

Ecological site R022AZ046CA ASPEN THICKET

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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): 022A–Sierra Nevada and Tehachapi Mountains

This ESD was developed using older policy requirements which have been improved with the intent of improving ESD products overall. Users should approach these materials with some caution as the content herein, while likely useful for some purposes, was developed within parameters now recognized as needing varying levels of improvement. As always, a site-specific investigation is highly recommended when site-specific management alternatives are to be developed and/or management decisions are to be made.

Each ESD is an interpretation of the ecological relationships between biotic and abiotic aspects of the landscape. Users of this document should be aware of the limitations of this tool to the extent that specific local conditions may not be entirely captured within the ESD. In particular, management decisions should be supported by site-specific inventories, assessments and planning processes based on the best available information including and extending beyond the ESD.

An ESD is not a permanent determination of ecological dynamics. Rather, each ESD is an evolving body of work intrinsically tied to the soil surveys and data associated with soil map unit components of correlated soil-ecological site relationships. As new information becomes available, updates may be made or may be underway at any given time. Minor updates may be made without announcement when such changes do not modify the ecological site concept, the soils correlated or the state-and-transition model.

Associated sites

F022AY103NV	POTR5/SYMPH/BRMA4
F022AY104NV	POTR5/SALIX/ELTRT
R022AY031NV	LOAMY SLOPE 30+ P.Z.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Populus tremuloides</i>
Herbaceous	(1) <i>Achnatherum</i> (2) <i>Bromus marginatus</i>

Physiographic features

This site occurs on concave shoulders of mountains and plateaus on northely aspects or on the lee-side of snow-blown plateau and mountain summits. Slope gradients of 8 to 30 percent are typical. Elevations of 6500 to 9000 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain slope (2) Plateau (3) Mountain
Elevation	1,981–3,048 m
Slope	8–30%
Aspect	N, NE, NW

Climatic features

The climate on this site is subhumid-continental, characterized by cold, moist winters, and cool dry summers. The average annual precipitation ranges from 14 to over 20 inches, mostly occurring as snow. The linear to convex slope shapes associated with this site cause some of the precipitation to be removed from the site because of wind action, thus reducing the moisture available for plant growth. The mean annual air temperature ranges from 40 to 44 degrees F. The average frost free growing season is 40 to 75 days. Climate data used to support this section were derived from PRISM and is not specifically tied to any dominant climate station.

Table 3. Representative climatic features

Frost-free period (average)	75 days
Freeze-free period (average)	0 days
Precipitation total (average)	508 mm

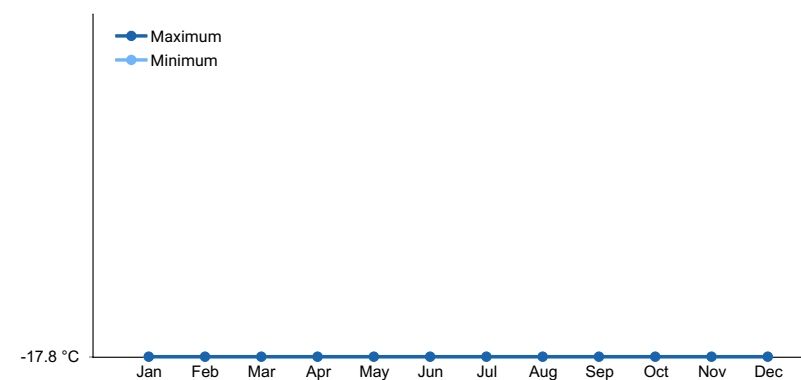


Figure 1. Monthly average minimum and maximum temperature

Influencing water features

There are no influencing water features associated with this site.

Soil features

This site occurs on deep, well drained soils that formed in volcanic ash and colluvium over residuum derived from tuff and andesite. These soils are usually moist in winter, spring, and early summer, dry later in summer and fall. Soils are saturated for brief periods below 30 inches during snowmelt. These soils have high amounts of vitric volcanic ash and glass throughout the soil profile which enhances the water holding capacity of these soils. Soil series associated with this site include: Pyropatti.

CA729 Toiyabe National Forest Area, California
232;Hawkinspeak-Hawkridge association;Aspocket
234;Hawkinspeak-Thief ridge association;Aspocket
235;Hawkinspeak-Angelwhine association;Aspocket
340;Aspocket association;Aspocket
470;Sumeadow-Lostridge association;Aspocket

480;Aspetill association;Aspetill
 481;Aspetill association, very stony;Aspetill
 510;Rubble land-Lithnip-Rock outcrop association;Aspocket
 540;Lostcannon association;Lostcannon;moist
 792;Dab-Aspocket-Hawkridge association;Aspocket

CA732 Inyo National Forest, Western Part, California
 232ty;Hawkinspeak-Hawkridge association;Aspocket
 234ty;Hawkinspeak-Thiefridge association;Aspocket
 470ty;Sumeadow-Lostridge association;Aspocket

CA790 Yosemite National Park, California
 510t;Rubble land-Lithnip-Rock outcrop association, 8 to 30 percent slopes, mountains, cryic;Aspocket

Table 4. Representative soil features

Surface texture	(1) Gravelly sandy loam (2) Very gravelly coarse sandy loam
Family particle size	(1) Loamy
Drainage class	Somewhat poorly drained to well drained
Permeability class	Moderately slow to moderately rapid
Soil depth	102–183 cm
Surface fragment cover <=3"	15–25%
Surface fragment cover >3"	2–18%
Available water capacity (0-101.6cm)	8.89–11.18 cm
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	6.1–7.3
Subsurface fragment volume <=3" (Depth not specified)	18–41%
Subsurface fragment volume >3" (Depth not specified)	3–29%

Ecological dynamics

Where management results in abusive livestock use, the aspen overstory can be thinned out and permanent openings in the canopy may be created. If aspen sucker reproduction is inadequate to replace overstory mortality, snowberry, big sagebrush and other shrubs increase and eventually become dominant.

Fire effects:

Quaking aspen is highly competitive on burned sites thus; quaking aspen dominates a site after a fire. Quaking aspens are adapted to fires.

State and transition model

Ecosystem states

1. Reference Plant Community

State 1 submodel, plant communities

1.1. Reference Plant Community

State 1
Reference Plant Community

Community 1.1
Reference Plant Community

The reference plant community is the interpretative plant community for this site. The historic climax plant community is dominated by dense stands of low-growing quaking aspen, genrally less than 15-feet tall at maturity (locally known as "snowbank" aspen). Each site normally represents a single clone of aspen with a common genetic makeup. A variety of forbs, mountain brome, needlegrass, slender wheatgrass, and snowberry are important understory species associated with this site and are most prevalent on the periphery of the aspen overstory. Potential vegetative composition is about 20% grasses, 20% forbs and 60% shrubs. Approximate ground cover (basal and crown) is about 50 to 75 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Tree	135	224	359
Forb	67	112	179
Grass/Grasslike	67	112	179
Shrub/Vine	67	112	179
Total	336	560	896

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Primary Perennial Grasses			175–364	
	mountain brome	BRMA4	<i>Bromus marginatus</i>	73–146	–
	slender wheatgrass	ELTR7	<i>Elymus trachycaulus</i>	29–73	–
	Columbia needlegrass	ACNEN2	<i>Achnatherum nelsonii</i> ssp. <i>nelsonii</i>	36–73	–
	western needlegrass	ACOCO	<i>Achnatherum occidentale</i> ssp. <i>occidentale</i>	36–73	–
2	Secondary Perennnial Grasses/Grasslikes			29–73	
	sedge	CAREX	<i>Carex</i>	3–11	–
	blue wildrye	ELGL	<i>Elymus glaucus</i>	3–11	–
	basin wildrye	LECI4	<i>Leymus cinereus</i>	3–11	–
	melicgrass	MELIC	<i>Melica</i>	3–11	–
	bluegrass	POA	<i>Poa</i>	3–11	–
Forb					
3	Perennial Forbs			219–437	
	nettleleaf giant hyssop	AGURU	<i>Agastache urticifolia</i> var. <i>urticifolia</i>	3–28	–
	castilla	CASTI	<i>Castilla</i>	3–28	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	3–28	–
	fleabane	ERIGE2	<i>Erigeron</i>	3–28	–
	waterleaf	HYDRO4	<i>Hydrophyllum</i>	3–28	–
	tailcup lupine	LUCAC3	<i>Lupinus caudatus</i> ssp. <i>caudatus</i>	3–28	–
	ragwort	SENEC	<i>Senecio</i>	3–28	–
	mule-ears	WYAM	<i>Wyethia amplexicaulis</i>	3–28	–
Shrub/Vine					
4	Primary Shrubs			29–73	
	roundleaf snowberry	SYRO	<i>Symphoricarpos rotundifolius</i>	29–73	–
5	Secondary Shrubs			29–219	
	Utah serviceberry	AMUT	<i>Amelanchier utahensis</i>	3–17	–
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	3–17	–
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	3–17	–
	chokecherry	PRVI	<i>Prunus virginiana</i>	3–17	–
	currant	RIBES	<i>Ribes</i>	3–17	–
Tree					
6	Trees			729–1003	
	quaking aspen	POTR5	<i>Populus tremuloides</i>	729–1003	–

Animal community

Livestock Interpretations:

Livestock utilization of quaking aspen communities vary with species composition of the understory and relative age of the quaking aspen stand. Young stands usually provide the most browse. Quaking aspen crowns can grow out of reach of large ungulates in 6 to 8 years. Although many animals browse quaking aspen year-round, it is especially

valuable forage during fall and winter, when protein levels are high relative to other browse species. Mountain brome provide a palatable and nutritious forage for livestock, especially from early spring until seed dispersal.

Wildlife Interpretations:

Wildlife utilization of quaking aspen communities varies with understory composition and age of aspen stand. Mountain brome is an important forage for several wildlife species

Other products

Quaking aspen is widely used in ornamental landscaping.

Other information

Aspens are used to stabilize the soil on disturbed sites. The wide adaptability of quaking aspen makes it well-suited for restoration and rehabilitation projects on a wide range of sites.

Type locality

Location 1: Mono County, CA	
Latitude	38° 40' 17"
Longitude	119° 39' 0"
General legal description	Toiyabe National Forest Toiyabe National Forest, Monitor Pass Area, approximately 0.2 miles northeast of HWY 89.

Other references

Fire Effect Information System (Online; <http://www.fs.fed.us/database/feis/plants/>).

USDA-NRCS Plants Database (Online; <http://plants.usda.gov/>).

Contributors

ALM

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:**
