

## Ecological site R010XA016ID Quaking Aspen 20+ PZ POTR5

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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): 010X–Central Rocky and Blue Mountain Foothills

This MLRA is characterized by gently rolling to steep hills, plateaus, and low mountains at the foothills of the Blue Mountains in Oregon and the Central Rocky Mountains in Idaho. The geology of this area is highly varied and ranges from Holocene volcanics to Cretaceous sedimentary rocks. Mollisols are the dominant soil order and the soil climate is typified by mesic or frigid soil temperature regimes, and xeric or aridic soil moisture regimes. Elevation ranges from 1,300 to 6,600 feet (395 to 2,010 meters), increasing from west to east with higher elevations reaching 9250 feet on the northern fringe of the MLRA. The climate is characterized by dry summers and snow dominated winters with precipitation averaging 8 to 16 inches (205 to 405 millimeters) and increasing from west to east. Higher elevations on the northern fringe of this MLRA receive upwards of 41 inches in precipitation. These areas are the foothills and lower mountain side slopes as the MLRA transitions into MLRA 43C.

These factors support plant communities with trees and shrub-grass associations with considerable acreage of sagebrush grassland. Western juniper is one of the few common tree species and since European settlement has greatly expanded its extent in Oregon. Nearly half of the MLRA is federally owned and managed by the Bureau of Land Management. Most of the area is used for livestock grazing.

For further information, see "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, 2006)" available online at: [https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2\\_053624](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_053624)

### Ecological site concept

In reference condition, this site supports a grove of quaking aspen trees with a heavy stand of grass and forbs in the understory.

- Site occurs on 10 - 40% slopes
- Deep to very deep soils
- Site occurs in areas of moisture accumulating topography
- Occurs in 20" + PZ
- Elevation 5,500 to 9,000 ft
- Cryic soil temperature regime

### Associated sites

R010XA010ID	<b>North Slope Fractured 16-22 PZ</b> Occupying adjacent north slopes with shallow soils over fractured bedrock
R010XA015ID	<b>South Slope Loamy 16-22 PZ</b> Occupying adjacent loamy south slopes

R010XY008ID	<b>South Slope Granitic 12-16 PZ PUTR2/PSSPS</b> Occupying adjacent loamy north slopes
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## Similar sites

R010XY230OR	<b>Aspen Upland 12-18 PZ</b> Similar aspen ecological site occurring in Oregon with a Mesic - Frigid soil temperature regime
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**Table 1. Dominant plant species**

Tree	(1) <i>Populus tremuloides</i>
Shrub	Not specified
Herbaceous	Not specified

## Physiographic features

This site occurs in semi-wet pockets and areas of snow drift accumulation, ravines, valleys, and canyons and in the vicinity of seeps and springs. Slopes vary from 10 to 40 percent. This site normally has a north or east aspect, but may occur on west or south exposures in protected pockets and at the higher elevations. The elevation ranges from 5,500 to 9,000 feet (1,675 to 2,740 m).

**Table 2. Representative physiographic features**

Landforms	(1) Foothills > Canyon (2) Mountain valleys or canyons > Canyon
Flooding frequency	None
Ponding frequency	None
Elevation	5,500–9,000 ft
Slope	10–40%
Ponding depth	0 in
Water table depth	80 in
Aspect	W, NW, N, NE, E, SE, S, SW

## Climatic features

The Big and Little Wood River Foot slopes and Plains, proposed as MLRA 10A, has a mean elevation of 5310 feet above sea level, and varies from 3600 to 9235 feet. In general, average annual precipitation is greatest on the western side, with the southeast area being the driest. The average annual precipitation, based on 7 long term climate stations located throughout the MLRA, is 15.39 inches, with a range of 12.5 to 18 inches. Higher elevations on the northern fringe of this MLRA receive upwards of 41 inches in precipitation. These areas are the foothills and lower mountain side slopes as the MLRA transitions into MLRA 43C. Monthly precipitation is generally greatest at the end of the year, diminishes steadily until a low in July and August, then increases rapidly in the autumn. Monthly temperatures can vary considerably. Highs of up to 102° and lows down to -52° Fahrenheit have been recorded. The average annual temperature is 42.9°. Both morning and afternoon average relative humidity values peak in the winter, and reach their low in July and August. The average number of sunny, cloud-free days is above average for the summer months, but below average for the period from November through February.

The climate of this site is cool and slightly moist in the summer and cold and wet in the winter. The temperature is generally 5 to 10 degrees (F) cooler than the surrounding area. The mean annual precipitation and moisture provided from groundwater such as seeps is at least 20 inches (50 cm). Many of these sites are snow pockets and retain the snow until late June at the higher elevations.

Plant growth starts from May 15 to June 15, with dormancy returning in mid to late September. The frost-free period is less than 60 days. Approximately 60 to 70 percent of the total precipitation occurs from September to May.

Climate graphs are based on the nearest available climate stations to representative site locations and are provided to indicate general climate patterns.

Table 3. Representative climatic features

Frost-free period (characteristic range)	45-60 days
Freeze-free period (characteristic range)	50-95 days
Precipitation total (characteristic range)	18-25 in
Frost-free period (average)	55 days
Freeze-free period (average)	80 days
Precipitation total (average)	22 in

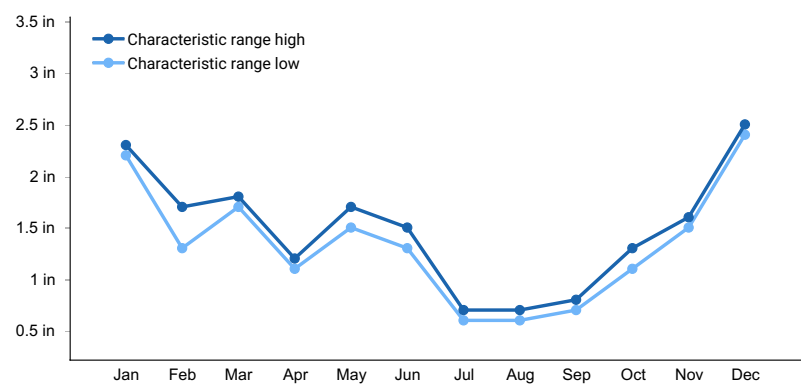


Figure 1. Monthly precipitation range

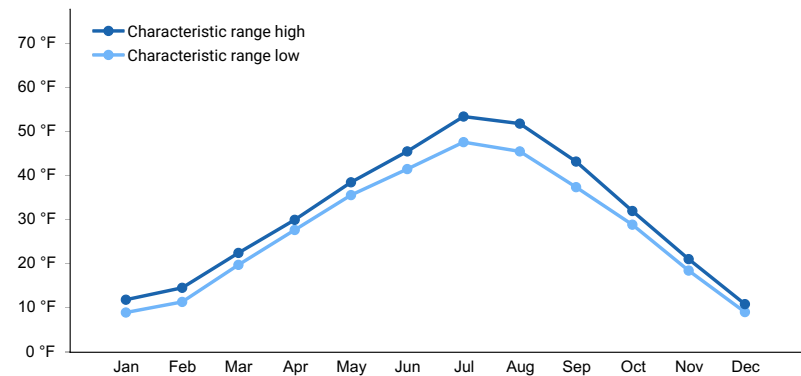


Figure 2. Monthly minimum temperature range

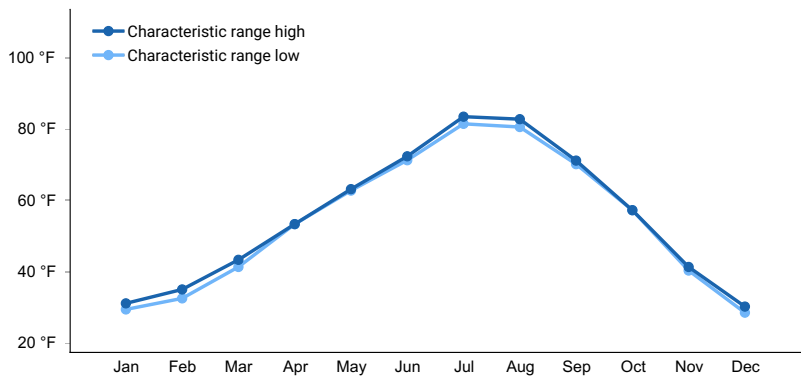
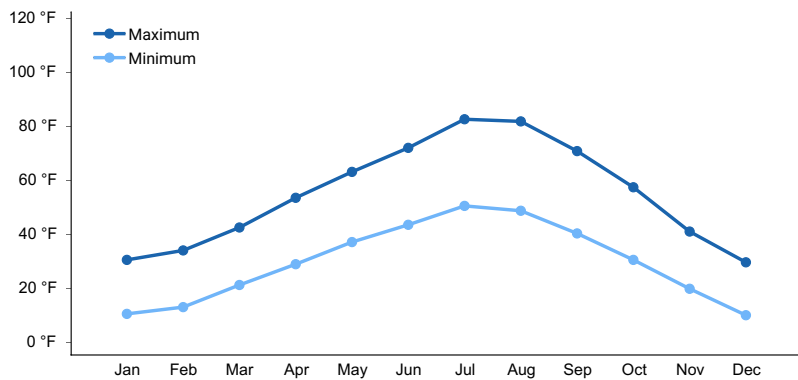
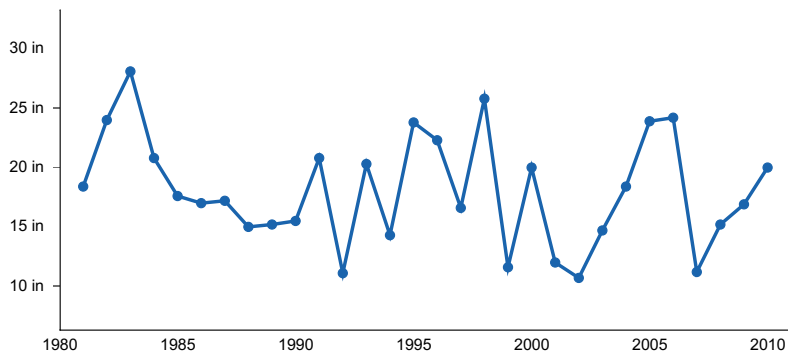


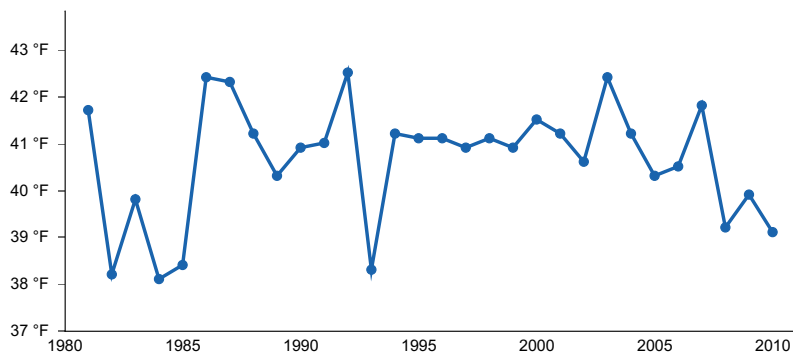
Figure 3. Monthly maximum temperature range



**Figure 4. Monthly average minimum and maximum temperature**



**Figure 5. Annual precipitation pattern**



**Figure 6. Annual average temperature pattern**

## Climate stations used

- (1) KETCHUM RS [USC00104845], Ketchum, ID
- (2) ARCO 17 SW [USW00004126], Arco, ID

## Influencing water features

This site's soil moisture is augmented by streams or run on from adjacent snow pockets.

## Wetland description

N/A

## Soil features

The soils on this site are dark colored loams, fine sandy loams, and medial fine sandy loams that have less than 5 percent rock fragments in the surface layer. The rock fragments increase with depth to about 25 percent. The soils are greater than 40 inches to bedrock. They are high in volcanic ash. The soils are well drained with permeability ranging from moderately slow to rapid. The available water holding capacity (AWC) is low to high. The erosion

hazard is high when the vegetative cover is removed. The soils have a xeric or aridic bordering on xeric soil moisture regime. The soil temperature regime is cryic.

**Table 4. Representative soil features**

Parent material	(1) Volcanic ash–volcanic rock (2) Cinders–volcanic rock (3) Colluvium–volcanic and sedimentary rock
Surface texture	(1) Medial fine sandy loam (2) Fine sandy loam (3) Loam
Family particle size	(1) Medial (2) Fine-loamy
Drainage class	Well drained
Permeability class	Moderately slow to rapid
Depth to restrictive layer	40–80 in
Soil depth	40–80 in
Surface fragment cover <=3"	0–5%
Surface fragment cover >3"	0–5%
Available water capacity (0-40in)	4.7–10.3 in
Soil reaction (1:1 water) (0-40in)	5.6–7.3
Subsurface fragment volume <=3" (4-60in)	0–25%
Subsurface fragment volume >3" (4-60in)	0–20%

## Ecological dynamics

The dominant visual aspect of this site is a grove of quaking aspen trees with a heavy stand of grass and forbs in the understory. This site is composed of one to several quaking aspen clones, each with a common genetic makeup and individual phenological and physiological characteristics. The understory composition is approximately 55 to 75 percent grasses, 15 to 35 percent forbs and 5 to 10 percent shrubs and trees under 4.5 feet tall. Composition by weight for the entire plant community is approximately 5 percent grass, 3 percent forbs, 1 percent shrubs and 90 percent trees.

During the last few thousand years, this site has evolved in an arid climate characterized by dry summers and cold, wet winters. The site has evolved in pockets and basins that accumulate snow or in the vicinity of seeps and springs. Snow may be present on the site from mid-October to late June. This site is typically multi-layered. Sufficient light is able to penetrate the canopy to support abundant understory growth. Most aspen stands are even-aged because of the rapid reproduction by suckering after a major disturbance. Uneven-aged stands are likely to form under stable conditions where the overstory gradually disintegrates with disease or age and is replaced by suckers. Uneven aged stands also occur where individual clones gradually expand into adjacent grasslands or shrublands. Species that occur near the periphery of a clone are generally shade intolerant. They include basin wildrye, bluebunch wheatgrass, bottlebrush squirreltail, mountain brome, slender wheatgrass, silver sagebrush, mountain big sagebrush, and common chokecherry.

Herbivory has historically occurred on this site at low levels of utilization. Herbivores include mule deer, Rocky Mountain elk, and beaver if a watercourse is in the vicinity.

Fire plays a role in maintaining the plant community by providing bare mineral soil with full sunlight to germinate aspen. Fire stimulates suckering from the root system. The fire frequency on the site is dependent on the frequency of fire on adjacent range sites and moisture in the fuels on the site. Fire conditions generally need to be severe to

carry a fire through this plant community. Often due to higher humidity within the aspen grove, fire is knocked down once it enters the site. Therefore fire frequency is generally less frequent than on adjacent upland range sites. The normal fire frequency is 75 to 120 years.

The total annual production is 6000 pounds per acre (6666 kilograms per hectare) in a normal year. In a below normal year production is 4800 pounds per acre. In an above normal year production is 7200 pounds per acre.

Structurally, trees are very dominant followed by cool season deep-rooted perennial grasses, followed by perennial forbs with shrubs being sub-dominant.

The Reference State (State 1), historically referred to as the Historic Climax Plant Community (HCPC), moves through many phases depending on the natural and man-made forces that impact the community over time. State 1, described later, indicates some of these phases. The Reference Plant Community Phase is Phase 1.1. The plant species composition of Phase 1.1 is listed later under "Reference Plant Community Phase Plant Species Composition".

The following are the major successional stages that this site may go through in its development:

**Herbaceous:** Vegetation is dominated by grasses and forbs under full sunlight. Dominant grasses found in this stage include a mix of shade tolerant and shade intolerant plants. This stage is experienced after a major disturbance such as root-rot, insect damage, crown fire or tree harvest. Following a major disturbance, the root system gives rise to many root suckers, assuming the root system has remained healthy and intact. This stage is shown as Phase C in the state and transition model.

**Shrub-Herbaceous:** Herbaceous vegetation and woody shrubs dominate the site. Species found in this stage include Utah serviceberry, snowberry, common chokecherry, alpine timothy, tufted hairgrass, lupine, and yarrow. Various amounts of tree vegetative shoots (less than 20 inches in height) may be present up to the point where they are obviously a major component of vegetal structure. This stage is shown as Phase C in the state and transition model.

**Sapling:** In the absence of disturbance, vegetative shoots develop into saplings (20 inches- 4.5 feet) with a range in canopy cover of about 5 to 10 percent. Vegetation consists of grasses, forbs and shrubs in association with tree saplings. Species in this stage are a mix of shade tolerant and shade intolerant species. If a conifer seed source is in the vicinity, conifers such as Douglas fir will begin to invade. In the state and transition model, this stage is transitional between Phase C and the HCPC.

**Immature forestland:** The visual aspect and vegetal structure are dominated by quaking aspen greater than 4.5 feet in height. Vegetative shoots and saplings are present in the understory. Understory vegetation is moderately influenced by a tree overstory canopy of about 10 to 20 percent. Shade tolerant species common to this stage include ovalhead sedge, Columbia needlegrass, western needlegrass, blue wildrye, violet, waterleaf, forget-me-not, clover, bulbous oniongrass, Wood's rose and currant. In the state and transition model, this stage is transitional between Phase C and Phase A.

**Mature forestland:** The visual aspect and vegetal structure are dominated by quaking aspen that have reached or are near maximal heights for the site. Tree heights range from 30 to 60 feet, depending upon site and clonal genotype. Trees have developed tall, straight, clear stems with short, high rounded crowns. Tree canopy cover ranges from 20 to 40 percent. Understory vegetation is strongly influenced by tree competition, overstory shading, duff accumulation, etc. Aspen is self-thinning. This thinning process occurs primarily in this phase. A tall shrub stratum sometimes grows beneath this tree layer. Tall shrubs form a very open and intermittent layer. Tall grasses and forbs frequently form a rather continuous layer. An even lower layer of forbs and grasses is always part of the understory. All understory species are shade tolerant. Few vegetative shoots and/or saplings of quaking aspen occur in the understory. This stage is shown as Phase A of the state and transition model. If Douglas fir has invaded the site, it is a transitional stage towards the over-mature forestland stage.

**Over-mature forestland:** In the absence of wildfire or other naturally occurring disturbances, tree canopy on this site can become very dense. As less light penetrates to lower levels of vegetation, competitive relationships are altered, and the understory shrubs and forbs progressively decrease in abundance until few remain. This stage is dominated by quaking aspen that have reached maximal heights for the site. Trees have straight, clear stems with short, high

rounded crowns. Understory vegetation is sparse to absent due to invasion of Douglas fir, tree competition, overstory shading, duff accumulation, etc. Tree canopy cover is commonly greater than 50 percent. This stage is shown as Phase D in the state and transition model.

#### FUNCTION:

This site is suited for livestock grazing in late spring, summer, and fall. This site is usually heavily used by livestock, particularly in the summer. Prescribed grazing must be planned and implemented to avoid degradation of the site. This is an important site for wildlife for cover, nesting, and food. If the site is associated with perennial streams, a fisheries resource could also be present. The site has high value for recreation such as camping and picnicking on flatter slopes. Hunting opportunities are good where the site is isolated from human activity. Degradation of the site can occur with high recreational use and improper grazing management.

Impacts on the Plant Community.

#### Influence of fire:

This site can burn from wildfire. Burning usually occurs from fire spreading from an adjacent range site when the fuel moisture levels are low in this site. Since the plant community in this site is dependent on moist soils which allow deep-rooted plants to grow throughout most of the summer, the fuels often are not dry enough to burn. The fire frequency is usually longer than adjacent range sites. Most of this site is associated with the sagebrush steppe where the normal fire frequency is estimated at 20 to 50 years. A wildfire can kill most of the above ground plant material. Most of the trees and shrubs adapted to the site are root-sprouting plants and regenerate rapidly. In order for this site to remain intact, fire needs to be a component of plant community development since conifers will ultimately over-top the aspen, resulting in aspen mortality.

#### Influence of improper grazing management.

Season-long grazing and/or excessive utilization can be very detrimental to this site. Fall use, year after year, will result in excessive utilization of the aspen regeneration. This may lead to a single age class stand of trees. Uncontrolled beaver populations may eliminate the overstory component if a watercourse is in the proximity. Due to improper grazing management, grasses, forbs, shrubs and young trees can all decline in the plant community. Shrubs usually increase initially, but with continued improper management, will decline.

Continued improper grazing management will result in a stand of forbs and Kentucky bluegrass with reduced vigor. This site is particularly difficult to manage because animals seek out the site for shade and it is usually in the proximity of water.

Proper grazing management that addresses frequency, duration, and intensity of grazing can maintain the integrity of the plant community and the moist soils on which it is dependent. Properly managed ungulate grazing and browsing does not have a detrimental effect on stand development.

#### Weather influences:

Because of the deep moist soils, the production of this site changes little during wet or dry precipitation years. The overall production can be influenced adversely with prolonged drought. Prolonged drought can increase fire frequency. Overall plant composition is normally not affected when perennials have good vigor.

Below normal temperatures in the spring can have an adverse impact on total production regardless of the run-off and flooding. An early, hard freeze can occasionally kill some plants. An early frost can stop the growth of trees and shrubs.

#### Influence of insects and disease:

Periodic disease and insect outbreaks can affect vegetation health. Aspen is susceptible to injury or mortality from a variety of borers and fungus. It is most susceptible following fire, logging or when the clone becomes older than 60 to 70 years.

An outbreak of a particular insect is usually influenced by weather but no specific data for this site is available.

Influence of noxious and invasive plants:

Annual and perennial invasive species can compete with desirable plants for moisture and nutrients. The result is reduced production and change in composition of the understory. There are several noxious or invasive species that are adapted to this site, particularly following fire. As the canopy closes most of the shade intolerant species decline.

Influence of wildlife:

This site is important for many species of mammals and birds for food and life cycles. Total numbers are seldom high enough to adversely affect the plant community. The site is primarily used in the late spring, summer, and fall by big game. Many birds use the site for food, nesting or brood rearing in the late spring and summer. Uncontrolled beaver populations can be very detrimental on the site if there is suitable aquatic habitat in the vicinity.

Watershed:

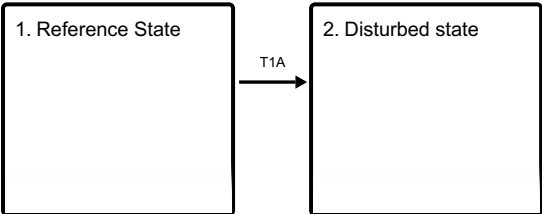
When ground cover is at or near potential, the erosion hazard is slight. The largest threat to degradation of this site is improper grazing management. Season long or repetitive fall grazing effectively removes aspen suckers, preventing regeneration. This results in a stand that is even aged. Mortality of the entire stand can occur in a relatively short period of time. If improper grazing management continues to remove the aspen suckers, the entire aspen clone can be lost.

Practice Limitations.

Potential for sheet and rill erosion is moderate to severe if the tree canopy is removed.

State and transition model

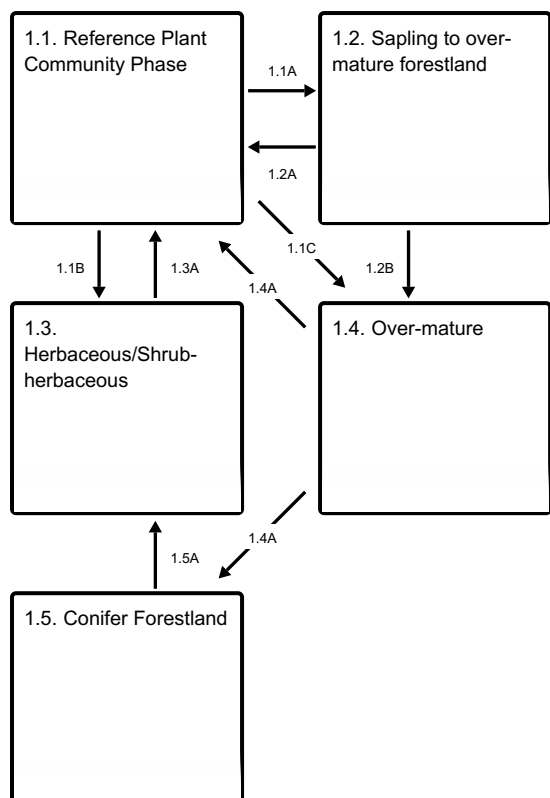
Ecosystem states



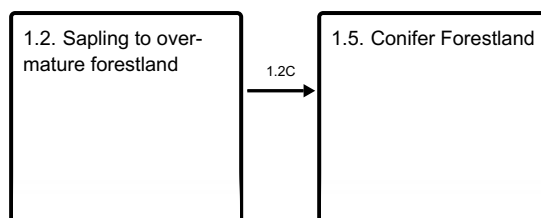
**T1A** - improper grazing management or fire



### State 1 submodel, plant communities



### Communities 2 and 5 (additional pathways)



**1.1A** - improper grazing management

**1.1B** - fire

**1.1C** - no fire with or without improper grazing management

**1.2A** - prescribed burning and planned grazing

**1.2B** - no fire and with or without improper grazing management

**1.2C** - no fire

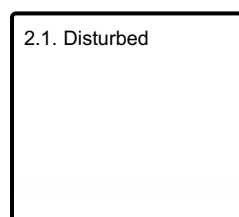
**1.3A** - no fire

**1.4A** - prescribed burning

**1.4A** - no fire

**1.5A** - prescribed burning

### State 2 submodel, plant communities



## State 1 Reference State

### Community 1.1 Reference Plant Community Phase

1.1 Uneven aged Quaking Aspen with grass, forb, and shrub understory "Mature forestland stage" State 1, Phase 1, Reference Plant Community Phase. The visual aspect and vegetal structure are dominated by quaking aspen that have reached or are near maximal heights for the site. Tree heights range from 30 to 60 feet, depending upon site and clonal genotype. Trees have developed tall, straight, clear stems with short, high rounded crowns. Tree canopy cover ranges from 20 to 40 percent. Understory vegetation is strongly influenced by tree competition, overstory shading, duff accumulation, etc. A tall shrub stratum composed of Woods' rose, snowberry, low Oregon grape and currant sometimes grows beneath this tree layer. Tall shrubs form a very open and intermittent layer. Tall

grasses and forbs such as pine reedgrass, blue wildrye, and mountain brome frequently form a rather continuous layer. An even lower layer of forbs and grasses is always part of the understory. This layer may include elk sedge, Idaho fescue, sticky geranium, groundsel, and cinquefoil. Few vegetative shoots and/or saplings of quaking aspen occur in the understory. Historic fire frequency is 75 to 120 years. This plant community is described as the mature forestland stage in "Ecological Dynamics Section".

**Table 5. Annual production by plant type**

<b>Plant Type</b>	<b>Low (Lb/Acre)</b>	<b>Representative Value (Lb/Acre)</b>	<b>High (Lb/Acre)</b>
Tree	4320	5400	6480
Grass/Grasslike	240	300	360
Forb	140	180	220
Shrub/Vine	100	120	140
<b>Total</b>	<b>4800</b>	<b>6000</b>	<b>7200</b>

## **Community 1.2**

### **Sapling to over-mature forestland**

1.2 Even-aged Quaking Aspen with reduced understory and low vigor. "Sapling to over-mature forestland stage" State 1, Phase 2. This plant community is composed of an even-aged stand of quaking aspen in the overstory. Reduced amounts of perennial grasses and palatable forbs are present. No aspensuckers are present. Douglas fir has invaded the site and has gained apical dominance over the aspen stand. Tall shrubs such as Woods' rose and snowberry are increasing. Kentucky bluegrass has invaded the site. This phase has developed from improper grazing management. This state most closely resembles the over-mature stage as described in "Ecological Dynamics Section".

## **Community 1.3**

### **Herbaceous/Shrub-herbaceous**

1.3 Quaking Aspen seedlings with root sprouting shrubs. "Herbaceous or shrub-herbaceous stage" State 1, Phase 3. This plant community is composed of quaking aspen seedlings and saplings in the overstory with root sprouting shrubs such as snowberry in the understory. Fine leaved grassessuch as Idaho fescue and Nevada bluegrass have been reduced or lost completely due to recent fire. This phase most closely resembles the herbaceous, shrub-herbaceous as described in "Ecological Dynamics Section". The sapling and immature stages are transitional plant communities that are moving back towards Reference.

## **Community 1.4**

### **Over-mature**

1.4 Quaking Aspen with conifer invasion. Grasses, forbs, and shrubs declining. "Over-mature stage" State 1, Phase 4. This plant community is composed of a dense canopy of aspen with conifers growing within the stand. Fire has not occurred for at least 100 years. The conifers will ultimately over-top the aspen. Since aspen is shade intolerant, mortality will occur. Understory vegetation is sparse to absent due to invasion of Douglas fir, overstory shading, duff accumulation, etc. Tree canopy cover is commonly greater than 50 percent. This phase most closely resembles the over-mature stage as described in "Ecological Dynamics Section".

## **Community 1.5**

### **Conifer Forestland**

Conifer Forestland State 1, Phase 5. This plant community is a conifer forestland. A few remnants of aspen are present in the stand. Little to no understory is present. This phase has developed with no fire. There is no conifer forestland stage described in "Ecological Dynamics Section".

## **Pathway 1.1A**

### **Community 1.1 to 1.2**

Phase 1 to 2. Develops with improper grazing management.

**Pathway 1.1B**  
**Community 1.1 to 1.3**

Phase 1 to 3. Develops with fire.

**Pathway 1.1C**  
**Community 1.1 to 1.4**

Phase 1 to 4. Results from no fire with or without improper grazing management.

**Pathway 1.2A**  
**Community 1.2 to 1.1**

Phase 2 to 1. Results from prescribed burning and planned grazing.

**Pathway 1.2B**  
**Community 1.2 to 1.4**

Phase 2 to 4. Results from no fire and with or without improper grazing management.

**Pathway 1.2C**  
**Community 1.2 to 1.5**

Phase 2 to 5. Develops with no fire.

**Pathway 1.3A**  
**Community 1.3 to 1.1**

Phase 3 to 1. Results from no fire.

**Pathway 1.4A**  
**Community 1.4 to 1.1**

Phase 4 to 1. Results from prescribed burning.

**Pathway 1.4A**  
**Community 1.4 to 1.5**

Phase 4 to 5, Results from no fire.

**Pathway 1.5A**  
**Community 1.5 to 1.3**

Phase 5 to 3. Results from prescribed burning.

**State 2**  
**Disturbed state**

**Dominant plant species**

- Kentucky bluegrass (*Poa pratensis*), grass

**Community 2.1**  
**Disturbed**

This plant community is dominated in the overstory with root-sprouting shrubs such as snowberry and Kentucky bluegrass in the understory. No aspen regeneration is occurring. The plant community has crossed the threshold. Aspen no longer is present on the site. It is not economically feasible to move this state backtowards State 1. This state has developed from improper grazing management or fire.

**Transition T1A**  
**State 1 to 2**

State 1 Phase 1.2 to State 2. This phase develops with continued improper grazing management. The over-mature aspen canopy ultimately dies from disease or old age. State 1 Phase 1.4 to State 2. This phase develops over a long period of time. Improper grazing management continues. Conifers begin to over-top the aspen. With the improper grazing management or fire the plant community crosses the threshold. It is no longer economically feasible to move the site back towards State 1.

**Additional community tables**

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
1	<b>Grasses &amp; Grass-like</b>			240–360	
	pinegrass	CARU	<i>Calamagrostis rubescens</i>	96–144	–
	mountain brome	BRMA4	<i>Bromus marginatus</i>	1–72	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	1–72	–
	Geyer's sedge	CAGE2	<i>Carex geyeri</i>	1–72	–
	blue wildrye	ELGL	<i>Elymus glaucus</i>	0–36	–
	Columbia needlegrass	ACNEN2	<i>Achnatherum nelsonii ssp. nelsonii</i>	0–36	–
	western needlegrass	ACOC3	<i>Achnatherum occidentale</i>	0–36	–
	oniongrass	MEBU	<i>Melica bulbosa</i>	0–36	–
<b>Forb</b>					
2	<b>Forbs</b>			140–220	
	ragwort	SENEC	<i>Senecio</i>	1–72	–
	cinquefoil	POTEN	<i>Potentilla</i>	1–72	–
	lupine	LUPIN	<i>Lupinus</i>	1–72	–
	arnica	ARNIC	<i>Arnica</i>	1–72	–
	violet	VIOLA	<i>Viola</i>	0–36	–
	meadow-rue	THALI2	<i>Thalictrum</i>	0–36	–
	Rocky Mountain iris	IRMI	<i>Iris missouriensis</i>	0–36	–
	bedstraw	GALIU	<i>Galium</i>	0–36	–
	clover	TRIFO	<i>Trifolium</i>	0–36	–
<b>Shrub/Vine</b>					
3	<b>Shrub/Vine</b>			100–140	
	mountain snowberry	SYOR2	<i>Symphoricarpos oreophilus</i>	1–72	–
	Woods' rose	ROWO	<i>Rosa woodsii</i>	1–72	–
	currant	RIBES	<i>Ribes</i>	1–72	–
	creeping barberry	MARE11	<i>Mahonia repens</i>	1–72	–
	Saskatoon serviceberry	AMAL2	<i>Amelanchier alnifolia</i>	1–72	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–36	–
<b>Tree</b>					
4	<b>Tree</b>			4320–6480	
	quaking aspen	POTR5	<i>Populus tremuloides</i>	4200–6300	–

## Animal community

Wildlife Interpretations.

The aspen community is important habitat for many species of birds and mammals, especially where it is the only upland tree species. Mule deer and Rocky Mountain elk use aspen mostly in the summer and fall for browse, thermal and hiding cover. Commonly associated birds using this site during breeding season include the Western tanager, common nighthawk, mourning dove, Swainson's hawk, and various species of bluebird, thrush, and flycatcher. Those using the site during the winter season include the Ruby-crowned kinglet, Townsend's solitaire, rough-legged hawk, Cooper's hawk, sharp-shinned hawk, and various species of finch and waxwing. Those using this site yearlong or as migrants include the American robin, American kestrel, mountain chickadee, scrub jay, yellow-bellied sapsucker, long-eared owl, screech owl, great-horned owl, California quail, red-tailed hawk, golden eagle, and various species of sparrow, nuthatch, and woodpecker. Commonly associated mammals using the site

include various species of shrew, myotis, bat, mouse, and vole. Some very common species include deer mouse, Nuttall's cottontail, least chipmunk, Western gray squirrel, bushy-tailed woodrat, raccoon, long-tailed weasel, and the North American porcupine. The mountain lion and bobcat use edges and sometimes the interior of the aspen site for hunting.

#### Grazing Interpretations.

This site provides limited grazing unless the overstory has been thinned. Livestock use the site extensively for shade. Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory which includes species, composition, similarity index, production, past use history, season of use and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings

#### Plant list for Beef Cattle and Rocky Mountain Elk.

CARU  
BRMA4  
TRIFO  
FEID  
CAGE2  
ROWO  
AMAL2  
MEBU  
PUTR2  
POTR5

#### Plant list for sheep, mule deer.

CARU  
BRMA4  
TRIFO  
FEID  
CAGE2  
ROWO  
AMAL2  
MEBU  
PUTR2  
POTR5

### Hydrological functions

The soils on this site are in hydrologic group B. When ground cover is at or near potential the erosion hazard is slight. Potential for sheet and rill erosion is moderate to severe if the overstory cover is removed.

### Recreational uses

Aesthetic value is derived from the rich hues and textures of the aspen trees, particularly in the fall. The diverse flora and fauna, the colorful wildflowers in the summer enhance the beauty of this site. The site offers rewarding opportunities to photographers and for nature study. It has high value for hunting, camping, and picnicking on lesser slopes, cross-country skiing, and family wood gathering. Aspen fits well into management for dispersed recreation activities, but does not tolerate concentrated use, as found in established campgrounds. Encouraging concentrated recreation or development within aspen stands can lead to serious damage, including carving on trees, vandalism, destruction or removal of young suckers and trampling and disturbance of the soil.

### Wood products

Firewood gathering is common on this site

## Inventory data references

Information presented here has been derived from NRCS clipping and other inventory data. Also, field knowledge of range-trained personnel was used. Those involved in developing this site description include:

Dave Franzen, co-owner, Intermountain Rangeland Consultants, LLC  
Jacy Gibbs, co-owner, Intermountain Rangeland Consultants, LLC  
Jim Cornwell, Range Management Specialist, IASCD  
Joe May, State Rangeland Management Specialist, NRCS, Idaho  
Lee Brooks, Range Management Specialist, IASCD  
Kristen May, Resource Soil Scientist, NRCS, Idaho

## Type locality

Location 1: Ada County, ID	
Township/Range/Section	T3n R17e S1
Location 2: Ada County, ID	
Township/Range/Section	T2n R20e S21
Location 3: Ada County, ID	
Township/Range/Section	T1n R21e S25

## References

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## Other references

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USDA, NRCS.2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA

USDA, NRCS. 1992. Major Land Resource Area 25, Owyhee High Plateau, Nevada Site Descriptions, Reno, Nevada.

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## Contributors

Dave Franzen  
Jacy Gibbs  
Jim Cornwell  
Joe May  
Lee Brooks  
Kristen May

## Approval

Kirt Walstad, 12/13/2023

## 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	07/27/2024
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

1. **Number and extent of rills:** do not occur on this site.

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2. **Presence of water flow patterns:** are rare on the site. Where they do occur they are typically at the base of the snow drifts that are commonly found just above the aspen clone.

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3. **Number and height of erosional pedestals or terracettes:** do not occur on the site

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** data is not available. On sites in mid-seral status bare ground may range from 2-10 percent. Immediately following a fire bare ground may range from 20-40 percent. Following leaf-drop in the fall, bare ground approaches zero percent.

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5. **Number of gullies and erosion associated with gullies:** do not occur on this site.

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6. **Extent of wind scoured, blowouts and/or depositional areas:** does not occur on the site

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7. **Amount of litter movement (describe size and distance expected to travel):** fine litter may move up to one foot on the steeper slopes. Coarse litter generally does not move.

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



**values):** values should range from 4 to 6 but needs to be tested.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** the A or A1 horizon is typically 2 to 15 inches thick.  
Structure ranges from moderate fine and medium granular to weak medium subangular blocky. Soil organic matter (SOM) ranges from 2 to 6 percent.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** the aspen overstory intercepts raindrops and reduces compaction. Deep rooted perennial grasses, forbs and shrubs slow run-off and increase infiltration.
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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):** not present.
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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: Trees are >> perennial grasses > forbs >shrubs.
- Sub-dominant:
- Other:
- Additional:
- 
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** some mortality can occur in the shrub and herbaceous layers as tree canopy closes. Decadence and mortality of aspen can occur with age, disease, and beaver activity. Aspen mortality can also occur from invasion of Douglas fir, which ultimately over-tops the aspen.
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14. **Average percent litter cover (%) and depth ( in):** additional litter cover data is needed but is expected to be \_\_\_\_percent to a depth of 0.5-1.5 inches at the end of the growing season. Litter cover may be 90-100 percent following leaf-drop of aspen.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** is 6000 pounds per acre (6666Kg/ha) in a year with normal precipitation and temperatures. Perennial grasses and sedges produce 5 percent of the total production, forbs 3 percent, shrubs 2 percent and trees 90 percent.
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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:** include whitetop, leafy spurge, dock, Canadian thistle, perennial pepperweed, and teasel. Other invasive species may include meadow foxtail, redtop, and Kentucky bluegrass. Most invasive species are present on the site following a fire. Since many of them are shade intolerant, they decline as the canopy closes.

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17. **Perennial plant reproductive capability:** all functional groups have the potential to reproduce in most years. Aspen reproduction is primarily vegetative. If regeneration is to occur from seedlings, bare mineral soil must be present.
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