

Ecological site F013XP604ID

Shallow Warm Woodland Group

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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): 013X–Eastern Idaho Plateaus

Major Land Resource Area (MLRA) 13, Eastern Idaho Plateaus, consists of approximately 5 million acres in Idaho with a small part in Utah and Wyoming, it consists of 6 Land Resource Units (LRU). These units are divisions of the MLRA based on geology, landscape, common soils, water resources and plant community potentials. The elevation ranges from approximately 4500 to 6600 feet (1370 to 2010 m) on the plateaus and foothills to as much as 9500 feet (2895 m) on the mountains. Annual precipitation ranges from 10 to 48 inches (254-1220 mm), with the driest areas in the Bear River Valley on the far eastern portion and the wettest areas on the mountain summits. The Fort Hall Indian Reservation and several national forests are in this MLRA, including the Caribou, Cache, and Targhee National Forests. Yellowstone and Grand Teton National Parks occur just outside the northeast boundary.

LRU notes

LRU P: PES (Provisional Ecological Site or Group - PEG) A PROVISIONAL ECOLOGICAL SITE is a conceptual grouping of soil map unit components within a Major Land Resource Area (MLRA) based on the similarities in response to management. Although there may be wide variability in the productivity of the soils grouped into a Provisional Site, the soil vegetation interactions as expressed in the State and Transition Model are similar and the management actions required to achieve objectives, whether maintaining the existing ecological state or managing for an alternative state, are similar. Provisional Sites are likely to be refined into more precise concept during the process of meeting the APPROVED ECOLOGICAL SITE DESCRIPTION criteria.

This PROVISIONAL ECOLOGICAL SITE has been developed to meet the standards established in the National Ecological Site Handbook. The information associated with this ecological site does not meet the Approved Ecological Site Description Standard, but it has been through a Quality Control and Quality Assurance processes to assure consistency and completeness. Further investigations, reviews and correlations are necessary before it becomes an Approved Ecological Site Description.

Classification relationships

Other Classifications:

- PIFL2/LEKI2 habitat type (Steele Et.Al. 1983)
- PIFL2/CELE habitat type (Steele Et.Al. 1983)
- PIFL2/FEID habitat type (Steele Et.Al.1983)
- PIFL2/JUCOD habitat type (Steele Et.Al. 1983)

Ecological site concept

- Site does not receive any additional water
- Soils are
 - o Generally not saline or saline-sodic

- o Shallow
- o Typically less than 5% stone and boulder on surface (<15%)
- o Soil surface texture ranges from sandy loam to clay loam in surface mineral 4”

Associated sites

F013XP610ID	Upland Cool Woodland Group
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Similar sites

F013XP610ID	Upland Cool Woodland Group
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Table 1. Dominant plant species

Tree	(1) <i>Pinus flexilis</i>
Shrub	Not specified
Herbaceous	(1) <i>Pseudoroegneria spicata</i> (2) <i>Festuca idahoensis</i>

Physiographic features

This site occurs on most slopes and along ridge tops. Rock outcrops are common in association with this ecological site.

Table 2. Representative physiographic features

Landforms	(1) Mountains > Mountain slope (2) Ridge
Runoff class	Low to very high
Elevation	1,768–2,804 m
Slope	15–80%
Aspect	W, SE, S, SW

Climatic features

Annual precipitation ranges from 17-24 inches per year. June is generally the wettest month. July, August, and September are somewhat less with daily amounts rarely exceeding one inch. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation.

Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks in winter move rapidly from northwest to southeast and account for extreme minimum temperatures.

Snowfall is quite heavy in the area. Annual snowfall averages about 150 inches. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring. Prevailing winds are from the southwest, because of the varied topography, the wind will vary considerably for different parts of the area. The wind is usually much lighter at the lower elevations and in the valleys as compared with the higher terrain. Occasional storms, however, can bring brief periods of high winds with gusts exceeding 50 mph. Growth of native cool season plants begins about May 15 and continues to about September 15.

Table 3. Representative climatic features

Frost-free period (characteristic range)	34-41 days
Freeze-free period (characteristic range)	85-87 days
Precipitation total (characteristic range)	432-559 mm
Frost-free period (actual range)	32-43 days
Freeze-free period (actual range)	84-88 days
Precipitation total (actual range)	432-610 mm
Frost-free period (average)	38 days
Freeze-free period (average)	86 days
Precipitation total (average)	508 mm

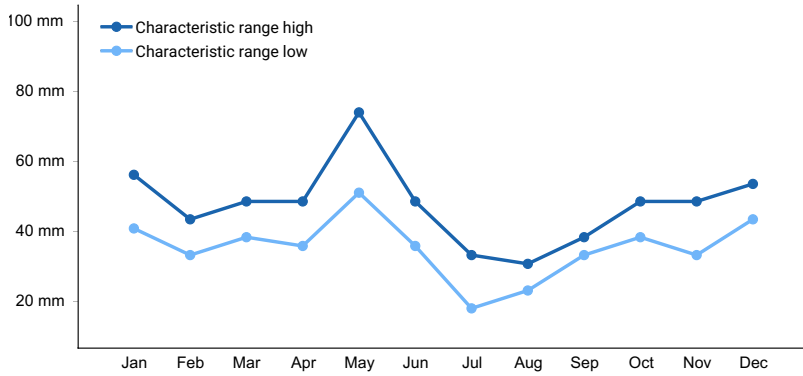


Figure 1. Monthly precipitation range

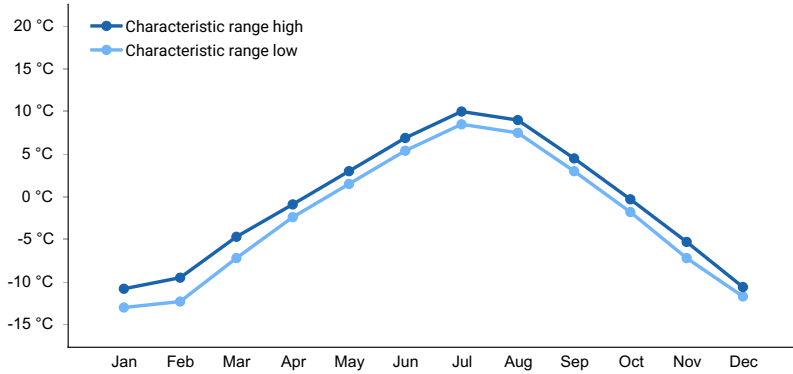


Figure 2. Monthly minimum temperature range

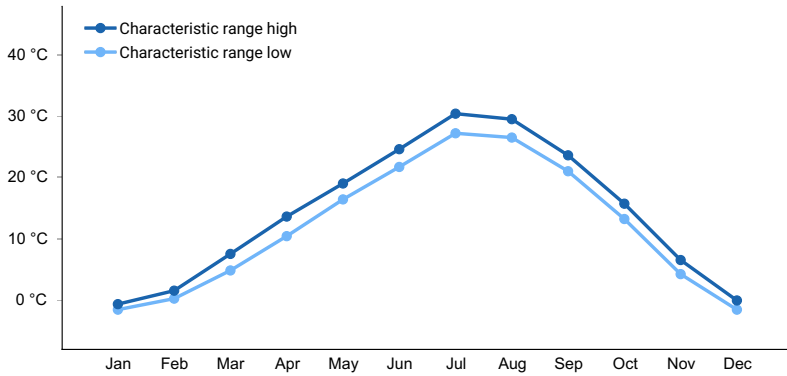


Figure 3. Monthly maximum temperature range

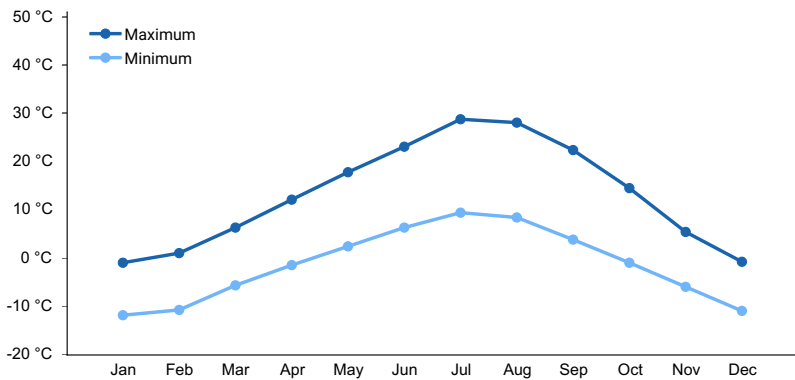


Figure 4. Monthly average minimum and maximum temperature

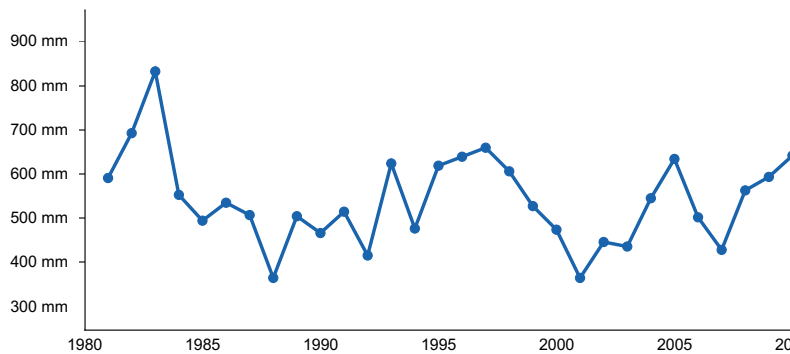


Figure 5. Annual precipitation pattern

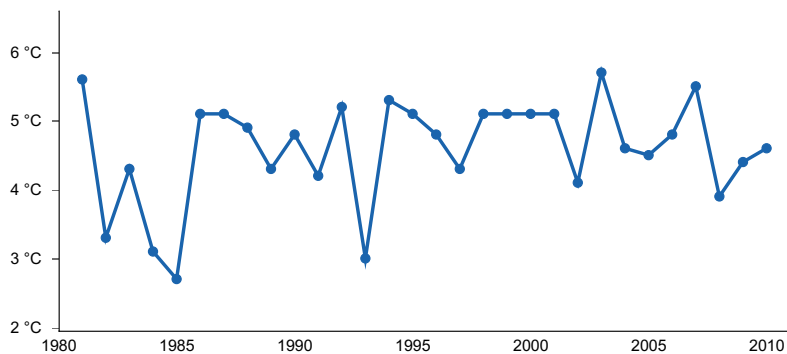


Figure 6. Annual average temperature pattern

Climate stations used

- (1) BERN [USC00100803], Bern, ID
- (2) ALTA 1 NNW [USC00480140], Alta, WY
- (3) LAVA HOT SPRINGS [USC00105143], Lava Hot Springs, ID

Influencing water features

This site is not associated with any type of surface water feature. Snow drift impact is moderate.

Soil features

The soils associated with this site were derived from calcareous sandstone, limestone, or quartzite-sandstone mixes. These soils are generally less than 20" in depth and virtually impermeable to plant roots. Pockets of deep soil may occur in this site and are moderately acidic. The bedrock will include igneous, metamorphic and sedimentary material. The soil characteristic having the most influence on the plant community is the shallow depth and slope. Soil temperature regime is found on frigid and the lower extent of cryic; while, soil moisture regime is typic xeric to udic.

Table 4. Representative soil features

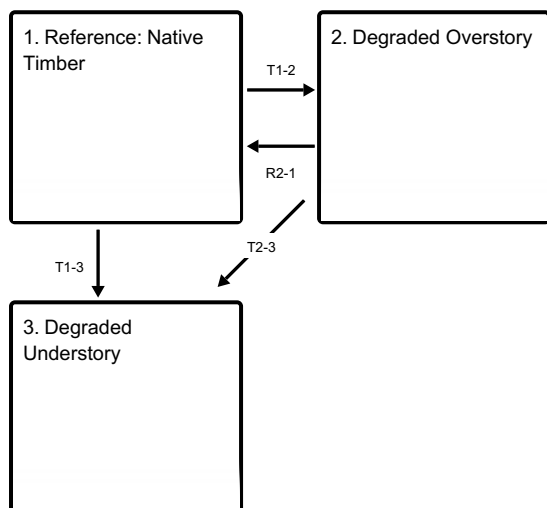
Parent material	(1) Igneous and metamorphic rock (2) Sedimentary rock
Surface texture	(1) Clay loam (2) Sandy loam
Depth to restrictive layer	25–51 cm
Soil depth	25–51 cm

Ecological dynamics

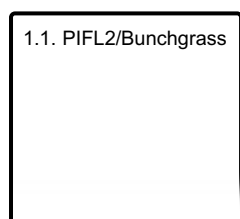
The lower mountain slopes and foothills provide a warmer band of forested pockets that are dominated by limber pine, rocky mountain juniper, and some cover of Douglas-fir. Although these communities can have dense overstory cover, the herbaceous understory is more common. Variability across the broad extent of this ecological grouping is great within species diversity and timber and forage production.

State and transition model

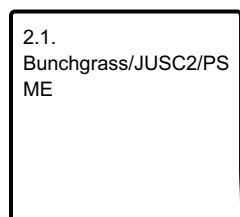
Ecosystem states



State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities

3.1. PIFL2/Invasives

State 1

Reference: Native Timber

The Reference State for the Shallow Warm Woodland has a Limber pine overstory with native bunchgrasses and shrubs in present in the under story.

Characteristics and indicators. This limber pine dominated site is commonly accompanied by rocky mountain juniper and a low occurrence of Douglas-fir. The under story is comprised of bluebunch wheatgrass, Idaho fescue, threadleaf and needleleaf sedge as well as sandberg bluegrass. Common shrubs are currant, skunkbush, mahogany, and creeping juniper. Arrowleaf Balsamroot, Indian paintbrush, phlox, and cactus are common on this site as well.

Community 1.1

PIFL2/Bunchgrass

The Reference Community (1.1) is a limber pine community with a bluebunch wheatgrass and Idaho fescue under story. Low composition of Rocky mountain juniper and Douglas-fir are also found in this community. Shrubs, including currant, sumac (skunkbush), and mountain mahogany, are common. Arrowleaf baslamroot, a variety of paintbrush species, as well as phlox are found in the under story.

State 2

Degraded Overstory

The loss of woody canopy cover due to fire or disease characterizes the transition from the reference state to State 2 - Degraded Overstory.

Characteristics and indicators. Native grasses and grass-likes are dominant on this site. The woody canopy is reduced to cover of less than 15%, and may represent only one or two species. Following disease or other impacts to limber pine, juniper may become dominant on the site. Bluebunch wheatgrass, Idaho fescue, threadleaf sedge, and sandberg bluegrass are the major grass/grass-like species with arrowleaf balsamroot, Indian paintbrush, phlox and cactus.

Community 2.1

Bunchgrass/JUSC2/PSME

As the limber pine canopy is reduced by insect, disease, decadence or fire, the under story transitions to a more bunchgrass dominated community with remnants of woody vegetation. As this community progresses, Rocky mountain juniper can become dominant.

State 3

Degraded Understory

The Degraded Understory State is a result of the loss of the native bunchgrasses and the establishment of invasive and aggressive species.

Characteristics and indicators. As bluebunch wheatgrass and Idaho fescue are removed from the community, sandberg bluegrass, prairie junegrass, and threadleaf sedge maintain a footprint. With drought, soil disturbance or in the removal of further understory, invasive species such as cheatgrass can take a hold in the community.

Community 3.1

PIFL2/Invasives

The limber pine, Rocky mountain juniper, and Douglas-fir over story remains in varying composition, while the under story degrades with increased disturbance, drought, or possibly fire. As the under story degrades, invaders increase in the community. Cheatgrass is the main threat in this system. Rocky mountain juniper can also be an invader in this system.

Transition T1-2

State 1 to 2

Fire, disease or insect damage, or other canopy disturbances remove the over story, exposing the herbaceous under story.

Transition T1-3

State 1 to 3

Soil disturbance or impacts to the under story cover leave this site vulnerable to invasive species.

Restoration pathway R2-1

State 2 to 1

Recovery time, weed and erosion control, as well as assurance that the necessary nursery stock is present are the key factors to restoring this site.

Transition T2-3

State 2 to 3

Significant canopy and soil disturbance with seed sources present lead to the degradation of the under story.

Additional community tables

Animal community

This site and plant community complex has minimal livestock grazing capacity in the old stand forests. In new growth or following logging or fire, this site may offer some livestock forage. This site is common habitat for elk, mule deer, bear, wolf, mountain lion, and a variety of other wildlife.

Hydrological functions

Water is the principal factor limiting forage production on this site. This site is highly variable and is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration ranges from slow to very rapid. Runoff potential for this site varies from moderate to high depending on soil hydrologic group, depth and degree of bedrock fracturing, slope, and ground cover (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information.)

Rills and gullies may be present, but should be small. Water flow patterns should be barely distinguishable. Pedestals are only slightly present in association with bunchgrasses such as bluebunch wheatgrass. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

Recreational uses

This site provides hunting opportunities for large ungulates and fur bearing species. Limited for upland game bird species. Hiking is limited by density of tree stands and slope of site.

Wood products

Timber harvest for lumber and firewood, as well as post and pole cuttings are common on this forest type. Christmas tree harvest occurs on lower extents of this forest type.

Other products

Berry harvest from under story species as well as medicinal plants can be found within this ecological site. Fungi (mushroom) harvest can also occur in specific locations.

Other references

Steele, Robert; Cooper, Stephen V.; Ondov, David M.; Roberts, David W.; Pfister, Robert D. 1983. Forest Habitat Types of Eastern Idaho-Western Wyoming. General Technical Report INT-144. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 122 p.

Contributors

Bob Spokas
Bryan Christensen

Approval

Kirt Walstad, 9/07/2023

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	05/17/2024
Approved by	Kirt Walstad
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:
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17. **Perennial plant reproductive capability:**
-