

Ecological site F002XN904WA

Sitka spruce - red alder/salmonberry/field horsetail

Last updated: 11/27/2024
Accessed: 09/23/2026

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Table 1. Dominant plant species

Tree	(1) <i>Picea sitchensis</i> (2) <i>Alnus rubra</i>
Shrub	(1) <i>Rubus spectabilis</i>
Herbaceous	(1) <i>Equisetum arvense</i>

Physiographic features

Table 2. Representative physiographic features

Landforms	(1) Valley (2) Drainageway (3) Depression
Flooding frequency	None
Ponding duration	Brief (2 to 7 days) to very long (more than 30 days)
Ponding frequency	None to frequent
Elevation	0 – 170 m
Slope	0 – 10 %
Ponding depth	0 – 20 cm
Water table depth	0 cm

Aspect	Aspect is not a significant factor
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Climatic features

The climate is characterized by warm, dry summers and mild, moist winters. Precipitation is received mostly during the early fall to late winter.

Table 3 Representative climatic features

Frost-free period (average)	240 days
Freeze-free period (average)	
Precipitation total (average)	1,020 mm

Influencing water features

Soil features

Applicable soil series:

Bazal, Coupeville, Frostad, Limepoint, Spieden

Table 4. Representative soil features

Surface texture	(1) Loam (2) Mucky silt loam
Drainage class	Poorly drained
Permeability class	Very slow to rapid
Soil depth	50 cm
Available water capacity (0-101.6cm)	6.35 – 24.38 cm
Soil reaction (1:1 water) (0-101.6cm)	3.5 – 7.8

Ecological dynamics

These sites are found within the rainshadow of the Olympic Mountains in the Puget Trough on moist soils and are not restricted to San Juan county. Red alder is a pioneer species – it produces a consistent seed crop, prefers mineral soil in full sun for a seed bed and has rapid height growth. Because Sitka spruce is moderately shade tolerant and prefers light shade for early growth, it will often seed in after red alder when there is a major disturbance. Sitka spruce is much longer lived than red alder; it would be common to find very few alders

in stands over 100 years old without a large disturbance. Both overstory species are at least somewhat susceptible to pathogens that cause root rot and pockets of wind-thrown trees due to either rot or shallow root structures are the most common natural disturbance on these sites. Competition of regeneration in these pockets would be strong; smaller pockets would favor Sitka spruce, while larger pockets would favor red alder. These sites also support several species of shrubs, such as salmonberry and red elderberry, which can out-compete red alder in some instances. The resulting shrub-dominated areas may persist for years.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 6. Community 1.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 7. Community 1.3 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 8. Community 1.4 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 9. Community 1.5 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 10. Community 1.6 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Other information

Site index data based on: Worthington, Norman P. ,Floyd A. Johnson, George R. Staebler, and William J. Lloyd. 1960. Normal yield tables for red alder. USDA, Forest Service. Pacific Northwest Forest and Range Experiment Station Research Paper No 36. USDA NRCS curve # 100.

Table 11. Representative site productivity

Common Name	Symbol	Site Index Low	Site Index High	CMAI Low	CMAI High	Age Of CMAI	Site Index Curve Code	Site Index Curve Basis	Citation
red alder	ALRU2	65	120	58	152	—	—	—	

Contributors

Kathryn E. Smith

Approval

Kirt Walstad, 11/27/2024

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	11/27/2024
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills:

2. Presence of water flow patterns:

3. Number and height of erosional pedestals or terracettes:

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):

5. Number of gullies and erosion associated with gullies:

6. Extent of wind scoured, blowouts and/or depositional areas:

7. Amount of litter movement (describe size and distance expected to travel):

8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):

12. Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):

Dominant:

Sub-dominant:

Other:

Additional:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):

14. Average percent litter cover (%) and depth (in):

15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):

16. Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:

17. Perennial plant reproductive capability:
