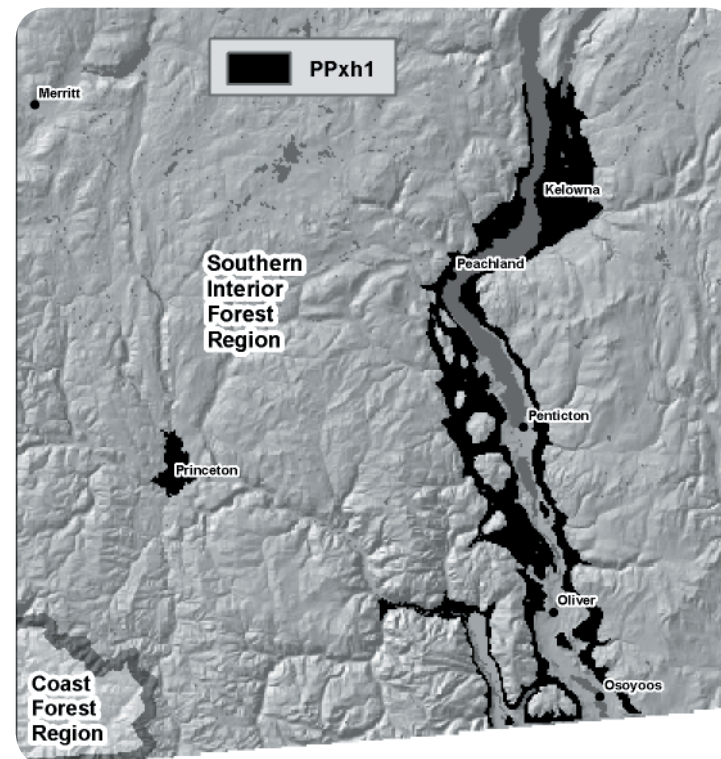


# PPxh1

OKANAGAN  
VERY DRY HOT PONDEROSA PINE VARIANT

**Distribution** The PPxh1 occurs in the Okanagan Valley bottom, from Woods Lake south to the US border. It also occurs in the Princeton area. In the South Okanagan, the PPxh1 starts at Okanagan Lake and occurs adjacent to the lake between Oyama and Summerland. South of Summerland, it occurs above the BGxh1. It is also present along Lower Shingle Creek and in the Marrion Valley. It occurs above the Similkameen River at the confluence of the Ashnola River downstream of Keremeos, to the US border.



## PPxh1

**Elevational Range (Mean)** The PPxh1 begins at approximately 400m elevation along the shore of Okanagan Lake north of Summerland, it also occurs above the BGxh1 and below the IDFxh1 and IDFxh1a grassland phase.

- On north aspects, the lower elevation range is 400-750m and the upper elevation range is 900-950m.
- On south aspects, the lower elevation range is 400-800m and the upper elevation range is 950-1050m.

**Climate** The PP is the warmest, driest forested zone in BC. The PPxh1 is warmer and drier than the PPxh2. The mean annual precipitation in the PPxh1 ranges from 248-395mm. Snowfalls can occur anytime between October and April, but snowfalls are generally intermittent, of short duration, and rarely exceeding 20cm in depth. The less extreme winter conditions of the Okanagan Valley support plants and animals that are unable to survive in the Thompson Valley's PPxh2. March or April is generally the driest month and December is the wettest month in this variant. The frost-free period averages 146 days. The longer growing season and less extreme temperature regime, contributes to a more diverse agricultural industry than in the PPxh2.

**Forest Cover** The PPxh1 is dominated by stands of Py. Fd is common on steep north aspects and in areas receiving supplemental seepage or surface flow. Fire history and soil moisture regime dictate the density of Py stands. Stands on steep south aspects, and sites with shallow soils on upper slopes and ridges tend to be more open grown. Mature Py has bark that can survive understory burns, and successive fires tend to scorch lower branches and lift the live crown, which makes them less susceptible to crown fires. Though, in recent decades, fire suppression has allowed for understory regeneration and the accumulation of ladder fuels, creating the potential for more frequent crown fires. North aspects have more favourable conditions for regeneration following disturbance and relatively dense, mixed stands of Py and Fd develop on these sites. These stands tend to be prone to crown fires unless they are thinned and lower branches are pruned. Open disclimax Act and At stands with shrub dominated understories grow on lake shores, fluvial deposits, floodplains, gullies, draws, and fluvial fans. In areas with shallow or fine textured soils, or even sites with mesic moisture regimes, fire history has contributed to landscapes which are a mosaic of grasslands and stands of varying densities. Grass species have a competitive advantage over tree seedlings when soil moisture is limited, and quickly regenerate following disturbance to form open grasslands. This illustrates the natural difficulty of tree regeneration in the PPxh1 and the sensitivity of this ecosystem to disturbance.

**Grasslands** Grasslands are common throughout the PPxh, particularly in areas with fine textured soils and sites with steep southern exposures. They are dominated by bluebunch wheatgrass, although the abundance of this species depends on aspect and the grazing history. Grasslands with northerly aspects and without a heavy grazing history are dominated by rough fescue. Bluebunch wheatgrass and rough fescue are preferred fodder for cattle. Grazing reduces the abundance and vigour

PPxh1 - 2

## PPxh1

of these species. As bunchgrass species decline, cheatgrass, Sandberg's bluegrass, Kentucky bluegrass, and numerous weed species become more abundant.

**Zonal Vegetation and Soils** Much of the PPxh1 has been disturbed by fire and human activities, so climax plant communities are relatively uncommon. They are composed of Py and a small amount of Fd. Fd is present in the regeneration layer, but Py is more common. The character of the understory is influenced by stand density because many of the understory species are relatively shade intolerant. Consequently, in dense stands there may be a very low cover of shrubs and herbs. Even in relatively open, undisturbed stands, the shrub layer is generally poorly developed with a low cover of common snowberry, saskatoon, and common rabbit-brush. The herb layer is well developed and is dominated by bluebunch wheatgrass, rough fescue, arrowleaf balsamroot, and at more southern locations, Idaho fescue. Lemonweed, junegrass, timber milk-vetch, fern-leaved desert-parsley, and pussytoes are also present in small amounts. Mosses and lichens are poorly developed and include small amounts of ragged-moss, sidewalk moss, and various lichen species. Disturbed sites tend to support fewer bunchgrass species and more cheatgrass and weed species. Soils are Melanic or Sombric Brunisols with a weakly developed Ah and a corresponding Rhizomull humus form.

**Adjacent Biogeoclimatic Subzones** The PPxh1 typically occurs above the BGxh1 and below the IDFxh1, or IDFxh1a grassland phase.

### Distinguishing PPxh1 from adjacent Biogeoclimatic units

#### BGxh1

- Py stands are absent on zonal sites
- Idaho and/or rough fescue is/are absent on zonal sites
- umber pussytoes, timber milk-vetch, arrowleaf balsamroot, yarrow, junegrass, lemon weed, and saskatoon are absent on zonal sites
- big sagebrush is generally present on sites that are in late seral, or climax condition

#### IDFxh1

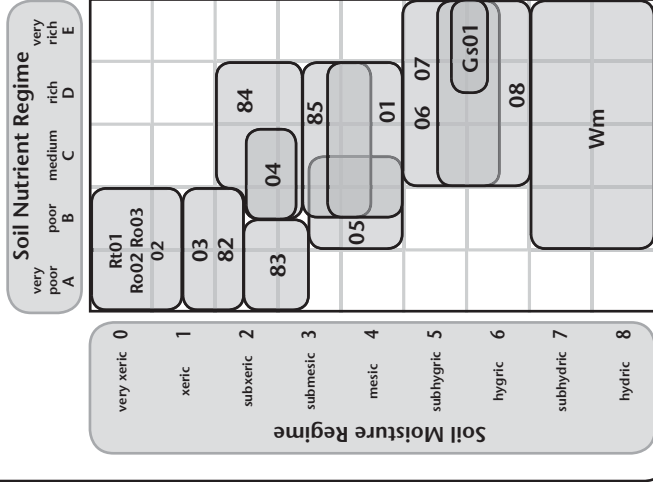
- Fd dominates the overstory of climax stands on zonal sites
- Py may be present as a seral species, but is not a major component of climax stands
- pinegrass dominates the understory
- lemonweed, arrowleaf balsamroot, umber pussytoes, sagebrush mariposa lily, and junegrass are absent
- pinegrass, birch-leaved spirea, and heart-leaved arnica are present

#### IDFxh1a grassland phase

- grassland dominated ecosystems are present on mesic sites

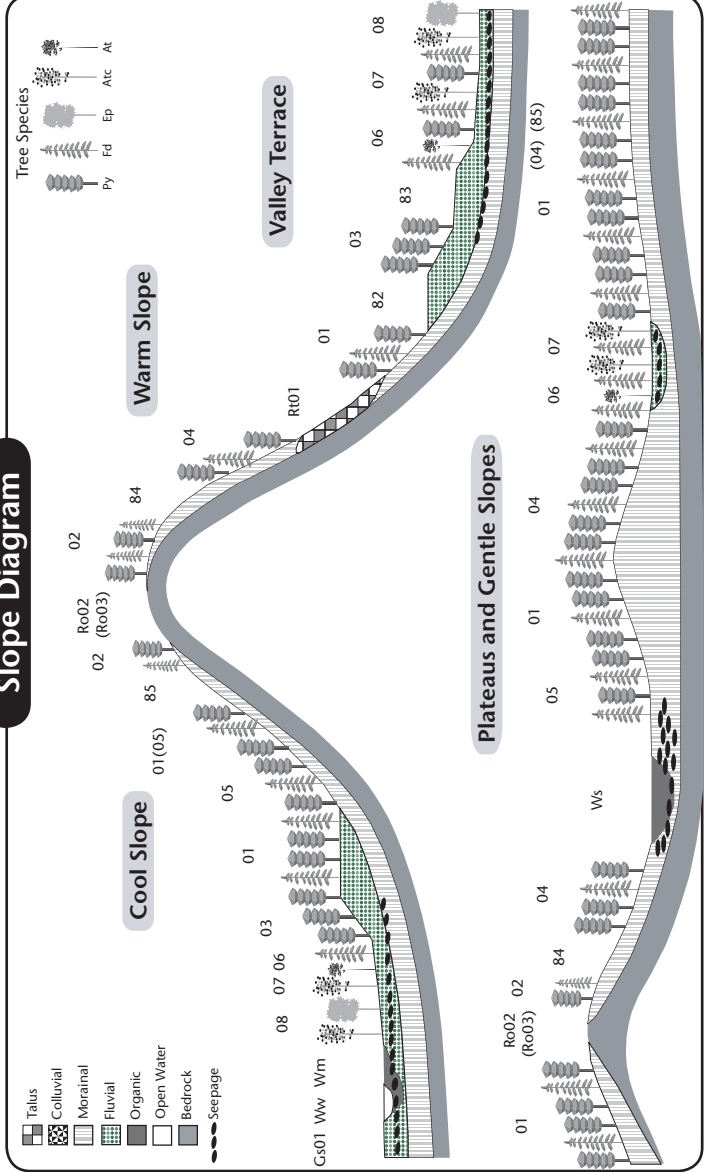
PPxh1 - 3

**Edatopic Grid**

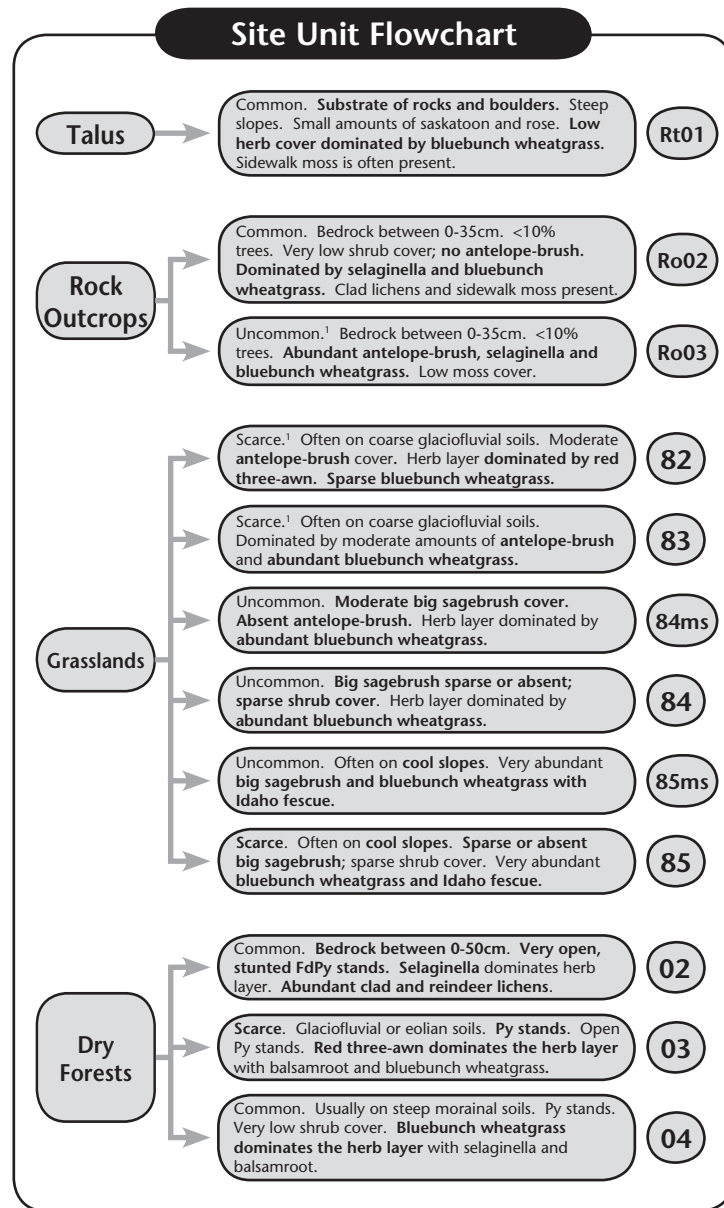


- Rt01 Saskatoon — Bluebunch wheatgrass
- Ro02 Bluebunch wheatgrass — Selaginella
- Ro03 Antelope-brush — Selaginella
- 82 Antelope-brush — Red three-awn
- 83 Antelope-brush — Bluebunch wheatgrass
- 84ms \$Big Sage — Bluebunch wheatgrass
- 84 Bluebunch wheatgrass
- 85ms \$Big sage — Idaho fescue
- 85 Idaho fescue — Bluebunch wheatgrass
- 02 FdPy — Selaginella
- 03 Py — Red three-awn
- 04 Py — Bluebunch wheatgrass
- 05 \$Py — Bluebunch wheatgrass
- 01 Py — Bluebunch wheatgrass — Fescue
- 05 FdPy — Pinegrass
- 06ysa \$Ep — Snowberry — Maple
- 06ysb \$At — Snowberry — Saskatoon
- 06 Fd — Snowberry
- 07 ActEp — Maple
- 08 Act — Dogwood
- Gs01 Saltgrass
- Wm01 Beaked sedge — Water sedge
- Wm05 Cattail
- Wm06 Great bulrush
- Wm07 Baltic rush
- Wm08 Sharp bulrush

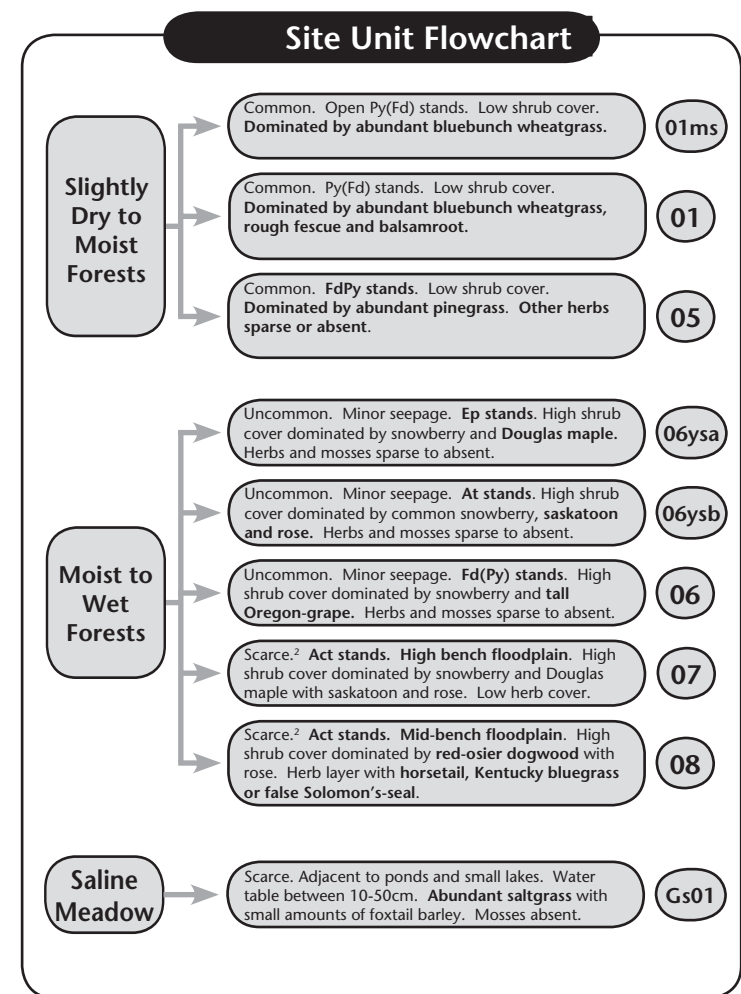
**Slope Diagram**



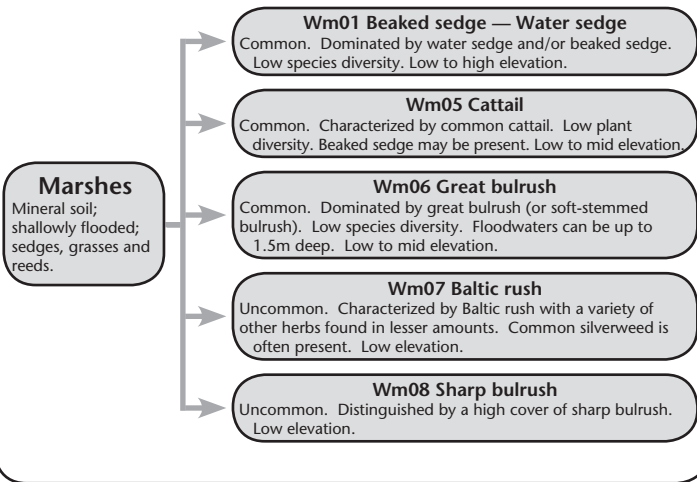
### Site Unit Flowchart



### Site Unit Flowchart

<sup>1</sup>Generally restricted to the Okanagan basin south of Penticton.<sup>2</sup>Most commonly associated with large floodplains and lakeshores.

**Site Unit Flowchart**



Refer to the wetland section in the package of BEC materials for a more thorough characterization of wetland ecosystems.

Vegetation Table

Site Units	Talus		Rock Outcrops		Grasslands						
	Ro01*	Ro02*	Ro03*	Ro03*	82*	83	84ms	84	85ms	85	
No. Plants	29	123	5	5	8	6	9	19	4	14	
<b>Trees</b>											
<i>Pinus ponderosa</i>	■	■	*	*	*	■	*	*	*	*	
<i>Pseudotsuga menziesii</i>			*	*	*	■	*	*	*	*	
<i>Betula papyrifera</i>			*	*	*	■	*	*	*	*	
<i>Populus tremuloides</i>	*										
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>											
<i>Pinus ponderosa</i>	*		■	■	*	*	*	*	*	*	
<i>Pseudotsuga menziesii</i>	*		■	■	*	*	*	*	*	*	
<i>Populus tremuloides</i>	*		■	■	*	*	*	*	*	*	
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>											
<i>Rosa</i> sp.	■	■	■	■	*	*	*	*	*	*	
<i>Amelanchier alnifolia</i>			■	■	*	*	*	*	*	*	
<i>Purshia tridentata</i>	*		■	■	■	■	■	■	■	■	
<i>Artemisia tridentata</i> var. <i>tridentata</i>	*		■	■	■	■	■	■	■	■	
<i>Eriogonum ramosissimum</i>	*		■	■	■	■	■	■	■	■	
<i>Ribes cereum</i>	*		■	■	*	*	*	*	*	*	
<i>Juniperus scopulorum</i>	*		■	■	*	*	*	*	*	*	
<i>Mahonia aquifolium</i>	*		■	■	*	*	*	*	*	*	
<i>Symphoricarpos albus</i>	*		■	■	*	*	*	*	*	*	
<i>Acer glabrum</i>	*		■	■	*	*	*	*	*	*	
<i>Spiraea latifolia</i>	*		■	■	*	*	*	*	*	*	
<i>Ribes luteum</i>	*		■	■	*	*	*	*	*	*	
<i>Rubus parviflorus</i>	*		■	■	*	*	*	*	*	*	
<i>Philadelphus lewisii</i>	*		■	■	*	*	*	*	*	*	
<i>Cornus stolonifera</i>	*		■	■	*	*	*	*	*	*	
<i>Prunus virginiana</i>	*		■	■	*	*	*	*	*	*	
<b>Herbs</b>											
<i>Woodst. sp.</i>	■	■	■	■	■	■	■	■	■	■	
<i>Pseudotsuga menziesii</i>	■	■	■	■	■	■	■	■	■	■	
<i>Salvinella densa</i>	■	■	■	■	■	■	■	■	■	■	
<i>Poa secunda</i>	■	■	■	■	■	■	■	■	■	■	
<i>Achillea millefolium</i>	■	■	■	■	■	■	■	■	■	■	
<i>Bromus tectorum</i>	■	■	■	■	■	■	■	■	■	■	
<i>Arabis haboellii</i>	■	■	■	■	■	■	■	■	■	■	
<i>Anastida purpurea</i> var. <i>longiseta</i>	■	■	■	■	■	■	■	■	■	■	
<i>Balsamorhiza sagittata</i>	■	■	■	■	■	■	■	■	■	■	
<i>Tragopogon dubius</i>	■	■	■	■	■	■	■	■	■	■	
<i>Antennaria dimorpha</i>	■	■	■	■	■	■	■	■	■	■	
<i>Sporobolus cryptandrus</i>	■	■	■	■	■	■	■	■	■	■	
<i>Opuntia fragilis</i>	■	■	■	■	■	■	■	■	■	■	
<i>ponderosa pine</i>											
<i>Douglas-fir</i>											
<i>paper birch</i>											
<i>trembling aspen</i>											
<i>black cottonwood</i>											
<i>ponderosa pine</i>											
<i>Douglas-fir</i>											
<i>trembling aspen</i>											
<i>black cottonwood</i>											
<i>rose</i>											
<i>saskatoon</i>											
<i>antelope-brush</i>											
<i>big sagebrush</i>											
<i>common rabbit-brush</i>											
<i>squaw currant</i>											
<i>Rocky Mountain juniper</i>											
<i>tall Oregon-grape</i>											
<i>Common snowberry</i>											
<i>Douglas maple</i>											
<i>black-leaved spirea</i>											
<i>black hawberry</i>											
<i>timberberry</i>											
<i>mock-orange</i>											
<i>red-osier dogwood</i>											
<i>choke cherry</i>											
<i>cliff fern</i>											
<i>bluebunch wheatgrass</i>											
<i>compact seiginnella</i>											
<i>Sandberg's bluegrass</i>											
<i>Yarrow</i>											
<i>cheatgrass</i>											
<i>Holboell's rockcross</i>											
<i>red three-awn</i>											
<i>arrowleaf balsamroot</i>											
<i>yellow salsify</i>											
<i>low pussytoes</i>											
<i>sand dropseed</i>											
<i>brittle prickly-pear cactus</i>											

Site Units	Rock Outcrops		Grasslands							
	Ro01*	Ro02*	Ro03*	Ro03*	82*	83	84ms	84	85ms	85
No. Plants	29	123	5	5	8	6	9	19	4	14
<b>Herbs</b>										
<i>Hesperostipa comata</i> ssp. <i>comata</i>	*	*	*	*	■	■	*	*	*	*
<i>Plantago patagonica</i>	*	*	*	*	■	■	*	*	*	*
<i>Centaurea diffusa</i>	*	*	*	*	■	■	*	*	*	*
<i>Crepis ariflora</i>	*	*	*	*	■	■	*	*	*	*
<i>Collinsia parviflora</i>	*	*	*	*	■	■	*	*	*	*
<i>Koeleria macrantha</i>	*	*	*	*	■	■	*	*	*	*
<i>Lupinus sericeus</i>	*	*	*	*	■	■	*	*	*	*
<i>Festuca idahoensis</i>	*	*	*	*	■	■	*	*	*	*
<i>Eriogonum heteractoides</i>	*	*	*	*	■	■	*	*	*	*
<i>Eriogonum corymbosum</i>	*	*	*	*	■	■	*	*	*	*
<i>Heuchera cylindrica</i>	*	*	*	*	■	■	*	*	*	*
<i>Penstemon fruticosus</i>	*	*	*	*	■	■	*	*	*	*
<i>Astragalus miser</i>	*	*	*	*	■	■	*	*	*	*
<i>Antennaria umbinella</i>	*	*	*	*	■	■	*	*	*	*
<i>Festuca campestris</i>	*	*	*	*	■	■	*	*	*	*
<i>Calamagrostis tubescens</i>	*	*	*	*	■	■	*	*	*	*
<i>Elymus sp.</i>	*	*	*	*	■	■	*	*	*	*
<i>Prosartes trachycarpa</i>	*	*	*	*	■	■	*	*	*	*
<i>Maianthemum stellatum</i>	*	*	*	*	■	■	*	*	*	*
<i>Equisetum sp.</i>	*	*	*	*	■	■	*	*	*	*
<i>Poa pratensis</i>	*	*	*	*	■	■	*	*	*	*
<i>Hordeum jubatum</i>	*	*	*	*	■	■	*	*	*	*
<i>Distichlis spicata</i>	*	*	*	*	■	■	*	*	*	*
<i>Cladonia sp.</i>	*	*	*	*	■	■	*	*	*	*
<i>Cladonia sp.</i>	*	*	*	*	■	■	*	*	*	*
<i>Tortula ruralis</i>	*	*	*	*	■	■	*	*	*	*
<i>Polytrichum juniperinum</i>	*	*	*	*	■	■	*	*	*	*
<i>Dicranum sp.</i>	*	*	*	*	■	■	*	*	*	*
<i>Peltigera sp.</i>	*	*	*	*	■	■	*	*	*	*
<i>Brachythecium sp.</i>	*	*	*	*	■	■	*	*	*	*
<b>Mosses &amp; Lichens</b>										
<i>needle-and-thread grass</i>										
<i>woolly plantain</i>										
<i>diffuse knapweed</i>										
<i>slender hawkbeard</i>										
<i>small-flowered blue-eyed Mary</i>										
<i>junegrass</i>										
<i>silky lupine</i>										
<i>lemontweed</i>										
<i>Idaho fescue</i>										
<i>parsnip-flowered buckwheat</i>										
<i>long-leaved fleabane</i>										
<i>round-leaved alumroot</i>										
<i>shrubby penstemon</i>										
<i>timber milk-vech</i>										
<i>umber pussytoes</i>										
<i>rough tescue</i>										
<i>pinegrass</i>										
<i>Wheat-grass</i>										
<i>blowgrass</i>										
<i>star-flowered fairyballs</i>										
<i>star-flowered false Solomon's-seal</i>										
<i>honesty</i>										
<i>Kentucky bluegrass</i>										
<i>seashore saltgrass</i>										
<i>foxtail barley</i>										
<i>clad lichens</i>										
<i>reindeer lichens</i>										
<i>sidewalk moss</i>										
<i>juniper haircap moss</i>										
<i>heron's-bill moss</i>										
<i>pelt lichens</i>										
<i>ragged-moss</i>										

Frequency of Occurrence: ■ >=75% ■ 50-74.9% \* <50%

Abundance (Average Percent Cover): ■ >=25% ■ 10-24.9% ■ 3-9.9% ■ 1-2.9% ■ <1%

\* Due to inadequate sampling, the vegetation summaries for the Ro01, Ro02, Ro03 and 82 are based on data for the equivalent plant association.



### Environment Table

Site Units	Rock Outcrops			Grasslands					
	Rt01	Ro02	Ro03	82	83	84ms	84	85ms	85
<b>Soil Moisture Regime</b>	VX 0	VX X 0 1	VX X 0 1	X SX 1 2	SX SM 2 3	SM (SX M) 3 (2-4)	SM (SX M) 3 (2-4)	M SM 4 3	
<b>Mesoslope Position</b>	MD (LW UP)	CR (UP MD)	CR (UP MD)	UP (MD)	MD (LW)	MD (LW)	MD (LW)	MD (LW LV)	
<b>Slope Gradient</b>	Steep	Variable	Variable	Variable	Variable	Variable	Variable	Gentle (Level)	
<b>Aspect</b>	Variable	Warm (Neutral)	Warm (Neutral)	Variable	Neutral (Warm)	Neutral Warm	Neutral Warm	Neutral Cool	
<b>Parent Materials</b>	Cb	R (Cv Mv)	R (Cv Mv)	FG Mb	FG Mb	Mb (FG)	Mb (FG)	MB (FG)	
<b>Soil Texture Class</b>	Fragmental	Variable	Variable	coarse	Variable	Variable	Variable	Medium Fine	
<b>Important Features</b>	Rocks & boulders, steep slopes	Bedrock 0-35 cm	Bedrock 0-35 cm	Often coarse glaciofluvials	Often coarse glaciofluvials			More common on cool aspects	
<b>Successional Stage<sup>1</sup></b>				Scarce <sup>2</sup>	Scarce <sup>2</sup>	Common	Uncommon	Uncommon	LS (PNC)
<b>Occurrence</b>	Common	Common	Uncommon <sup>2</sup>	Scarce <sup>2</sup>	Scarce <sup>2</sup>	Common	Uncommon	Uncommon	Scarce

<sup>1</sup>The successional stages for grasslands are PNC = Potential natural community LS = Late seral MS = Mid seral ES = Early Seral

<sup>2</sup>Generally restricted to the Okanagan basin south of Penticton.

### Environment Table

Site Units	Forests										Saline Meadow	
	02	03	04	01ms	01	05	06ySa	06ySb	06	07	08	Gs01
<b>Soil Moisture Regime</b>	XV X 0 1	SX (X) 2 (1)	SM SX 3 2	M (SM) 4 (3)	M (SM) 4 (3)	M (SM) 4 (3)	SHG (HG) 5 (6)	SHG (HG) 5 (6)	SHG (HG) 5 (6)	HG (SHG) 6 (5)	HG (SHG) 6 (5)	HG (SHG) 6 (5)
<b>Mesoslope Position</b>	CR (UP)	UP (MD LV)	MD (LW)	MD LV (LW)	MD (LW)	MD (LW)	LW GU (DP)	LW TO (DP)	LW TO (DP)	LV	LV	TO DP (LV)
<b>Slope Gradient</b>	Variable	Steep (Gentle)	Steep (Gentle)	Variable	Steep Gentle	Steep Gentle	Level (Gentle)	Level	Level	Level	Level	Level
<b>Aspect</b>	Variable	Warm (Neutral)	Neutral (Warm)	Neutral Cool	Cool Neutral	Cool Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
<b>Parent Materials</b>	R (Cv Mv)	FG (Mb)	Mb (Cb)	Mb (FG)	Mb (FG Cb)	Mb (FG Cb)	Fb (Cb Mb)	Fb	Fb	Fb	Fb	Lb Fb
<b>Soil Texture Class</b>	Variable	Coarse	Coarse (Medium)	Medium (Coarse)	Medium (Coarse)	Medium (Coarse)	Variable	Coarse (Medium)	Coarse (Medium)	Fine Medium	Fine Medium	Fine Medium
<b>Important Features</b>	Bedrock 0-50 cm	Coarse glaciofluvials or wind blown sandy soils		More common on cool aspects	Cool aspects	Cool aspects	Minor seepage	Floodplain High-bench	Floodplain High-bench	Floodplain Mid-bench	Floodplain Mid-bench	Saline soils Water table 10-50cm
<b>Successional Stage</b>	MC	MC	MC	MC	MC	MC	YS	YS	MC	DC	DC	
<b>Occurrence</b>	Common	Scarce	Common	Common	Common	Common	Uncommon	Uncommon	Uncommon	Scarce <sup>3</sup>	Scarce <sup>3</sup>	Scarce

<sup>3</sup>Most commonly associated with large floodplains and lakeshores.

**Rt01 Saskatoon — Bluebunch wheatgrass**

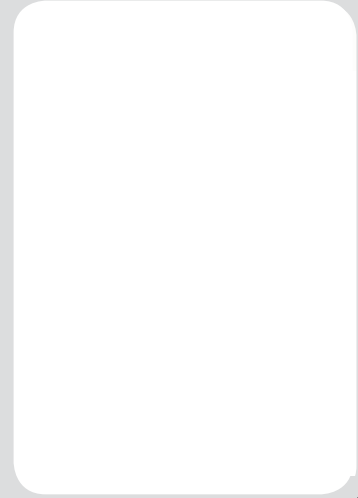
This common unit occurs on steep slopes on stable colluvial materials consisting of boulders and rocks. The vegetation is sparse. Small amounts of stunted Fd, Saskatoon and rose are usually present. The herb layer is sparse to moderate and bluebunch wheatgrass is usually the dominant species. Other herbs may be present but the only other common species is cliff fern. The moss layer is sparse. Sidewalk moss is the most common species.

**Ro02 Bluebunch wheatgrass — Selaginella**

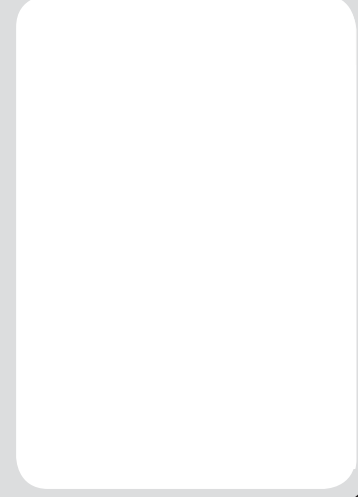
This common rock outcrop unit occurs on warm and steep or gentle slopes and crests on exposed bedrock with very shallow mineral soil and rocks. The shrub layer is very sparse and the most common species is saskatoon. The herb layer is sparse to abundant and is dominated by compact selaginella. Bluebunch wheatgrass is common and sometimes abundant. Other common species present in sparse amounts include Sandberg's bluegrass and yarrow. The moss layer is sparse to moderate and includes clad and pelt lichens and sidewalk moss.

**Ro03 Antelope-brush — Selaginella**

The Ro03 is an uncommon unit restricted to the Okanagan basin south of Penticton. It is found on crests and steep warm slopes on shallow soils with exposed bedrock. Stunted Py is often present in minor amounts. The shrub layer is characterized by abundant antelope-brush which distinguishes this unit from other rock outcrop units. Saskatoon is often present in minor amounts. The herb layer is moderate to abundant and is dominated by compact selaginella and bluebunch wheatgrass. Other common species include those typically found in hot, exposed habitats and include cheatgrass, Holboell's rockcress, yellow salsify, Sandberg's bluegrass, red three-awn, western cliff fern, junegrass and yarrow. Mosses and lichens are sparse to absent.

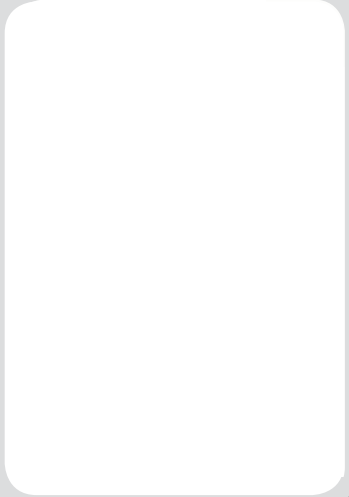
**82 Antelope-brush — Red three-awn**

This dry grassland site unit is scarce and is restricted to the Okanagan basin south of Penticton. It occurs on middle and upper slopes on glaciofluvial or morainal materials. The moderate to abundant shrub layer is dominated by antelope-brush and big sagebrush. The abundant herb layer is diverse and the most common and abundant species include red three-awn, bluebunch wheatgrass, compact selaginella, cheatgrass and sand dropseed. Mosses and lichens are typically sparse to absent.



**83 Antelope-brush — Bluebunch wheatgrass**

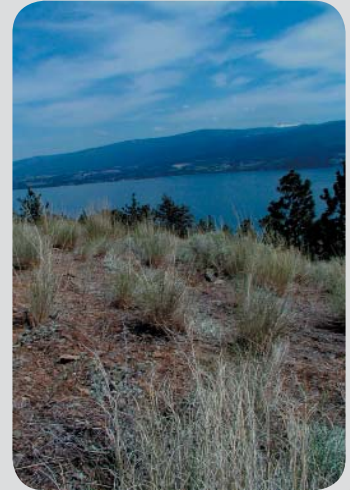
The 83 unit is scarce and is restricted to the Okanagan basin south of Penticton. It occupies glaciofluvial and morainal materials on middles and lower slopes. Small amounts of Py are often present. The moderate shrub layer is dominated by antelope-brush. Other species present in small amounts include saskatoon, common rabbit-brush and squaw currant. The abundant herb layer is dominated by bluebunch wheatgrass. Other common species include compact selaginella, Sandberg's bluegrass, cheatgrass, yarrow, arrowleaf balsamroot and low pussytoes. Unlike the 02 unit, red three-awn is usually absent. Mosses and lichens are absent.

**84ms \$Big Sage — Bluebunch wheatgrass**

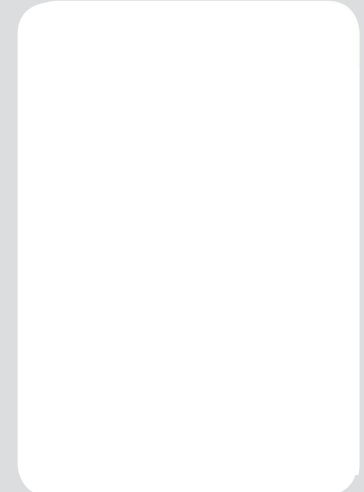
The mid-seral stage of the 84 unit is uncommon. It occurs on dry, warm, middle and lower slopes on morainal or glaciofluvial materials. A moderate amount of big sagebrush occurs in the shrub layer. The herb layer is dominated by abundant bluebunch wheatgrass. Other common species include Sandberg's bluegrass, arrowleaf balsamroot, cheatgrass, low pussytoes and junegrass. Mosses and lichens are sparse to absent.

**84 Bluebunch wheatgrass**

This mature grassland unit occupies dry, warm, middle and lower slopes on morainal or glaciofluvial materials. It is distinguished from the 84ms unit by the absence of big sagebrush in the very sparse shrub layer. The herb layer is similar and is dominated by bluebunch wheatgrass with small amounts of Sandberg's bluegrass, cheatgrass and arrowleaf balsamroot. Mosses and lichens are sparse to absent.

**85ms \$Big sage — Idaho fescue**

The 85ms unit is uncommon. It occurs on gentle slopes and level areas on morainal or glaciofluvial materials. It is distinguished from the 85 unit by the abundance of big sagebrush. The herb layer usually dominated by bluebunch wheatgrass but also includes moderate amounts of Idaho fescue. Other common species include Sandberg's bluegrass, cheatgrass, junegrass, silky lupine and arrowleaf balsamroot. Mosses and lichens are sparse to absent.



**85 Idaho fescue — Bluebunch wheatgrass**

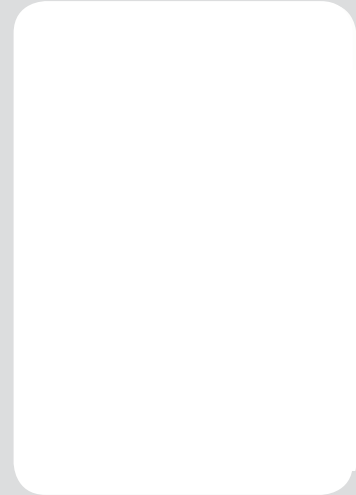
This mature grassland unit occupies gentle slopes and level areas on morainal or glaciofluvial materials. Shrubs are sparse to absent. The herb layer is usually dominated by Idaho fescue and bluebunch wheatgrass. Other common species include Sandberg's bluegrass, junegrass, silky lupine and arrowleaf balsamroot. Mosses and lichens are absent.

**02 FdPy — Selaginella**

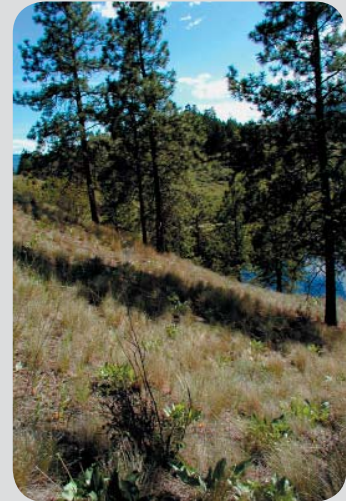
This is the driest forest unit within the PPxh1. It occurs on very shallow soils often with exposed bedrock on upper slopes and crests. The sparse tree layer contains Py and Fd. The sparse shrub layer includes saskatoon, Rocky Mountain juniper, tall Oregon-grape and common snowberry. The herb layer is sparse to moderate and includes small amounts of compact selaginella, bluebunch wheatgrass, round-leaved alumroot, yarrow and shrubby penstemon. The moss layer is usually moderate to abundant and is dominated by clad and reindeer lichens and sidewalk moss.

**03 Py — Red three-awn**

The 03 unit is scarce. It occurs on very dry gentle to steep slopes on coarse glaciofluvial or morainal materials. The tree layer consists of Py. The shrub layer is sparse to absent. The herb layer is dominated by moderate to abundant red three-awn. Other common species usually present in small amounts include bluebunch wheatgrass, compact selaginella, yarrow, cheatgrass, Holboell's rockcress, low pussytoes, sand dropseed, brittle prickly-pear cactus and needle-and-thread grass. Other than small amounts of sidewalk moss, mosses and lichens are typically absent.

**04 Py — Bluebunch wheatgrass**

This unit is common. It occurs on dry middle and lower slopes on morainal or colluvial materials. The forest canopy is dominated by Py. The only common species in the sparse shrub layer is saskatoon. The herb layer is dominated by a mixture of bluebunch wheatgrass, compact selaginella and arrowleaf balsamroot. Other species present in small amounts include yarrow, slender hawksbeard and lemonweed. Mosses and lichens are sparse to absent.



**01ms \$Py — Bluebunch wheatgrass**

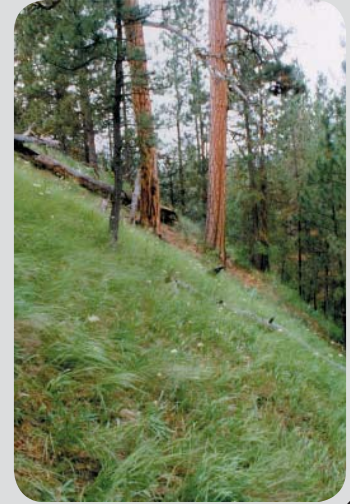
This mid-seral unit is common and occurs on middle and lower slopes and level areas on morainal and glaciofluvial materials. The tree layer is dominated by Py with a small amount of Fd. The shrub layer is sparse and the only common species are saskatoon and squaw currant. The herb layer is dominated by abundant bluebunch wheatgrass. Other species present in small amounts include yarrow, arrowleaf balsamroot, slender hawk-beard, junegrass, lemongrass, Idaho fescue, and timber milk-vetch. Mosses and lichens are sparse to absent.

**01 Py — Bluebunch wheatgrass — Fescue**

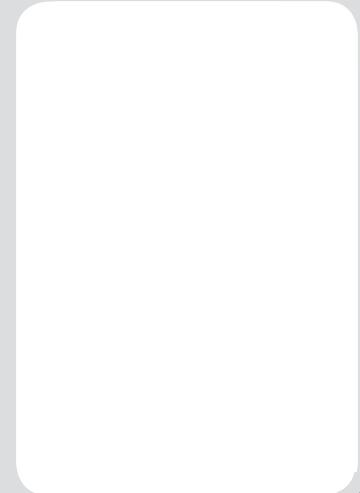
The zonal forested unit is common. It occurs on middle and lower slopes and level areas on morainal and glaciofluvial materials. The tree layer is dominated by Py with small amounts of Fd. The shrub layer is sparse and the only common species are rose, saskatoon and common snowberry. The abundant herb layer is dominated by bluebunch wheatgrass. Rough fescue and arrowleaf balsamroot are also common. Mosses and lichens are sparse to absent.

**05 FdPy — Pinegrass**

This forested unit occurs on cool, mesic, middle and lower slopes on morainal, colluvial and glaciofluvial materials. The forest canopy is a mixture of Fd and Py. As with drier forest units, the shrub layer is sparse. The herb layer is distinguished from all other units by the abundant cover of pinegrass. Other herbaceous species are sparse and the only common species are bluebunch wheatgrass, arrowleaf balsamroot and round-leaved alumroot. Pelt lichens and ragged-moss are often present in small amounts in the moss layer.

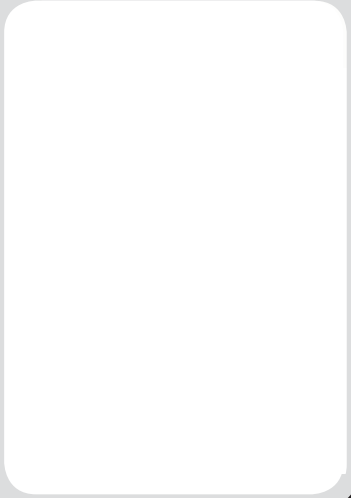
**06ysa \$Ep — Snowberry — Maple**

This uncommon young seral unit of the 06 is recognized by a forest canopy composed of Ep. It occurs in gullies, on gentle lower slopes and depressions on fluvial, colluvial or morainal materials. The shrub layer is abundant and is dominated by common snowberry and Douglas maple. Other common species include tall Oregon-grape, rose, saskatoon, red-osier dogwood and mock-orange. The herb layer is very sparse and the only common species are star-flowered false Solomon's-seal and horsetail. Mosses and lichens are typically absent.



**06ysb \$At — Snowberry — Saskatoon**

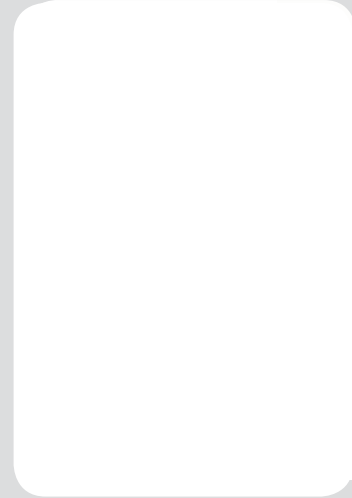
The 06ysb unit is uncommon and occurs on similar sites to the 06ysa unit. It differs from the 06ysa unit in that the forest canopy is composed of At. Shrubs are abundant and include rose, saskatoon and common snowberry. The herb layer is very sparse and there are no common species. Mosses and lichens are usually absent.

**06 Fd — Snowberry**

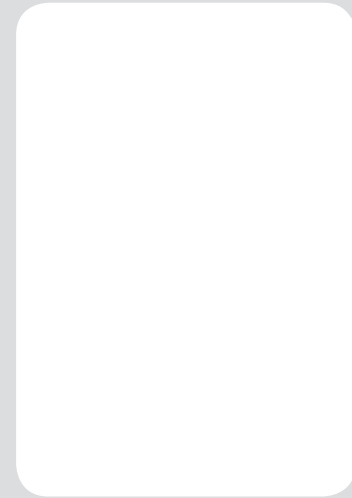
This uncommon climax unit occurs in gullies, on gentle lower slopes and depressions on fluvial, colluvial or morainal materials. It differs from those seral units in that the forest canopy is dominated by Fd with some Py. The shrub layer is dominated by common snowberry. Other common species include saskatoon, tall Oregon-grape and Douglas maple. The herb and moss layers are very sparse and neither layer contains species that are frequently present.

**07 ActEp — Maple**

This site unit is scarce and restricted to the Okanagan basin south of Penticton. It occurs on moist toe slopes, level areas and depressions on high-bench floodplains. It is dominated by abundant Fd with some Py. The shrub layer is dominated by abundant common snowberry. Other common species present in moderate amounts include rose, tall Oregon-grape and Douglas maple. The herb layer is sparse and the most common species are sweet-cicely, blue wildrye, rough-fruited fairybells and horsetail. Mosses and lichens are typically absent.

**08 Act — Dogwood**

The 08 unit is scarce and is restricted to the Okanagan basin south of Penticton. It occurs on wet level areas on low-bench floodplains. The tree layer is usually dominated by Act although At may also be present in the understory. The shrub layer is abundant and the most common and abundant species is usually red-osier dogwood. Other common species include rose and common snowberry. The herb layer often includes a mixture of star-flowered false Solomon's-seal, horsetail and Kentucky bluegrass. Mosses and lichens are usually absent.



**Gs01 Saltgrass**

This uncommon unit occurs on toe slopes, depressions and level areas on fine-textured lacustrine or fluvial materials adjacent to small lakes and ponds where the sites are briefly inundated in the spring followed by drop in the water table during the remainder of the growing season. The soil surface is usually white in colour from the accumulation of salts. Trees and shrubs are absent. The herb layer is dominated by sparse to abundant amounts of seashore saltgrass. Foxtail barley is frequently present in small amounts. Mosses and lichens are absent.

