PLANTS AND VEGETATION OF THE POTENTIAL BEARTOOTH BUTTE RESEARCH NATURAL AREA WITHIN THE SHOSHONE NATIONAL FOREST, PARK COUNTY, WYOMING

Prepared for the

Shoshone National Forest, USDA Forest Service

By

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TABLE OF CONTENTS

INTRODUCTION

This report presents information on the rare plants and the vegetation types in the potential Beartooth Butte Research Natural Area (RNA). The information is arranged in the structure used in a research natural area establishment report, to allow its easy incorporation into an RNA establishment report for Beartooth Butte, should the area be designated as a research natural area.

Much of the information in this report is derived from an earlier report about the potential Beartooth Butte RNA (Jones and Fertig 1999). The information from that earlier report has been updated in several ways. First, the proposed boundary of this potential RNA may differ slightly from that shown in the original report, as a result of changes made by Forest Service staff. Second, when necessary, names of vascular plant species have been converted to those used in the PLANTS database (USDA, Natural Resources Conservation Service 2009), which is now the standard for plant names used by U.S. Department of Agriculture agencies. Third, names of plant associations have been brought up to date. Fourth, new information about rare plants, within the potential RNA and outside it, has been included. This information may have changed our understanding of the distribution of some plants in the potential RNA, and may have caused some plant species to be dropped from the list of rare plants in the area. Fifth, the maps of cover-types have been digitized using digital raster graphic files (i.e., digital topographic maps) and true-color aerial photographs as backgrounds, and boundaries of cover-types have been changed slightly during digitizing when the topographic maps and aerial photographs indicated mistakes in the original maps. Consequently, the area covered by each cover-type may have changed slightly.

LAND MANAGEMENT PLANNING

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OBJECTIVES

Research natural areas "...preserve a wide spectrum of pristine representative areas that typify important forest, shrubland, grassland, alpine, aquatic, geologic and similar natural situations..." (Forest Service Manual 4063.02). The objectives of a Beartooth Butte RNA would be to 1) maintain a reference area for (a) monitoring effects of resource management techniques and practices applied to similar ecosystems, (b) comparing results from manipulative research, and (c) determining range of natural variability; 2) protect elements of biological diversity; 3) provide a site for non-manipulative scientific research; and 4) provide on-site and extension educational opportunities.

PRINCIPAL DISTINGUISHING FEATURES

The principal distinguishing features of the potential Beartooth Butte RNA are alpine tundra, barren slopes, a mosaic of upper timberline conifer woodlands and herbaceous meadows, and a suite of rare plants (including one species endemic to the land within the potential RNA). All of these features occur on an island of Paleozoic sedimentary rocks lying atop the Pre-Cambrian rocks of the Beartooth Plateau.

LOCATION

The potential Beartooth Butte RNA is located within the Shoshone National Forest in northwestern Wyoming. The approximate center of the potential RNA is at latitude 44°57'50"N and

longitude 109°36'50"W. The potential RNA includes all or parts of the following public land survey system sections (all on the 6th Principal Meridian): Township 57 North, Range 105 West, Section 6; T57N, R106W, Sections 1, 2, 12; T58N, R105W, Sections 30 and 31; T58N, R106W, Sections 25, 26, 35, 36.

BOUNDARY

For the most part, the boundary of the potential RNA indicated on Figure 1 parallels National Forest Trails that run along the lower slopes of Beartooth Butte and Clay Butte, which lies to the south of Beartooth Butte.

AREA

The area of the potential Beartooth Butte RNA is 2,448 acres (991 ha).[1]

ELEVATION

The elevation of the potential Beartooth Butte RNA ranges from approximately 9,200 feet (2,804 meters) at the southern end to 10,514 feet (3,205 meters) atop Beartooth Butte.

ACCESS

The potential Beartooth Butte RNA may be reached via public roads and trails, from Cooke City, Montana on the west and from Red Lodge, Montana on the east.

ECOREGION

The potential Beartooth Butte RNA lies within the Southern Rocky Mountain Steppe-Open Woodland-Coniferous Forest-Alpine Meadow Province, Yellowstone Highlands Section, Beartooth Mountains Subsection (M331Ah) of the ecoregion classification of Bailey *et al*. (1994) (Freeouf 1996).

MAPS

USDA Forest Service 1/2 inch = 1 mile scale map of the Shoshone National Forest.

USDI Geological Survey 7.5 minute topographic Quadrangle Maps: Beartooth Butte, Wyo. and Muddy Creek, Wyo.

AREA BY COVER-TYPE

Knowledge of the distributions of plant associations, habitat types, Kuchler vegetation types, and Society of American Foresters forest cover-types is based on 1998 field work conducted by Natural Diversity Database biologists, reported in an earlier document (Jones and Fertig 1999). That earlier information has been revised with additional information gained from recent aerial photographs and from more detailed descriptions of plant associations.

Maps of these cover-types were digitized on-screen by Natural Diversity Database staff, using the ESRI® ArcMap™ 9 software; boundaries are based on the hand-drawn map in the earlier report and were

1. The area of the potential Beartooth Butte RNA was computed by WYNDD staff with the ESRI® ArcMap™ 9.3 software, using a digital version of the boundary supplied by the Forest Service.

digitized using digital raster graphic files (digital topographic maps) and 2006 National Agriculture Imagery Program true-color aerial photographs (USDA, Farm Services Administration, Aerial Photography Field Office.) as backgrounds. The areas of these various cover-types were computed in the ArcMap™ software.

PLANT ASSOCIATIONS[2]

The highest-elevation, central part of the potential RNA, atop Beartooth Butte, supports alpine turn and dwarf-shrub vegetation, with a substantial area of bare rock (Figure 1). Two herbaceous vegetation types are common, the *Carex elynoides* association and the *Phlox pulvinata* herbaceous alliance (Table 1)... The alpine vegetation dominated by very short shrubs is placed into two alliances, the *Salix reticulata* dwarf-shrub alliance and the *Salix arctica* dwarf-shrub alliance.

The vegetation on the slopes surrounding Beartooth Butte is mainly subalpine meadow mixed with willow patches, and with stands of conifer forest in the meadow to the south and west of the Butte. The lush meadow vegetation is primarily the *Festuca idahoensis – Potentilla diversifolia* association, and the willow-dominated vegetation is classified as the *Salix glauca* association. Wet areas support small stands of the *Mertensia ciliata* association and the *Salix boothii* / Mesic Forbs association. The subalpine fir – Engelmann spruce woodlands belong to the *Abies lasiocarpa - Picea engelmannii / Ribes (montigenum, lacustre, inerme)* forest association.

Table 1. Occurrence of plant associations and alliances in complexes mapped in the potential Beartooth Butte Research Natural Area. See Figure 3. "M" in a cell indicates that a plant association or alliance is a major component of a complex, and "m" indicates that it is a minor component of the complex.

Plant Associations & Alliances	Complex Names and Areas		
	Alpine Turf & Dwarf-shrub. 1,006 ac, 407 ha	**Subalpine Meadow. 999 ac, 404 ha**	**Spruce-Fir Woodland. 443 ac, 179 ha**
Herbaceous			
Carex elynoides Herbaceous Association	M		
Deschampsia caespitosa Herbaceous Association		m	m
Festuca idahoensis – Potentilla diversifolia Herbaceous Association	m	M	m
Mertensia ciliata Herbaceous Association		m	
Phlox pulvinata Herbaceous Alliance	M		
Shrub			
Dryas octopetala - Carex rupestris Dwarf-shrub Herbaceous Association	m		
Salix boothii / Mesic Forbs Shrub Association		m	
Salix glauca Shrub Association	m	M	
Salix reticulata Saturated Dwarf-shrubland Alliance	M		
Salix arctica Dwarf-shrubland Alliance	M		
Forest & Woodland			
Abies lasiocarpa - Picea engelmannii / Ribes (montigenum, lacustre, inerme) Forest Association	m	m	M

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2. Names of plant associations are from NatureServe (2010).

KUCHLER VEGETATION TYPES

Most of the potential Beartooth Butte Research Natural Area is vegetated with Kuchler's (1964) Alpine Meadow and Barren type (Figure 4). The Western Spruce-Fir Forest type comprises the conifer forest in the area.

Table 2. Kuchler vegetation types in the potential Beartooth Butte Research Natural Area. See Figure 4.

Vegetation Type (Kuchler 1964)	Acres	Hectares
Alpine Meadow and Barren	2,005	811
Western Spruce-Fir Forest	443	179

HABITAT TYPES

Vegetation in the potential Beartooth Butte RNA grows on two habitat types (Figure 5, Table 3). The *Festuca idahoensis* / *Deschampsia caespitosa* Habitat Type, described by Tweit and Houston (1980) from the Shoshone National Forest, is the more common, occurring as the dominant habitat type in the area mapped as subalpine mesic meadows and as a minor type in the areas mapped as alpine vegetation and spruce-fir woodland. The The Engelmann spruce-subalpine fir woodland in the potential RNA grows on the *Abies lasiocarpa* / *Ribes montigenum* Habitat Type, *Ribes montigenum* Phase, which is known from throughout the region (Steele *et al.* 1983).

Table 3. Occurrence of habitat types mapped in complexes in the potential Beartooth Butte Research Natural Area. See Figure 5. "M" in a cell indicates that a habitat type is a major component of a complex, and "m" indicates that it is a minor component of the complex.

	Habitat Types		
Habitat Types	**None 1,006 ac, 407 ha**	***Festuca idahoensis* 999 ac, 404 ha**	***A. lasiocarpa / R. montigenum* 443 ac, 179 ha**
Herbaceous (Tweit & Houston 1980)			
Festuca idahoensis / *Deschampsia caespitosa* Habitat Type	m	M	m
Forest & Woodland (Steele *et al.* 1983)			
Abies lasiocarpa / *Ribes montigenum* Habitat Type, *Ribes montigenum* Phase	m	m	M

SOCIETY OF AMERICAN FORESTERS COVER TYPES

The only forested cover-type in the Society of American Foresters classification (Eyre 1980) present in the potential Beartooth Butte RNA is the Engelmann spruce-subalpine fir (206) type (Figure 6, Table 4).

Table 4. Society of American Foresters Cover Types in the potential Beartooth Butte Research Natural Area. See Figure 6.

Cover Type (Eyre 1980)	Acres	Hectares
Engelmann spruce-subalpine fir (206)	443	179
None	2,005	811

ECOLOGICAL SYSTEMS

The U.S. Forest Service's Landscape Fire and Resource Management Planning Tools Project (Landfire Project) (http://www.landfire.gov/) uses ecological systems as a way to display general vegetation/environment types nation-wide. Descriptions of ecological systems are available at http://www.natureserve.org/explorer/servlet/NatureServe?init=Ecol. Figure 7 shows the ecological systems in the potential Beartooth Butte RNA. This figure was produced from data extracted from the nation-wide Landfire map of ecological systems and a few additional cover-types, updated to 2008 (http://landfire.cr.usgs.gov/viewer/). Two changes were made to those data in the production of Figure 7: the area originally mapped as the *Pseudotsuga menziesii* Plant Alliance was re-classified to the Middle Rocky Mountains Montane Douglas-fir Forest and Woodland Ecological System, and the area originally mapped as the *Artemisia tridentata* ssp. *vaseyana* Plant Alliance was re-classified as the Inter-Mountain Basins Montane Sagebrush Steppe Ecological System. Table 5 shows the area of each ecological system within the potential RNA.

Five ecological systems are mapped in substantial amounts in the potential RNA (Table 5). The unforested portion of the area is mapped primarily into the Barren system, the Rocky Mountain Alpine Turf system, the Rocky Mountain Alpine Dwarf-Shrubland system, and the Rocky Mountain Subalpine-Montane Mesic Meadow system. Most of the forested portion is mapped as the Northern Rocky Mountain Subalpine Woodland and Parkland system, and that classification of the woodland and forest vegetation seems to be at odds with the information collected during field survey (Jones and Fertig 1999). Researchers in the Landfire Program caution that the national Landfire Project information should be augmented with knowledge of local conditions (http://www.landfire.gov/dp_quality_assessment.php), and information collected in the field survey suggests that the forest and woodland vegetation should all be mapped as the Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland Ecological System or the Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland Ecological System. Both of those types are mapped in the area, but in small amounts.

Field survey also showed that the potential RNA contains no agricultural vegetation and is highly unlikely to contain conifer swamp. Consequently, the presence of the Agriculture-Pasture and Hay System and the Northern Rocky Mountain Conifer Swamp system in the Landfire data-set for this area also is erroneous.

Table 5. Ecological systems in the potential Beartooth Butte Research Natural Area. See Figure 7. Normal type-face indicates systems that each cover at least 1% of the area, and italic type-face indicates systems that each cover < 1% of the area.

Ecological Systems	Acres	Hectares
Barren	231	94
Inter-Mountain Basins Montane Sagebrush Steppe	37	15
Northern Rocky Mountain Subalpine Deciduous Shrubland	30	12
Northern Rocky Mountain Subalpine Woodland and Parkland	217	88
Northern Rocky Mountain Subalpine-Upper Montane Grassland	87	35
Rocky Mountain Alpine Dwarf-Shrubland	355	144
Rocky Mountain Alpine Turf	904	366
Rocky Mountain Aspen Forest and Woodland	26	11
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	99	40
Rocky Mountain Subalpine-Montane Mesic Meadow	410	166
Agriculture-Pasture and Hay	*2*	*1*
Middle Rocky Mountain Montane Douglas-fir Forest and Woodland	*1*	*1*
Northern Rocky Mountain Conifer Swamp	*3*	*1*
Northern Rocky Mountain Mesic Montane Mixed Conifer Forest	*3*	*1*
Rocky Mountain Montane Riparian Systems	*1*	*1*
Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland	*22*	*9*
Rocky Mountain Subalpine/Upper Montane Riparian Systems	*20*	*8*

PHYSICAL AND CLIMATIC CONDITIONS

PHYSICAL SETTING

The potential Beartooth Butte RNA is located on an isolated area of sedimentary rock (mainly Paleozoic limestone and shale) lying atop Pre-Cambrian rocks at the southern edge of the rolling Beartooth Plateau. Topography in the area consists of two ridges aligned north-south, with east-facing and west-facing slopes below them. The valley of a perennial stream separates the southern ends of the ridges.

GEOLOGY

The bedrock in the proposed RNA is primarily of Cambrian-age limestone and shale, with a smaller area of Ordovician-age dolomite and Upper Devonian-Lower Mississippian dolomite, limestone, and shale on Beartooth Butte (Pierce and Nelson 1971). Much of the bedrock is covered with Quaternary landslide deposits. These sediments form an isolated deposit atop the Pre-Cambrian granite of the Beartooth Plateau and provide the only alpine calcareous habitat on the Plateau.

SOILS

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CLIMATE

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DESCRIPTION OF VALUES

VEGETATION

The potential Beartooth Butte Research Natural Area illustrates the patterns found in the vegetation at high elevations in the Shoshone National Forest. At upper tree-line, small stands of Engelmann spruce – subalpine fir grow in a matrix of grass-and-forb vegetation. Above tree-line, dwarf-shrub vegetation, forb-dominated vegetation, and graminoid-dominated vegetation are arrayed along steep environmental gradients formed primarily by differences in snow depth, which in turn determines water availability. These steep gradients are typical of windy alpine environments (Billings 2000).

FLORA

Plant Species List

A list of 185 vascular plant species documented in the potential Beartooth Butte Research Natural Area is included in Appendix 1.

Rare Plants

No federally listed Threatened or Endangered plant species are found in the potential Beartooth Butte Research Natural Area. One species in the area is considered sensitive by USDA Forest Service Region 2, and seven additional species are tracked as species of concern by the Wyoming Natural Diversity Database. Among these 7 species are four in the genus *Draba*, and the potential Beartooth Butte RNA has a remarkably large number of species in that genus.

Parnassia kotzebuei (Kotzebue's grass-of-Parnassus)
Heritage Rank: G5/S2
Federal Status: US Forest Service Region 2 Sensitive.
Geographic Range: Siberia east through Alaska to Greenland, south in the Rocky Mountains to Colorado and Nevada, and in the Cascade Mountains to Washington. In Wyoming it is known from the Absaroka, Big Horn, Gros Ventre, Owl Creek and Wind River Mountains.
Habitat: Wet cliffs and barren, rocky slopes at alpine and subalpine elevations.
Comments: This species was originally discovered on Beartooth Butte in 1984 by Robert Dorn.

The status of the other seven species of concern within the potential Beartooth Butte Research Natural Area is briefly summarized below.

Antennaria aromatica (Aromatic pussytoes)
Heritage Rank: G3G4/S3 (WYNDD watch list)
Federal Status: None.
Geographic Range: Regional endemic of southwestern Montana and northwestern Wyoming (although apparently falsely reported from other areas of western North America). In Wyoming, it is known from the Absaroka, Beartooth, Bighorn, Wind River, Gros Ventre, and Wyoming/Salt River Mountains.
Habitat: Cushion plant communities on rocky alpine or subalpine calcareous slopes and ridgetops (Fertig 1997, Scott 1977).

Comments: Two large colonies were observed on the summits of Clay and Beartooth Buttes in 1996 (Fertig 1997). Although largely secure within the potential RNA, individual clusters may be potentially impacted by high recreation use.

Draba globosa (Rockcress draba)
Synonyms: *Draba apiculata; D. densifolia var. apiculata.*
Heritage Rank: G3/S2 (WYNDD Watch List)
Federal Status: USFS Region 4 Sensitive.
Geographic Range: Regional endemic of the mountains of southwestern Montana, east-central Idaho, western Wyoming, central Colorado, and northwestern Utah (Fertig *et al.* 1994). In Wyoming it is known from Absaroka, Teton, Wind River, Beartooth, Medicine Bow, Gros Ventre, and Salt River Mountains.
Habitat: Moist, gravelly, alpine meadows and talus slopes, usually on calcareous substrates (Fertig *et al*. 1994).
Comments: Two small colonies of rockcress draba (with fewer than 100 plants) were observed by Fertig and Mellmann-Brown on Clay and Beartooth Buttes in 1996 (Fertig 1997) and the Clay Butte colony was more recently observed by Bonnie Heidel in 2009.

Draba paysonii var. paysonii (Payson's draba)
Heritage Rank: G5T3?/S2.
Federal Status: None.
Geographic Range: Regional endemic of Montana and northwestern Wyoming. In Wyoming, it is known from the Beartooth, Absaroka, Wyoming, and Wind River Mountains.
Habitat: Alpine limestone scree fields, talus slopes, and rock outcrops. Populations in the Beartooth Butte area are found in sparsely vegetated cushion plant communities on steep, yellowish clay soils covered by dolomite gravel.
Comments: Payson's draba was first discovered on Beartooth and Clay Buttes by Rollins and Porter in 1951 (Rollins 1953). Three small colonies containing several hundred plants were relocated by Fertig and Mellmann-Brown in 1996 (Fertig 1997) and the two on Clay Butte were relocated by Bonnie Heidel in 2009.

Draba pectinipila (Comb-hair whitlow-grass)
Accepted name in PLANTS database: *Draba oligosperma* Hook. (*D. oligosperma* Hook. var. *pectinipila*.(Rollins) C.L. Hitchcock is treated as a synonym.)
Heritage Rank: G1Q/S1.
Federal Status: None.
Geographic Range: Possibly endemic to Clay and Beartooth Buttes in northern Park County, Wyoming (Fertig *et al.* 1994). It is also reported from central Colorado, Montana, and British Columbia.
Habitat: Rocky alpine cliffs and calcareous rock outcrops (Fertig *et al.* 1994).
Comments: Three main subpopulations of *Draba pectinipila* were observed on Clay and Beartooth Buttes by Fertig and Mellmann-Brown in 1996 (Fertig 1997) and the Clay Butte colony was most recently observed by Bonnie Heidel in 2009. The total population was estimated at 500-750 plants, with individual colonies averaging 20-30 plants. *D. pectinipila* was often observed in mixed colonies with *D. oligosperma*, and occasional hybrids were observed. Rollins (1993) has questioned the taxonomic validity of *D. pectinipila*, suggesting that it may be a minor, asexually reproducing variant of *D. oligosperma*. No breeding or pollen fertility studies have been done on comb-hair whitlow-grass to address Rollins's hypothesis. In the PLANTS database, *Draba oligosperma* Hook. var. *pectinipila* (Rollins) C. L. Hitchcock is a synonym for *Draba oligosperma* Hook. Dorn (2001), though, considers *Draba pectinipila* Rollins to be a valid species, of which the Beartooth-Clay Buttes area supports the only known population in the

world. Recent genetics research based on chromosome data and ribosomal DNA supports the separation of *Draba pectinipila* from *Draba oligosperma* (Windham 2000, Beilstein and Windham 2003).

Draba porsildii (Porsild's draba)
Synonym: Previously treated as *Draba porsildii var. brevicula* (little snow draba) but that variety is no longer accepted as taxonomically valid (Dorn 2001, Al-Shehbaz *et al.* 2010).
Heritage Rank: G3G4/S2.
Federal Status: None.
Geographic Range: Yukon and the Northwest Territories south to Colorado in the high Rocky Mountains (Rollins 1993). In Wyoming, it is known from the northern Absaroka and northern Wind River Mountains.
Habitat: On scree and in grassy meadows, along ridges, slopes, and summits in the alpine zone.
Comments: Porsild's draba was first discovered on Clay and Beartooth Buttes in 1937, and was described as a new variety (little snow draba) in 1953 (Rollins 1953). The PLANTS database recognizes both the variety *Draba porsildii* G. Mulligan var. *brevicula* (Rollins) Rollins and the species *Draba porsildii* G. Mulligan, and both taxa were at one time thought to be present at Beartooth Butte. Dorn (2001), though, noted that a wide gradient of morphological characters are present in the Beartooth Butte population and therefore rejected the variety *Draba oligosperma* var. *brevicula*. Dorn's treatment places all of the Beartooth Butte plants in *D. porsildii* G. Mulligan.

Erigeron humilis (Low fleabane)
Heritage Rank: G4/S2.
Federal Status: None.
Geographic Range: Siberia to Greenland, south in western North America to British Columbia, Montana, and northern Wyoming. In Wyoming, it is known from the Wind River, Beartooth, Bighorn, Gros Ventre, and Absaroka Mountains.
Habitat: Fellfields, meadows, and moist, rocky outcrops. Populations in the potential Beartooth Butte Research Natural Area are found in moss-rich pockets of limestone cliffs and alpine tundra with *Salix arctica* and *S. rotundifolia*.
Comments: This species was originally discovered in the area by Robert Dorn and Erwin Evert in 1984. Stephanie Mills located a small colony with 10 plants in 1995 (Mills and Fertig 1996) and Walt Fertig, Gillian Walford, and Sabine Mellmann-Brown discovered 2 small colonies in 1996 (Fertig 1997).

Parrya nudicaulis (Naked-stemmed parrya)
Heritage Rank: G5/S2.
Federal Status: USFS R4 Sensitive; previously USFS R2 Sensitive.
Geographic Range: Siberia to Alaska and northern Canada, with disjunct populations in northeastern Utah and western Wyoming. In Wyoming it is known from the Beartooth, Gros Ventre, and Wind River Mountain Mountains (Fertig 1995).
Habitat: Sparsely vegetated limestone or quartzite talus slopes in the alpine zone (Fertig 1995, Houston *et al*. 2001).
Comments: Naked-stemmed parrya was first discovered on Beartooth Butte by Rollins and Munoz in 1939. Fertig and Mellmann-Brown conservatively estimated the population at 25,000-30,000 plants on the steep west-facing slope and summit of the Beartooth Butte massif in 1996 (Fertig 1997). Due to low threats and high population numbers (Fertig 1995), this species was dropped as Forest Sensitive.

FAUNA

Threatened, Endangered, and Sensitive Vertebrates

Grizzly bear (*Ursos arctos*).

The grizzly bear is listed as threatened under the provisions of the federal Endangered Species Act (USDI Fish and Wildlife Service, No date). The approximate distribution area of the bear in Wyoming, as mapped by the Wyoming Game and Fish Department, includes the potential Beartooth Butte RNA (Wyoming Game and Fish Department, No date). The area also lies within the Conservation Strategy Management Area for the Yellowstone Distinct Population Segment of the grizzly bear, and within the area of suitable grizzly bear habitat, and within the area occupied by bears in 2004 (USDI Fish and Wildlife Service, No date).

Gray wolf (*Canis lupus*).

The potential Beartooth Butte RNA is within the Greater Yellowstone Recovery Area for the Northern Rocky Mountain Distinct Population Segment of the gray wolf (*Canis lupus*) (USDI, Fish and Wildlife Service 1987), which is protected under the provisions of the federal Endangered Species Act.

Animal Species List

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LANDS

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IMPACTS AND POSSIBLE CONFLICTS

MINERAL RESOURCES

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GRAZING

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TIMBER

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WATERSHED VALUES

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RECREATION VALUES

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WILDLIFE AND PLANT VALUES

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TRANSPORTATION VALUES

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MANAGEMENT CONCERNS

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REFERENCES

Al-Shehbaz, I.A., M.D. Windham, and R. Elven. 2010. Draba. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. Vol. 7. Salicaceae to Brassicaceae. Oxford University Press, New York and Oxford. pp. 269-347.

Bailey, R. G. *et al.* 1994. Ecoregions and subregions of the United States. 1:7,500,000-scale map. USDA Forest Service.

Beilstein, M.A. and M.D. Windham. 2003. A phylogenetic analysis of western North American Draba (Brassicaceae) based on nuclear ribosomal DNA sequences from the ITS region. Systematic Botany 28(3): 584-592.

Billings, William Dwight. 2000. Alpine vegetation. Chapter 14 in: Barbour, Michael G. and William Dwight Billings (editors). North American Terrestrial Vegetation. Second edition. Cambridge University Press.

Dorn, R. D. 2001. Vascular Plants of Wyoming, third edition. Mountain West Publishing, Cheyenne, WY. 412 pp.

Eyre, F.H. (editor). 1980. Forest Cover Types of the United States and Canada. Society of American Foresters, Washington DC.

Fertig, W. 1995. Status report on *Parrya nudicaulis* in Bridger-Teton National Forest. Report prepared by the Wyoming Natural Diversity Database, Laramie, WY. 47 pp.

Fertig, W. 1997. Plant species of special concern on Shoshone National Forest: 1996 survey results. Unpublished report prepared by the Wyoming Natural Diversity Database, Laramie, WY.

Fertig, W., C. Refsdal, and J. Whipple. 1994. Wyoming Rare Plant Field Guide. Wyoming Rare Plant Technical Committee, Cheyenne, WY. No pagination.

Freeouf, Jerry A. (editor). 1996. Ecoregions and subregions of Region 2 - subsections, State of Wyoming. 1:1,000,000-scale map prepared by USDA Forest Service, Natural Resource Information Team. Revised May 1996.

Jones, George P. and Walter Fertig. 1999. Ecological evaluation of the potential Beartooth Butte Research Natural Area within the Shoshone National Forest, Park County, Wyoming. Prepared for the Shoshone National Forests, USDA Forest Service, by the Wyoming Natural Diversity Database, University of Wyoming. Unpublished.

Kuchler, A. W. 1966. Potential natural vegetation. Pp. 90-91 in: Gerlach, A. D. (ed.). 1970. The national atlas of the United States of America. USDI Geological Survey, Washington, DC.

Mills, S. and W. Fertig. 1996. Field guide to rare and sensitive plants of the Shoshone National Forest. Unpublished report prepared by the Wyoming Natural Diversity Database, Laramie, WY. No pagination.

NatureServe. 2010. Explorer: an on-line encyclopedia of life. http://www.natureserve.org/explorer/index.htm. Information downloaded January, 2010.

Pierce, William G. and Willis H. Nelson. 1971. Geologic map of the Beartooth Butte quadrangle, Park County, Wyoming. USDI Geological Survey, Map GQ-935. Scale 1:62,500.

Rollins, R. C. 1953. *Draba* on Clay Butte, Wyoming. Rhodora 55 (654):229-235.

Rollins, R.C. 1993. The Cruciferae of Continental North America, Systematics of the Mustard Family from the Arctic to Panama. Stanford Univ. Press, Stanford, CA.

Scott, R.W. 1997. The Alpine Flora of the Rocky Mountains: Volume 1 The Middle Rockies. University of Utah Press, Salt Lake City, UT.

Steele, Robert, Stephen V. Cooper, David M. Ondov, David W. Roberts, and Robert D. Pfister. 1983. Forest habitat types of eastern Idaho - western Wyoming. USDA Forest Service General Technical Report INT-144. Intermountain Forest and Range Experiment Station, Ogden UT. 122 pp.

Tweit, Susan J. and Kent E. Houston. 1980. Grassland and shrubland habitat types of the Shoshone National Forest. USDA Forest Service, Shoshone National Forest, Cody WY. 143 pp.

USDA, Farm Services Administration, Aerial Photography Field Office. Web address: http://www.fsa.usda.gov/FSA/apfoapp?area=home&subject=prog&topic=nai

USDA, Natural Resources Conservation Service. 2009. The PLANTS Database (http://plants.usda.gov, September 2009). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDI, Fish and Wildlife Service. 1987. Northern Rocky Mountain Wolf Recovery Plan. Figure 3, "Recovery Areas" (p. 23). Available at http://www.fws.gov/mountain-prairie/species/mammals/wolf/. Date of access: December 11, 2010.

USDI, Fish and Wildlife Service. No date. Map, "Yellowstone Grizzly Bear DPS Boundary and Suitable Habitat" (http://www.fws.gov/mountain-prairie/species/mammals/grizzly/GYA_DPS_color_ map.jpg), available on the Grizzly Bear Recovery Program page of the Service's Mountain – Prairie Region, at http://www.fws.gov/mountain-prairie/species/mammals/grizzly/yellowstone.htm.

Windham, M.D. 2000. Chromosome counts and taxonomic notes on *Draba* (Brassicaceae) of the Intermountian West. 1. Utah and vicinity. Madroño 47(1): 21-28.

Wyoming Game and Fish Department. No date. Approximate Distribution of Grizzly Bears in Wyoming (map). http://gf.state.wy.us/wildlife/grizzlymanagement/index.asp. Accessed March 8, 2011.

FIGURES

Figure 1. Location of the potential Beartooth Butte Research Natural Area.
The inset map shows position of the potential RNA within the Shoshone National Forest and the State of Wyoming.

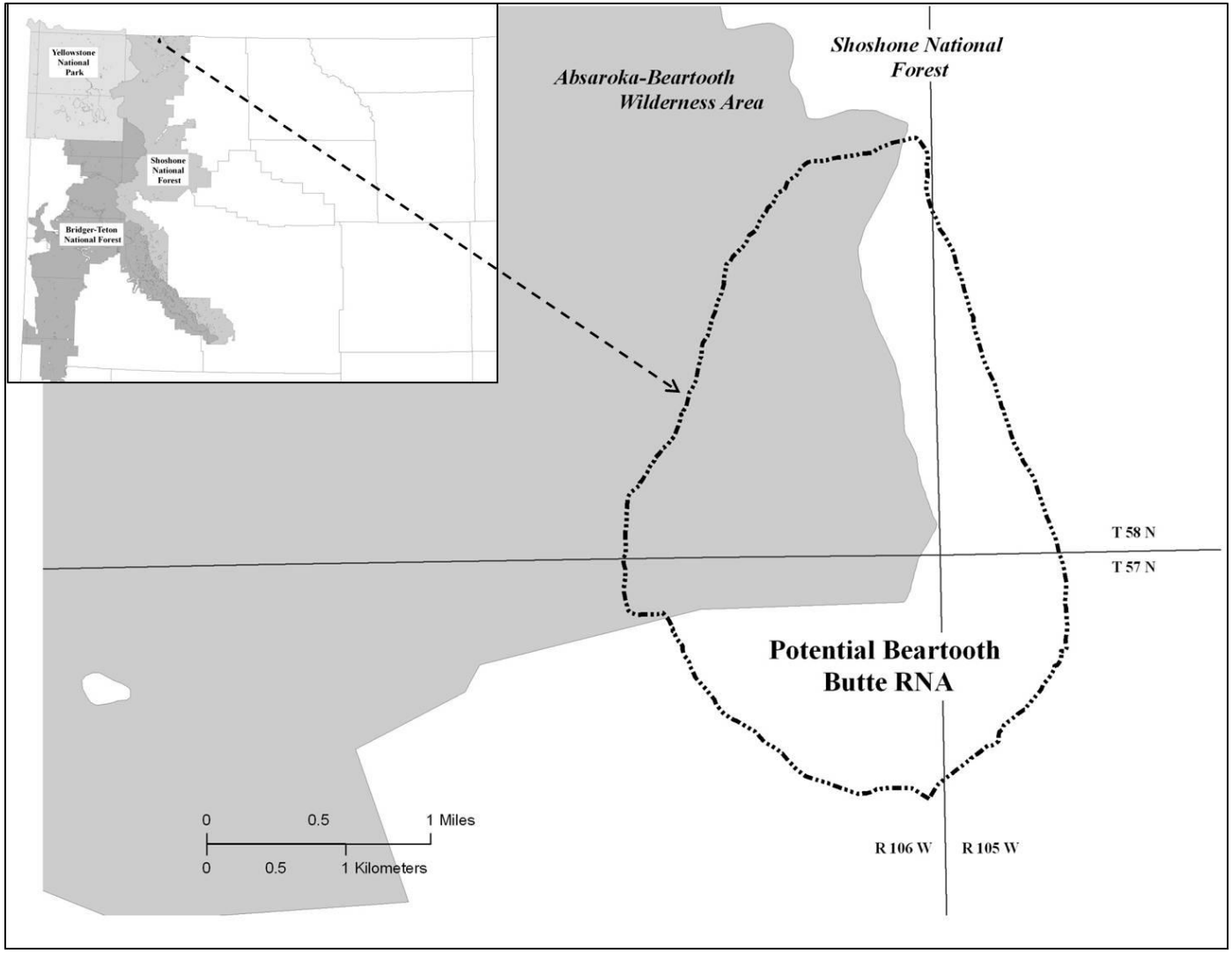


Figure 2. Proposed boundary of the potential Beartooth Butte Research Natural Area.

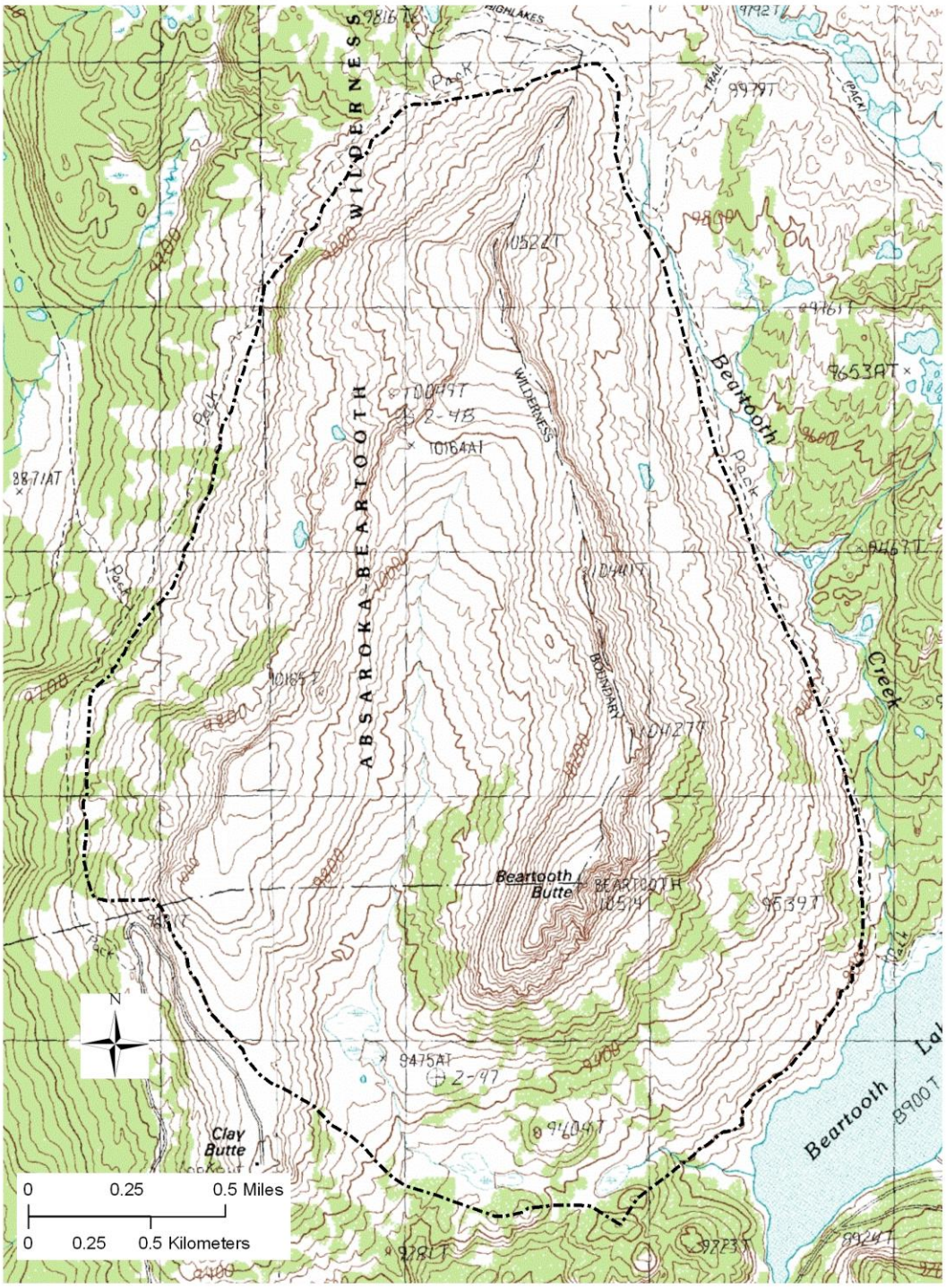


Figure 3. Complexes of plant associations in the potential Beartooth Butte Research Natural Area The plant associations present in each complex are listed in Table 1.

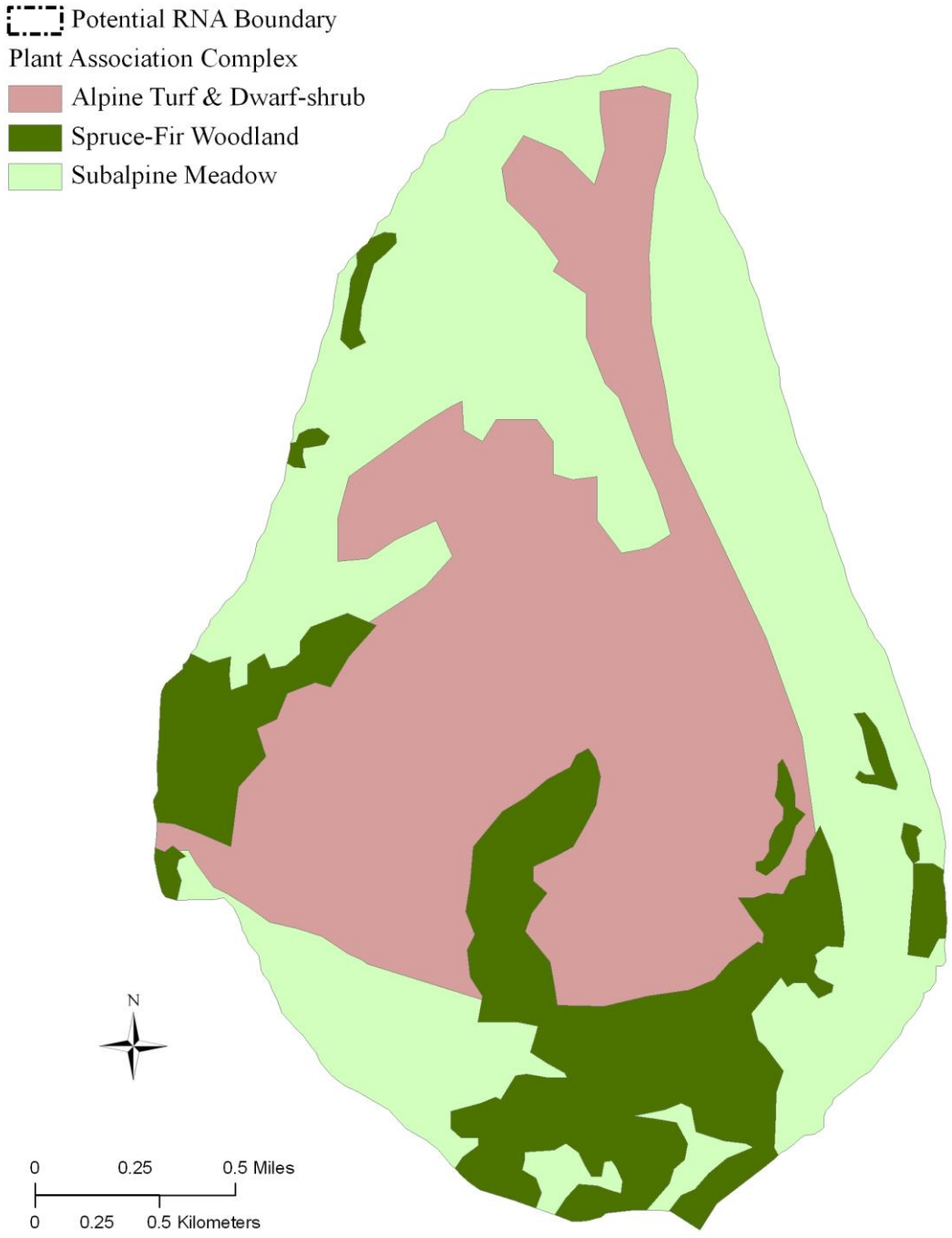


Figure 4. Kuchler vegetation types (Kuchler 1964) in the potential Beartooth Butte Research Natural Area. Areas of these types are listed in Table 2.

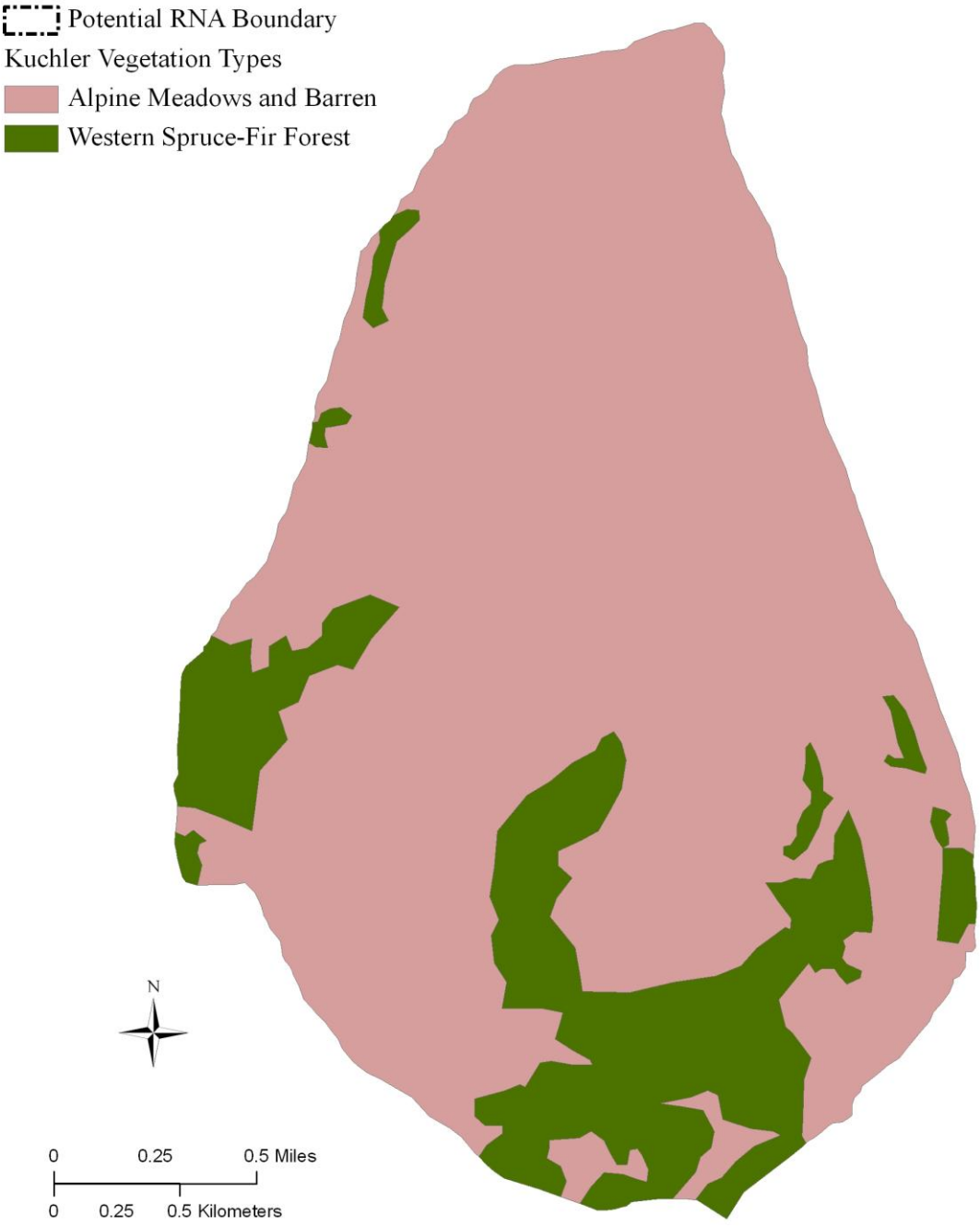


Figure 5. Habitat types in the potential Beartooth Butte Research Natural Area. Each map unit is named for the dominant habitat type present. Other habitat types in the map units are listed in Table 3.

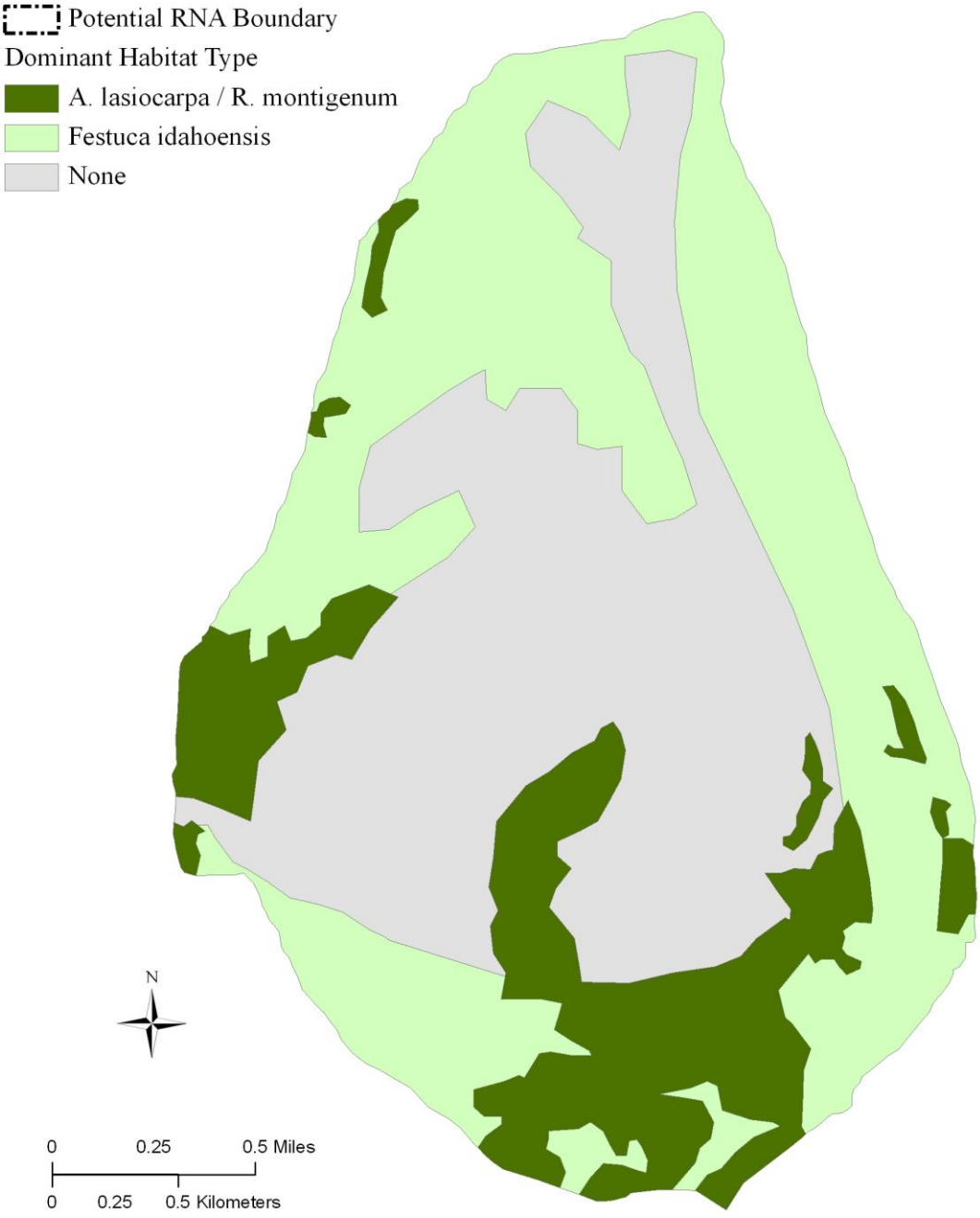


Figure 6. Society of American Foresters Cover Type (Eyre 1980) in the potential Beartooth Butte Research Natural Area. The area of this type is shown in Table 4.

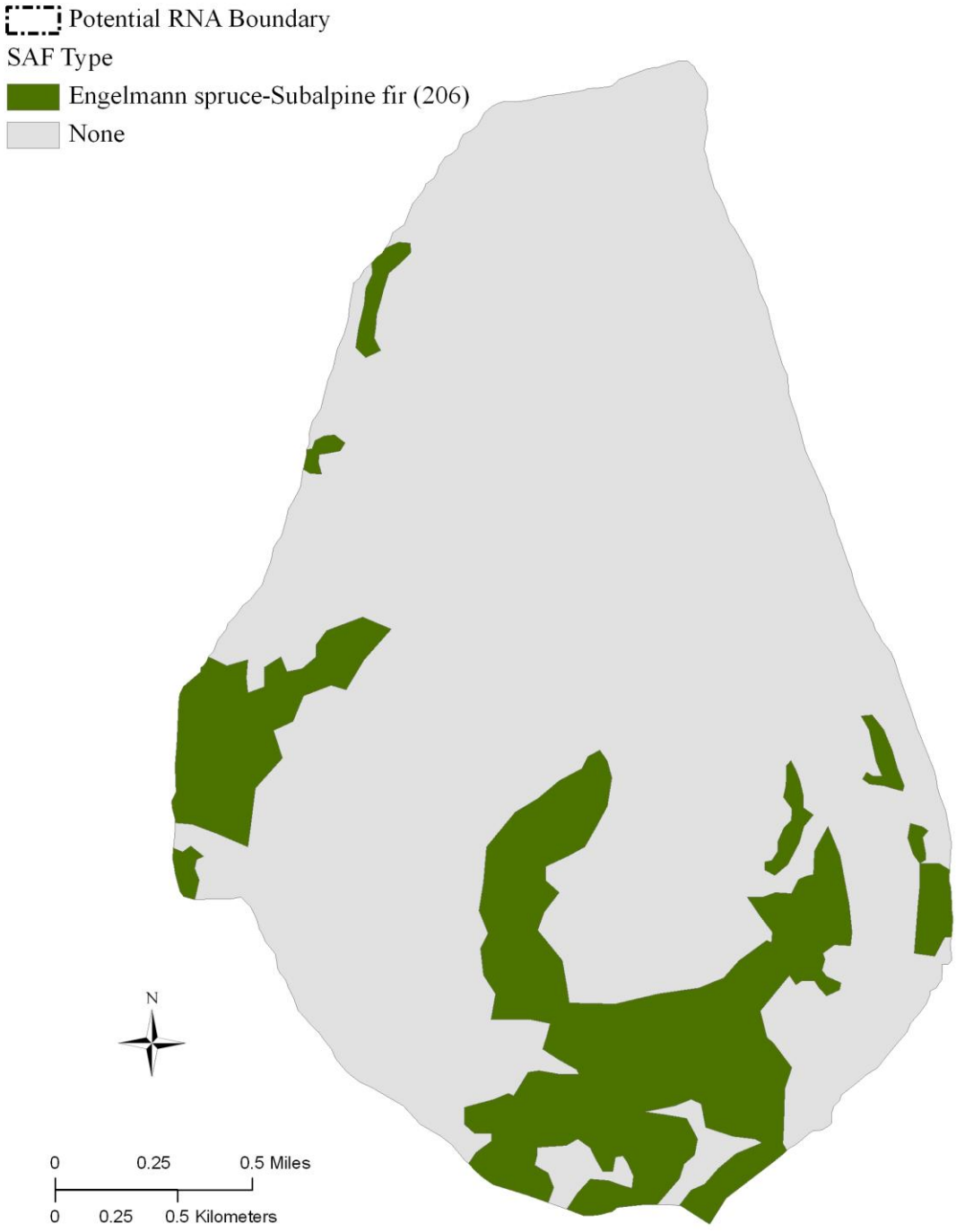


Figure 7. Ecological systems in the potential Beartooth Butte Research Natural Area. See following page for legend. Areas of these types are listed in Table 5.

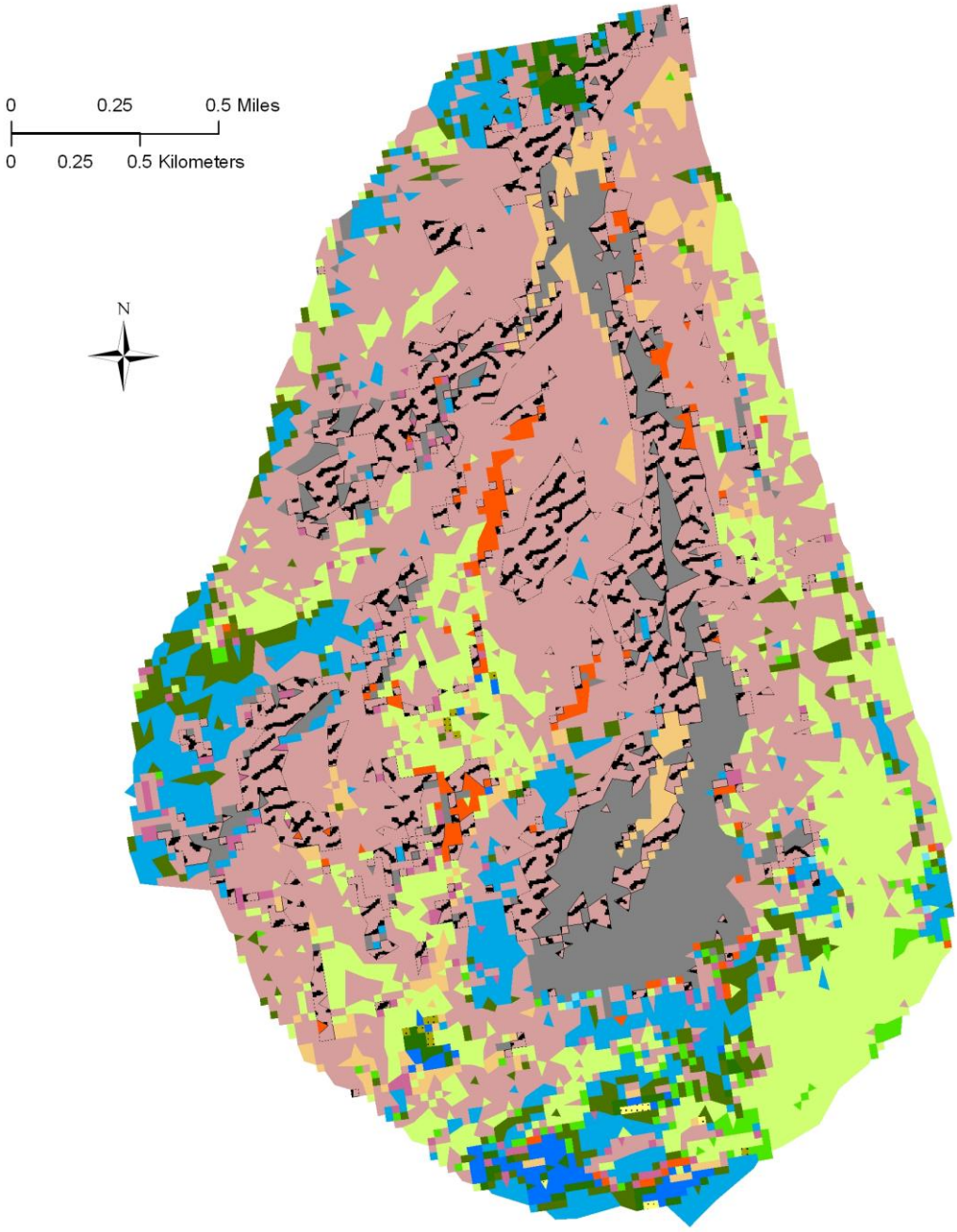
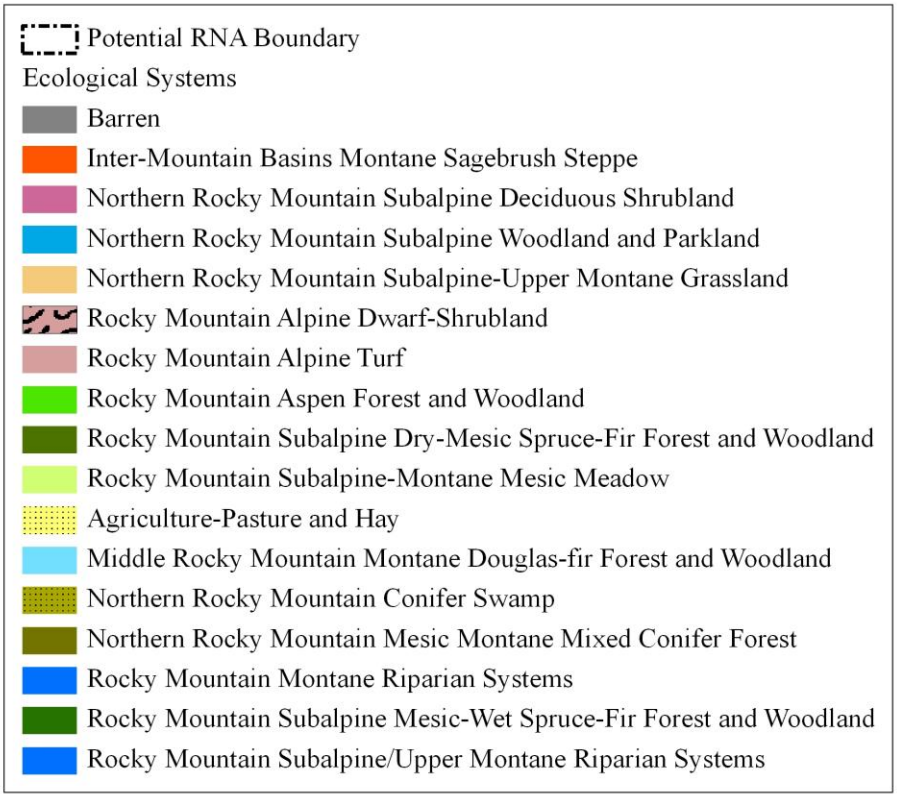


Figure 7 (continued). Legend for map of ecological systems in the potential Beartooth Butte Research Natural Area.
System names are listed alphabetically in two groups. Systems in the first group ("Barren" through "Rocky Mountain Subalpine-Montane Mesic Meadow") each cover ≥ 1% of the area; systems in the second group each cover <1% of the area.



APPENDICES

APPENDIX 1. VASCULAR PLANT SPECIES DOCUMENTED IN THE POTENTIAL BEARTOOTH BUTTE RESEARCH NATURAL AREA.

This list of plant species was compiled from several surveys of the area. Scientific and common names are from the PLANTS Database, September 2009 (USDA, Natural Resources Conservation Service, 2009). "!" indicates an introduced taxon.

PLANTS Accepted Scientific Name with Authorities	PLANTS Common Name
Trees	
Abies lasiocarpa (Hook.) Nutt.	subalpine fir
Picea engelmannii Parry ex Engelm.	Engelmann spruce
Pinus contorta Douglas ex Louden	lodgepole pine
Shrubs	
Ribes montigenum McClatchie	gooseberry currant
Salix boothii Dorn	Booth's willow
Salix eastwoodiae Cockerell ex A. Heller	mountain willow
Salix farriae C.R. Ball	Farr's willow
Salix glauca L.	grayleaf willow
Salix nivalis Hook.	snow willow
Salix petrophila Rydb.	alpine willow
Salix planifolia Pursh ssp. planifolia	diamondleaf willow
Salix rotundifolia Trautv. ssp. dodgeana (Rydb.) Argus	timberline willow
Salix tweedyi (Bebb ex Rose) C.R. Ball	Tweedy's willow
Salix wolfii Bebb	Wolf's willow
Forbs	
Achillea millefolium L.	common yarrow
Agoseris glauca (Pursh) Raf. var. dasycephala (Torr. & A. Gray) Jeps.	pale agoseris
Agoseris lackschewitzii Douglass M. Hend. & R. Moseley	Mill Creek agoseris
Androsace septentrionalis L. ssp. subulifera (A. Gray) G.T. Robbins	pygmyflower rockjasmine
Anemone multifida Poir.	Pacific anemone
Anemone multifida Poir. var. tetonensis (Porter ex Britton) C.L. Hitchc.	Pacific anemone
Anemone parviflora Michx.	smallflowered anemone
Antennaria aromatica Evert	scented pussytoes
Antennaria lanata (Hook.) Greene	woolly pussytoes
Antennaria media Greene	Rocky Mountain pussytoes
Antennaria rosea Greene	rosy pussytoes
Arabis drummondii A. Gray	Drummond's rockcress
Arenaria congesta Nutt. var. congesta	ballhead sandwort
Arnica cordifolia Hook.	heartleaf arnica
Arnica longifolia D.C. Eaton	spearleaf arnica
Arnica mollis Hook.	hairy arnica
Arnica parryi A. Gray	Parry's arnica
Astragalus alpinus L.	alpine milkvetch
Astragalus kentrophyta A. Gray var. tegetarius (S. Watson) Dorn	mat milkvetch
Astragalus miser Douglas ex Hook. var. hylophilus (Rydb.) Barneby	woody milkvetch
Besseya wyomingensis (A. Nelson) Rydb.	Wyoming besseya
Caltha leptosepala DC.	white marsh marigold

Appendix I (continued).

PLANTS Accepted Scientific Name with Authorities	PLANTS Common Name
Castilleja crista-galli Rydb.	mountainside Indian paintbrush
Castilleja miniata Douglas ex Hook.	giant red Indian paintbrush
Castilleja rhexiifolia Rydb.	splitleaf Indian paintbrush
Castilleja pulchella Rydb.	beautiful Indian paintbrush
Castilleja sulphurea Rydb.	sulphur Indian paintbrush
Cerastium arvense L.	field chickweed
Chamerion angustifolium (L.) Holub ssp. angustifolium	fireweed
Cirsium scariosum Nutt.	meadow thistle
Claytonia lanceolata Pall. ex Pursh	lanceleaf springbeauty
Collomia linearis Nutt.	tiny trumpet
Delphinium glaucum S. Watson	Sierra larkspur
Descurainia incana (Bernh. ex Fisch. & C.A. Mey.) Dorn ssp. procera (Greene) Kartesz & Gandhi	mountain tansymustard
Dodecatheon pulchellum (Raf.) Merr.	darkthroat shootingstar
Draba crassifolia Graham	snowbed draba
Draba globosa Payson	beavertip draba
Draba oligosperma Hook.	fewseed draba
Draba paysonii J.F. Macbr. var. paysonii	Payson's draba
Draba porsildii G. Mulligan	Porsild's draba
Epilobium halleanum Hausskn.	glandular willowherb
Epilobium hornemannii Rchb.	Hornemann's willowherb
Erigeron compositus Pursh	cutleaf daisy
Erigeron humilis Graham	arctic alpine fleabane
Erigeron radicatus Hook.	taproot fleabane
Erigeron rydbergii Cronquist	Rydberg's fleabane
Erigeron simplex Greene	onestem fleabane
Erigeron speciosus (Lindl.) DC.	aspen fleabane
Erigeron ursinus D.C. Eaton	Bear River fleabane
Eriogonum umbellatum Torr. var. majus Hook.	sulphur-flower buckwheat
Eriophyllum lanatum (Pursh) Forbes var. integrifolium (Hook.) Smiley	common woolly sunflower
Eritrichium nanum (Vill.) Schrad. ex Gaudin var. elongatum (Rydb.) Cronquist	arctic alpine forget-me-not
Erysimum capitatum (Douglas ex. Hook) Greene var. capitatum	sanddune wallflower
Eurybia integrifolia (Nutt.) G.L. Nesom	thickstem aster
Fragaria vesca L.	woodland strawberry
Fragaria virginiana Duchesne	Virginia strawberry
Frasera speciosa Douglas ex Griseb.	elkweed
Galium bifolium S. Watson	twinleaf bedstraw
Gentiana affinis Griseb.	pleated gentian
Gentianella amarella (L.) Boerner	autumn dwarf gentian
Gentianella tenella (Rottb.) Böerner	Dane's dwarf gentian
Geranium viscosissimum Fisch. & C.A. Mey. ex C.A. Mey.	sticky purple geranium
Geum macrophyllum Willd. var. perincisum (Rydb.) Raup	largeleaf avens
Geum triflorum Pursh	old man's whiskers

Appendix I (continued).

PLANTS Accepted Scientific Name with Authorities	PLANTS Common Name
Hedysarum sulphurescens Rydb.	white sweetvetch
Helianthella quinquenervis (Hook.) A. Gray	fivenerve helianthella
Helianthella uniflora (Nutt.) Torr. & A. Gray	oneflower helianthella
Linum lewisii Pursh	Lewis flax
Lloydia serotina (L.) Salisb. ex Rchb.	common alplily
Lomatium cous (S. Watson) J.M. Coult. & Rose	cous biscuitroot
Lupinus argenteus Pursh	silvery lupine
Mertensia alpina (Torr.) G. Don	alpine bluebells
Mertensia ciliata (James ex Torr.) G. Don	tall fringed bluebells
Mertensia oblongifolia (Nutt.) G. Don	oblongleaf bluebells
Minuartia elegans (Cham. & Schltdl.) Schischkin	Columbian stitchwort
Minuartia obtusiloba (Rydb.) House	twinflower sandwort
Minuartia rubella (Wahlenb.) Hiern.	beautiful sandwort
Mitella pentandra Hook.	fivestamen miterwort
Myosotis asiatica (Vesterg.) Schischkin & Sergievskaja	Asian forget-me-not
Oreostemma alpigenum (Torr. & A. Gray) Greene var. haydenii (Porter) G.L. Nesom	tundra aster
Osmorhiza berteroi DC.	sweetcicely
Oxytropis borealis DC. var. viscida (Nutt.) S.L. Welsh	viscid locoweed
Oxytropis campestris (L.) DC. var. cusickii (Greenm.) Barneby	Cusick's locoweed
Oxytropis sericea Nutt. var. sericea	white locoweed
Packera cana (Hook.) W.A. Weber & A. Löve	woolly groundsel
Packera streptanthifolia (Greene) W.A. Weber & A. Löve	Rocky Mountain groundsel
Parnassia fimbriata K.D. Koenig	fringed grass of Parnassus
Parnassia kotzebuei Chan. ex Spreng.	Kotzebue's grass of Parnassus
Parrya nudicaulis (L.) Regel	nakedstem wallflower
Penstemon procerus Douglas ex Graham	littleflower penstemon
Penstemon rydbergii A. Nelson var. rydbergii	swollen penstemon
Phlox pulvinata (Wherry) Cronquist	cushion phlox
Plantago tweedyi A. Gray	Tweedy's plantain
Platanthera hyperborea (L.) Lindl.	northern green orchid
Polemonium viscosum Nutt.	sticky polemonium
Polygonum bistortoides Pursh	American bistort
Polygonum douglasii Greene ssp. douglasii	Douglas' knotweed
Polygonum douglasii Greene ssp. johnstonii (Munz) J.C. Hickman	Johnston's knotweed
Polygonum viviparum L.	alpine bistort
Potentilla diversifolia Lehm. var. diversifolia	varileaf cinquefoil
Potentilla diversifolia Lehm. var. perdissecta (Rydb.) C.L. Hitchc.	mountainmeadow cinquefoil
Potentilla gracilis Douglas ex Hook. var. brunnescens (Rydb.) C.L. Hitchc.	slender cinquefoil
Potentilla ovina Macoun ex J.M. Macoun var. ovina	sheep cinquefoil
Pulsatilla patens (L.) Mill. ssp. multifida (Pritz.) Zamels	cutleaf anemone
Pyrola asarifolia Michx.	liverleaf wintergreen
Ranunculus eschscholtzii Schltdl. var. eschscholtzii	Eschscholtz's buttercup
Ranunculus eximius Greene	tundra buttercup
Saxifraga odontoloma Piper	brook saxifrage

Appendix I (continued).

PLANTS Accepted Scientific Name with Authorities	PLANTS Common Name
Saxifraga oppositifolia L.	purple mountain saxifrage
Saxifraga rhomboidea Greene	diamondleaf saxifrage
Sedum lanceolatum Torr.	spearleaf stonecrop
Senecio crassulus A. Gray	thickleaf ragwort
Senecio lugens Richardson	small blacktip ragwort
Senecio triangularis Hook.	arrowleaf ragwort
Smelowskia calycina (Stephan ex Willd.) C.A. Mey. var. americana (Regel & Herder) Drury & Rollins	American false candytuft
Solidago multiradiata Aiton var. scopulorum A. Gray	manyray goldenrod
Stellaria longipes Goldie ssp. longipes	chickweed, starwort
Symphyotrichum foliaceum (Lindl. ex DC.) G.L. Nesom var. apricum (A. Gray) G.L. Nesom	alpine leafybract aster
!Taraxacum officinale F.H. Wigg.	common dandelion
Taraxacum officinale F.H. Wigg. ssp. ceratophorum (Ledeb.) Schinz ex Thell.	common dandelion
Thalictrum fendleri Engelm. ex A. Gray	Fendler's meadow-rue
Trifolium parryi A. Gray	Parry's clover
Trollius laxus Salisb. ssp. albiflorus (A. Gray) A. Love & D. Love & Kapoor	American globeflower
Valeriana edulis Nutt. ex Torr. & A. Gray	tobacco root
Valeriana occidentalis A. Heller	western valerian
Veronica wormskjoldii Roem. & Schult.	American alpine speedwell
Viola praemorsa Douglas ex Lindl.	canary violet
Zigadenus elegans Pursh	mountain deathcamas
Graminoids	
Achnatherum lettermanii (Vasey) Barkworth	Letterman's needlegrass
Achnatherum nelsonii (Scribn.) Barkworth ssp. dorei (Barkworth & Maze) Barkworth	Dore's needlegrass
Bromus carinatus Hook. & Arn.	California brome
Bromus inermis Leyss. ssp. pumpellianus (Scribn.) Wagnon var. pumpellianus (Scribn.) C.L. Hitchc.	Pumpelly's brome
Carex albonigra Mack.	blackandwhite sedge
Carex aquatilis Wahlenb.	water sedge
Carex elynoides T. Holm	blackroot sedge
Carex haydeniana Olney	cloud sedge
Carex hoodii Boott	Hood's sedge
Carex microptera Mack.	smallwing sedge
Carex norvegica Retz. ssp. stevenii (T. Holm) E. Murray	Steven's sedge
Carex obtusata Lilj.	obtuse sedge
Carex paysonis Clokey	Payson's sedge
Carex phaeocephala Piper	dunhead sedge
Carex raynoldsii Dewey	Raynolds' sedge
Carex rupestris All.	curly sedge
Carex scirpoidea Michx.	northern singlespike sedge
Carex vallicola Dewey	valley sedge

Appendix I (continued).

PLANTS Accepted Scientific Name with Authorities	PLANTS Common Name
Deschampsia cespitosa (L.) P. Beauv.	tufted hairgrass
Elymus trachycaulus (Link) Gould ex Shinners ssp. trachycaulus	slender wheatgrass
Festuca baffinensis Polunin	Baffin fescue
Festuca brachyphylla Schult. ex Schult. & Schult. f.	alpine fescue
Festuca idahoensis Elmer	Idaho fescue
Juncus mertensianus Bong.	Mertens' rush
Koeleria macrantha (Ledeb.) Schult.	prairie Junegrass
Luzula glabrata (Hoppe ex Rostk.) Desv. var. hitchcockii (Hämet-Ahti) Dorn	Hitchcock's smooth woodrush
Luzula parviflora (Ehrh.) Desv.	smallflowered woodrush
Luzula spicata (L.) DC.	spiked woodrush
Melica spectabilis Scribn.	purple oniongrass
Phleum alpinum L.	alpine timothy
Poa abbreviata R. Br. ssp. pattersonii (Vasey) A. Löve & D. Löve & Kapoor	Patterson's bluegrass
Poa alpina L.	alpine bluegrass
Poa cusickii Vasey ssp. epilis (Scribn.) W.A. Weber	Cusick's bluegrass
Poa fendleriana (Steud.) Vasey	muttongrass
Poa glauca Vahl ssp. rupicola (Nash ex Rydb.) W.A. Weber	timberline bluegrass
Poa nemoralis L. ssp. interior (Rydb.) W.A. Weber	inland bluegrass
!Poa pratensis L.	Kentucky bluegrass
Poa reflexa Vasey & Scribn. ex Vasey	nodding bluegrass
Poa secunda J. Presl	Sandberg bluegrass
Poa wheeleri Vasey	Wheeler's bluegrass
Trisetum spicatum (L.) K. Richt.	spike trisetum
Ferns	
Equisetum arvense L.	field horsetail
Selaginella densa Rydb.	lesser spikemoss

APPENDIX 2. EXPLANATIONS OF RANKS USED BY THE WYOMING NATURAL DIVERSITY DATABASE

As part of the North American network of natural heritage programs, the Wyoming Natural Diversity Database (WYNDD) uses the natural heritage element ranking system developed by The Nature Conservancy. In this system, each element (in this case, species) is assigned a two-part rank that reflects its rarity and security both globally (the G part of the rank) and within a state or province (the S part of the rank). Both the global rank and the state rank can range from 1 (extremely rare or threatened) to 5 (common and secure). Ranks are defined as follows:

Global Ranks

G1: Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals) or because of some factors making it especially vulnerable to extinction.

G2: Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals) or because of factors making it very vulnerable to extinction.

G3: Either very rare and localized throughout its range, or found locally (and perhaps abundantly at some sites) throughout a restricted range, or vulnerable to extinction throughout its range.

G4: Apparently secure globally, although it may be quite rare in parts of its range, especially at the periphery.

G5: Demonstrably secure globally and essentially ineradicable under present conditions.

T: A "T" following the global rank (G#T#) refers to a rank assigned to a subspecific taxon. The number following the "G" is the rank of the species, and the number following the "T" is the rank of the subspecific taxon.

Q: Taxonomic questions or problems exist about the taxon; more information is needed. A "G#Q" rank implies that the taxonomic distinctiveness of the taxon may be of questionable validity. A "G#T#Q" rank implies that the taxonomic distinctiveness of the subspecific taxon is of questionable validity.

State Ranks

S1: Critically imperiled in the state or province because of extreme rarity (5 or fewer occurrences or very few remaining individuals) or because of some factors making it especially vulnerable to extinction.

S2: Imperiled in the state or province because of rarity (6 to 20 occurrences or few remaining individuals) or because of factors making it very vulnerable to extinction.

S3: Rare or uncommon in the state (on the order of 21 to 100 occurrences).

S4: Apparently secure in the state or province, with many occurrences.

G5: Demonstrably secure in the state or province and essentially ineradicable under present conditions.

SU: Possibly imperiled in the state but status is uncertain; more information needed before a numerical rank can be assigned.

S?: Status uncertain due to lack of information. The "?" is usually combined with any of the numerical ranks, as in "S3?".

Migratory Ranks

B: A "B" following a rank (e.g., S3B) indicates that the rank refers to the breeding status of the species within the state. B ranks are usually assigned to birds.

N: An "N" following a rank (e.g., S3N) indicates that the preceding rank refers to the non-breeding status of the species in the state. N ranks are usually assigned to birds.

A state rank of S2BS5N indicates that the species is rare in the state as a breeder, but abundant as a non-breeder.