USDA Natural Resources Conservation Service

Ecological site F044AY501WA
Warm Mesic Xeric Loamy Foothills, Terraces, low AWC subsoils (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus

Last updated: 3/11/2019
Accessed: 04/25/2024

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)

This LRU is composed predominantly of hillslopes, outwash terraces, outwash plains and alluvial terraces. The LRU

is 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 hillslopes and lower mountain slopes with the following characteristics: loamy 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) *Pinus ponderosa*
Shrub	(1) *Symphoricarpos albus* (2) *Physocarpus malvaceus*
Herbaceous	Not specified

Physiographic features

Physiographic Features
Landscapes: Foothills, Valleys
Landform: sideslopes, foot slopes summits

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

Table 2. Representative physiographic features

Landforms	(1) Foothills > Hillslope (2) Valley > Outwash terrace
Flooding frequency	None
Ponding frequency	None
Elevation	2,085–2,395 ft
Slope	8–25%
Aspect	SE, S, SW

Table 3. Representative physiographic features (actual ranges)

Flooding frequency	Not specified
Ponding frequency	Not specified
Elevation	1,610–2,885 ft
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)	17-20 in
Frost-free period (actual range)	105-135 days
Freeze-free period (actual range)	
Precipitation total (actual range)	15-26 in

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 Bobbitt, Lenz, McGuire, Northstar, Skalan, Spokane. The soil components can be grouped into four soil subgroups: Typic Xerochrepts, Ultic Haploxeralfs, Vitrandic Argixerolls, Vitrandic Haploxerolls. 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 moderately deep and have a no water table within 75cm of the surface during any part of the year. The soils are mostly well drained.

Table 5. Representative soil features

Parent material	(1) Volcanic ash (2) Outwash (3) Colluvium–granite and gneiss (4) Residuum–granite and gneiss (5) Residuum–basalt
Surface texture	(1) Ashy loam (2) Ashy sandy loam
Drainage class	Well drained
Depth to restrictive layer	32 in
Soil depth	32 in
Available water capacity (0-40in)	2.2 in
Soil reaction (1:1 water) (Depth not specified)	Not specified
Subsurface fragment volume <=3" (10-40in)	55%

Table 6. Representative soil features (actual values)

Drainage class	Not specified
Depth to restrictive layer	26–80 in
Soil depth	26–80 in
Available water capacity (0-40in)	1.7–2.6 in
Soil reaction (1:1 water) (Depth not specified)	5–7
Subsurface fragment volume <=3" (10-40in)	0–80%

Ecological dynamics

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):**

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:**