10
Central-Eastern Montana	incid	1	1	Indian Meadows-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		7	2	110 acres

Nebraska Sedge
Wetland
Alliance
(*Carex nebraskensis*)

Fairly common type of wet meadows at lower elevations.
Only RNA example reported is from Four-Bit RNA
(Clearwater NF), but may be present in other existing
RNAs.

Rarity (global/MT/ID/ND) - G4/S3/S3/S?
Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	minor	1	+	Four-Bit-5
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	0	0	-
North & South Dakota	minor	0	0	-
NORTHERN REGION		16	1	

Beaked Sedge
Wetland
Alliance
(*Carex utriculata*)

Beaked sedge is a very common wetland sedge in the
Northern Region, and present in many natural areas
(incorrectly identified as *Carex rostrata* in most surveys.)
Included within the alliance are sites dominated by *Carex*
atherodes and *Carex vesicaria*.

Rarity (global/MT/ID/ND) - G4G5/S5/S4/S?
Priority - low.

Analysis Area	Occurrence	No. of RNAs	Acreage class	RNA name-acres
Northern Idaho	major	6	2	Fish Lake-10 Moose Meadow-30 Potholes--

				Sneakfoot Meadows-60 Therault Lake-2 Upper Priest River--
Western Montana	major	10	1	Bass Creek-2 Bitterroot River-2 Council Grove-1 East Fork Bitterroot-30 LeBeau-20 Pete Creek-5 Sheep Mountain-2 Swan River-10 Upper Lost Horse-2 Wolf-Weigel-5
Central-Eastern Montana	minor	6	1	Basin Creek-20 Bernice-- Indian Meadows-20 Mount Ellis-2 O'Brien Creek-5 Skull-Odell-30
North & South Dakota	minor	0	0	-
NORTHERN REGION		22	2	(258 acres)

**Tufted Hairgrass
Wetland
Alliance**
(*Deschampsia cespitosa*)

Well-represented alliance within RNAs of central Montana, but lacking from natural areas west of the Continental Divide.

Rarity (global/MT/ID) - G4/S4/S3

Priority - moderate (western Montana, north Idaho).

National Forest assignment - Bitterroot, Nez Perce (tentative assignments)

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	0	0	-
Western Montana	minor	0	0	-
Central-Eastern Montana	minor	9	2	Dexter Basin-- Goat Flat-- Horse Prairie-5 O'Brien Creek-10 Onion Park-20 Palace Butte-10 Skull-Odell-40 Thunderbolt Mtn-85 Walling Reef-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		9	2	180 acres

**Dulichium
Wetland
Alliance**
(*Dulichium arundinaceum*)

Uncommon semi-aquatic community type adjacent to ponds or in marshes. Present in Shoofly Meadows proposed RNA (Lolo NF).
Rarity (global/MT/ID) - G3/S2/S2?
Priority - moderate; re-evaluate existing RNAs (western Montana).

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid?	0	0	-
Western Montana	incid	1	+	(2 acres)
Shoofly Meadows--				
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		1	+	(2 acres)

**Common Spikerush
Wetland
Alliance**
(*Eleocharis palustris*)

Type is most widespread at low-elevations and on valley floors. Limited occurrence on NFs.
Rarity (global/MT/ID/ND) - G4/S4/S3/S?
Priority - low.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	+	Moose Meadow-2
Western Montana	minor	1	+	Council Grove-1
Central-Eastern Montana	minor	1	+	Indian Meadows-5
North & South Dakota	minor	0	0	-
NORTHERN REGION		3	+	8 acres

**Few-Flowered Spikerush Wetland
Alliance**
(*Eleocharis pauciflora*)

Type of non-calcareous peatlands (poor fens) in western Montana and Idaho. Additional natural area examples are recommended.
Rarity (global/MT/ID) - G4/S2?/S1
Priority - modeate; also evaluate existing natural areas for this type (north Idaho, Montana).
National Forest assignment - Clearwater, Idaho Panhandle.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	1	+	Moose Meadow-5
Western Montana	minor	2	1	Shoofly Meadows-- Upper Lost Horse-1
Central-Eastern Montana	minor	2	1	Indian Meadows -5 Skull-Odell-10
North & South Dakota	absent	-	-	-
NORTHERN REGION		5	1	(21 acres)

**Water Horsetail
Wetland
Alliance**
(*Equisetum fluviatile*)

Type is likely present in existing Montana and Idaho RNAs, but not consistently identified during field surveys.
Rarity (global/MT/ID) - G4/S4/-
Priority - moderate (western Montana); reevaluate existing RNAs.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	absent	-	-	-
Western Montana	minor	0	0	-
Central-Eastern Montana	absent	-	-	-
North & South Dakota	absent	-	-	-
NORTHERN REGION		0	0	

***Phalaris arundinacea* Wetland**

Assessment - colonies of this strongly rhizomatous grass have been identified within four RNAs, but probably occur in other natural areas with wetland habitats. Because of its aggressive, spreading habit, this species should be regarded as one of the more serious threats to the integrity of wetland communities. The species should be treated as an exotic invader of these sites. Its inclusion in this assessment is not to encourage additional natural area examples but only to indicate its current extent.

Rarity (global/MT/ID) - G5/S4/S5

Priority - low; aggressive colonizer of wetland habitats.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	minor	1	1	Spion Kop-15
Western Montana	minor	3	1	Bitterroot River-2 Hoskins Lake-5 Swan River-5
Central-Eastern Montana	minor	0	0	-

North & South Dakota	minor	0	0	-
NORTHERN REGION		4	1	22 acres

**Hardstem Bulrush
Wetland
Alliance**
(*Scirpus acutus*)

Widespread emergent wetland type at low elevations across the Region. Additional examples recommended from Idaho, western Montana, and North Dakota.

Rarity (global/MT/ID/ND) - G4/S3/S2/S?

Priority - moderate.

National Forest assignment - Custer, Idaho Panhandle, Kootenai.

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid	1	+	Kaniksu Marsh--
Western Montana	minor	1	+	LeBeau-10
Central-Eastern Montana	major	2	+	Indian Meadows-- Wagner Basin-5
North & South Dakota	major	0	0	-
NORTHERN REGION		4	1	(15 acres)

Prairie Cordgrass**Wetland****Alliance***(Spartina pectinata)*

Uncommon wetland type in eastern Montana and the Dakotas. No RNA examples are known.

Rarity (global/MT/ID/ND) - G3/S3/-/S2?

Priority - moderate (eastern Montana, North and South Dakota).

National Forest assignment - Custer.

Common Cattail**Wetland****Alliance***(Typha latifolia)*

Common emergent wetland type, especially at lower elevations in Montana and across North and South Dakota. In the Dakotas, *Typha angustifolia* is also common and is included in this alliance.

Rarity (global/MT/ID/ND) - G5/S5/S?/S3

Priority - moderate (central and eastern Montana, North and South Dakota).

National Forest assignment - Custer, Lewis and Clark

<i>Analysis Area</i>	<i>Occurrence</i>	<i>No. of RNAs</i>	<i>Acreage class</i>	<i>RNA name-acres</i>
Northern Idaho	incid?	1	+	Potholes--
Western Montana	major	3	1	Bitterroot River-2 LeBeau-10 Swan River-2
Central-Eastern Montana	major	1	+	Wagner Basin-2
North & South Dakota	major	0	0	-
NORTHERN REGION		5	1	16 acres

Group - Floating and submergent vegetation (rooted and nonrooted, supported by water)

Formation - Temperate to polar formations

To date, no comprehensive classification of aquatic plant communities has been completed in the Region. A partial list of possible alliances types for inventory purposes includes:

Nuphar polysepalum Aquatic Alliance

Polygonum amphibium Aquatic Alliance

Potamogeton Aquatic Alliances (various species)

Class - *DESERTS & OTHER SCARCELY VEGETATED AREAS*

The following hierarchy is presented as a guide to future inventories of sites having scant vegetation cover: rocklands, scree slopes, sand dunes, mud flats, etc. At this time, information on file did not permit an assessment of these features within RNAs.

Subclass - *Scarcely vegetated rocks and screes*

Group - *Scarcely vegetated rocks*

Formation - *Chasmophytic vegetation (rooting in fissures)*

Alpine rock Alliance

Formation - *Cryptogamic mat on rocks*

Group - *Scarcely vegetated screes*

Formation - *Lowland and submontane scree*

Formation - *Montane and subalpine scree*

The following forested scree types have not been systematically identified in natural area surveys. As a result, no summary table is included. However, a large acreage of scree and forested scree is known to be present within Northern Region RNAs, making these types generally a low priority.

Abies lasiocarpa Scree Alliance

Pinus contorta Scree Alliance

Pinus flexilis Scree Alliance

Pinus ponderosa Scree Alliance

Populus tremuloides Scree Alliance

Pseudotsuga menziesii Scree Alliance

Formation - *Alpine scree*

Subclass - *Scarcely vegetated, cobbles, gravel, sand, silt or clay accumulations*

Group - *Scarcely vegetated cobbles and gravels*

Formation - *Lacustrine/riverine cobbles and gravels*

Group - *Scarcely vegetated sand accumulations*

Formation - *Lacustrine/riverine sand deposits*

Formation - *Scarcely vegetated sand dunes*

Formation - *Bare sand dunes*

Group - *Scarcely vegetated mud flats*

Formation - *Non-calcareous mud flats*

Formation - *Calcareous marl flats*

Subclass - *Scarcely vegetated eroding slopes (badlands)*

Group - *Eroding clays*

IV: AQUATIC & WETLAND FEATURES ASSESSMENT

Aquatic and wetland targets were assigned to each National Forest in 1983. This assessment modifies the 1983 targets (Table 8), but apart from specific wetland vegetation types (Section III), aquatic target recommendations are not made. For many RNAs, aquatic and wetland features have not been inventoried and only system and subsystem information is summarized here (Table 9). Subdivisions of aquatic (Table 10) and wetland (Table 11) features are based on Cowardin et al. (1979), and modified for situations in the Northern Rockies by Bursik and Moseley (1995), Rabe and Chadde (1994), Rabe et al. (1994), Chadde and Evenden (1992) and Savage and Rabe (1979). The proposed classifications are intended as guides to future inventory studies.

TABLE 8. Comparison of 1983 and 1995 aquatic and wetland targets. The complete 1995 classification hierarchies are presented in Tables 10 and 11.

– 1983 –	– 1995 –
<i>AQUATIC</i>	
–	<u>Lentic systems</u>
LAKE	LAKE (productivity and presence of fish can be used as modifiers to the proposed classification)
low productivity	–
average productivity	–
high productivity.	–
lakes with fish	–
lakes without fish	–
POND	POND
permanent pond	–
temporary pond	–
bog ponds	(included in peatland type)
beaver ponds	(modifier)
SPECIAL FAUNAL POPS.	(modifier)
–	<u>Lotic systems</u>
RIVER	RIVER
STREAM	STREAM
meander-glide (type 1)	meander-glide
riffle-pool (type 2)	riffle-pool
cascade-pool (type 3)	cascade-pool
–	spring
WATERFALL	(included in cascade-pool type streams; modifier)
SPRING	(included in spring streams)
cold	(included in spring streams)
thermal	(included as a spring stream modifier)
SPECIAL FAUNAL POPS.	(modifier in classification)
<i>WETLANDS</i>	
–	FORESTED WETLAND

—	coniferous
—	deciduous
—	SHRUB WETLAND
—	carr (organic soils)
—	shrub wetland (mineral soils)
—	saline shrub wetland
—	HERBACEOUS WETLAND
MARSH	marsh-meadow
shallow	—
deep	—
BOG MEADOW	peatland (plus subdivisions)
WET MEADOW	marsh-meadow
—	saline marsh-meadow

AQUATIC FEATURES

Aquatic features within RNAs are summarized in Table 9. Lentic systems are divided into two major types (Table 10) - *lakes* (surface area greater than 20 acres [8 ha]) and *ponds* (area less than 20 acres). Water depths in both lakes and ponds can be subdivided into shallow (littoral) or deep (limnetic). Subdivisions based on substrate and vegetation are included. Additional modifiers are possible (see Rabe and Chadde 1994).

TABLE 9. Summary of aquatic features within Northern Region Research Natural Areas.

Aquatic Feature	--- No. of RNAs ---				
	North Idaho	Western Montana	Central-eastern Montana	North & South Dakota	Northern Region
Lake	6	3	5	0	14
Pond	19	9	11	1	40
River	5	4	0	0	9
Stream					
<i>Spring</i>	2	0	1	1	4
<i>Meander-glide</i>	10	4	10	-	24
<i>Riffle-pool</i>	31	17	20	-	68
<i>Cobble-pool</i>	15	3	3	-	21

Lotic systems are subdivided according to their size (stream order), gradient, and substrate. Rivers are greater than 4th-order drainages. Five 1st to 4th-order stream types are identified:

Ephemeral stream;

Spring stream - major spring source, little seasonal flow variation, cold or thermal;

Meandering glide - gradient less than 1%, fine sediments, soft substrate; occurs in mountain meadows and wide valleys;

Riffle-pool - gradient 1-9%; coarse sediment substrate (cobbles, gravels, sands); wide to narrow mountain valleys;

Cascade-pool - gradient 10% or more; coarse sediments with bedrock and log debris;

v-shaped valleys on steep slopes.

For each lotic type, additional subdivisions of the river or stream channel, similar to those for lakes and ponds below, are possible based on the *riverine system* of Cowardin et al. (1979).

TABLE 10. Classification of lentic (lake and pond) and lotic (river and stream) ecosystems - Level 1 to Level 4. Level 5 (not shown) is dominant species or community type.

<i>Level 1</i> SYSTEM	<i>Level 2</i> SUBSYSTEM		<i>Level 3</i> CLASS	<i>Level 4</i> SUBCLASS
	Area	Depth		
LENTIC	LAKE (>8 ha)	Limnetic (>2 m deep)	Unconsolidated bottom	- Cobble-gravel - Sand - Mud - Organic
			Aquatic bed	- Algal - Aquatic moss - Rooted floating - Rooted Submergent - Floating
		Littoral (<2 m deep)	Unconsolidated bottom	- Cobble-gravel - Sand - Mud - Organic
			Aquatic bed	- Algal - Aquatic moss - Rooted floating - Rooted Submergent - Floating
			Emergent wetland	--
	POND (<8 ha)	Limnetic (>2 m deep)	Unconsolidated bottom	- Cobble-gravel - Sand - Mud - Organic
			Aquatic bed	- Algal - Aquatic moss - Rooted floating - Rooted Submergent - Floating

<i>Level 1</i> SYSTEM	<i>Level 2</i> SUBSYSTEM Size Type	<i>Level 3</i> LANDFORM	<i>Level 4</i> WATER CHEMISTRY
	Littoral (<2 m deep)	Unconsolidated bottom	- Cobble-gravel - Sand - Mud - Organic
		Aquatic bed	- Algal - Aquatic moss - Rooted floating - Rooted Submergent - Floating
		Emergent wetland	--
LOTIC	River (>4th order)		---
	Stream (1st-4th order)		
	Ephemeral	--	--
	Spring (cold/thermal)	narrow valley	- circumneutral - alkaline - highly alkaline
		broad valley	- circumneutral - alkaline - highly alkaline
	Meander-glide	narrow valley	- circumneutral - alkaline - highly alkaline
		broad valley	- circumneutral - alkaline - highly alkaline
	Riffle-pool	--	--
	Cascade-pool	--	--

System - LENTIC (lakes and ponds)

Assessment - lakes are fairly uncommon within RNAs. Those present occur at higher elevations in upper montane and subalpine lifezones. Wilderness offers many additional lakes for research purposes, again at mostly upper elevations. Ponds are better represented and occur across a wide range of geomorphic and elevational settings.

Subsystem - Lake (greater than 20 acres)

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	6	Fenn Mountain Fish Lake
Five Lakes Butte		
Little Granite Creek Mountain		Salmon Steep Lakes
Western Montana	3	Hoskins Lake LeBeau Upper Lost Horse
Central-Eastern Montana	4	Elkhorn Lake Palace Butte Sapphire Divide Skull-Odell
North & South Dakota	-	-
NORTHERN REGION	13	

Subsystem - Pond (less than 20 acres)

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	19	Binarch Creek Bottle Lake Elk Creek
Fenn Mountain		
Five Lakes Butte		Grave Kaniksu
Peak Marsh Creek		Little Granite O'Hara Creek
		Pond Peak Potholes Salmon Mountain Scotchman No. 2 Smith Creek Snowy Top Square Mountain Steep Lakes Theriault Lake Three Ponds
Western Montana	9	East Shore Hoskins Lake LeBeau Pete Creek Meadows Sheep Mountain Swan River Ulm Peak
Upper Lost Horse		
Wolf-Weigel		
Central-Eastern Montana	11	Dexter Basin Elkhorn Lake Goat Flat

		Indian Meadows Line Creek Plateau Palace Butte Red Mountain Sapphire Divide Skull-Odell Wagner Basin Walling Reef
North & South Dakota	1	Sheyenne Springs
NORTHERN REGION	40	

System - LOTIC (rivers and streams)

Assessment - river segments occur in nine RNAs in north Idaho and western Montana. Rivers are absent from RNAs in central-eastern Montana and the Dakotas. Opportunities may be present on the Gallatin NF and Little Missouri or Sheyenne National Grasslands. Establishment of RNAs along rivers and major streams is valuable primarily for incorporating lower elevation riparian and floodplain communities and associated riverine processes - elements of diversity currently under-represented in the RNA network.

Subsystem - River (greater than 4th order)

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	5	Aquarius Dutch Creek Little Granite Creek Spion Kop Upper Priest River
Western Montana	4	Bernice Bitterroot River Council Grove Swan River
Central-Eastern Montana	0	--
North & South Dakota	0	--
NORTHERN REGION	9	

Subsystem - Stream (1st to 4th order)

The riffle-pool stream is the most common permanent stream type within Forest Service natural areas, reflecting its wide distribution in the Northern Region. Low-gradient meandering glide streams occur less frequently and their associated meadow communities are often grazed by livestock. Additional examples featuring undisturbed meander-glide stream and riparian features should be sought. Steep-gradient cobble-pool streams and waterfalls are present in a number of RNAs. Warm Springs Creek RNA (Nez Perce NF) supports the only thermal spring within a Northern Region RNA, but undisturbed examples are rare and may be impractical to fully protect from human impacts. Ephemeral and intermittent streams are common and not included in the assessment.

Meandering glide stream (type 1)

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	10	Binarch Creek Four-Bit Grave Peak O'Hara Creek Potholes Rhodes Peak Smith Creek Sneakfoot Meadows Spion Kop Three Ponds
Western Montana	4	LeBeau Pete Creek Meadows Swan River Wolf-Weigel
Central-Eastern Montana	10	Dexter Basin Goat Flat
Indian Meadows		
Line Creek Plateau		Lost Park
Mount Ellis		
Onion Park		
Palace Butte		
Skull-Odell		
Thunderbolt Mountain		
North & South Dakota	-	-
NORTHERN REGION	24	

Riffle-pool stream (type 2)

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	31	Aquarius Binarch Creek Bull Run Creek Dutch Creek Elk Creek Fenn Mountain Fish Lake
Five Lakes Butte		
Four-Bit		
Grave Peak		
Hunt Girl Creek		
Granite Creek		Little Lochsa River Montford Creek Moose Meadow No Business Creek O'Hara Creek Potholes Salmon Mountain

		Scotchman No. 2 Smith Creek Snowy Top Square Mountain Steep Lakes Tepee Creek Theriault Lake Three Ponds Upper Fishhook Upper Newsome Upper Shoshone Warm Springs Creek
Western Montana	17	Bass Creek Big Creek Boulder Creek East Fork Bitterroot Hoskins Lake LeBeau Little Bitterroot Lower Lost Horse Lower Ross Creek Norman-Parmenter Petty Creek Plant Creek Sawmill Creek Swan River Tuchuck Upper Lost Horse Wolf-Weigel
Central-Eastern Montana	20	Basin Creek Bernice Dexter Basin East Fork Mill Creek Elkhorn Lake Horse Prairie
		Line Creek Plateau Lost Water Canyon Creek
		Minerva Mount Ellis O'Brien Creek Onion Park Palace Butte Passage Creek Red Mountain Sapphire Divide Skull Odell Sliding Mountain Thunderbolt Mountain Wheeler Ridge
North & South Dakota	0	-
NORTHERN REGION	68	

Cascade-pool stream (type 3)

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	15	Aquarius Canyon Creek Chateau Falls Elk Creek Fish Lake
Business Creek		Five Lakes Butte Little Granite Creek No O'Hara Creek Potholes Scotchman No. 2 Smith Creek Snowy Top Square Mountain Upper Shoshone
Western Montana	3	Bass Creek Bitterroot Mountain Wolf-Weigel
Central-Eastern Montana	3	Basin Creek Palace Butte Walling Reef
North & South Dakota	-	-
NORTHERN REGION	21	

Spring stream

Many RNAs contain small springs which flow at least seasonally. Listed below are sites featuring *large* springs which provide a nearly constant flow of water year-round. Also included is Warm Springs Creek RNA, site of the single *thermal* spring located within a Northern Region RNA.

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	2	Potholes Warm Springs Creek
Western Montana	0	-
Central-Eastern Montana	1	Wagner Basin
North & South Dakota	1	Sheyenne Springs
NORTHERN REGION	4	

WETLAND FEATURES

Three major classes of wetlands are used in the assessment based on vegetation physiognomy and structure (Chadde and Evenden 1992, Cowardin 1979). Subclasses are refinements of the classes. Modifiers are listed for peatlands only and can be developed for other wetland subclasses as needed.

TABLE 11. Wetland physiognomic types ("elements") of the Northern Region. Additional modifiers can be added.

<i>Class</i>	<i>Subclass</i>	<i>Type (modifier)</i>
--------------	-----------------	------------------------

Forested wetlands	coniferous forest wetland deciduous forest wetland mixed forest wetland	
Shrub wetlands	shrub carr (organic soils - see peatland subclass) shrub wetland (mineral soils) saline shrub wetland (e.g., <i>Atriplex</i> communities)	
Herbaceous wetlands	marsh-meadow saline marsh-meadow peatland	bog (in the Northern Region, microsites only) poor fen intermediate fen rich fen patterned fen floating mat shrub carr paludified forest peatland pond/lake

Coniferous Forest Wetland

A large number of coniferous forest wetlands are present in Northern Region RNAs. Included are types such as *Abies lasiocarpa/Calamagrostis canadensis* and *Picea/Equisetum* Forests and wetland forests within the western redcedar, western hemlock, and other alliances.

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	26	Aquarius Binarch Creek Bull Run Creek Canyon Creek Chateau Falls Dutch Creek Fenn Mountain Fish Lake Four-Bit Hunt Girl Creek Kaniksu Marsh Montford Creek Moose Meadow No Business Creek O'Hara Creek Potholes Salmon Mountain Smith Creek

		Sneakfoot Meadows Square Mountain Three Ponds Upper Fishhook Upper Newsome Upper Priest River Upper Shoshone Warm Springs Creek
Western Montana	9	Bitterroot Mountain Council Grove East Fork Bitterroot LeBeau Lower Ross Creek Norman-Parmenter Pete Creek Swan River Upper Lost Horse
Central-Eastern Montana	9	East Fork Mill Creek Indian Meadows Mount Ellis Onion Park Palace Butte Passage Creek Red Mountain Sliding Mountain Thunderbolt Mountain Wheeler Ridge
North & South Dakota		- -
NORTHERN REGION	44	

Deciduous Forest Wetland

In Idaho and western Montana, this subclass is characterized by early to mid-successional stands of cottonwoods adjacent to rivers. Conifers are absent or sparse but may colonize the site over time. In eastern Montana and the Dakotas, green ash may form long-lived communities in riparian settings. RNA representation of many types is minimal.

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	1	Spion Kop
Western Montana	2	Bitterroot River Council Grove
Central-Eastern Montana	3	Horse Prairie
	Poker Jim	
	Wagner Basin	
North & South Dakota	1	Sheyenne Springs

NORTHERN REGION

7

Mixed Forest Wetland

This subclass includes alluvial forests composed of varying mixtures of cottonwood and conifers. Sites are typically at low-elevations adjacent to rivers and larger streams, much of which is in private ownership.

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	2	Spion Kop Upper Priest River
Western Montana	4	Bitterroot River Council Grove Norman-Parmenter Sawmill Creek
Central-Eastern Montana	0	0
North & South Dakota	-	-
NORTHERN REGION	6	

Shrub Wetland

Primarily alder and willow communities are included in this subclass. RNA representation is generally good.

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	8	Fenn Mountain Kaniksu Marsh Potholes Smith Creek Snowy Top Steep Lakes Upper Newsome Upper Priest River
Western Montana	8	Bitterroot Mountain Bitterroot River Council Grove East Fork Bitterroot Hoskins Lake LeBeau Swan River Wolf-Weigel
Central-Eastern Montana	12	Basin Creek Horse Prairie
Indian Meadows		
Line Creek Plateau		Lost Park
Mount Ellis		
O'Brien Creek		Onion
Park		Palace

Butte Odell Mountain		Skull- Sliding Wagner Basin
North & South Dakota	1	Sheyenne Springs
NORTHERN REGION	29	

Saline Shrub Wetland

No examples of saline shrub wetlands (e.g., communities dominated by species such as *Sarcobatus vermiculatus* and *Atriplex* spp.) are reported from Northern Region RNAs.

Marsh - Meadow

The marsh-meadow subclass features emergent wetlands as well as mesic mountain meadows. RNA representation is generally fair but with some geographic gaps and missing community elements.

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	14	Fenn Mountain Fish Lake
		Five Lakes Butte
		Four-Bit
		Moose Meadow
Peak Creek Meadows		Potholes Rhodes Smith Sneakfoot Square Mountain Spion Kop Therault Lake Three Ponds Upper Priest River
Western Montana	10	Bitterroot River Council Grove East Fork Bitterroot Hoskins Lake LeBeau Pete Creek Sheep Mountain Swan River Upper Lost Horse Wolf-Weigel
Central-Eastern Montana	17	Basin Creek Bernice Dexter Basin Elkhorn Lake Goat Flat Horse Prairie
		Indian Meadows
		Line Creek Plateau
		Minerva Creek
		Lost Park
		Mount

Ellis Creek		O'Brien Onion Park Palace Butte Skull-Odell Wagner Basin Walling Reef
North & South Dakota	1	Sheyenne Springs
NORTHERN REGION	42	

Saline Marsh-Meadow

No examples of saline marsh-meadows are reported from Northern Region RNAs. Saline sites would feature communities characterized by species such as *Distichlis spicata*, *Hordeum jubatum*, *Spartina* spp., *Triglochin* spp. and *Salicornia rubra*.

Peatland

Peatlands are a significant contributor to the biological richness of the Northern Region and support a disproportionate number of rare or sensitive species. RNA or botanical area designation of additional peatlands is warranted.

<i>Analysis Area</i>	<i>No. of RNAs</i>	<i>RNA name</i>
Northern Idaho	6	Bottle Lake Kaniksu Marsh Moose Meadow Potholes Smith Creek Sneakfoot Meadows
Western Montana	6	Hoskins Lake LeBeau Pete Creek Sheep Mountain Swan River Upper Lost Horse
Central-Eastern Montana	6	Indian Meadows Line Creek Plateau Onion Park Palace Butte Skull-Odell Wagner Basin
North & South Dakota	1	Sheyenne Springs
NORTHERN REGION	19	

V: PRELIMINARY GEOLOGY & LANDFORM CLASSIFICATION

A tentative classification of major rock and landform types is presented in Tables 12 and 13. The classification is based on the ECODATA inventory guide (USDA Forest Service 1992). Additional hierarchical levels and types can be added as needed. An assessment of geologic features and landforms within RNAs is not included at this time.

TABLE 12. Surficial geology classification for the Northern Region (USDA Forest Service 1992).

SEDIMENTARY	limestone dolomite sandstone siltstone shale conglomerate
METAMORPHIC	argillite siltite quartzite slate phyllite schist gneiss
IGNEOUS	basalt andesite diorite/gabbro latite quartz monzonite trachyte/syenite rhyolite granite wlded tuff (tufa) scoria
ALLUVIUM	gravelly alluvium sandy alluvium silty alluvium clayey alluvium mixed alluvium
OTHER	glacial till ash loess sand

TABLE 13. Landforms of the Northern Region (USDA Forest Service 1992).

GLACIATED MOUNTAINS	ridgetops	--
	mountain slopes	undissected
		dissected
	cirques	walls
		floors
	trough walls	undissected
UNGLACIATED MOUNTAINS		dissected
	trough bottoms	--
	avalanche debris	--
	mountain slopes	undissected
		dissected
	nivation hollows	--
BREAKLANDS	structurally controlled complexes	--
	plateaus	--
	structural benches	--
	dip slopes	--
	landslide deposits	--
	structural breaks	--
HILLS	stream breaklands	undissected
		dissected
		drainage heads
VALLEYS	rolling uplands	high relief
		low relief
VALLEYS	moraines	
	kames, kettles	
	drumlins	
	stream bottoms	
	alluvial basins	
	fans, toeslopes	
	terraces	

VI: NATIONAL FOREST RNA TARGET RECOMMENDATIONS

Section VI assesses the status (filled, unfilled, reassigned) of RNA targets assigned to each national forest by the Northern Region Guide in 1983. New targets are recommended for each Forest based on the priority of the type (or feature) and its likelihood of occurring on a particular Forest. Unfilled 1983 targets are either included in the 1995 recommendations for that Forest or are reassigned to a Forest more likely to have an undisturbed example. Priority rankings follow each 1995 target (h - high, m - moderate, l - low; high priority elements are stippled). Aquatic features assigned in 1983, such as lakes, ponds, streams, and marshes are largely filled. New aquatic and wetland assignments are not included (apart from major missing elements) pending surveys of these features within existing natural areas.

A number of minor types (often newly defined by recent classification studies) may occur within existing RNAs but were not consistently identified during field surveys. The types may be newly defined by recent classifications, or occur for example, as small patches in a more common type or as stringers along streams. These types should be sought within the current RNA network if possible (Table 14).

TABLE 14. Vegetation types whose presence/absence should be verified in existing RNAs.

<i>Class - Forest and Woodland</i>	<i>Analysis Area/Comments</i>
<i>Abies grandis</i> / <i>Adiantum pedatum</i>	north Idaho, plus recommend for Nez Perce NF
<i>Abies lasiocarpa</i> / <i>Alnus sinuata</i>	Montana
<i>Abies lasiocarpa</i> / <i>Caltha biflora</i>	north Idaho
<i>Picea</i> / <i>Cornus stolonifera</i>	Montana
<i>Picea</i> / <i>Equisetum</i>	Montana
<i>Pinus contorta</i> / <i>Vaccinium cespitosum</i>	central Montana
<i>Pinus contorta</i> / <i>Vaccinium occidentale</i>	north Idaho, western Montana
<i>Pinus flexilis</i> / <i>Juniperus communis</i>	central Montana
<i>Pseudotsuga menziesii</i> / <i>Cornus stolonifera</i>	Montana, plus recommend for Beaverhead, Flathead, Helena NFs
<i>Thuja plicata</i> / <i>Equisetum</i>	north Idaho, plus recommend for Idaho Panhandle NF
<i>Thuja plicata</i> / <i>Physocarpus malvaceus</i>	north Idaho
<i>Tsuga heterophylla</i> / <i>Adiantum pedatum</i>	north Idaho
 <i>Class - Shrubland</i>	
Alluvial shrubland types (willow)	north Idaho, Montana
<i>Kalmia microphylla</i> / <i>Carex</i>	western Montana, plus recommend for Lolo NF
 <i>Class - Herbaceous Vegetation</i>	
<i>Elymus cinereus</i>	Montana
<i>Agropyron dasystachyum</i>	eastern Montana, North and South Dakota
<i>Bouteloua gracilis</i>	eastern Montana, North and South Dakota
<i>Agrostis scabra</i>	eastern Montana, North and South Dakota
<i>Hordeum jubatum</i>	eastern Montana, North and South Dakota
<i>Poa cusickii</i>	central-eastern Montana
<i>Poa secunda</i>	central-eastern Montana

Carex nebraskensis	Regionwide
Dulichium arundinacea	western Montana
Eleocharis pauciflora	north Idaho, western Montana, plus assign to Clearwater, Idaho Panhandle, Lolo NFs
Equisetum fluviatile	western Montana

BEAVERHEAD-DEERLODGE NATIONAL FOREST

1983 RNA Target Assignments - Beaverhead National Forest

FILLED

<i>Class - Forest and Woodland</i>	<i>Research Natural Area</i>
Abies lasiocarpa/Calamagrostis rubescens	(target filled in central-eastern Montana analysis area)
Abies lasiocarpa/Linnaea borealis	Skull-Odell
Abies lasiocarpa/Vaccinium scoparium	Cliff Lake, Skull-Odell
Picea/Linnaea borealis	Cliff Lake
Pseudotsuga menziesii/Calamagrostis rubescens	Cliff Lake, Cottonwood Creek, Horse Prairie
Pseudotsuga menziesii/Symphoricarpos oreophilus	Cattle Gulch, Cliff Lake
<i>Class - Shrubland</i>	
Artemisia tridentata/Agropyron spicatum	Cattle Gulch, Cliff Lake
Artemisia tridentata/Festuca idahoensis	Cliff Lake, Cottonwood Creek, Horse Prairie
Cercocarpus ledifolius/Agropyron spicatum	Cattle Gulch
<i>Class - Dwarf Shrubland</i>	
Artemisia tripartita/Festuca idahoensis	Horse Prairie (partially filled, additional example needed)
<i>Class - Herbaceous Vegetation</i>	
Festuca idahoensis-Agropyron caninum	Cave Mountain, Cliff Lake
Festuca idahoensis-Deschampsia cespitosa	Cave Mountain

Aquatic Types

Type 1 streams	Skull-Odell
Type 2 streams	Horse Prairie
Cold springs	Skull-Odell
Ponds	Skull-Odell
Lakes	Skull-Odell
Marsh	Skull-Odell
Bog meadows	Skull-Odell

UNFILLED

<i>Class - Forest and Woodland</i>	
Abies lasiocarpa/Arnica cordifolia	--
Abies lasiocarpa/Carex geyeri	(drop from Beaverhead NF; no suitable sites on Forest)
Abies lasiocarpa/Vaccinium cespitosum	--
Pseudotsuga menziesii/Arnica cordifolia	--

Class - Dwarf Shrubland

Artemisia arbuscula/Festuca idahoensis	--
<i>Class - Herbaceous Vegetation</i>	
Festuca idahoensis-Carex filifolia	--
<i>Aquatic Types</i>	
Rivers	(drop from Beaverhead NF; no suitable sites on Forest)

1983 RNA TARGET ASSIGNMENTS - Deerlodge National Forest

FILLED

<i>Class - Forest and Woodland</i>	<i>Research Natural Area</i>
Abies lasiocarpa/Luzula hitchcockii	Dexter Basin, Goat Flat, Sapphire Divide
Pinus albicaulis	Sapphire Divide
Picea/Galium triflorum	Basin Creek
Pseudotsuga menziesii/Juniperus communis	Dry Mountain
Pseudotsuga menziesii/Linnaea borealis	Bernice

Class - Herbaceous Vegetation

Alpine types	Goat Flat
Festuca idahoensis-Agropyron spicatum	Bernice, Dry Mountain, Lost Park

Aquatic Types

Type 3 streams	(drop from Deerlodge NF, filled in analysis area)
Ponds	Bernice, Dexter Basin, Sapphire Divide
Wet meadows	Bernice, Dexter Basin

UNFILLED

<i>Class - Forest and Woodland</i>	
Pinus contorta/Vaccinium cespitosum	Bernice (drop from Deerlodge NF, filled in analysis area)
Pseudotsuga menziesii/Arnica cordifolia	(drop from Deerlodge NF; better examples on other Forests)

Class - Herbaceous Vegetation

Agropyron spicatum - Poa sandbergii	(drop from Deerlodge NF; better examples on other Forests)
Purshia tridentata/Festuca idahoensis	(drop from Deerlodge NF; no suitable sites on Forest)

1995 RNA TARGET RECOMMENDATIONS - Beaverhead-Deerlodge National Forest

Class - Forest and Woodland

Abies lasiocarpa/Arnica cordifolia (m)	southern part of Forest; elevations 7600-8400 feet
Abies lasiocarpa/Vaccinium cespitosum (m)	
Juniperus scopulorum/Cornus stolonifera (h)	
Picea/Senecio streptanthifolius (h)	reported from Morrison Lake area
Picea/Smilacina stellata (h)	
Pinus albicaulis/Vaccinium scoparium (m)	
Pinus flexilis/Agropyron spicatum (m)	
Pinus flexilis/Festuca idahoensis (m)	
Pseudotsuga menziesii/Arnica cordifolia (h)	
Pseudotsuga menziesii/Cornus stolonifera (h)	
Pseudotsuga menziesii/Symphoricarpos oreophilus (m)	

Class - Shrubland

Artemisia tridentata/Agropyron spicatum (m)
 Cercocarpus ledifolius/Agropyron spicatum (m) tentative assignment
 Potentilla fruticosa/Deschampsia cespitosa (h)
 Salix wolfii/Carex aquatilis (h)
 Salix wolfii/Deschampsia cespitosa (h)

Class - Dwarf Shrubland

Artemisia arbuscula/Agropyron spicatum (m)
 Artemisia arbuscula/Festuca idahoensis (m)
 Artemisia tripartita/Festuca idahoensis (m)

Class - Herbaceous Vegetation

Carex scopulorum (m) may occur in Goat Flat RNA; target shared with Custer NF
 Festuca idahoensis - Agropyron smithii (h)
 Festuca idahoensis - Carex filifolia (h)

BITTERROOT
 NATIONAL
 FOREST

1983 RNA TARGET ASSIGNMENTS

FILLED

Class - Forest and Woodland

Abies grandis/Clintonia uniflora
 Abies lasiocarpa/Calamagrostis canadensis
 Abies lasiocarpa/Linnaea borealis
 Abies lasiocarpa/Luzula hitchcockii
 Abies lasiocarpa/Menziesia ferruginea
 Abies lasiocarpa/Vaccinium cespitosum
 Abies lasiocarpa/Vaccinium scoparium
 Abies lasiocarpa/Xerophyllum tenax

Larix lyallii-Abies lasiocarpa
 Pinus ponderosa/Festuca idahoensis
 Pseudotsuga menziesii/Calamagrostis rubescens

Pseudotsuga menziesii/Linnaea borealis
 Pseudotsuga menziesii/Physocarpus malvaceous
 Pseudotsuga menziesii/Symphoricarpos albus
 Pseudotsuga menziesii/Vaccinium globulare

Class - Herbaceous Vegetation

Festuca scabrella-Festuca idahoensis
 Festuca idahoensis-Agropyron spicatum

Research Natural Area

Bass Creek, Lower Lost Horse
 Bitterroot Mtn Snow Avalanche, Upper Lost Horse
 Bass Creek, Lower Lost Horse, Upper Lost Horse
 Bass Creek, Upper Lost Horse
 Bass Creek, Bitterroot Mtn Snow Avalanche, Upper Lost Horse
 East Fork Bitterroot
 Upper Lost Horse
 Bass Creek, Bitterroot Mtn Snow Avalanche, Lower Lost Horse
 Upper Lost Horse
 Bass Creek, Upper Lost Horse Canyon
 Sawmill Creek
 Bass Creek, Boulder Creek, Lower Lost Horse, Sawmill Creek

Bass Creek, Lower Lost Horse
 Bass Creek, Boulder Creek, Lower Lost Horse, Sawmill Creek
 Lower Lost Horse, Sawmill Creek
 Bass Creek, Boulder Creek, Lower Lost Horse

Sawmill Creek
 Sawmill Creek

Aquatic Types

Type 1 streams (filled in analysis area)
 Type 2 streams Boulder Creek, East Fork Bitterroot, Lower Lost Horse
 Cold springs (filled in analysis area)
 Lakes Upper Lost Horse

Marsh	Bitterroot River, East Fork Bitterroot, Upper Lost Horse
UNFILLED	
<i>Class - Forest and Woodland</i>	
Abies lasiocarpa/Galium triflorum	(unfilled in w MT analysis area)
Pinus ponderosa/Agropyron spicatum	--
Pseudotsuga menziesii/Agropyron spicatum	Sawmill Creek (only partially filled in w MT analysis area)
<i>Class - Herbaceous Vegetation</i>	
Festuca viridula	(drop from Bitterroot NF; present in north Idaho RNAs)

1995 RNA TARGET RECOMMENDATIONS

Class - Forest and Woodland
Abies grandis/Xerophyllum tenax (m)
Abies lasiocarpa/Galium triflorum (m)
Pinus ponderosa/Agropyron spicatum (h)
Pinus ponderosa/Festuca idahoensis (h)
Pinus ponderosa/Symphoricarpos albus (m)
Populus trichocarpa/Cornus stolonifera (m)
Pseudotsuga menziesii/Agropyron spicatum (m)
Pseudotsuga menziesii/Festuca idahoensis (h)

Class - Shrubland
Artemisia tridentata/Festuca idahoensis (m)

Class - Herbaceous Vegetation
Carex aquatilis (m)
Carex nigricans (m)
Deschampsia cespitosa (m) tentative assignment
Festuca idahoensis - Deschampsia cespitosa (m)
Juncus parryi (m) present within Medicine Point candidate RNA

CLEARWATER NATIONAL FOREST

1983 RNA TARGET ASSIGNMENTS

FILLED	<i>Research Natural Area</i>
<i>Class - Forest and Woodland</i>	
Abies grandis/Clintonia uniflora	Aquarius, Bull Run Creek, Chateau Falls, Lochsa River
Abies lasiocarpa/Clintonia uniflora	Steep Lakes
Abies lasiocarpa/Menziesia ferruginea	Bald Mountain, Sneakfoot Meadows, Steep Lakes
Abies lasiocarpa/Xerophyllum tenax	Bald Mountain, Fenn Mountain, Rhodes Peak, Sneakfoot Meadows, Steep Lakes
Alnus rubra	Aquarius
Betula papyrifera	Dutch Creek
Pseudotsuga menziesii/Physocarpus malvaceous	Aquarius, Bull Run Creek, Chateau Falls, Lochsa River

Thuja plicata/Athyrium filix-femina
 Thuja plicata/Oplopanax horridum
 Tsuga mertensiana/Luzula hitchcockii
 Tsuga mertensiana/Menziesia ferruginea
 Tsuga mertensiana/Xerophyllum tenax

Aquarius, Bull Run Creek, Dutch Creek, Four-Bit
 Aquarius
 Bald Mountain, Steep Lakes
 Bald Mountain, Steep Lakes
 Steep Lakes

Class - Herbaceous Vegetation

Alpine types
 Festuca viridula

Grave Peak, Rhodes Peak
 Bald Mountain

Aquatic Types

Type 1 and 2 streams
 Cold springs
 Rivers
 Waterfalls
 Lakes
 Ponds
 Marsh
 Bog meadows
 Wet meadows

Lochsa River, Sneakfoot Meadows, others
 Aquarius, Lochsa River
 Aquarius, Lochsa River
 Chateau Creek
 Steep Lakes
 Steep Lakes
 Sneakfoot Meadows
 Sneakfoot Meadows
 Steep Lakes

UNFILLED

Aquatic Types

Thermal springs

1995 RNA TARGET RECOMMENDATIONS

Class - Forest and Woodland

Thuja plicata/Dryopteris (m)
 Tsuga heterophylla/Oplopanax horridum (m)
 Tsuga mertensiana/Clintonia uniflora (h)
 Tsuga mertensiana/Streptopus amplexifolius (m)

Class - Herbaceous Vegetation

Eleocharis pauciflora (m)

CUSTER
 NATIONAL
 FOREST

1983 RNA TARGET ASSIGNMENTS

FILLED

Class - Forest and Woodland

Abies lasiocarpa/Clematis columbiana
 Abies lasiocarpa/Ribes montigenum
 Pinus flexilis
 Pinus ponderosa/Agropyron spicatum
 Pinus ponderosa/Prunus virginiana
 Pinus ponderosa/Symphoricarpos albus
 Pseudotsuga menziesii/Carex geyeri
 Pseudotsuga menziesii/Festuca idahoensis
 Pseudotsuga menziesii/Physocarpus malvaceous

Research Natural Area

Lost Water Canyon
 Lost Water Canyon
 Limber Pine
 Poker Jim
 Poker Jim
 Poker Jim
 Lost Water Canyon
 Lost Water Canyon
 Line Creek Plateau, Lost Water Canyon

Class - Herbaceous Vegetation

Alpine types
 Agropyron spicatum - Agropyron smithii
 Festuca idahoensis-Agropyron smithii

Line Creek Plateau
 Poker Jim
 Poker Jim (possible, needs verification)

Aquatic Types

Type 1 streams
 Ponds
 Bog meadows

Line Creek Plateau, Lost Water Canyon
 Line Creek Plateau
 Line Creek Plateau

UNFILLED

Class - Forest and Woodland

Quercus macrocarpa

(drop from Montana analysis area, include in North Dakota analysis area only)

Aquatic Types

Rivers
 Lakes

(unfilled in analysis area; may not be available on Custer NF)
 (unfilled on Custer NF and poorly represented within analysis area)

1995 RNA TARGET RECOMMENDATIONS

Class - Forest and Woodland

Fraxinus pennsylvanica-(Ulmus americana)
 /Prunus virginiana series (m)
 Fraxinus pennsylvanica/Prunus virginiana (h)
 Fraxinus pennsylvanica
 /Symphoricarpos occidentalis (m)
 Juniperus scopulorum/Agropyron spicatum (m)
 Pinus ponderosa/Agropyron spicatum (h)
 Pinus ponderosa/Carex heliophila (h)
 Pinus ponderosa/Festuca idahoensis (h)
 Pinus ponderosa/Juniperus communis (m)
 Pinus ponderosa/Prunus virginiana (h)
 Populus angustifolia/Cornus stolonifera (m)
 Populus deltoides/Cornus stolonifera (m)
 Populus tremuloides communities (m)
 Quercus macrocarpa Alliance (h)

North and South Dakota
 eastern Montana, North and South Dakota
 North and South Dakota
 central-eastern Montana
 Sioux RD, se Montana, nw South Dakota
 central Montana
 central-eastern Montana
 North Dakota

Class - Shrubland

Artemisia cana/Agropyron smithii (m)
 Artemisia cana/Festuca idahoensis (m)
 Artemisia tridentata/Agropyron smithii (m)

Artemisia tridentata/Agropyron spicatum (m)	
Artemisia tridentata - Atriplex confertifolia (m)	
Potentilla fruticosa/Andropogon scoparius (h)	
Rhus aromatica/Agropyron spicatum (m)	
Rhus aromatica/Festuca idahoensis (m)	
Rhus aromatica/Muhlenbergia cuspidata (m)	North and South Dakota
Sarcobatus vermiculatus/Agropyron smithii (m)	North and South Dakota
Sarcobatus vermiculatus/Agropyron spicatum (m)	North and South Dakota
Sarcobatus vermiculatus/Distichlis spicata (m)	North Dakota
Shepherdia argentea (m)	North and South Dakota
Symphoricarpos occidentalis (m)	

Class - Dwarf Shrubland

Artemisia arbuscula/Agropyron smithii (m)	North and South Dakota
Artemisia arbuscula/Agropyron spicatum (m)	
Juniperus horizontalis/Andropogon scoparius (m)	
Juniperus horizontalis/Carex heliophila (m)	

Class - Herbaceous Vegetation

Agropyron smithii - Carex filifolia (m)	North and South Dakota
Agropyron smithii - Stipa viridula (m)	Little Missouri National Grassland
Agropyron spicatum - Agropyron smithii (h)	Ashland District
Agropyron spicatum - Bouteloua curtipendula (h)	Ashland District
Agropyron spicatum - Carex filifolia (h)	Ashland District
Andropogon gerardii (h)	North Dakota
Andropogon hallii (m)	North Dakota
Andropogon scoparius - Carex filifolia (m)	Little Missouri National Grassland
Calamovilfa longifolia (m)	Little Missouri National Grassland
Carex scopulorum (m)	may be present in Line Creek pRNA; target shared with Beaverhead-Deerlodge NF
Distichlis spicata (m)	
Festuca idahoensis - Carex heliophila (h)	Ashland District
Scirpus acutus (m)	
Spartina pectinata (m)	
Stipa comata - Carex filifolia (m)	
Scirpus acutus (m)	
Typha latifolia (m)	

FLATHEAD NATIONAL FOREST

1983 RNA TARGET ASSIGNMENTS

FILLED

Class - Forest and Woodland

Abies grandis/Clintonia uniflora
Abies lasiocarpa/Clintonia uniflora
Abies lasiocarpa/Linnaea borealis

Research Natural Area

East Shore, LeBeau, Swan River
Coram, LeBeau, Swan River, Tuchuck
LeBeau

Picea/Clintonia uniflora	LeBeau, Swan River
Picea/Vaccinium cespitosum	LeBeau
Pseudotsuga menziesii/Physocarpus malvaceous	Coram, East Shore, LeBeau
Pseudotsuga menziesii/Symphoricarpos albus	East Shore
Thuja plicata/Clintonia uniflora	East Shore, LeBeau, Swan River

Aquatic Types

Type 1 streams	LeBeau, Swan River, Tuchuck
Rivers	Swan River
Marsh	LeBeau, Swan River
Wet meadows	LeBeau
Bog ponds	LeBeau
Bog meadows	LeBeau, Swan River

UNFILLED

Class - Forest and Woodland

Abies lasiocarpa/Oplopanax horridum	--
Pseudotsuga menziesii/Festuca scabrella	--

Class - Herbaceous Vegetation

Alpine types	(drop from Flathead NF; target filled in wilderness and in Glacier National Park)
Agropyron spicatum - Poa sandbergii	(drop from Flathead NF; target filled in Northern Region)

Aquatic Types

Lakes

1995 RNA TARGET RECOMMENDATIONS

Class - Forest and Woodland

Abies grandis/Athyrium filix-femina (m)	or Lolo NF
Abies lasiocarpa/Oplopanax horridum (h)	
Picea Lysichiton americanum (h)	
Pseudotsuga menziesii/Agropyron spicatum (m)	
Pseudotsuga menziesii/Cornus stolonifera (h)	
Pseudotsuga menziesii/Festuca idahoensis (h)	
Pseudotsuga menziesii/Festuca scabrella (h)	
Thuja plicata/Athyrium filix-femina (h)	

Class - Shrubland

Purshia tridentata/Festuca scabrella (h)	tentative assignment
--	----------------------

Class - Herbaceous Vegetation

Festuca scabrella - Agropyron spicatum (h)
Festuca scabrella - Festuca idahoensis (h)

FOREST**1983 RNA TARGET ASSIGNMENTS****FILLED***Class - Forest and Woodland*

Abies lasiocarpa/Alnus sinuata
 Abies lasiocarpa/Calamagrostis canadensis
 Abies lasiocarpa/Galium triflorum
 Abies lasiocarpa/Linnaea borealis
 Abies lasiocarpa/Vaccinium globulare

A. lasiocarpa - Pinus albicaulis
 /Vaccinium scoparium
 Picea/Galium triflorum
 Picea/Linnaea borealis
 Picea/Physocarpus malvaceus
 Pinus contorta/Purshia tridentata

Aquatic Types

Type 1 streams
 Type 3 streams
 Waterfalls
 Wet meadows

Research Natural Area

East Fork Mill Creek, Palace Butte, Sliding Mountain
 Mount Ellis, Palace Butte, Wheeler Ridge
 Mount Ellis, Palace Butte, Passage Creek
 Black Butte, East Fork Mill Creek, Palace Butte, Passage Creek
 Black Butte, Mount Ellis, Palace Butte, Passage Creek,
 Wheeler Ridge
 Black Butte, Palace Butte, Passage Creek, Wheeler Ridge

Sliding Mountain

Sliding Mountain

East Fork Mill Creek, Passage Creek, Sliding Mountain
 Obsidian Sands

Mount Ellis, Palace Butte

Black Butte

Palace Butte

Mount Ellis, Palace Butte

UNFILLED*Class - Forest and Woodland*

Picea/Smilacina stellata
 Populus spp. (cottonwood)

Class - Dwarf Shrubland

Artemisia arbuscula/Agropyron spicatum

Class - Herbaceous Vegetation

Agropyron spicatum - Bouteloua gracilis
 Festuca idahoensis - Stipa richardsonii

Aquatic Types

Rivers

1995 RNA TARGET RECOMMENDATIONS*Class - Dwarf Shrubland*

Artemisia arbuscula/Agropyron smithii (m)
 Artemisia arbuscula/Agropyron spicatum (m)
 Artemisia arbuscula/Festuca idahoensis (m)

Class - Shrubland

Potentilla fruticosa/Festuca idahoensis (h)

Class - Herbaceous Vegetation

Agropyron spicatum-Bouteloua gracilis (h)
 Festuca idahoensis - Stipa richardsonii (h)

HELENA
NATIONAL
FOREST

1983 RNA TARGET ASSIGNMENTS

FILLED

Class - Forest and Woodland

Abies lasiocarpa/Calamagrostis canadensis
Abies lasiocarpa/Luzula hitchcockii
Abies lasiocarpa/Menziesia ferruginea
Abies lasiocarpa/Vaccinium globulare
Abies lasiocarpa/Vaccinium scoparium
Abies lasiocarpa/Xerophyllum tenax
A. lasiocarpa - Pinus albicaulis
/Vaccinium scoparium
Pinus albicaulis
Pinus albicaulis - Abies lasiocarpa
Pseudotsuga menziesii/Agropyron spicatum
Pseudotsuga menziesii/Calamagrostis rubescens
Pseudotsuga menziesii/Festuca scabrella
Pseudotsuga menziesii/Vaccinium globulare

Class - Shrubland

Artemisia tridentata/Festuca scabrella

Class - Herbaceous Vegetation

Alpine types
Festuca scabrella - Agropyron spicatum
Festuca scabrella - Festuca idahoensis

Aquatic Types

Type 1 streams
Wet meadows

UNFILLED

Class - Shrubland

Rhus aromatica/Agropyron spicatum
Rhus aromatica/Festuca idahoensis

Class - Herbaceous Vegetation

Stipa comata - Bouteloua gracilis

Aquatic Types

Thermal springs
Type 2 streams

Research Natural Area

Indian Meadows, Red Mountain
(target filled in central-eastern Montana analysis area)
Indian Meadows, Red Mountain
(target filled in central-eastern Montana analysis area)
Granite Butte, Indian Meadows
Granite Butte, Indian Meadows, Red Mountain
Granite Butte, Red Mountain

Granite Butte
Red Mountain
Cabin Gulch
Cabin Gulch, Indian Meadows, Red Mountain
Cabin Gulch
Indian Meadows (5 acres only; 1995 target recommended for
Lewis and Clark NF)

Cabin Gulch

Red Mountain
Granite Butte
Granite Butte

Indian Meadows
Indian Meadows

(drop from Helena NF; reassign to Custer NF)
(drop from Helena NF; reassign to Custer NF)

(drop from Helena NF)

(drop from Helena NF; no suitable sites likely)
--

1995 RNA TARGET RECOMMENDATIONS

Class - Forest and Woodland

Abies lasiocarpa/Carex geyeri (m)
 Picea/Smilacina stellata (h)
 Pinus flexilis/Agropyron spicatum (m)
 Pinus ponderosa/Agropyron spicatum (h)
 Pinus ponderosa/Cornus stolonifera (h)
 Pinus ponderosa/Festuca idahoensis (h)
 Pinus ponderosa/Purshia tridentata (h) tentative assignment
 Pseudotsuga menziesii/Arnica cordifolia (h)
 Pseudotsuga menziesii/Cornus stolonifera (h)
 Pseudotsuga menziesii/Spiraea betulifolia (m)

Class - Shrubland

Artemisia tridentata/Agropyron spicatum (m)
 Betula glandulosa/Carex (m)
 Potentilla fruticosa/Deschampsia cespitosa (h)

Class - Herbaceous Vegetation

Festuca idahoensis - Agropyron smithii (h)

IDAHO
 PANHANDLE
 NATIONAL
 FORESTS

1983 RNA TARGET ASSIGNMENTS

FILLED

Class - Forest and Woodland

Abies grandis/Clintonia uniflora

Abies lasiocarpa/Clintonia uniflora
 Abies lasiocarpa/Luzula hitchcockii

Abies lasiocarpa/Menziesia ferruginea

Abies lasiocarpa/Xerophyllum tenax

Populus trichocarpa

Pseudotsuga menziesii/Physocarpus malvaceous

Thuja plicata/Athyrium filix-femina

Thuja plicata /Clintonia uniflora

Thuja plicata/Oplopanax horridum

Tsuga heterophylla/Clintonia uniflora

Tsuga mertensiana/Menziesia ferruginea

Class - Herbaceous Vegetation

Research Natural Area

Binarch Creek, Bottle Lake, Kaniksu Marsh, Spion Kop, Three Ponds, Upper Shoshone Creek, Upper Fishhook

Canyon Creek, Hunt Girl Creek, Smith Creek

Hunt Girl Creek, Smith Creek, Snowy Top, Upper Shoshone Creek

Canyon Creek, Hunt Girl Creek, Scotchman No. 2, Smith Creek, Upper Shoshone Creek

Canyon Creek, Hunt Girl Creek, Roundtop Mountain, Scotchman No.2, Smith Creek, Snowy Top, Upper Shoshone Creek

Spion Kop, Upper Priest River

Binarch Creek, Bottle Lake, Kaniksu Marsh, Three Ponds

Binarch Creek, Canyon Creek, Hunt Girl Creek, Montford Creek, Potholes, Three Ponds, Upper Shoshone Creek

Binarch Creek, Upper Fishhook

Binarch Creek, Canyon Creek, Hunt Girl Creek, Montford Creek, Potholes, Upper Priest River

Binarch Creek, Bottle Lake, Canyon Creek, Hunt Girl Creek, Kaniksu Marsh, Montford Creek, Potholes, Spion Kop, Tepee Creek, Three Ponds, Upper Priest River, Upper Shoshone Creek, Five Lakes Butte, Pond Peak, Theriault Lake, Upper Shoshone Creek

Festuca viridula	Canyon Creek, Roundtop Mountain, Snowy Top, Upper Shoshone Creek
<i>Aquatic Types</i>	
Type 1, 2, 3 streams	Binarch Creek, Canyon Creek, Hunt Girl Creek, Montford Creek, Potholes, Tepee Creek, Three Ponds, Upper Fishhook, Upper Shoshone Creek
Cold springs	Canyon Creek, Pond Peak, Potholes
Rivers	Spion Kop, Upper Priest River
Waterfalls	(unknown)
Lakes	Five Lakes Butte, Theriault Lake
Ponds	Bottle Lake, Kaniksu Marsh, Pond Peak, Potholes, Spion Kop, Three Ponds, Upper Fishhook
Marsh	Kaniksu Marsh, Potholes, Spion Kop
Wet meadows	Hunt Girl Creek, Kaniksu Marsh, Potholes, Smith Creek, Snowy Top, Theriault Lake, Upper Fishhook
Bog ponds	Kaniksu Marsh, Potholes, Smith Creek
Bog meadows	Hunt Girl Creek, Potholes, Smith Creek
UNFILLED - none	

1995 RNA TARGET RECOMMENDATIONS

Class - Forest and Woodland

Thuja plicata/Equisetum (m)

Tsuga heterophylla/Xerophyllum tenax (m)

Tsuga mertensiana/Clintonia uniflora (h)

Class - Shrubland

Betula glandulosa (m)

Class - Herbaceous Vegetation

Eleocharis pauciflora (m)

Scirpus acutus (m)

KOOTENAI NATIONAL FOREST

1983 RNA TARGET ASSIGNMENTS

FILLED

Class - Forest and Woodland

Picea/Clintonia uniflora

Populus trichocarpa

Pseudotsuga menziesii/Calamagrostis rubescens

Pseudotsuga menziesii/Vaccinium cespitosum

Thuja plicata/Clintonia uniflora

Thuja plicata/Oplopanax horridum

Tsuga heterophylla/Clintonia uniflora

Tsuga mertensiana/Luzula hitchcockii

Research Natural Area

Hoskins Lake

Norman-Parmenter

Big Creek, Norman-Parmenter, Wolf-Weigel

Big Creek

Big Creek, Hoskins Lake, Lower Ross Creek, Norman-Parmenter

Lower Ross Creek, Norman-Parmenter

Lower Ross Creek, Norman-Parmenter, Ulm Peak

Ulm Peak

Tsuga mertensiana/Menziesia ferruginea

Ulm Peak

Aquatic Types

Type 1 streams

Pete Creek, Ulm Peak, Wolf-Weigel

Type 3 streams

Wolf-Weigel

Waterfalls

Wolf-Weigel

Lakes

Hoskins Lake

1995 RNA TARGET RECOMMENDATIONS

Class - Forest and Woodland

Pseudotsuga menziesii/Festuca scabrella (h)

Thuja plicata/Athyrium filix-femina (h)

Thuja plicata/Gymnocarpium dryopteris (h)

Thuja plicata/Lysichiton americanum (m)

tentative assignment

Tsuga heterophylla/Gymnocarpium dryopteris (m)

Class - Herbaceous Vegetation

Scirpus acutus (m)

**LEWIS & CLARK
NATIONAL
FOREST**

1983 RNA TARGET ASSIGNMENTS

FILLED*Class -Forest and Woodland*

Abies lasiocarpa/Clematis columbiana

Picea/Equisetum

Picea/Senecia streptanthifolius

Pinus flexilis/Agropyron spicatum

Pinus flexilis/Festuca idahoensis

Populus tremuloides

Pseudotsuga menziesii/Arctostaphylos uva-ursi

Pseudotsuga menziesii/Festuca idahoensis

Pseudotsuga menziesii/Juniperus communis

Pseudotsuga menziesii/Linnaea borealis

Pseudotsuga menziesii/Spiraea betulifolia

Pseudotsuga menziesii/Symphoricarpos albus

Scree

Research Natural Area

Paine Gulch

Onion Park (5 acres only)

Bartleson Peak, Big Snowy

Paine Gulch

Paine Gulch, Wagner Basin, Walling Reef

Wagner Basin, Walling Reef

Bartleson Peak, Paine Gulch

Paine Gulch

Paine Gulch

Paine Gulch

Paine Gulch

Paine Gulch, Wagner Basin

Bartleson Peak, Onion Park, Paine Gulch, Wagner Basin,

Walling Reef

Class -Herbaceous Vegetation

Deschampsia cespitosa - Carex

O'Brien Creek, Onion Park, Walling Reef

Potentilla fruticosa/Festuca idahoensis

Bartleson Peak

Potentilla fruticosa/Festuca scabrella

Paine Gulch, Walling Reef

Aquatic Types

Type 1 streams
Cold springs
Marsh

Onion Park
Onion Park, O'Brien Creek, Wagner Basin, Walling Reef
Wagner Basin

UNFILLED
Class -Forest and Woodland
Abies lasiocarpa/Arnica cordifolia

Aquatic Types
Waterfalls

(drop from Lewis and Clark NF; filled in analysis area and
Northern Region)

1995 RNA TARGET RECOMMENDATIONS

Class -Forest and Woodland
Abies lasiocarpa/Arnica cordifolia (m)
Abies lasiocarpa/Carex geyeri (m)
Abies lasiocarpa/Clematis columbiana (m) possibly in Big Snowy pRNA
Abies lasiocarpa/Galium triflorum (m)
Abies lasiocarpa/Vaccinium cespitosum (m)
Picea/Smilacina stellata (h)
Picea/Vaccinium cespitosum (m)
Pinus ponderosa/Cornus stolonifera (h)
Pinus ponderosa/Symphoricarpos albus target (m) (see note below)
Pseudotsuga menziesii/Arnica cordifolia (h)
Pseudotsuga menziesii/Festuca scabrella (h)
Pseudotsuga menziesii/Vaccinium cespitosum (m)
Pseudotsuga menziesii/Vaccinium globulare (m)

Class - Shrubland
Artemisia tridentata/Festuca scabrella (h)
Betula glandulosa/Carex (m)
Potentilla fruticosa/Deschampsia cespitosa (h)
Potentilla fruticosa/Festuca idahoensis (h)

Class -Herbaceous Vegetation
Agropyron spicatum - Agropyron smithii (h)
Festuca scabrella - Agropyron spicatum (h)
Festuca scabrella - Festuca idahoensis (h)
Typha latifolia (m)

NOTE: Pinus ponderosa/Symphoricarpos albus target (moderate priority) is effectively filled by proposed Minerva Creek RNA located in the Little Snowy Mountains.

LOLO
NATIONAL
FOREST

1983 RNA TARGET ASSIGNMENTS

FILLED

Class -Forest and Woodland

Abies grandis/Linnaea borealis
 Abies grandis/Xerophyllum tenax
 Abies lasiocarpa/Luzula hitchcockii
 Abies lasiocarpa/Menziesia ferruginea
 Abies lasiocarpa/Xerophyllum tenax
 Larix lyallii - Abies lasiocarpa
 Pseudotsuga menziesii/Carex geyeri
 Pseudotsuga menziesii/Linnaea borealis
 Pseudotsuga menziesii/Physocarpus malvaceus
 Pseudotsuga menziesii/Spiraea betulifolia
 Pseudotsuga menziesii/Vaccinium cespitosum
 Pseudotsuga menziesii/Vaccinium globulare
 Tsuga mertensiana/Xerophyllum tenax
 Scree

Research Natural Area

Petty Creek
 Barktable Ridge (10 acres only)
 Carlton Ridge, Sheep Mountain Bog
 Carlton Ridge, Pyramid Peak, Sheep Mountain Bog
 Carlton Ridge, Pyramid Peak, Sheep Mountain Bog
 Carlton Ridge
 Pyramid Peak, Sheep Mountain Bog
 Petty Creek, Plant Creek
 Petty Creek, Plant Creek
 Petty Creek
 Petty Creek
 Petty Creek, Plant Creek, Pyramid Peak
 Barktable Ridge
 Squaw Creek

Class -Herbaceous Vegetation

Deschampsia cespitosa - Carex

Aquatic Types

Ponds - temporary

Bog meadows

Wet meadows

Sheep Mountain Bog

Sheep Mountain Bog

UNFILLED

Class -Herbaceous Vegetation

Festuca idahoensis-Deschampsia cespitosa

Aquatic Types

Lakes

1995 RNA TARGET RECOMMENDATIONS

Class -Forest and Woodland

Abies grandis/Athyrium filix-femina (m)
 Abies grandis/Xerophyllum tenax (m)
 Abies lasiocarpa/Galium triflorum (m)
 Pinus ponderosa/Agropyron spicatum (h)
 Pinus ponderosa/Cornus stolonifera (h)
 Pinus ponderosa/Festuca idahoensis (h)
 Populus trichocarpa/Cornus stolonifera (m)
 Pseudotsuga menziesii/Spiraea betulifolia (m)
 Thuja plicata/Athyrium filix-femina (h)
 Thuja plicata/Gymnocarpium dryopteris (h)

Class - Shrubland

Kalmia microphylla/Carex (m)

Class - Herbaceous Vegetation

Festuca idahoensis - Deschampsia cespitosa (m)

Festuca scabrella - Agropyron spicatum (h)

Festuca scabrella - Festuca idahoensis (h)

NEZ PERCE
NATIONAL
FOREST

1983 RNA TARGET ASSIGNMENTS

FILLED

Class -Forest and Woodland

Abies grandis/*Asarum caudatum*

No Business Creek, Upper Newsome Creek, Warm Springs Creek

Abies grandis/*Clintonia uniflora*

Elk Creek, Little Granite Creek, No Business Creek, O'Hara Creek, Warm Springs Creek

Abies grandis/*Linnaea borealis*

No Business Creek, Warm Springs Creek

Abies grandis/*Physocarpus malvaceus*

Elk Creek, No Business Creek, Warm Springs Creek

Abies grandis/*Senecio triangularis*

Upper Newsome Creek, Warm Springs Creek

Abies grandis/*Xerophyllum tenax*

Elk Creek, No Business Creek, O'Hara Creek, Warm Springs Creek

Abies lasiocarpa/*Calamagrostis canadensis*

Fish Lake, Moose Meadow Creek, Salmon Mountain, Square Mountain

Abies lasiocarpa/*Clintonia uniflora*

Little Granite Creek, No Business Creek, O'Hara Creek

Abies lasiocarpa/*Menziesia ferruginea*

Fish Lake, Little Granite Creek, Moose Meadow Creek,

No Business Creek, O'Hara Creek, Square Mountain

Abies lasiocarpa/*Streptopus amplexifolius*

Fish Lake, Moose Meadow Creek

Abies lasiocarpa/*Xerophyllum tenax*

Fish Lake, Moose Meadow Creek, No Business Creek, O'Hara

Creek, Square Mountain

Pinus ponderosa/*Agropyron spicatum*

Alum Beds, Elk Creek, Little Granite Creek, No Business Creek

Pinus ponderosa/*Festuca idahoensis*

Lightning Creek, Little Granite Creek

Pinus ponderosa/*Physocarpus malvaceus*

Elk Creek, Little Granite Creek

Pinus ponderosa/*Symphoricarpos albus*

Little Granite Creek

Pseudotsuga menziesii/*Calamagrostis rubescens*

Fish Lake, Little Granite Creek, Warm Springs Creek

Pseudotsuga menziesii/*Festuca idahoensis*

Warm Springs Creek

Pseudotsuga menziesii/*Physocarpus malvaceus*

Elk Creek, Lightning Creek, Little Granite Creek, No Business Creek, O'Hara Creek

Pseudotsuga menziesii/*Symphoricarpos albus*

Elk Creek, Little Granite Creek, No Business Creek

Taxus brevifolia

Upper Newsome Creek, others

Thuja plicata/*Adiantum pedatum*

O'Hara Creek

Class - Shrubland

Alnus sinuata

Elk Creek, Upper Newsome Creek

Class - Herbaceous Vegetation

Agropyron spicatum - *Opuntia polyacantha*

Alum Beds

Agropyron spicatum - *Poa sandbergii*

Alum Beds, Little Granite Creek

Cercocarpus ledifolius/*Agropyron spicatum*

Elk Creek, Little Granite Creek, No Business Creek

Festuca idahoensis-*Agropyron spicatum*

Lightning Creek, Little Granite Creek, No Business Creek

Festuca idahoensis/*Symphoricarpos albus*

Little Granite Creek (partially filled target for Nez Perce NF)

Aquatic Types

Type 1, 2, 3 streams

O'Hara Creek, others

Thermal springs

Warm Springs Creek

Rivers

Elk Creek, Little Granite Creek

Waterfalls

Little Granite Creek

Lakes

Little Granite Creek

Ponds	Little Granite Creek, others
Marsh	Moose Meadow Creek
Bog meadows	Moose Meadow Creek
Wet meadows	O'Hara Creek
UNFILLED	
<i>Class -Forest and Woodland</i>	
Abies lasiocarpa/Linnaea borealis	(drop from Nez Perce NF; rare or absent on Forest)
Pinus contorta/Vaccinium cespitosum	(drop from Nez Perce NF; treat as seral stage of Abies lasiocarpa/Vaccinium cespitosum tenax forest type)
Pinus contorta/Vaccinium scoparium	--
Pinus contorta/Xerophyllum tenax	(drop from Nez Perce NF; treat as seral stage of Abies lasiocarpa/Xerophyllum tenax forest type)
Thuja plicata/Asarum caudatum	(drop from Nez Perce NF)
<i>Class -Herbaceous Vegetation</i>	
Festuca idahoensis-Carex hoodii	(drop from Nez Perce NF; poorly defined type)

1995 RNA TARGET RECOMMENDATIONS

<i>Class -Forest and Woodland</i>	
Abies grandis/Adiantum pedatum (m)	
Abies grandis/Coptis occidentalis (m)	partially filled by No Business Creek RNA
Abies grandis/Taxus brevifolia (h)	
Abies lasiocarpa/Coptis occidentalis (m)	
Pinus contorta/Vaccinium scoparium (m)	
Pseudotsuga menziesii/Vaccinium cespitosum (h)	
<i>Class - Herbaceous Vegetation</i>	
Deschampsia cespitosa (m)	tentative assignment
Festuca idahoensis/Symphoricarpos albus (m)	
Agropyron spicatum - Opuntia polyacantha (m)	

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APPENDIX A. Major features of Research Natural Areas of the Northern Region.

<i>RNA name</i>	<i>Features</i>
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■ BEAVERHEAD-DEERLODGE NATIONAL FOREST

Basin Creek	lodgepole pine and Engelmann spruce forest; riparian shrub and herbaceous types
Bernice	lodgepole pine, Douglas-fir and subalpine fir forest; grasslands
Cattle Gulch	curlleaf mountain mahogany, Douglas-fir and bunchgrass communities
Cave Mountain	extensive alpine grasslands on limestone substrate
Cliff Lake	Douglas-fir, grassland and quaking aspen communities
Cottonwood Creek	Douglas-fir, big sagebrush and bunchgrass communities
Dexter Basin	subalpine fir, whitebark pine and alpine larch forest, subalpine rocklands
Dry Mountain	Douglas-fir, big sagebrush and bunchgrass communities
Elkhorn Lake	lodgepole pine and subalpine fir forest; alpine types; lake and ponds; rocklands
Goat Flat	alpine communities and subalpine forest on sedimentary and igneous rocks
Horse Prairie	big sagebrush, threetip sagebrush, and willow communities
Lost Park	lodgepole pine and subalpine fir forest; willow and herbaceous wetlands
Sapphire Divide	extensive alpine larch; whitebark pine and subalpine fir forest; pond
Skull-Odell	lodgepole pine, whitebark pine, Engelmann spruce; lake, wet meadows, fens
Thunderbolt Mountain	dry subalpine forests of subalpine fir, Engelmann spruce and lodgepole pine
Windy Ridge	rough fescue grassland in open ridgetop setting

■ BITTERROOT NATIONAL FOREST

Bass Creek	ponderosa pine, grand fir, Douglas-fir, subalpine fir, whitebark pine, alpine larch
Bitterroot Mtn. Snow Aval.	active snow avalanche tracks and successional communities; subalpine fir forest
Bitterroot River	riparian forest, shrub and herbaceous communities
Boulder Creek	old-growth ponderosa pine, Douglas-fir forests, rock and scree
East Fork Bitterroot	extensive riparian willow and marsh communities, lodgepole pine forest
Lower Lost Horse Canyon	Douglas-fir, grand fir, lodgepole pine, subalpine fir and whitebark pine forests
Sawmill Creek	dry Douglas-fir and ponderosa pine woodlands, bunchgrass communities
Upper Lost Horse Canyon	subalpine forests of subalpine fir, lodgepole pine, whitebark pine and alpine larch

■ CLEARWATER NATIONAL FOREST

Aquarius	moist forests of w. redcedar, w. hemlock and grand fir; red alder, coastal disjuncts
Bald Mountain	mountain hemlock and subalpine fir forest; green fescue and beargrass communities
Bull Run Creek	western redcedar, grand fir and Douglas-fir; basalt substrate; talus
Chateau Falls	open shrublands and grasslands; young Douglas fir forests and woodlands; waterfalls
Dutch Creek	young forest of paper birch with some grand fir and Douglas-fir
Fenn Mountain	subalpine fir forest; high lake and pond; rocklands
Four-Bit Creek	moist forest of w. redcedar, w. larch, w. white pine, grand fir, ponderosa pine, others
Grave Peak	young forests of subalpine fir, whitebark pine and alpine larch; ponds, meadows; rocklands
Lochsa River	young Douglas-fir forests with w. redcedar and grand fir; coastal disjuncts
Rhodes Peak	open whitebark pine and subalpine fir woodlands; alpine types; rocklands
Sneakfoot Meadows	moist subalpine fir and lodgepole pine forest; marshes and fens
Steep Lakes	subalpine fir and mountain hemlock forests; alder shrubfields; lakes

■ CUSTER NATIONAL FOREST

Line Creek Plateau	alpine plateau; subalpine forests of whitebark pine, subalpine fir, lodgepole pine
Lost Water Canyon	dry Douglas-fir and subalpine fir forest; grasslands; limestone rocklands
Limber Pine	disjunct limber pine woodland; shrub and grassland communities
Poker Jim	eastern ponderosa pine forest, shrub and grassland communities
Sheyenne Springs	marsh and fen communities; grasslands and eastern deciduous forest
Two Top - Big Top	relict butte-top sagebrush and grassland communities

■FLATHEAD NATIONAL FOREST

Coram	old-growth w. larch and Douglas-fir; subalpine fir and w. hemlock forest
East Shore	montane Douglas-fir forest, talus slopes
Lebeau	diverse mix of montane and subalpine forest types; ponds and wetlands
Little Bitterroot	dry Douglas-fir forest and woodland; steep, rocky canyon
Swan River	moist forests of western larch, grand fir and western redcedar; marshes and fens.
Tuchuck	subalpine and timberline forests of subalpine fir, whitebark pine and alpine larch

■GALLATIN NATIONAL FOREST

Black Butte	dry subalpine forests of Engelmann spruce, subalpine fir and lodgepole pine
East Fork Mill Creek	Douglas-fir, subalpine fir and lodgepole pine forests
Mount Ellis	lodgepole pine, subalpine fir, moist meadows
Obsidian Sands	dry lodgepole pine/antelope bitterbrush forest
Palace Butte	alpine and subalpine types; ponds and waterfalls; wetland communities; rocklands
Passage Creek	forests of Douglas-fir, lodgepole pine, subalpine fir and whitebark pine
Sliding Mountain	Engelmann spruce, Douglas-fir and lodgepole pine forest; grasslands
Wheeler Ridge	old-growth whitebark pine with subalpine fir

■HELENA NATIONAL FOREST

Granite Butte	rough fescue grassland, subalpine fir and whitebark pine ribbon forest
Indian Meadows	lodgepole pine, Douglas-fir and subalpine fir forest; marshes and fens
Red Mountain	alpine and subalpine types; whitebark pine, subalpine fir, alpine larch, lodgepole pine

■IDAHO PANHANDLE NATIONAL FORESTS

Binarch Creek	moist w. redcedar, grand fir, w. hemlock and Douglas-fir forests; beaver ponds
Bottle Lake	deep pond with organic mat; moist forest of w. redcedar, w. hemlock and w. white pine
Canyon Creek	moist forests of w. hemlock, w. redcedar and subalpine fir; green fescue, beargrass bald
Five Lakes Butte	young mountain hemlock forests with whitebark pine, spruce and subalpine fir; lakes
Hunt Girl Creek	lodgepole pine and subalpine fir forests, some w. redcedar; sedge meadows
Kaniksu Marsh	diverse moist forests with w. white pine, w. larch, w. redcedar, others; marshes, fen
Montford Creek	moist old-growth forests with w. hemlock, grand fir, w. white pine, w. larch, others
Pond Peak	old-growth mountain hemlock with lodgepole pine and subalpine fir; pond
Potholes	ponds, wet meadows, fens; moist w. hemlock and w. redcedar forests
Red Horse	drier forests of ponderosa pine, western hemlock, grand fir and Douglas-fir
Round Top Mountain	dry subalpine fir forests; green fescue bald
Scotchman No. 2	subalpine forests of Engelmann spruce, lodgepole pine and whitebark pine; rocklands
Smith Creek	fens, marshes and ponds; moist subalpine fir forest
Snowy Top	timberline and subalpine forest with subalpine fir and whitebark pine; green fescue bald
Spion Kop	floodplain communities; black cottonwood forest; marshes
Tepee Creek	old-growth western white pine, western redcedar and western hemlock
Therault Lake	old-growth mountain hemlock with subalpine fir and spruce; pond, sedge meadows
Three Ponds	moist forests of Douglas-fir, grand fir, w. redcedar and w. hemlock; ponds

Upper Fishhook	old-growth w. redcedar with w. white pine, w. hemlock, grand fir and Douglas-fir
Upper Priest River	floodplain communities with black cottonwood, w. redcedar, w. hemlock, others; marshes
Upper Shoshone Creek	mountain hemlock and western hemlock forests; green fescue bald

■KOOTENAI NATIONAL FOREST

Big Creek	Douglas-fir, ponderosa pine and western larch forest
Hoskins Lake	Douglas-fir, western redcedar and Engelmann spruce; lake, pond and sedge wetland
Lower Ross Creek	old-growth w. redcedar, w. hemlock, w. white pine, w. larch and lodgepole pine
Norman-Parmenter	Douglas-fir, w. redcedar, w. hemlock and black cottonwood forests
Pete Creek Meadows	sedge and grass meadows; Engelmann spruce, lodgepole pine and subalpine fir
Wolf-Weigel	lodgepole pine, western larch and Douglas-fir; pond and wetlands; canyon

■LEWIS AND CLARK NATIONAL FOREST

Bartleson Peak	dry subalpine forests of Engelmann spruce, Douglas-fir and limber pine
Big Snowy	alpine communities on calcareous substrate
Minerva Creek	eastern ponderosa pine forest
O'Brien Creek	extensive riparian willow and herbaceous communities, lodgepole pine
Onion Park	lodgepole pine and subalpine fir forest; moist meadows
Paine Gulch	Douglas-fir, ponderosa pine, limber pine, spruce forests and woodlands
Wagner Basin	wetland forest, shrubland and marsh; large spring; Douglas-fir, aspen and grasslands
Walling Reef	limber pine, Douglas-fir woodlands, shrub and grasslands; limestone rocklands

■LOLO NATIONAL FOREST

Barktable Ridge	old-growth mountain hemlock forest; lodgepole pine
Carlton Ridge	alpine larch, western larch and subalpine fir forest
Council Grove	riparian black cottonwood and ponderosa pine forest
Petty Creek	Douglas-fir, lodgepole pine, grand fir and western larch forest
Plant Creek	old-growth western larch; lodgepole pine and Engelmann spruce forest
Pyramid Peak	Douglas-fir and subalpine fir forest
Sheep Mountain Bog	lodgepole pine, subalpine fir and Douglas-fir forest; fen
Shoofly Meadows	marsh and peatland communities; lodgepole pine forest
Squaw Creek	scree and forested scree with Douglas-fir and ponderosa pine

■NEZ PERCE NATIONAL FOREST

Alum Beds	dry ponderosa pine woodland; unique rock formations; mineral-rich springs
Bill's Creek	dry alluvial terrace with hackberry woodland
Elk Creek	many elevational zones; grasslands; ponderosa pine, Douglas-fir, subalpine fir; rocklands
Fish Lake	lake and wet meadows; subalpine fir forest
Lightning Creek	dry subalpine fir forests; ponderosa pine, Douglas-fir and grand fir; grasslands
Little Granite Creek	many elevational zones; grasslands; ponderosa pine, Douglas-fir, subalpine fir; ponds
Moose Meadow Creek	wet meadows, fens; moist subalpine fir and lodgepole pine forest
No Business Creek	moist grand fir forest; also subalpine fir, Douglas-fir, ponderosa pine forest
O'Hara Creek	diversity of forest types including w. redcedar, grand fir and subalpine fir ; wet meadows
Salmon Mountain	alpine larch forest; subalpine fir, whitebark pine; subalpine meadows
Square Mountain Creek	forests of subalpine fir, whitebark pine, grand fir and w. redcedar; rocklands
Upper Newsome Creek	old-growth grand fir forest; alder shrubfields
Warm Springs Creek	two warm springs; Douglas-fir, grand fir and ponderosa pine forests

APPENDIX B. Vegetation Classification Hierarchy and Index

A complete vegetation classification hierarchy for national forests and national grasslands of the Northern Region is presented below. Priority rankings for inclusion in RNAs are indicated in parentheses: (l) low priority, (m) moderate priority, (h) high priority. High priority types are stippled. Types in parentheses indicate minor types for which little information was available. National Forest RNA target recommendations are included for *high* and *moderate* priority types.

National Forest codes: BH - Beaverhead, BR - Bitterroot, CU - Custer, CW - Clearwater, DL - Deerlodge, FH - Flathead, GA - Gallatin, HE - Helena, IP - Idaho Panhandle, KO - Kootenai, LC - Lewis and Clark, LO - Lolo, NP - Nez Perce.

Numbers after type name refer to page number in this document.

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Formation - <i>Cryptogamic mat on rocks</i>	
Group - <i>Scarcely vegetated scree</i>	
Formation - <i>Lowland and submontane scree</i>	
Formation - <i>Montane and subalpine scree</i> (Abies lasiocarpa Scree Alliance) (Pinus contorta Scree Alliance) (Pinus flexilis Scree Alliance) (Pinus ponderosa Scree Alliance) (Populus tremuloides Scree Alliance) (Pseudotsuga menziesii Scree Alliance)	
Formation - <i>Alpine scree</i>	
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Group - <i>Scarcely vegetated cobbles and gravels</i>	
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Formation - <i>Scarcely vegetated sand dunes</i>	
Formation - <i>Bare sand dunes</i>	
Group - <i>Scarcely vegetated mud flats</i>	
Formation - <i>Non-calcareous mud flats</i>	
Formation - <i>Calcareous marl flats</i>	
Subclass - <i>Scarcely vegetated eroding slopes (badlands)</i>	125
Group - <i>Eroding clays</i>	

Appendix. Natural features checkoff list for the Northern Region, USDA Forest Service.

Biotic (features and processes)

Vegetation

class
subclass

Aquatic

Lake
Pond
River
Stream
Spring
Large
Thermal
Travertine-forming
Aquatic vegetation

Wetland

Peatland
bog
poor fen
(intermediate fen)
rich fen
patterned fen
floating mat
shrub carr
paludified forest

Herbaceous Wetland

Marsh
deep
shallow

Meadow
wet
mesic

Forested wetland

Shrub wetland

Soils (order)

Abiotic

Geology (region, features, parent material)

Landforms

Ecoregion

section
subsection

Watershed

Special features (sites, TES, spp concentrations)

Avalanche chute
Cave
scree
talus

TABLE . Comparison of 1983 and 1995 aquatic targets for RNAs.

Wetland Feature	No. of RNAs/SIAs				
	NID	WMT	CEMT	NDSD	R1
Forested Wetlands					
Coniferous	25	12	14	0	51
Deciduous	3	3	4	1	11
Shrub Wetlands					
Carr	3	3	4	1	11
Shrub Wetland	11	4	7	1	23
Saline Shrub Wetland	0	0	0	1	1
Herbaceous Wetlands					
Fen	4	4	5	1	14
Marsh-Meadow	7	24	11	1	43
Saline Marsh-Meadow	0	0	0	0	0

THREATENED, ENDANGERED, AND SENSITIVE (TES) PLANTS

Natural areas can serve an important role in conserving the habitat for threatened, endangered, and Forest Service sensitive plant species (TES species). A number of R1 RNAs/SIAs have been proposed or established expressly for this purpose, for example, Wagner Basin RNA (*Cypripedium calceolus*, *Epipactis gigantea*), Aquarius RNA (coastal disjunct species), and Condon Creek Botanical Area (*Howellia aquatilis*).

RNA and SIA designation to protect TES plant species may be appropriate when the species:

- (a) requires undisturbed habitats or special management for its continued existence;
- (b) is restricted to unique or uncommon habitats;
- (c) occurs at high densities in a fairly small area;
- (d) occurs in conjunction with other TES species, forming a “hot spot” with high biological significance .

RNAs and many SIAs are also well-suited for long-term monitoring of species populations and their habitats.

The current network of natural areas plays a significant role in protecting sensitive plants. In northern Idaho, 15 of 44 proposed and established RNAs are known to contain one or more

sensitive plant populations (34%). In Montana, 16 of 70 RNAs support sensitive plant species (23%). Botanical areas may be designed to protect special habitats or concentrations of TES plant species. For example, the proposed Hidden Lake Botanical Area (Kootenai NF) features an extensive wetland underlain by highly calcareous sediments which supports populations of three sensitive orchid species.

Research Natural Areas of the Northern Region: Status & Needs Assessment

October 1996

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SUMMARY

A MAJOR OBJECTIVE of the Forest Service Research Natural Area (RNA) program is to maintain a representative array of natural ecosystems as baseline areas for research and monitoring. In addition, RNAs help maintain biological diversity and healthy ecosystems on national forests by conserving common and rare species, undisturbed plant communities, aquatic ecosystems, and unique landscape features.

The 1983 Northern Regional Guide included terrestrial and aquatic features targeted for inclusion in Northern Region RNAs. Since 1983, much progress has been made toward a comprehensive research natural area system. Many RNAs have been formally established (from 13 in 1983 to 78 in 1996) and 43 others are currently proposed.

This document provides the basis for updating the 1983 Regional Guide direction for RNAs. Included are:

- summaries of features within established and proposed RNAs,
- prioritized listings of missing and under-represented elements,
- target recommendations for each national forest.

The assessment contains six sections:

- *Section I* is an assessment of RNA representation within 16 ecoregion sections.
- *Section II* summarizes the current network of RNAs by forest and rangeland cover types.
- *Section III* is a detailed assessment of the vegetation types present within RNAs. A hierarchical framework is used; upper levels of the classification are divided by physiognomic distinctions; lower levels are based on species composition.
- *Section IV* is an assessment of aquatic and wetland features within RNAs.

NATURAL AREAS ASSESSMENT - SUMMARY

- *Section V* is a preliminary classification of geologic and landform features.
- *Section VI* is a summary of RNA recommendations for each national forest. 1983 RNA targets are reviewed, followed by 1995 target recommendations.

This current assessment updates the review draft assessment completed in March 1995 (Chadde). Comments received on the review draft have been incorporated into this document.

Information on 76 alliances and 210 community elements is included in this assessment. The percentage of community elements *adequately represented* within RNAs (i.e., *low* priority) are listed in parentheses.

<i>Class</i>	<i>Subclasses</i>	<i>Groups</i>	<i>Formations</i>	<i>Alliances</i>	<i>Community Elements</i>
Closed Forest	2	3	8	15	102 (52%)
Woodland	2	3	5	6	16 (6%)
Shrubland	3	4	5	22	40 (33%)
Dwarf Shrubland	2	3	3	4	7 (0%)
Herbaceous Vegetation	5	8	9	29	45 (22%)
<i>Totals</i>	14	21	30	76	210 (37%)

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Douglas-fir (<i>Pseudotsuga menziesii</i>)	57
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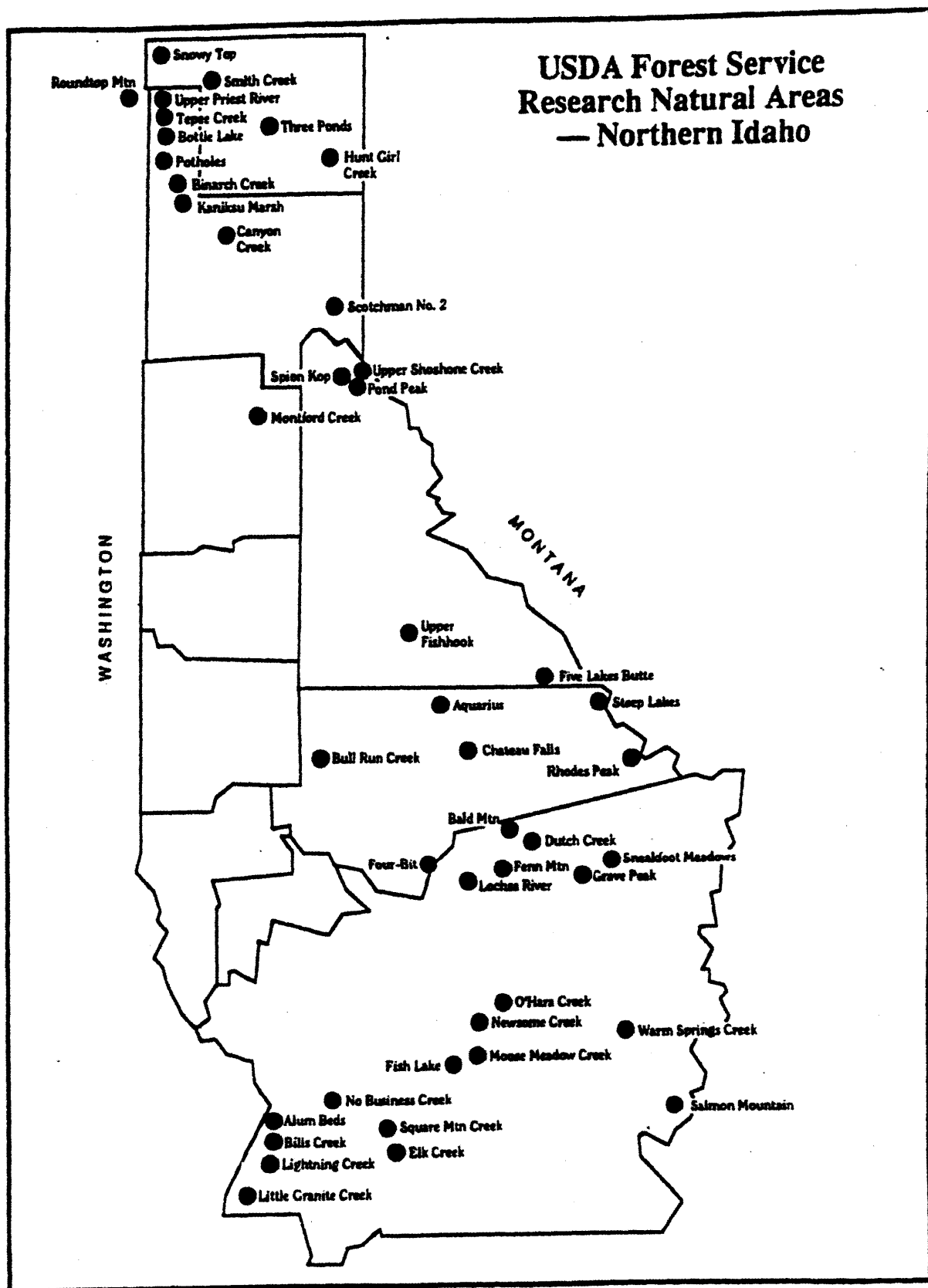


FIGURE 1. Research Natural Areas on National Forests of northern Idaho.

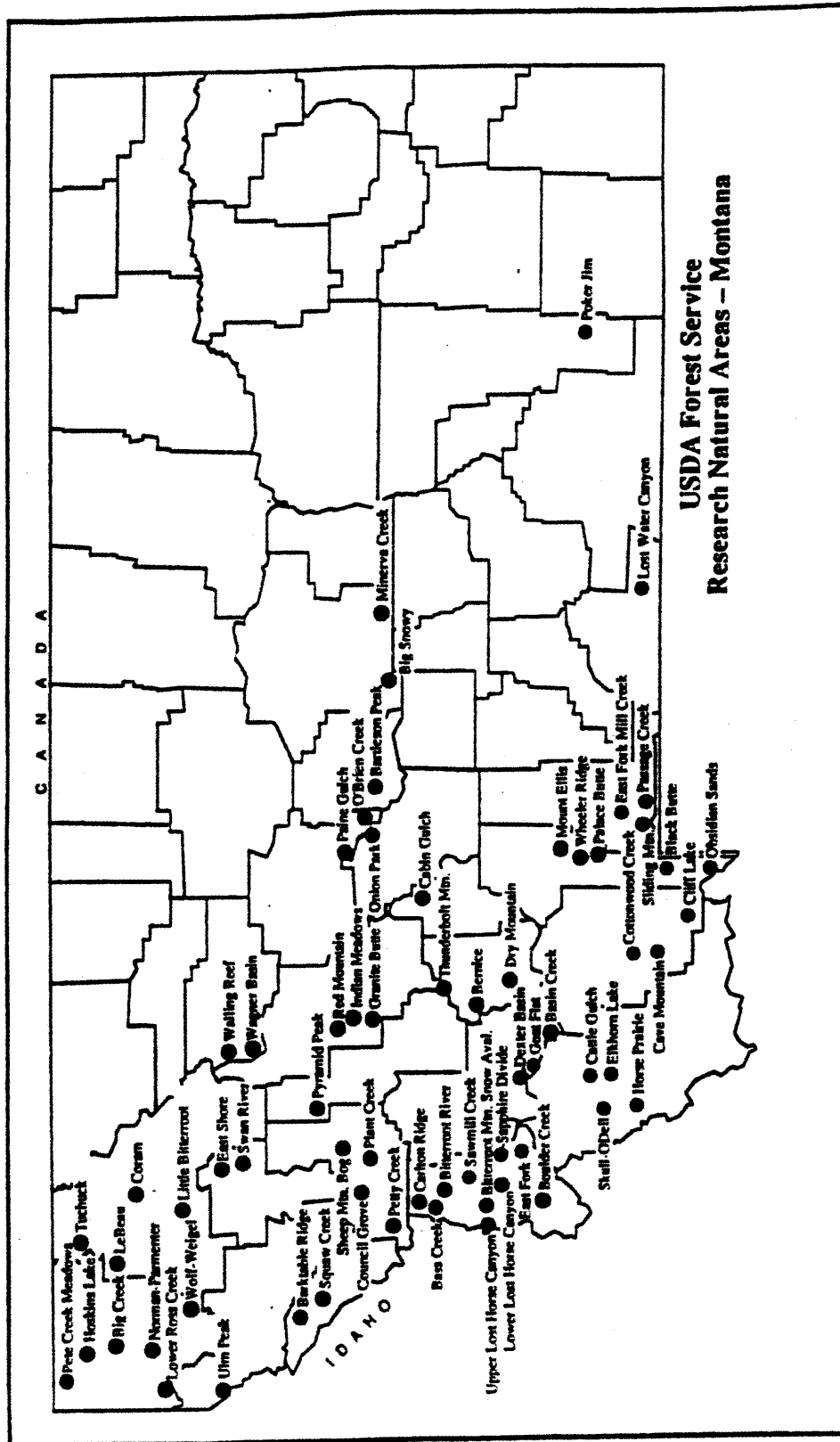


FIGURE 2. Research Natural Areas on National Forests of Montana.

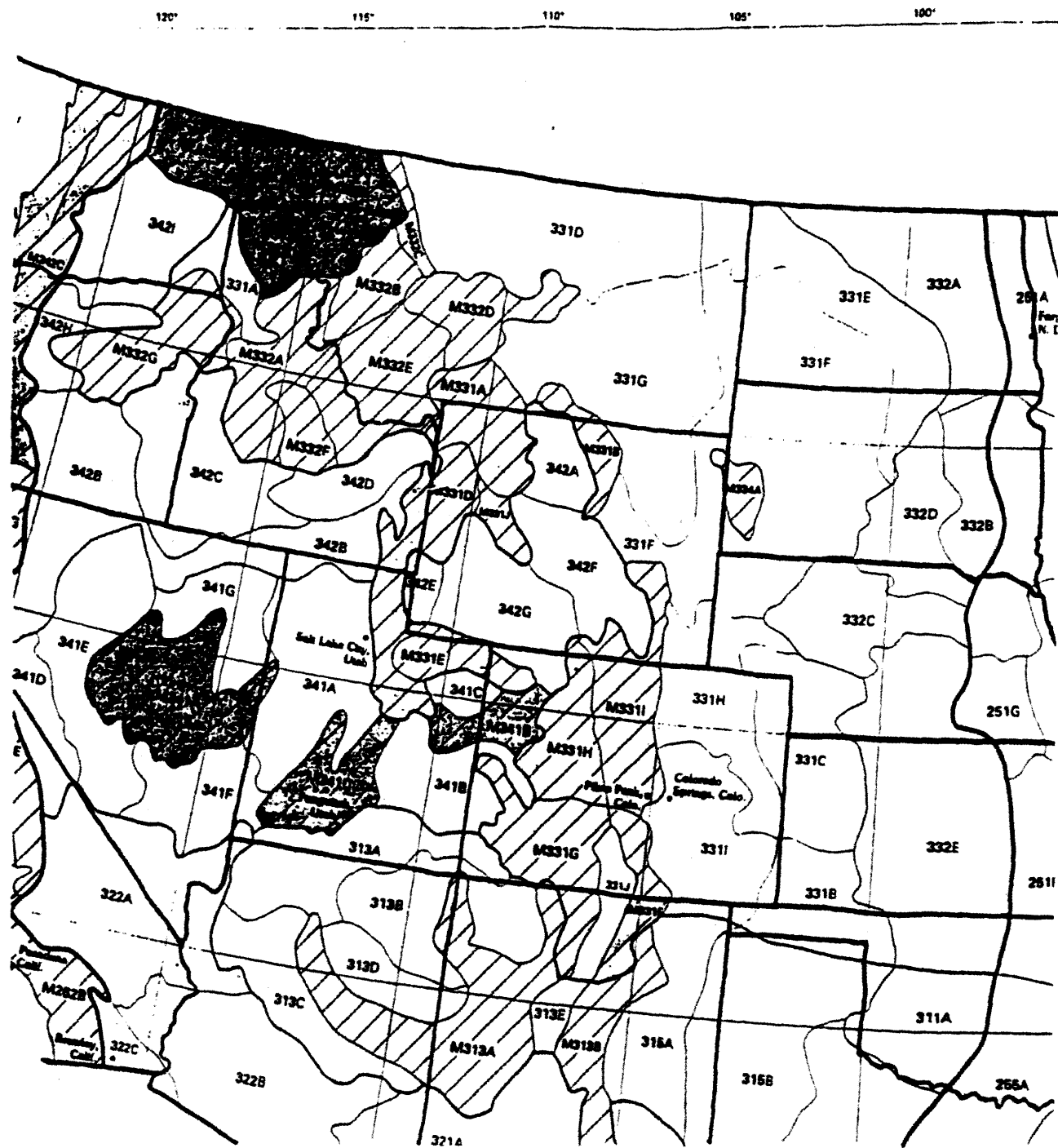


FIGURE 3. Ecoregions of the Northern Region and vicinity with section delineations (Bailey et al. 1994). See text for map unit names.