

ANTELOPE-BRUSH/NEEDLE-AND-THREAD GRASS

Purshia tridentata/Hesperostipa comata

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Plant Community Information

Description

This shrub-steppe community has a shrub layer consisting of antelope-brush (*Purshia tridentata*), with lesser amounts of big sagebrush (*Artemisia tridentata*) and rabbit-brush (*Ericameria nauseosus*). The herb layer is dominated by needle-and-thread grass (*Hesperostipa comata*), with brittle prickly-pear cactus (*Opuntia fragilis*), red three-awn (*Aristida purpurea* var. *longiseta*), and sand dropseed (*Sporobolus cryptandrus*). The moss layer may contain a low percent cover of *Tortula ruralis*. This community at climax is expected to have a moderate cover of bluebunch wheatgrass (*Pseudoroegneria spicata*) and junegrass (*Koeleria macrantha*) (Lea and Maxwell 1995). The cryptogam crust at climax should consist of a variety of lichen and moss species, be well-developed, and provide moderate to high cover.

Much of the area that originally supported this community has been converted for agricultural use or is now dominated by early seral plant communities. These early seral communities can be identified by the high cover of introduced species (e.g., *Bromus tectorum*), low cover (or absence) of needle-and-thread grass, sand dropseed, bluebunch wheatgrass, and junegrass, a reduction in forb diversity and lack of a cryptogam crust. See Lloyd et al. (1990) for more information.

This community occurs at lower elevations, on all aspects, from mid to lower slopes, mainly on gently sloping areas (occasionally steeper slopes). Soils consist of rapidly drained coarse-textured materials, derived from glacio-fluvial materials and often with

a capping of eolian sands. In general, soils are classified as Brown Chernozems. Sites are dry to very dry (relative within subzone), often with drought conditions. Nutrient conditions, however, can range from poor to medium.

Distribution

Global

This plant community is described for the Columbia Basin and Owyhee Uplands of western Idaho, and eastern Washington and Oregon, and only occurs in the most southern portion of the Okanagan Valley in British Columbia.

British Columbia

This community occupies low elevations only at the southern end of the Okanagan Valley from Summerland to the U.S. border, with one small occurrence north of Kelowna.

Forest regions and district

Southern Interior: Okanagan Shuswap

Ecoprovince and ecosections

SOI: NOB, SOB

Biogeoclimatic unit

BG: xh1/02

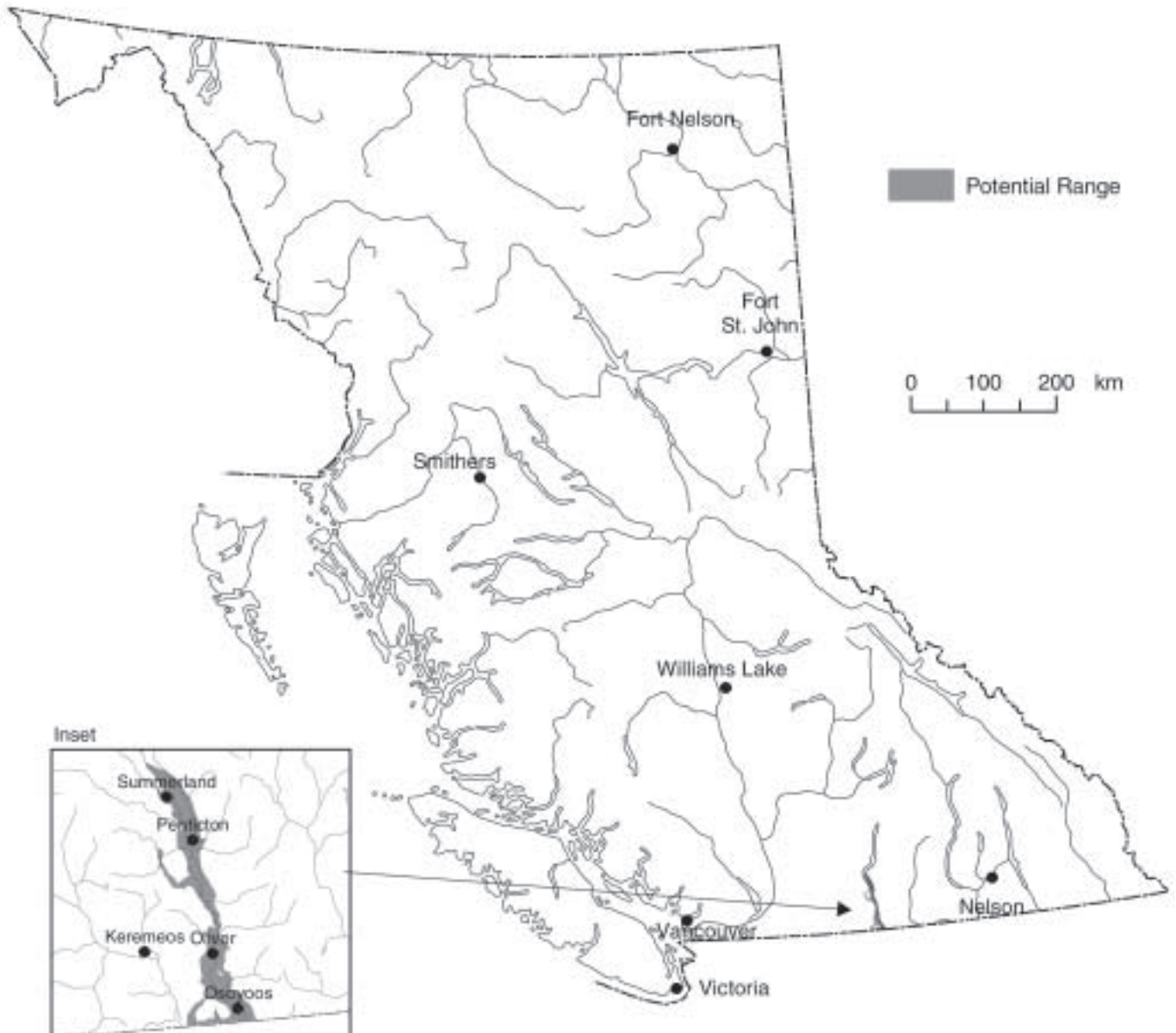
Broad ecosystem unit

AB

Elevation

280–760 m

Antelope-brush / Needle-and-thread Grass (*Purshia tridentata* / *Hesperostipa comata*)



Note: This map represents the potential area where this plant community may be found. The map is based on the Ecoregion and Biogeoclimatic ecosystem classifications as well as current knowledge of the distribution of the plant community. This plant community occurs as localized areas within the range represented.

Plant Community Characteristics

Structural stage

2: herb

3b: shrub/herb

Natural disturbance regime

Frequent stand-maintaining fires (NDT4) (MOF and MELP 1995). These areas would originally have experienced frequent low-intensity fires, and low intensity grazing by native ungulates as well as dry summers.

Fragility

High to very high. Droughty sites, very slow to recover from disturbance. Very susceptible to livestock grazing and very slow to recover to a late seral stage after intensive grazing. Exposure of the wind-blown soils frequently associated with this community means that these sites are highly susceptible to soil erosion.

Conservation and Management

Status

The antelope brush/needle-and-thread grass plant community is on the provincial *Red List* in British Columbia. It is ranked S1 in British Columbia and is globally ranked G2.

Trends

The areal extent of this plant community has been reduced from ~10 050 ha in 1860 to ~3900 ha in 2001. Only about 39% of the original land area of this community has not been converted to agricultural or urban developments (Lea 2001; Dyer and Lea 2002). The average rate of loss of this community has increased from 34 ha/yr between 1860 and 1938 to 52 ha/yr between 1938 and 1995, and to 90 ha/yr between 1995 and 2001 (Dyer and Lea 2002).

This community has a restricted range and where it occurs, it is generally in early to mid-seral stages (Lea and Maxwell 1995). There are few remaining late

seral sites. Only two occurrences in climax condition have been located. Presently, only about 20 small areas (all <100 ha) occur on Crown land and these are in an earlier seral stages.

Similarly, within the United States, the number, condition, and size of stands has declined significantly due to land conversion to cultivation, intensive range management, introduction of invasive species, and alteration of fire disturbance regimes (NatureServe 2001). Few high-quality occurrences are known. Protected occurrences are typically not of high-quality condition and/or are small in size (NatureServe 2001).

Threats

The major threats to this plant community are the loss of area supporting this community to agricultural (orchards and vineyards) and urban development. Livestock grazing, which has occurred for over 100 years, has resulted in areas supporting this community to be dominated by early seral stages and has made them susceptible to establishment of invasive species. Other significant threats include all-terrain vehicles, transportation routes, sand and gravel extraction, resort development and sale of Crown land and probably climate change.

Legal Protection and Habitat Conservation

There is no legal protection for plant communities except for those within protected areas and parks.

Approximately 235 ha of this community occur within provincial protected areas and ~125 ha occur within a federal protected area.

The biodiversity and the range management guidelines of the *Forest and Range Practices Act* provide some protection for these communities. Range use planning may address this community through implementation of similar recommendations as outlined below in “General wildlife measures” below.

Identified Wildlife Recommendations

Sustainable resource management recommendations

At present most of the known occurrences of this plant community are in an early to mid seral stages and few if any are in a natural condition. It is recommended to:

- ❖ maintain or recover at least 20 occurrences in good condition across the range of the plant community;
- ❖ maintain or restore occurrences to as close to natural condition as possible and practical; and
- ❖ maximize north–south and low–high elevation connectivity between remaining fragmented occurrences.

Wildlife habitat area

Goals

Maintain and recover known occurrences.

Feature

Establish WHAs at occurrences that have been confirmed by a registered professional in consultation with the B.C. Conservation Data Centre or Ministry of Forests regional ecologist.

Size

The size of the WHA should be based on the extent of the community occurrence. At present, occurrences of this community are generally <100 ha.

Design

The WHA should include the entire community occurrence plus a 100 m, depending on the plant community type surrounding this community, to protect the community from edge effects (especially with respect to invasive species).

General wildlife measures

Goals

1. For most sites, maintain or restore to a late seral stage. For larger WHAs, maintain a mosaic of various seral stages and structure expected in natural conditions of this community.

2. Maintain or restore plant community to a natural state (i.e., same physical structure, and ecological processes as natural examples of the plant community) and natural plant composition of this plant community (see “Description”).
3. Minimize or avoid access.
4. Minimize soil disturbance. Maintain or re-establish cryptogamic soil crust.
5. Minimize the introduction and spread of invasive species.

Measures

Access

- Do not develop roads or trails.

Pesticides

- Do not use pesticides.

Range

- Plan livestock grazing (timing, distribution, and level of use) to meet general wildlife measure goals described above. Fencing could be required by the statutory decision maker to meet goals, to recover community, or for restoration treatments.
- Do not place livestock attractants within WHA.

Recreation

- Do not develop recreational sites, trails, or facilities.

Additional Management Considerations

Minimize impacts to vegetation, soils and hydrology when operating adjacent to a WHA, particularly during road development and maintenance.

Restrict recreational use (i.e., dirt bikes, mountain bikes, and other off-road vehicles).

A prescribed fire program that approximates the natural fire regime could assist in the recovery of this plant community provided it is planned and implemented carefully. However, it may be difficult to duplicate historical fire patterns with only small fragments of the community remaining.

Cross References

Badger, Burrowing Owl, “Great Basin” Gopher Snake, Grasshopper Sparrow, Racer, Western Rattlesnake

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