

## SURVEY OF THE VEGETATION AND RARE FLORA OF POMERELLE SKI AREA

Submitted to the Sawtooth National Forest by:

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The following sections on the rare flora and vegetation of Pomerelle Ski Area are to be incorporated into the Environmental Assessment being developed by the Sawtooth National Forest for Pomerelle's Proposed Master Development Plan. The survey was conducted during August 6-7 and October 9-10, 1996.

### RARE FLORA

The Albion Mountains harbor two plant species found nowhere else in the world: Christ's paintbrush (*Castilleja christii*) and Davis wavewing (*Cymopterus davisii*). Christ's paintbrush occurs in only one population found on the summit ridges of Mount Harrison, 1.5 miles west of the Pomerelle Ski Area. Davis wavewing is also known from the summit of Mount Harrison, as well as two other populations near the southern end of the Albion Mountains. Both species occur in stands of sagebrush and other non-forest vegetation types, generally where deep snow accumulates as a result of wind transfer from exposed areas. Christ's paintbrush is a federal candidate for listing under the Endangered Species Act. Both species are Region 4 Forest Service Sensitive Species. The U.S. Fish and Wildlife Service and the Sawtooth National Forest signed a Conservation Agreement in 1995 that outlines responsibilities for the conservation of the single population of Christ's paintbrush.

Extensive inventories were completed for these two species in the Albion Mountains during 1993, including potential habitat in the vicinity of Pomerelle Ski Area (Moseley 1993). Intensive inventories of potential habitat took place at Pomerelle during August 1996. No populations of the two species were found at the ski area.

Three other species of paintbrush were found in the project area, although none are rare. Narrowleaf paintbrush (*Castilleja angustifolia*) occurs in low sagebrush (*Artemisia arbuscula*) stands on exposed ridges and knolls in and around Pomerelle. Wyoming paintbrush (*C. linariifolia*) occurs in southerly-facing stands of mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), generally at lower elevations of the area. Most Wyoming paintbrush in southern

Idaho has red flowers, except for an odd population near Twin Lakes Picnic Area that has flowers ranging from pale red to yellow, similar to Christ's paintbrush. Other technical features distinguish the two species. Scarlet paintbrush (*C. miniata*) occurs in forest openings and adjacent sagebrush stands at the upper elevations of the ski area. See Moseley (1993) for methods to distinguish the four species of paintbrush in the Albion Mountains.

A rare barrel cactus (*Pediocactus simpsonii*) occurs on the summit of Point 8762, above the upper terminus of the Triple Chair. This small cactus occurs on the windswept ridgeline in low sagebrush habitat. This population is just outside the special use permit boundary and appears to be undisturbed. While this cactus is widely distributed in the western United States, it is rare in Idaho. The Idaho Native Plant Society places it on their Monitor list of rare plants in the state. The Monitor list includes species that are common within a limited range, as well as species which are uncommon, but have no identifiable threats. Of special note, these barrel cactus populations at Pomerelle are the highest elevation known for any cactus species in Idaho.

The cactus populations are indicated on the map.

No noxious weeds were observed during the survey.

## NON-FOREST VEGETATION

The three major types of non-forest vegetation at Pomerelle are arranged ecologically along a topographic/snow deposition gradient. At one extreme, the low sagebrush (*Artemisia arbuscula*) community inhabits windswept ridges where little snow accumulates, while at the other extreme, the snowbed community occurs in the lee of these ridges and has heavy snow accumulations. Mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) vegetation occupies an intermediate position along this gradient. These communities and their environmental relationships are discussed in greater detail below. A short discussion of vegetation around Pomerelle Spring appears at the end of this section.

Excluded from this discussion and mapping of non-forest vegetation are those ski runs that were cut through forest stands. In other words, they are artificial openings that were forested prior to development of the ski area. Examples include the Milk Run, Instructor, and Stampede. These areas appeared to be seeded and mowed every year.

### *Low Sagebrush*

Low sagebrush-dominated vegetation fits into the low sagebrush/bluebunch wheatgrass (*Artemisia arbuscula/Agropyron spicatum*) habitat type described by Hironaka et al. (1983) from southern Idaho and Nelson and Jensen (1987) from northern Nevada. The northern Nevada classification better describes the community at Pomerelle, because of similarities in geology and elevation. The southern Idaho classification only describes stands at low elevation occurring on

volcanic substrates, while the Nevada type occurs on quartzite at higher elevations. Low sagebrush and green rabbitbrush (*Chrysothamnus viscidiflorus*) are the only shrubs commonly found in this habitat.

This sparsely vegetated community occurs on ridgelines and knolls that are exposed to high winds throughout the year. The community has low snow cover in the winter and is the driest of any habitat at Pomerelle in the summer due to wind desiccation.

Only one small area of low sagebrush was mapped in the project area, on a small knoll northwest of the Day Lodge. Two large stands occur just outside of the area, one along the western edge near Twin Lakes Picnic Area and the other is on the ridgeline above the Triple Chair terminus. The latter site is inhabited by the rare barrel cactus.

### *Mountain Big Sagebrush*

Two communities are dominated by mountain big sagebrush at Pomerelle. The one that covers the largest area is the mountain big sagebrush/mountain snowberry/mountain brome (*Artemisia tridentata* spp. *vaseyana*/*Symphoricarpos oreophilus*/*Bromus carinatus*) habitat type described by Nelson and Jensen (1987). Mountain big sagebrush and mountain snowberry have high cover in all stands, except for those areas where the shrubs were removed from ski runs. Grasses dominate the understory, especially mountain brome, but also western needlegrass (*Stipa occidentalis*) and bearded wheatgrass (*Agropyron trachycaulum*). Forbs are also common in the understory. This habitat type occurs on gentle slopes around the periphery of the ski area in intermediate topographic positions between the low sagebrush on the ridges and snowbeds in their lee.

The mountain big sagebrush/Idaho fescue (*Festuca idahoensis*) habitat type (Hironaka et al. 1983; Nelson and Jensen 1987) covers a much smaller area. It occurs in the low pass east of Twin Lakes Picnic Area and, to a lesser extent, mixed with the mountain big sagebrush/mountain snowberry/mountain brome habitat type adjacent to the Ridge ski run along the southwestern edge of the ski area. This habitat type is more common at higher elevations on the summit of Mount Harrison (Moseley 1996). This type probably indicates higher snow loading than the previous type, but not so heavy as to preclude sagebrush establishment and survival. Mountain big sagebrush has high cover in all stands, except where the shrubs were removed for ski runs.

Most of the mountain big sagebrush stands have very high shrub cover, limiting access by cattle for grazing. Snow making in mountain big sagebrush stands could increase the snowpack enough to preclude sagebrush and grass survival, eventually converting them to the snowbed community. This could lead to increased erosion rates (see discussion below).

### *Snowbed Community*

The snowbed community was described from the summit of Mount Harrison by Moseley (1993; 1996) where it comprises part of the habitat for Christ's paintbrush. It is characterized by the lack of sagebrush and the dominance of forb species, especially lupine (*Lupinus argenteus*), fleabane (*Erigeron peregrinus*), goldenrod (*Solidago multiradiata*), creeping sibbaldia (*Sibbaldia procumbens*), and penstemon (*Penstemon rydbergii*). Grass cover is minimal.

This community occurs in the lee of ridges and indicates areas of high snow deposition caused largely by wind transfer from slopes exposed to the prevailing wind. It also occurs in the openings of the upper-elevation tree islands. The snow pack in this community lasts longer into the spring and early summer than surrounding vegetation, creating a short growing season that precludes tree and sagebrush establishment. Areas with the greatest snow deposition are indicated by the presence of creeping sibbaldia. Pocket gopher activity is high in snowbed communities resulting in considerable exposed, churned soil. Along with the pocket gopher digging, high meltwater runoff and the relatively steep slopes all contribute to the naturally high erosion potential in this community. Cattle trampling and possibly ski run maintenance represent the human activities that exacerbate the already high erosion rates.

Four areas of snowbed were mapped at Pomerelle. A small snowbed occurs north of the Day Lodge parking lot, above the turnoff to Mount Harrison. The remaining areas occur in the lee of the main ridge that forms the western boundary of the permit area. Two of the larger areas include the Punch Bowl run, between the Triple Chair and Double Chair, and lee of Point 8235, in the center of the Special Use Permit Expansion area. Tree islands containing snowbed glades were mapped at the upper elevations of the ski area.

### *Pomerelle Spring*

The small areas of seepy ground around the spring, where water is near the soil surface, are dominated by false-hellebore (*Veratrum californicum*) on the east-facing slope, and a dense stand of mountain gooseberry (*Ribes montigenum*) on the west-facing slope. Species dominant along the spring channel are brook saxifrage (*Saxifraga arguta*) and monkeyflower (*Mimulus* sp., possibly *M. lewisii*). The entire area is heavily trampled and denuded by cattle.

## FOREST VEGETATION

### *Aspen*

A stand of aspen occurs in the northern part of the ski area north of the Day Lodge. Following Mueggler's (1988) classification of aspen in the Intermountain Region, this stand represents the aspen/mountain snowberry/tall forb (*Populus tremuloides*/*Symphoricarpos oreophilus*/tall forb) community type. The stand is characterized by a nearly pure stand of aspen, with a sparse shrub

layer of mountain snowberry. Few other shrubs are present. A diversity of tall forbs occur beneath the shrubs, including groundsel (*Senecio serra*), horse-mint (*Agastache urticifolia*), and monkshood (*Aconitum columbianum*). Ski runs have been cut through this stand and it appears that more are planned.

Additional, small, usually stunted stands of aspen occur elsewhere in the project area and are too small to map individually. Usually they are on the edge of coniferous forest stands. They appear to also be the aspen/mountain snowberry/tall forb community type.

### *Coniferous Forest*

Because a Forest Vegetation Management Plan was already developed for Pomerelle, the vegetation mapping I did was primarily focused on aspen and non-forest vegetation. However, while conducting the survey, I did not observe any of the habitat types listed for the five Work Areas in the Forest Vegetation Management Plan. The plan lists the subalpine fir/elk sedge (*Abies lasiocarpa/Carex geyeri*) and subalpine fir/pinegrass (*Calamagrostis rubescens*) habitat types as the only ones present, but I saw no elk sedge or pinegrass in the ski area. The subalpine fir/elk sedge habitat type is not known from this part of Idaho (Steele et al. 1983).

Below is a brief discussion of forest vegetation that I observed. The habitat type classification follows Steele et al. (1983). This is not exhaustive and, for the most part, these habitat types were not mapped. The exception being the tree islands with snowbed glades at the upper elevations of the ski area.

Subalpine fir/Ross sedge (*Abies lasiocarpa/Carex rossii*) habitat type - This type covers most of the coniferous forest at the ski area, comprising stands in the middle and lower elevations. This community is characterized by a very open, sparse understory, with low species diversity. Ross sedge is often the only species present in the understory.

Subalpine fir/mountain gooseberry (*Abies lasiocarpa/Ribes montigenum*) habitat type - This community occurs at the upper elevational limit of forests at Pomerelle, at the edges of large stands and as tree islands. Both situations are usually adjacent to snowbed communities and this type represents forest areas with the highest snow loading.

### LITERATURE CITED

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