

Ecological site F044AY502WA

Warm Mesic Xeric Sandy Hill slopes and Outwash terraces (Ponderosa Pine/Shrub) *Pinus Ponderosa* /*Symphoricarpos albus*, *Pinus Ponderosa* /*Physocarpus malvaceus*

Last updated: 3/11/2019
Accessed: 05/13/2025

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.



Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

MLRA notes

Major Land Resource Area (MLRA): 044A–Northern Rocky Mountain Valleys

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For information regarding MLRAs, refer to: United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

Available electronically at: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_053624#handbook

LRU notes

Found in LRU 44A01 (Spokane-Rathdrum Outwash Plain)

Also present in 43A03 (Columbia-Colville Valleys)

This LRU is composed predominantly of hillslopes, outwash terraces, outwash plains and alluvial terraces. The LRU is in Idaho and Washington. It is found in the portion of the Northern Rocky Mountain Valleys immediately south of the continental ice margin and west of Lake Pend Oreille in areas that were subjected to outburst flooding associated with glacial Lake Missoula. The soils tend to be loamy to sandy mollisols and inceptisols with a weak volcanic ash influence. Outwash is the dominant parent material though colluvium and residuum from granitic and /or metamorphic geology is also common. Soil climate is a mesic temperature regime and xeric moisture regime with average annual precipitation around 525 mm (21 inches) and an average annual air temperature around 8.2 degrees C (47 degrees F). Elevation ranges from about 520 to 815 m (1,700 to 2,670 feet).

Classification relationships

Relationship to Other Established Classifications:

United States National Vegetation Classification (2008) – A3446 Ponderosa Pine / Shrub Understory Central Rocky Mt. Forest & Woodland Alliance

Washington Natural Heritage Program. Ecosystems of Washington State, A Guide to Identification, Rocchio and Crawford, 2015 – Northern Rocky Mountain Ponderosa Pine Woodland and Savanna

Description of Ecoregions of the United States, USFS PN # 1391, 1995 - M333 Northern Rocky Mt. Forest-Steppe-Coniferous Forest-Alpine Meadow Province

Level III and IV Ecoregions of WA, US EPA, June 2010 - 15r Okanogan – Colville Xeric Valleys & Foothills and 15s Spokane Valley Outwash Plains

This ecological site includes the following USDA Forest Service Plant Associations: PIPO/SYAL, PIPO/PHMA, and PIPO/SYOR. (Williams et. al. 1995)

Ecological site concept

This site consists of outwash terraces and hillslopes with the following characteristics: sandy soil materials; low available water capacity; a water table (perched or apparent) greater than 75 cm (30 in) below the soil surface during the April to October period; PIPO/SYAL, PIPO/PHMA habitat types.

Table 1. Dominant plant species

Tree	(1) <i>Pinus ponderosa</i>
Shrub	(1) <i>Symphoricarpos albus</i> (2) <i>Physocarpus malvaceus</i>
Herbaceous	Not specified

Physiographic features

Physiographic Features

Landscapes: Foothills, Valleys

Landform: sideslopes, foot slopes, toe slopes, summits and flats

Elevation (m): Total range = 490 to 880 m

(1,610 to 2,885 feet)

Core Concept = 635 to 730 m

(2,085 to 2,395 feet)

Slope (percent): Total range = 0 to 55 percent

Core Concept = 8 to 25 percent

Aspect: 60-165-345
Core Concept: 100-165-260

Table 2. Representative physiographic features

Landforms	(1) Foothills > Hillslope (2) Valley > Outwash terrace
Flooding frequency	None
Ponding frequency	None
Elevation	636–730 m
Slope	8–25%
Aspect	SE, S, SW

Table 3. Representative physiographic features (actual ranges)

Flooding frequency	Not specified
Ponding frequency	Not specified
Elevation	491–879 m
Slope	0–55%

Climatic features

Climatic Features

Frost-free period (days): Total range = 105 to 135 days

Core Concept = 120 to 125 days

Mean annual precipitation (cm): Total range = 380 to 665 mm

(15 to 26 inches)

Core Concept = 425 to 520 mm

(17 to 20 inches)

MAAT (C): Total range = 7.3 to 9.6 C

(45 to 49 F)

Core Concept = 8.2 to 8.8 C

(47 to 48 F)

Climate Stations: none

Table 4. Representative climatic features

Frost-free period (characteristic range)	120-125 days
Freeze-free period (characteristic range)	
Precipitation total (characteristic range)	432-508 mm
Frost-free period (actual range)	105-135 days
Freeze-free period (actual range)	
Precipitation total (actual range)	381-660 mm

Influencing water features

Water Table Depth (cm): none present

Flooding:

Frequency: None
Duration: None

Ponding:
Frequency: None
Duration: None

Soil features

Representative Soil Features

This ecological subsite is associated with several soil series (e.g.). The soils are Hallcreek, Spokane, Springdale. The soil components can be grouped into two soil subgroups: Andic Haploxerepts, and Vitrandic Haploxerepts. These soils have developed in Mazama tephra deposits and loess mixed with outwash, colluvium, and residuum, from granitic, basalt, metamorphic and other mixed rock. The soils are predominantly very deep and have a no water table within 75cm of the surface during any part of the year. The soils are well to somewhat excessively drained.

Table 5. Representative soil features

Parent material	(1) Volcanic ash (2) Outwash (3) Loess
Surface texture	(1) Ashy coarse sandy loam (2) Ashy sandy loam
Drainage class	Somewhat excessively drained
Permeability class	Rapid
Depth to restrictive layer	203 cm
Soil depth	203 cm
Available water capacity (0-101.6cm)	4.32 cm
Calcium carbonate equivalent (0-152.4cm)	0%
Soil reaction (1:1 water) (0-152.4cm)	Not specified
Subsurface fragment volume <=3" (63.5-254cm)	41%

Table 6. Representative soil features (actual values)

Drainage class	Well drained to excessively drained
Permeability class	Rapid to very rapid
Depth to restrictive layer	51–203 cm
Soil depth	51–203 cm
Available water capacity (0-101.6cm)	4.06–7.11 cm
Calcium carbonate equivalent (0-152.4cm)	0%
Soil reaction (1:1 water) (0-152.4cm)	5–6.7
Subsurface fragment volume <=3" (63.5-254cm)	23–77%

Ecological dynamics

This ecological site is linked to the ecological dynamics and STM for ecological site group: EX044AESG01

State and transition model

Approval

Scott Woodall, 3/11/2019

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	
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):**
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**
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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**
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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):**
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14. **Average percent litter cover (%) and depth (in):**
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**
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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:**
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17. **Perennial plant reproductive capability:**
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