

Ecological site AX001X03X201

Cryic Udic Meadow

Last updated: 1/23/2025

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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.

MLRA notes

Major Land Resource Area (MLRA): 001X–Northern Pacific Coast Range, Foothills, and Valleys

This long and narrow resource area stretches along the Pacific Border Province of the Pacific Mountain System in Oregon and Washington. The area is bounded by the Olympic Mountains on the north and the Klamath Mountains on the south. Most of the area consists of hills and low mountains with gentle to steep slopes. The parent materials are composed primarily of young Tertiary sedimentary rocks with some minor volcanic rocks. Glacial till and outwash deposits are found in the northern half of the area within Washington. In the far southern portion of the area, near the Klamath Mountains, the sedimentary rocks are older and some have been metamorphosed. The average annual precipitation ranges from 60 to 200 inches, increasing with elevation. The dominant soil orders in this MLRA are Andisols, Inceptisols, and Ultisols. Soil depth ranges from shallow to very deep. While most soils in the area are well drained and occur on foothills, mountain slopes and ridges, floodplain and depressional soils can range from well drained to very poorly drained. Soil textures are typically medial, loamy, or clayey. The dominant soils in the area have a mesic or frigid soil temperature regime and a udic soil moisture regime; however, soils with an aquic soil moisture regime or cryic soil temperature regime do occur.

LRU notes

The Central Pacific Coast Range land resource unit (LRU 3) of MLRA 1 ranges from the Olympic Peninsula south into northern Oregon. LRU 3 is located south of the Olympic National Forest and extends to the Siletz River in Oregon. LRU 3 is bounded on the west by MLRA 4a Sitka Spruce Belt and MLRA 2 Willamette and Puget Sound Valleys to the east. Several major rivers have headwaters in this LRU or carved valleys through the landscape depositing more recent alluvium. These include the Chehalis, Columbia, Grays, Humptulips, Klaskanine, Nehalem, Satsop, Siletz, Willapa, Wilson, Wynoochee, and Yamhill Rivers.

Ecological site concept

This ecological site is found on the western Coast Range in the Pacific Northwest from southern Washington to northern Oregon. It is located in open meadows on mountain shoulder slopes, back slopes, and summits. Elevations are greater than 2,500 feet with slopes ranging from 3 to 60 percent. The climate has cool, moist summers and cold, wet winters. Mean annual precipitation ranges from 120 to 150 inches. Average annual temperatures range from 39 to 45 degrees F. Soils that support this ecological site occur in the cryic soil temperature regime and the udic soil moisture regime. The site is predominantly comprised of low growing shrubs, forbs, and grass species. The meadows are adapted to harsh environmental conditions and short growing seasons. They endure strong winds, heavy snowpack, intense solar radiation, and freezing conditions. Plant production is directly related to the snow release date which can be highly variable from year to year. Additionally, drying winds on exposed slopes and ridges add to a moisture deficit through increased evapotranspiration during the growing season (Kuramoto, 1970). These effects are most pronounced on the exposed south and west slopes and ridgetops. As a result, plants are more sparsely located on the landscape and primarily drought tolerant species. Snowpack is the primary abiotic driver that affects the length of the growing season, soil moisture availability, and susceptibility to wildfire. Historically, fire (anthropogenic and natural) was an important disturbance factor, suppressing the growth of encroaching conifers and retaining a forb, grass, and grass-like dominated parkland ecosystem (Hemstrom, 1982). This site is highly sensitive to small disturbances from soil compaction and damage to vegetation which may have significant impacts to the ecological integrity and resilience of the site. If there is a long period without disturbance, the site is subject to conifer encroachment including noble fir (*Abies procera*) and Pacific silver fir (*Abies amabilis*) creating tree islands. The reference community may be most common, but it is likely that all community phases occur as a matrix across the landscape. Common plants include Cascade desertparsley (*Lomatium martindalei*), Pacific lupine (*Lupinus lepidus*), sulfur-flowered buckwheat (*Erigonum umbellatum*), toughleaf iris (*Iris tenax*), annual agoseris (*Agoseris heterophylla*), arrowleaf ragwort (*Senecio triangularis*), Columbia lily (*Lilium columbianum*), hookedspur violet (*Viola adunca*), Roemer's fescue (*Festuca roemerii*), seashore bentgrass (*Agrostis pallens*), and California sedge (*Carex californica*).

Associated sites

AX001X03X401	Crylic Udic Forest Crylic Udic Forest is located along the edges of Crylic Udic Meadow. The site is forested and located on mountain shoulders and summits. The most common overstory species include Pacific silver fir, noble fir, and western hemlock. The most common understory species include red huckleberry, salal, Oregon oxalis, and western swordfern.
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Similar sites

AX001X03X201	Crylic Udic Meadow Crylic Udic Meadow is unique and does not share similar characteristics to other ecological sites.
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) <i>Lomatium martindalei</i> (2) <i>Senecio triangularis</i>

Legacy ID

R001XC201OR

Physiographic features

This ecological site is located in open meadows on mountain shoulder slopes, back slopes, and summits. Elevations are greater than 2,500 feet with slopes ranging from 3 to 60 percent.

Table 2. Representative physiographic features

Landforms	(1) Mountains > Mountain slope (2)
Flooding frequency	None
Ponding frequency	None
Elevation	760 – 1,430 m
Slope	0 – 60 %
Water table depth	50 – 100 cm

Aspect	W, NW, N, NE, E, SE, S, SW
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Climatic features

The climate has cool, moist summers and cold, wet winters. Mean annual precipitation ranges from 120 to 150 inches. Average annual temperatures range from 39 to 45 degrees F. Microclimate may vary depending on soil temperature and site specific features.

Table 3 Representative climatic features

Frost-free period (characteristic range)	40-100 days
Freeze-free period (characteristic range)	
Precipitation total (characteristic range)	3,050-3,810 mm

Influencing water features

This site does not experience ponding or flooding. The water table will typically rise during the spring and summer months and recede in the fall. Seasonal snowpack melts earlier on these sites and the lack of saturation in the soil profile allows soil to warm quickly with rising seasonal air temperature.

Soil features

Soils that support this ecological site occur in the cryic soil temperature regime and the udic soil moisture regime. The soil is usually moist but is dry for a short period of less than 45 consecutive days between depths of 4 to 12 inches in the four month period following the summer solstice in moist years.

Table 4. Representative soil features

Parent material	(1) Colluvium – igneous rock (2) Residuum – igneous rock
Surface texture	(1) Loam (2) Medial loam
Drainage class	Well drained
Depth to restrictive layer	50 – 100 cm
Surface fragment cover <=3"	0 – 10 %
Surface fragment cover >3"	Not specified

Clay content (0-25.4cm)	10 – 20 %
Subsurface fragment volume <=3" (2.5-101.6cm)	10 %
Subsurface fragment volume >3" (2.5-101.6cm)	0 – 10 %

Ecological dynamics

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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Inventory data references

Other Established Classifications for Ecological Site National Vegetation Classification: A1647 Lomatium martindalei Meadow Alliance
Non-forest Plant Communities of the Northern Oregon Coast Range and Vicinity: Festuca roemerii [high elevation Coast Range]

Other references

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Contributors

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Approval

Kirt Walstad, 1/23/2025

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	05/07/2024
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:
