

DECISION NOTICE/DESIGNATION ORDER

Decision Notice
Finding of No Significant Impact
Designation Order

By virtue of the authority vested in me by the Secretary of Agriculture under regulations at 7 CFR 2.42, 36 CFR 251.23, and 36 CFR Part 219, I hereby establish the Osborn Mountain Research Natural Area. It shall be comprised of lands described in the section of the Establishment Record entitled "Location."

The Regional Forester has recommended the establishment of this Research Natural Area in the Record of Decision for the Bridger-Teton National Forest Land and Resource Management Plan. That recommendation was the result of analysis of the factors listed in 36 CFR 219.25 and Forest Service Manual 4063.41. Results of the Regional Forester's analysis are documented in the Bridger-Teton National Forest Land and Resource Management Plan and Final Environmental Impact Statement which are available to the public. The Osborn Mountain Research Natural Area will be managed in compliance with all relevant laws, regulations, and Forest Service Manual direction regarding Research Natural Areas. It will be administered in accordance with the management direction/prescription identified in the Establishment Record.

I have reviewed the Bridger-Teton Land and Resource Management Plan (LRMP) direction for this RNA and find that the management direction cited in the previous paragraph is consistent with the LRMP and that a Plan amendment is not required.

The Forest Supervisor of the Bridger-Teton National Forest shall notify the public of this decision and mail a copy of the Decision Notice/Designation Order and amended direction to all persons on the Bridger-Teton National Forest Land and Resource Management Plan mailing list.

Based on the Environmental Analysis, I find that designation of the Osborn Mountain Research Natural Area is not a major Federal action significantly affecting the quality of the human environment (40 CFR 1508.27.)

This decision is subject to appeal pursuant to 36 CFR Part 217. A Notice of Appeal must be in writing and submitted to:

The Secretary of Agriculture
14th & Independence Ave., S. W.
Washington, D. C. 20250

and simultaneously to the Deciding Officer:

Chief (1570)
USDA, Forest Service
P.O. Box 96090
Washington, D. C. 20090-6090

The Notice of Appeal prepared pursuant to 36 CFR 217.9 (b) must be submitted within 45 days from the date of legal notice of this decision. Review by the Secretary is wholly discretionary. If the Secretary has not decided within 15 days of receiving the Notice of Appeal to review the Chief's decision, appellants will be notified that the Chief's decision is the final administrative decision of the U. S. Department of Agriculture (36 CFR 217.17 (d)).

Chief Date

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Osborn Mountain Research Natural Area

Bridger-Teton National Forest

Sublette County, Wyoming

The undersigned certify that all applicable land management planning and environmental analysis requirements have been met and that boundaries are clearly identified in accordance with FSM 4063.21, Mapping and Recordation and FSM 4063.41 5.e (3) in arriving at this recommendation.

Prepared by _____ Date _____

Walter Fertig, Botanist
Wyoming Natural Diversity Database

Prepared by _____ Date _____

George Jones, Ecologist/Coordinator
Wyoming Natural Diversity Database

Recommended by _____ Date _____

Robert Reese, District Ranger
Pinedale Ranger District, Bridger-Teton NF

Recommended by _____ Date _____

Bridger-Teton National Forest

Recommended by _____ Date _____

Intermountain Region

Recommended by _____ Date _____

TITLE PAGE

Establishment Record for Osborn Mountain
Research Natural Area within Bridger-Teton
National Forest, Sublette County, Wyoming

ESTABLISHMENT RECORD FOR
OSBORN MOUNTAIN RESEARCH NATURAL AREA
BRIDGER-TETON NATIONAL FOREST
SUBLETTE COUNTY, WYOMING

INTRODUCTION

The Osborn Mountain Research Natural Area (RNA) is located on the west slope of the Wind River Range, less than 5 miles west of the Continental Divide in northeastern Sublette County, Wyoming. The RNA includes the summit plateau of the Osborn Mountain massif, the headwaters of Mill Creek, and the upper slopes and summit of the unnamed ridge on the southwest flank of Osborn Mountain. The RNA contains outstanding examples of alpine meadow and fellfield communities and provides habitat for a number of regionally rare alpine-arctic disjunct species (Moseley 1989).

Since settlement times, Osborn Mountain has been used primarily for recreation. There are no records nor evidence of domestic sheep or cattle grazing on the summit (Tuhy 1987). Hiking, camping, and hunting for bighorn sheep are currently the main uses.

Osborn Mountain was recommended for special area designation at the 1984 Wyoming natural area needs workshop (Collins 1985). In 1987, Joel Tuhy of The Nature Conservancy conducted an Environmental Analysis of the site and recommended it for RNA designation (Tuhy 1987). Tuhy's preferred alternative was recommended by the District Ranger of the Pinedale Ranger District in 1988 (Reese 1988).

Land Management Planning

The Osborn Mountain RNA was recommended for designation in the preferred alternative of the Bridger-Teton National Forest Land and Resource Management Plan (USDA Forest Service 1989 a, p 49) and in the Record of Decision for the Forest plan (USDA Forest Service 1990, p 6).

OBJECTIVES

The main objective of the Osborn Mountain RNA is to maintain and preserve outstanding examples of alpine fellfield, meadow, and riparian community types. The RNA provides areas for the study of natural processes, baseline areas for determining long and short-term ecological changes, monitoring comparison areas for assessing effects of resource management techniques and practices applied to similar ecosystems, and protects biological diversity.

JUSTIFICATION

The Osborn Mountain RNA was selected to help fill gaps in the RNA system for alpine fellfield, meadow and turf, and alpine riparian (small ponds and *Carex scopulorum-Caltha leptosepala*¹) communities (Tuhy 1987). The RNA also provides habitat for four US Forest Service (USFS) Region 4 and Bridger-Teton National Forest (BTNF) Sensitive plant species. These are: *Carex incurviformis* (Seaside sedge), *Draba densifolia* var. *apiculata* (rockcress draba, syn. = *D. globosa*), *Parrya nudicaulis* (naked-stemmed parrya), and *Saussurea weberi* (Weber's saw-wort) (USDA Forest Service 1989 b, 1991; Joslin 1994).

PRINCIPAL DISTINGUISHING FEATURES

Important features of the area include:

-- A mosaic of alpine habitats and plant communities, including undisturbed examples of talus and scree, cliff and ledge, fellfield, late snowbank, meadow and turf, and riparian communities. Osborn Mountain contains representative samples of most of the alpine communities found in the western Wind River Range and serves as an important repository of biological diversity.

-- Habitat for four USFS Region 4 Sensitive plant species. The area also contains habitat for several locally rare animals and plants monitored by The Nature Conservancy's Wyoming Natural Diversity Database (WYNDD).

-- Habitat for a large herd of bighorn sheep.

-- Outstanding examples of alpine geologic features, such as rock and boulder felsenmeer and steep scree and talus couloirs.

-- The headwaters of the Mill Creek drainage, as well as several biologically significant ponds and snow melt streams.

LOCATION

The Osborn Mountain RNA is located within the Pinedale Ranger District of Bridger-Teton National Forest. It is also

¹Nomenclature for vascular plants (except trees) follows Dorn (1992) for scientific names and Hitchcock and Cronquist (1973) for common names. Tree nomenclature follows Little (1979). Nomenclature for vertebrates follows Clark and Stromberg (1987) and Dorn and Dorn (1990). contained within the Bridger Wilderness Area. Figures 1-2 show the location of the RNA.

Latitude and Longitude

The approximate center of the RNA is at latitude 43° 19' 50" north and longitude 109° 48' 18" west. The geographic center of the RNA is at UTM coordinates 4797986.33247 north and 597206.27179 east (Figure 2).

Boundary

Osborn Mountain RNA is a parcel of land located in Sections 14 (S2SW4), 15 (W2), 16 (SE4), 21 (E2E2), 22, 23 (W2 & S2NE4 & N2SE4), 24 (SW4), 26 (N2), 27 (N2 & N2SE4), 28 (E2), and 33 (NW4NE4) of Township 39 North, Range 108 West of the Sixth Principal Meridian.

The boundary of the RNA (Figure 2) follows topographic features. The northern, eastern, and southern boundaries follow the rim of the summit of Osborn Mountain. The northwestern border follows a ridgeline approximately 0.7 miles east of the Bridger Wilderness boundary. The southwestern boundary follows the edge of upper timberline and includes the summit and upper slopes of the calcareous ridge adjacent to the main Osborn Mountain massif.

Area

Total area of the RNA is 2830 acres (1145 hectares).

Elevation

Elevation ranges from 9600 ft (3272 m) on the southwestern ridge to 11,880 ft (3621 m) near the eastern boundary.

Access

Osborn Mountain RNA is located approximately 31 air miles north of Pinedale and 16 air miles southwest of Dubois, Wyoming. The summit is accessible only by foot and involves a strenuous climb of over 3000 feet (914 m). The Mill Creek route, although not an established trail, provides easiest access to the summit from the Green River Lakes area.

From Pinedale, proceed approximately 5 miles west on US Highway 191 (Figure 1). Turn north on state highway 352 and proceed until the paved road ends at the Forest boundary (about 26 miles). Continue on the graded dirt road (this road can be slippery in wet weather) approximately 20 miles to the Green River Lakes campground. Follow the trail from the wilderness area parking lot east, crossing the footbridge over the Green River. From the bridge, follow the Highline Trail north approximately 0.25 miles to a fence and proceed east along the fence along the Mill Creek Route. This route is not marked, but is relatively easy to follow, essentially bordering Mill Creek for most of its length (Mitchell 1975; Kelsey 1980). The western border of the RNA is about 1.5 miles east of the Green River crossing.

From Dubois, proceed west on US Highway 26 approximately 10 miles to the junction with the Union Pass Road. Follow the Union Pass road for its entire length (ca 50 miles). After crossing the bridge over the Green River, proceed north on the Green River Lakes road to the campground (another 17 miles). Proceed along the Mill Creek route, as described above.

AREA BY COVER TYPES

The Vegetation

The cover types listed below are taken from Tuhy (1987).

The flat and gently sloping terrain that constitutes most of the Osborn Mountain RNA is covered with a mosaic of alpine fellfield and felsensmeer mingled with meadow and turf vegetation, principally Carex elynoides turf. The western and southwestern parts of the RNA contain areas of cliffs and ledges intermingled with talus and scree slopes. In the Mill Creek valley, this rocky terrain is developed in igneous bedrock. The bedrock of the southwestern area is limestone, which supports turf dominated by Dryas octopetala.

Narrow fringes of Carex scopulorum-Caltha leptosepala vegetation grow along several streams running off the western side of Osborn Mountain, and small patches of conifer woodland grow at the western and southwestern edges of the RNA.

Area by Type

| <u>Kuchler Types (Kuchler 1966), Figure 3.</u> | <u>Acres</u> | <u>Hectares</u> |
|--|--------------|-----------------|
| Alpine meadows and barren | 2173 | 869 |

| <u>Alpine habitats & plant communities, Fig. 4</u> | <u>Acres</u> | <u>Hectares</u> |
|--|--------------|-----------------|
| Mosaic of Cliffs & Ledges with Talus & Scree (Collins 1985) | | |
| Igneous intrusive | 211 | 84 |
| Sedimentary limestone and sandstone | 333 | 133 |

| | | |
|---|------|-----|
| Mosaic of Fellfield & Felsenmeer with Meadow & Turf (Collins 1985) (mainly <u>Carex elynoides</u> vegetation) | 2173 | 869 |
| Standing & Running Water (Collins 1985) (<u>Carex scopulorum</u> - <u>Caltha leptosepala</u> community) | 27 | 11 |
| <u>Abies lasiocarpa</u> habitat type (Steele et al. 1983) | 86 | 34 |

PHYSICAL AND CLIMATIC CONDITIONS

Physical Conditions

The Osborn Mountain RNA is located on the western slope of the Wind River Range and contains the summit and uppermost slopes of the Osborn Mountain massif. It is drained to the west by the headwaters of Mill Creek, a tributary of the Green River. The summit of Osborn Mountain is a broad, sprawling plateau that lies completely above timberline. The summit plateau is sharply defined on the north, east, and south by glacially scoured cirques. On the southwestern side of the main summit is a north-south trending calcareous ridge with extremely steep slopes on its west and south flanks (Tuhy 1987).

Climatic Conditions

The Wind River Range is included in Baker's (1944) central Wyoming climate region by Steele et al. (1983). The range has a continental climate, characterized by uneven monthly precipitation and cold, relatively dry winter temperatures.

Direct climate data are lacking for most of the Wind River Range, including Osborn Mountain. Existing weather stations are located primarily in the foothills of the range and do not adequately represent temperature and precipitation values for the high peaks. The nearest climate station is located at Kendall, nearly 11 miles to the southwest of Osborn Mountain.

The Wind River Range receives an average of 52-60 in. (1320-1524 mm) of precipitation per year, with approximately 65% falling as snow (Martner 1986; Potkin 1991). On the west slope of the range, precipitation occurs throughout the year with a major peak in May and June and a minor peak in mid-winter (Martner 1986). In Titcomb Basin at 10,500 ft (3200 m), annual temperature has been estimated to be 26° F (- 3.3° C), with a range from 49° F (9.4° C) in July to 5° F (- 15° C) in January (Kelsey 1988).

Summary of Monthly Climate Values, Kendall, Wyoming
Elevation 7645 feet (2330 m), 1951-1976
(From Martner 1986)

| <u>Month</u> | <u>Mean Temperature</u> °F °C | <u>Average Precipitation</u> Inches mm |
|--------------|----------------------------------|---|
| January | 12.5-10.8 | 1.5739.9 |
| February | 15.2- 9.3 | 0.8321.1 |

| | | | |
|-----------|-------|------|----------|
| March | 18.9- | 7.3 | 0.9423.9 |
| April | 29.7- | 1.3 | 0.8922.6 |
| May | 41.3 | 5.2 | 1.2832.5 |
| June | 48.4 | 9.1 | 1.6642.2 |
| July | 54.8 | 12.7 | 1.0827.4 |
| August | 53.1 | 11.7 | 1.2431.5 |
| September | 45.4 | 7.4 | 1.2732.3 |
| October | 36.3 | 2.4 | 0.9123.1 |
| November | 23.1- | 4.9 | 0.9223.4 |
| December | 14.2- | 9.9 | 1.2531.8 |

| | | | | |
|------------------|------|------|-------|-------|
| Mean Annual | 32.7 | 0.4 | 13.84 | 351.5 |
| Mean April-Sept. | 52.0 | 11.1 | 7.42 | 188.5 |

DESCRIPTION OF VALUES

Flora

Because the Osborn Mountain RNA apparently has never been grazed by domestic livestock and has received only light grazing by wildlife (Tuhy 1987), the vegetation over much of the area can be considered climax to the extent that the concept applies to the alpine zone, where the vegetation may respond to cyclical changes in the environment and so not follow linear successional pathways (Billings 1988). The type of climax vegetation in which the alpine plants must grow differs greatly throughout the RNA. In most of the area, the climax vegetation is a mosaic of patches of sedge turf interspersed with rocky patches. On the steep cliffs and slopes, the climax vegetation is sparse, deeply-rooted forbs. Along water channels, a dense growth of Caltha leptosepala and Carex scopulorum forms the climax vegetation.

No federally listed Threatened or Endangered plant species or candidate species are found in the Osborn Mountain RNA. Four USFS Region 4 Sensitive species and eight state rare species (monitored by WYNDD) are found in the RNA. These species are listed below:

| <u>Species</u> | <u>Comments</u> |
|----------------|-----------------|
|----------------|-----------------|

| | |
|-----------------------------|---|
| <u>Antennaria aromatica</u> | A regional endemic known from two recent collections on the unnamed calcareous ridge on the southwest flank of Osborn Mountain (Fertig 1992 a). Unlikely to be found on the main, granitic, massif. |
|-----------------------------|---|

| | |
|---|--|
| <u>Artemisia norvegica</u> var. <u>saxatilis</u> | A species of limited distribution in Wyoming. Found on granite talus of the summit plateau in the RNA. |
|---|--|

| | |
|------------------------|--|
| <u>Carex bipartita</u> | A species of limited distribution in Wyoming. Evert (1985) |
|------------------------|--|

documented a population within the RNA in a small boggy area.

Carex incurviformis A USFS Region 4 Sensitive species
var. danaensis (Joslin 1994). Discovered by Evert
[syn. = C. maritima] (1985) in a small boggy area below the summit.

Draba globosa A USFS Region 4 Sensitive species.
[syn. = D. densifolia Recorded for the summit of Osborn
var. apiculata] Mountain by Evert (Rocky Mountain Herbarium [RM]
records).

Draba porsildii A regional endemic known from fewer
var. porsildii than 10 occurrences in Wyoming. Found on the unnamed
ridge on the southwest flank of Osborn
Mountain.

Erigeron radicans Formerly listed as Sensitive in Region 4 (USDA Forest
Service 1989 b). One of only two
populations in the state is found on the
calcareous ridge on the southwest flank of
Osborn Mountain. Fertig (1992 a)
recommended that this

species be recognized as Sensitive in BTNF, due to its state rarity.

Juncus biglumis A species of limited distribution in Wyoming.
Discovered by Evert (1985) in a small
boggy area below the summit of Osborn
Mountain.

Parrya nudicaulis A USFS Region 4 Sensitive species. Locally abundant on
limestone talus on the crest and west
slope of the calcareous ridge on the
southwest flank of Osborn Mountain (Fertig
1992 a).

Phippsia algida Listed as rare in Wyoming by WYNDD. Discovered by Evert
(1985) in a boggy area on the summit of
Osborn Mountain.

Saussurea weberi A USFS Region 4 Sensitive species. Marriott (1991) located a
single large population on the summit and
upper slopes of the calcareous ridge on
the southwest flank of Osborn Mountain.

Saxifraga serpyllifolia A regional endemic of the northern
var. chrysantha Rocky Mountains, known from fewer than 5 locations in
Wyoming. Evert (1985) discovered one
population on the north side of Osborn
Mountain.

In addition to these known species, suitable habitat is present in the
Osborn Mountain RNA for three other species of concern monitored by WYNDD.
Androsace chamaejasme is a BTNF Sensitive plant that has not been located on
the Forest in recent surveys, despite the presence of potential habitat and
known populations in the adjacent Shoshone National Forest (Fertig et al.
1991; Fertig 1992 a; Marriott 1991). Astragalus shultziorum, an alpine
endemic from western Wyoming, is known from similar environments on White Rock
Mountain, just south of the RNA (Fertig 1992 a). Erigeron lanatus, a Region 4
Sensitive species, occurs on limestone scree habitat on nearby Gypsum and Big
Sheep Mountains, but has not been located during recent surveys of Osborn

Mountain (Fertig 1992 a).

Several floristic studies have been conducted in the Osborn Mountain RNA in the past decade. The following checklist is based on field studies and collections by Evert (1985 and RM records), Tuhy (1987 and RM records), Marriott (1991), and Fertig (1992 a). For additional information on the vascular plants of the Wind River Range consult Fertig (1992 a, 1992 b) and Fertig et al. (1991).

Common Vascular Plants of Osborn Mountain RNA

Scientific Name Common Name

Trees (most found as stunted, shrubby krummholz)

Picea engelmannii Engelmann spruce
Pinus albicaulis Whitebark pine

Shrubs

Pentaphylloides floribunda Shrubby cinquefoil
Phyllodoce empetriformis Red mountain-heather
Ribes montigenum Mountain gooseberry
Salix glauca Glaucous willow
 var. villosa

Subshrubs

Salix arctica
 var. petraea Arctic willow
Salix reticulata
 var. nana

Forbs

Achillea millefolium Common yarrow
 var. lanulosa
Androsace septentrionalis Northern fairy-candelabra
 var. subulifera
Anemone parviflora Northern anemone
Anemone tetonensis Teton anemone
Antennaria aromatica Aromatic pussy-toes
Antennaria media Alpine pussy-toes
Antennaria umbrinella Umber pussy-toes
Arabis lemmonii Lemmon's rockcress
Arenaria congesta Ballhead sandwort
 var. congesta
Arenaria nuttallii Nuttall's sandwort
Arenaria obtusiloba Arctic sandwort
Arenaria rossii Ross sandwort
 var. apetala
Arnica gracilis Mountain arnica
Arnica rydbergii Rydberg's arnica
Artemisia norvegica Mountain sagewort
 var. saxatilis
Artemisia scopulorum Rocky Mountain sagewort
Aster alpinus Alpine aster
 var. haydenii
Astragalus alpinus Alpine milkvetch
Astragalus kentrophyta Thistle milkvetch
 var. tegetarius

Besseya wyomingensis Wyoming kittentails
Caltha leptosepala Elkslip
Castilleja pulchella Showy Indian paintbrush
Castilleja rhexifolia Rhexia-leaved paintbrush
Castilleja sulphurea Sulfur paintbrush
Claytonia megarhiza Alpine springbeauty
Cymopterus longipes Long-stalk spring parsley
Douglasia montana Rocky Mountain douglasia
Draba cana Lanceleaved draba
Draba crassifolia Thicketleaved draba
Draba densifolia Nuttall's draba
[var. densifolia]
Draba globosa Rockcress draba
[syn. = D. densifolia
var. apiculata]
Draba incerta Yellowstone draba
Draba lonchocarpa Lance-fruited draba
Draba oligosperma Few-seeded draba
Draba paysonii Payson's draba
var. treleasei
Draba porsildii Little snow draba
Dryas octopetala White mountain-avens
var. hookeriana
Epilobium clavatum Alpine willow-herb
Erigeron compositus Cut-leaved daisy
var. discoideus
Erigeron leiomerus Smooth daisy
Erigeron radicans Taprooted fleabane
Erigeron simplex Alpine daisy
Eriogonum ovalifolium Cushion buckwheat
var. purpureum
Geum rossii Ross' avens
var. turbinatum
Geum triflorum Prairie-smoke
Haplopappus acaulis Stemless goldenweed
Haplopappus lyallii Lyall's goldenweed
Heuchera parvifolia Small-leaved alumroot
Hymenoxys grandiflora Old-man-of-the-mountain
Lewisia pygmaea Dwarf lewisia
Linum lewisii Wild blue flax
Lloydia serotina Alpine lily
Lupinus argenteus Silvery lupine
Mertensia ciliata Ciliate bluebells
Myosotis alpestris Wood forget-me-not
Oxyria digyna Mountain sorrel
Oxytropis campestris Slender crazyweed
var. cusickii
Oxytropis deflexa Pendant-pod crazyweed
var. foliolosa
Oxytropis parryi Parry's crazyweed
Parnassia fimbriata Fringed grass-of-Parnassus
Parrya nudicaulis Naked-stemmed parrya
Pedicularis groenlandica Elephant-head
Pedicularis parryi Parry's lousewort
var. parryi
Penstemon montanus Mountain beardtongue
Penstemon procerus Small-flowered penstemon
Phacelia hastata Silverleaf phacelia
Phlox multiflora Many-flowered phlox
Phlox pulvinata Cushion phlox
Polemonium viscosum Sky-pilot

Polygonum bistortoides American bistort
Potentilla diversifolia Vari-leaf cinquefoil
 var. diversifolia
 var. perdissecta
Potentilla ovina Sheep cinquefoil
 var. ovina
Potentilla rubricaulis Rocky Mountain cinquefoil
Primula parryi Parry's primrose
Ranunculus adoneus
Ranunculus eschscholtzii Subalpine buttercup
 var. eschscholtzii
 var. trisectus
Ranunculus pygmaeus Dwarf buttercup
Saussurea weberi Weber's saw-wort
Saxifraga cespitosa Tufted saxifrage
 var. minima
Saxifraga flagellaris Stoloniferous saxifrage
Saxifraga oppositifolia Purple saxifrage
Saxifraga rhomboidea Diamondleaf saxifrage
Saxifraga rivularis Pygmy saxifrage
 var. flexuosa
Saxifraga serpyllifolia Golden saxifrage
 var. chrysantha
Saxifraga subapetala Bog saxifrage
Senecio amplexans Clasping groundsel
 var. holmii
Senecio canus Woolly groundsel
Senecio dimorphophyllus Payson's groundsel
 var. paysonii
Senecio fremontii Dwarf mountain butterweed
 var. fremontii
Senecio integerrimus Western groundsel
 var. exaltatus
Senecio lugens Black-tipped butterweed
Senecio triangularis Arrowleaf groundsel
Sibbaldia procumbens Creeping sibbaldia
Silene acaulis Moss campion
 var. subacaulescens
Silene parryi Parry's silene
Smelowskia calycina Alpine smelowskia
 var. americana
Solidago multiradiata Northern goldenrod
 var. scopulorum
Stellaria umbellata Umbellate starwort
Taraxacum scopulorum Dwarf alpine dandelion
Telesonix heucheriformis James' saxifrage
Townsendia alpigena Mountain townsendia
Valeriana acutiloba Downy-fruit valerian
 var. pubicarpa
Valeriana edulis Tobacco-root
Veronica wormskjoldii American alpine speedwell
Zigadenus elegans Glaucous zigadenus

Graminoids

Bromus inermis Smooth brome
 var. purpurascens
Carex bipartita Arctic hare's-foot sedge
Carex breweri Brewer's sedge
 var. paddoensis
Carex elynoides Kobresia-like sedge

| | |
|-----------------------------|-----------------------------|
| <u>Carex haydeniana</u> | Hayden's sedge |
| <u>Carex incurviformis</u> | Seaside sedge |
| var. <u>danaensis</u> | |
| <u>Carex macloviana</u> | Thick-headed sedge |
| <u>Carex nardina</u> | Spikenard sedge |
| <u>Carex obtusata</u> | Blunt sedge |
| <u>Carex paysonis</u> | Payson's sedge |
| <u>Carex rupestris</u> | Curly sedge |
| <u>Carex scirpoidea</u> | Canadian single-spike sedge |
| <u>Carex scopulorum</u> | Rocky Mountain sedge |
| <u>Elymus scribneri</u> | Spreading wheatgrass |
| <u>Festuca brachyphylla</u> | Alpine sheep fescue |
| <u>Festuca saximontana</u> | Mountain sheep fescue |
| <u>Juncus biglumis</u> | Two-flowered rush |
| <u>Juncus drummondii</u> | Drummond's rush |
| <u>Juncus parryi</u> | Parry's rush |
| <u>Leucopoa kingii</u> | Spike-fescue |
| <u>Luzula spicata</u> | Spiked woodrush |
| <u>Phippsia algida</u> | Icegrass |
| <u>Poa alpina</u> | Alpine bluegrass |
| <u>Poa cusickii</u> | Skyline bluegrass |
| var. <u>cusickii</u> | |
| var. <u>epilis</u> | |
| <u>Poa interior</u> | Inland bluegrass |
| <u>Poa lettermanii</u> | Letterman's bluegrass |
| <u>Poa rupicola</u> | Timberline bluegrass |
| <u>Poa secunda</u> | Curly bluegrass |
| var. <u>incurva</u> | |
| <u>Trisetum spicatum</u> | Spike trisetum |
| | Ferns and fern allies |
| <u>Cystopteris fragilis</u> | Brittle bladder-fern |
| <u>Selaginella densa</u> | Compact selaginella |

Fauna

No federally listed Threatened, Endangered, or USFS Sensitive vertebrate species are currently known to occur in the Osborn Mountain RNA. Potential habitat may exist for three species listed by WYNDD as "rare, uncommon, or imperiled" in the state (Garber 1991). These are listed below:

Species Comments

Mammals

Montane vole Listed by WYNDD as rare or uncommon. No records are known from the RNA, but potential habitat is available.

Water vole Listed by WYNDD as rare or uncommon. No records are known from the RNA, but potential habitat is available.

Birds

White-tailed ptarmigan Listed by WYNDD as imperiled. Reported as being observed in Latilong 9 (which includes the Osborn Mountain RNA) by Dorn and Dorn (1990), but not listed for the same area by Oakleaf et al. (1992). Potential habitat is present in the RNA and should

be investigated.

Vertebrate species have not been systematically inventoried in the Osborn Mountain RNA. The following tentative species list is derived from literature sources (Clark and Stromberg 1987; Dorn and Dorn 1990; Oakleaf et al. 1992). Amphibians and reptiles are not expected to occur in the RNA (Baxter and Stone 1985). Other species for which suitable habitat is lacking in the RNA have also been excluded from this list.

Common Name Scientific Name

Mammals

| | |
|--------------------------------|--|
| Pika | <u>Ochotona princeps ventorum</u> |
| Least chipmunk | <u>Tamias minimus consobrinus</u> |
| Yellow-bellied marmot | <u>Marmota flaviventris</u> |
| Uinta ground squirrel | <u>Spermophilus armatus</u> |
| Golden-mantled ground squirrel | <u>Spermophilus lateralis castanurus</u> |
| Deer mouse | <u>Peromyscus maniculatus</u> |
| Bushy-tailed woodrat | <u>Neotoma cinerea cinerea</u> |
| Heather vole | <u>Phenacomys intermedius</u> |
| Long-tailed vole | <u>Microtus longicaudus</u> |
| Montane vole | <u>Microtus montanus</u> |
| Water vole | <u>Microtus richardsoni</u> |
| Coyote | <u>Canis latrans</u> |
| Red fox | <u>Vulpes vulpes</u> |
| Ermine | <u>Mustela erminea</u> |
| Long-tailed weasel | <u>Mustela frenata</u> |
| Bobcat | <u>Felis rufus</u> |
| Mule deer | <u>Odocoileus hemionus</u> |
| Bighorn sheep | <u>Ovis canadensis</u> |

Birds

| | |
|------------------------|-----------------------------|
| Golden eagle | <u>Aquila chrysaetos</u> |
| White-tailed ptarmigan | <u>Lagopus leucurus</u> |
| Horned lark | <u>Eremophila alpestris</u> |
| Clark's nutcracker | <u>Nucifraga columbiana</u> |
| Common raven | <u>Corvus corvax</u> |
| American dipper | <u>Cinclus mexicanus</u> |
| Mountain bluebird | <u>Sialia currucoides</u> |
| American pipit | <u>Anthus rubescens</u> |
| Rosy finch | <u>Leucosticte arctoa</u> |

Geology

Osborn Mountain is located on the west slope of the Wind River Range, a 100-mile long northwest-southeast trending block of uplifted Precambrian crust straddling the Continental Divide in central Wyoming (Lageson and Spearing 1988). The RNA is located near the northern edge of a broad, flat peneplain, the remnant of a gently rolling plain that has been exhumed by erosion (Worl et al. 1986). Three different thrust faults are exposed within the RNA (Love and Christiansen 1985).

The summit of the main Osborn Mountain massif is composed of gray, fine-textured Precambrian gneiss (Love and Christiansen 1985). Pockets of dark grayish-green to black metagabbro intrude along the eastern edge of the summit (Worl et al. 1986). The ridge on the southwest flank of Osborn Mountain contains exposed outcrops of the Sundance, Gypsum Spring, Nugget, Darby, and Madison Limestone Formations (Love and Christiansen 1985). These deposits of shale, limestone, dolomite, and sandstone are remnants of the original

sedimentary cap that covered the Wind River Range prior to uplift in the Late Cretaceous (Kelsey 1988). On the west slope of the range, these deposits are found only in the alpine country surrounding the Green River Lakes, accounting for much of the floristic uniqueness of this area (Fertig 1992 b).

For additional information on the geology of the Wind River Range and the Osborn Mountain RNA, consult Baker (1946), Williams (1980), and Worl (1968).

Soils

Mahaney (1978) has used differences in horizon development, depth, structure, texture, color, chemistry, and age to divide the soils of the west slope of the Wind River Range into five main classification units. Three of these are likely to occur in the Osborn Mountain RNA.

The youngest soils on the mountain were formed following the Gannett Peak glacial advance, the most recent neoglacial event in the range. Gannett Peak age soils are extremely shallow, usually relatively acidic, and coarse-textured with little organic matter (Mahaney 1978; Potkin 1991).

Soils of the Audubon glacial advance are weakly developed entisols with rudimentary horizon development and low amounts of organic matter. Soil depth is typically less than two feet. Unweathered boulders and stones may be common on the soil surface (Mahaney 1978; Potkin 1991). Early neoglacial soils are older and begin to show stratified horizons. Sandy loams or pebbly-textured deposits occur in the upper three feet. Stone polygons up to 10 feet in diameter may be present on the surface (Mahaney 1978; Fertig 1992 b).

Lands

The Osborn Mountain RNA is all reserved Forest Service land with no encumbrances. The entire RNA is located within the Bridger Wilderness, established in 1964. The southwestern flank of Osborn Mountain is within Phosphate Reserve # 18, Wyo # 4 (Tuhy 1987).

Cultural

There are no known historical or cultural sites within the RNA.

IMPACTS AND POSSIBLE CONFLICTS

Mineral Resources

As part of the Bridger Wilderness, the Osborn Mountain RNA is withdrawn from locatable mineral entry, subject to valid existing claims. According to Bureau of Land Management records, there are no mining claims in the RNA (Tuhy 1987). In addition, the Bridger Wilderness has been withdrawn from oil, gas, coal, and phosphate leasing since January, 1984.

Grazing

The RNA is not in a grazing allotment and has not been historically grazed by sheep or cattle. RNA establishment will have no impact on the existing grazing status of the area.

Timber

The entire Osborn Mountain RNA is located at or above timberline and contains no commercially valuable timber.

Watershed Values

Withdrawal of the RNA from mineral leasing and grazing will protect the headwaters of the Mill Creek watershed.

Recreation Values

The Osborn Mountain RNA is currently used primarily for hiking, camping, and hunting of bighorn sheep. Present use is low and does not threaten or interfere with the values of the RNA. Establishment of the RNA could result in increased use of the area by scientists that could have a potential adverse effect on traditional recreation activities by reducing hunting opportunities or reducing perceived wilderness qualities. Restrictions on the use of RNAs can be imposed by the District Ranger or Intermountain Station Director when conflicts with other uses arise (FSM 4063.33).

Wildlife and Plant Values

Osborn Mountain RNA contains the habitat of four USFS Region 4 Sensitive plant species (*Carex incurviformis*, *Draba densifolia* var. *apiculata* [syn. = *D. globosa*], *Parrya nudicaulis*, and *Saussurea weberi*). These plants are dependent on boggy areas or calcareous alpine talus slopes for survival. Maintaining these habitats is in keeping with the objectives for the establishment of the RNA and the direction of FSM 2670, which calls for the Region to "provide special management emphasis that will ensure [the] viability [of Sensitive species] and will preclude trends toward endangerment that would result in the need for Federal listing" (USDA Forest Service 1988).

Special Management Area Values

The Osborn Mountain RNA is located within the Bridger Wilderness, established by Congress in 1964. Management of the RNA is compatible with most directives under the Wilderness Act. Where the two are incompatible, priority is given to the management directives of the Wilderness area (FSM 4063.32, FSM 1920).

Transportation Values

There are no roads in the RNA and there is currently only one unofficial trail, the Mill Creek Route (Kelsey 1980). If traffic on this trail increases significantly, maintenance work may be needed to protect watershed quality and fragile tundra soils. Expansion of this trail or establishment of additional, permanent routes should be discouraged because of potential impacts on the values of the RNA.

MANAGEMENT PRESCRIPTION

The Osborn Mountain RNA is contained within the Bridger Wilderness unit of Bridger-Teton National Forest and is managed under prescription DFC 6B (USDA Forest Service 1989 a). Management emphasis is to provide for the protection and perpetuation of natural conditions. The area is withdrawn from mineral leasing, grazing, and timber management.

Vegetation Management

Osborn Mountain RNA is closed to livestock grazing, mineral leasing, and

has no timber base. Recreation use may need to be controlled if heavy use leads to trampling of fragile alpine tundra communities.

ADMINISTRATION RECORDS AND PROTECTION

Administration and protection of the Osborn Mountain RNA will be the responsibility of Bridger-Teton National Forest. The District Ranger, Pinedale Ranger District, has direct responsibility.

The Director of the Intermountain Research Station, Ogden, Utah, will be responsible for any research projects conducted in the RNA. Requests to conduct research in the Osborn Mountain RNA should be referred to the Director, who will evaluate research proposals and coordinate all studies and projects in the area with the District Ranger.

All plant and animal specimens collected in the course of research in the RNA will be properly preserved and maintained within university or federal agency herbaria and museums approved by the Intermountain Research Station Director.

Records for the RNA will be maintained in the following offices:

Regional Forester, Intermountain Region, Ogden, UT
Supervisor, Bridger-Teton National Forest, Jackson, WY
District Ranger, Pinedale Ranger District, Pinedale, WY
Director, Intermountain Research Station, Ogden, UT

ARCHIVING

Designated personnel at the Intermountain Research Station will be responsible for maintaining data and reports from Osborn Mountain RNA. Descriptive data on Osborn Mountain RNA will also be stored in the computerized RNA database at the office of the Northern Region, Missoula, Montana.

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