

# Ecological site F006XY703OR East Crater Lake Gentle Pumice Slopes

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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.



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.

Table 1. Dominant plant species

Tree	(1) <i>Pinus ponderosa</i>
Shrub	(1) <i>Symphoricarpos mollis</i>
Herbaceous	(1) <i>Carex inops</i>

## Physiographic features

This site is found mostly on well drained, deep ashy or pumice soils with gentle slopes.

Table 2. Representative physiographic features

Landforms	(1) Ash flow
Flooding frequency	None
Ponding frequency	None
Elevation	4,000–6,000 ft
Slope	0–100%
Water table depth	60 in
Aspect	Aspect is not a significant factor

## Climatic features

Winter are long, cold and snowy. Snow makes up a large amount of the effective precipitation. Summers days are warm, and nights are cool. Summer precipitation comes as infreqesnt rain storms. Summer thunderstorms can drop moderately heavy amounts of rain, but only for a short period of time.

**Table 3. Representative climatic features**

Frost-free period (average)	80 days
Freeze-free period (average)	105 days
Precipitation total (average)	30 in

## Influencing water features

### Soil features

This site is found on soils developed on pumice and ash flows in valleys and lava tablelands.

**Table 4. Representative soil features**

Surface texture	(1) Very gravelly loamy sand (2) Paragravelly loamy sand (3) Ashy loamy sand
Family particle size	(1) Sandy
Drainage class	Somewhat excessively drained to excessively drained
Permeability class	Rapid
Soil depth	60 in
Surface fragment cover <=3"	10–50%
Surface fragment cover >3"	0–20%
Available water capacity (0-40in)	3.6–7.1 in
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	5.6–7.3
Subsurface fragment volume <=3" (Depth not specified)	15–50%
Subsurface fragment volume >3" (Depth not specified)	0–35%

## Ecological dynamics

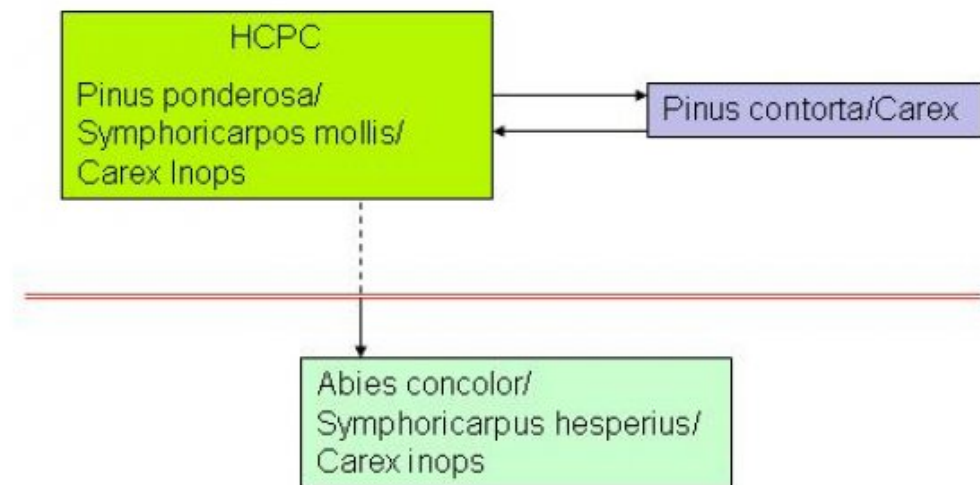
Ponderosa pine is the predominant tree in the overstory on this site. White fir makes up a small pecentage in areas where fire has not been frequent. Douglas-fir and Shasta red fir are occasionally present in the overstory.

Like other sites the fire return interval (approximately 10-40 years) benefited Ponderosa pine. Low and moderately severe fires would eliminate many of the fire intolerant trees allowing Ponderosa to regenerate.

The presence of some large White fir trees shows that some white fir was present in the historic climax plant community. These trees escaped the frequent fires that occurred in the area. But, much of the regeneration was killed by fire, leaving mostly the large trees.

Fire exclusion would favor White fir. White fir is very shade tolerant and will regenerate under shade as where Ponderosa pine will not. Over an extended period of time the fir will take of dominance of the canopy and the pine will decline.

## State and transition model



## State 1

### Ponderosa pine plant community

#### Community 1.1

### Ponderosa pine plant community

The Ponderosa pine plant community is the historic climax plant community. Ponderosa pine is the dominant tree with White fir very infrequently in over the overstory. With frequent fires white fir would be kept out of the stand. When a fire did not occur for 50+ years white fir could start to regenerate under the Ponderosa pine.

**Forest overstory.** The typical forest overstory of the historic climax community.

**Forest understory.** The typical annual production of the understory species to a height of 4.5 feet (excluding boles of trees) under low, high, and representative canopy covers.

Plant composition is expressed as "percent canopy cover". Species listed as "0" percent are present at less than 1 percent canopy cover.

**Table 5. Ground cover**

Tree foliar cover	20-30%
Shrub/vine/liana foliar cover	5-10%
Grass/grasslike foliar cover	15-20%
Forb foliar cover	0-1%
Non-vascular plants	0%
Biological crusts	0%
Litter	20-30%
Surface fragments >0.25" and <=3"	2-5%
Surface fragments >3"	1-2%
Bedrock	0%
Water	0%
Bare ground	10-15%

**Table 6. Soil surface cover**

Tree basal cover	0%
Shrub/vine/liana basal cover	0-1%
Grass/grasslike basal cover	1-3%
Forb basal cover	0-1%
Non-vascular plants	0%
Biological crusts	0%
Litter	50-60%
Surface fragments >0.25" and <=3"	10-15%
Surface fragments >3"	1-3%
Bedrock	0%
Water	0%
Bare ground	10-20%

**Table 7. Canopy structure (% cover)**

Height Above Ground (Ft)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.5	—	—	5-10%	0-1%
>0.5 <= 1	—	—	15-20%	1-2%
>1 <= 2	—	2-4%	—	—
>2 <= 4.5	0-1%	4-6%	—	—
>4.5 <= 13	0-1%	—	—	—
>13 <= 40	3-5%	—	—	—
>40 <= 80	5-10%	—	—	—
>80 <= 120	30-35%	—	—	—
>120	—	—	—	—

## State 2

### White fir plant community

#### Community 2.1

##### White fir plant community

The White fir plant community develops when natural fire return intervals are stopped. White fir will take advantage of the lack of fire and will regenerate. It will eventually take over the stand if fire does not return.

**Forest overstory.** White fir dominates the overstory due to the exclusion of natural fire. Old growth Ponderosa pine is present but at very low levels.

**Forest understory.** The typical annual production of the understory species to a height of 4.5 feet (excluding boles of trees) under low, high, and representative canopy covers.

Plant composition is expressed as "percent canopy cover". Species listed as "0" percent are present at less than 1 percent canopy cover.

**Table 8. Ground cover**

Tree foliar cover	35-45%
Shrub/vine/liana foliar cover	2-5%
Grass/grasslike foliar cover	5-10%
Forb foliar cover	0-1%
Non-vascular plants	0%
Biological crusts	0%
Litter	20-30%
Surface fragments >0.25" and <=3"	1-3%
Surface fragments >3"	1-2%
Bedrock	0%
Water	0%
Bare ground	10-15%

**Table 9. Soil surface cover**

Tree basal cover	0%
Shrub/vine/liana basal cover	0-1%
Grass/grasslike basal cover	1-3%
Forb basal cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	50-60%
Surface fragments >0.25" and <=3"	1-5%
Surface fragments >3"	1-2%
Bedrock	0%
Water	0%
Bare ground	0-5%

**Table 10. Canopy structure (% cover)**

Height Above Ground (Ft)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.5	—	—	3-5%	—
>0.5 <= 1	—	1-3%	5-10%	0-1%
>1 <= 2	0-1%	5-8%	—	—
>2 <= 4.5	—	—	—	—
>4.5 <= 13	0-1%	—	—	—
>13 <= 40	3-5%	—	—	—
>40 <= 80	25-30%	—	—	—
>80 <= 120	10-15%	—	—	—
>120	—	—	—	—

### State 3

#### Lodgepole pine plant community

#### Community 3.1

##### Lodgepole pine plant community

Lodgepole pine will be the first tree specie to establish after a severe stand replacement fire. Lodgepole abundance can vary, from light to very heavy stocking. If some other seed producing tree survived the fire then other seedlings may be present. Heavy to very heavily stocked stands will eventually become susceptible to mountain pine beetle infestation. If an outbreak occurs, all lodgepole trees can be killed. If seedlings of Ponderosa pine or white fir are present rapid growth can be expected. If seedlings of these two species are not present then it is probable that another generation of Lodgepole pine may occur.

**Forest overstory.** The typical overstory composition of the Lodgepole pine plant community.

**Forest understory.** The typical annual production of the understory species to a height of 4.5 feet (excluding boles of trees) under low, high, and representative canopy covers.

Plant composition is expressed as "percent canopy cover". Species listed as "0" percent are present at less than 1 percent canopy cover.

**Table 11. Ground cover**

Tree foliar cover	20-30%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	20-25%
Forb foliar cover	0-1%
Non-vascular plants	0%
Biological crusts	0%
Litter	2-5%
Surface fragments >0.25" and <=3"	15-20%
Surface fragments >3"	1-2%
Bedrock	0%
Water	0%
Bare ground	20-25%

**Table 12. Soil surface cover**

Tree basal cover	0%
Shrub/vine/liana basal cover	0%
Grass/grasslike basal cover	3-5%
Forb basal cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	5-10%
Surface fragments >0.25" and <=3"	20-30%
Surface fragments >3"	1-3%
Bedrock	0%
Water	0%
Bare ground	40-50%

**Table 13. Canopy structure (% cover)**

Height Above Ground (Ft)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.5	—	—	1-5%	—
>0.5 <= 1	0-1%	—	20-25%	—
>1 <= 2	—	—	1-5%	—
>2 <= 4.5	—	—	—	—
>4.5 <= 13	0-2%	—	—	—
>13 <= 40	8-10%	—	—	—
>40 <= 80	20-30%	—	—	—
>80 <= 120	—	—	—	—
>120	—	—	—	—

## Additional community tables

### Recreational uses

Hiking, backpacking, bird watching

### Wood products

sawlogs, poles, posts, firewood

### Other products

mushrooms

### Contributors

Craig Ziegler

## 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:**  

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2. **Presence of water flow patterns:**  

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3. **Number and height of erosional pedestals or terracettes:**  

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**  

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5. **Number of gullies and erosion associated with gullies:**  

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6. **Extent of wind scoured, blowouts and/or depositional areas:**  

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7. **Amount of litter movement (describe size and distance expected to travel):**  

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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):**  

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**  

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**  

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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):

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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:

Sub-dominant:

Other:

Additional:

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13. **Amount of plant mortality and decadence** (include which functional groups are expected to show mortality or decadence):
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14. **Average percent litter cover (%) and depth ( in):**
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15. **Expected annual annual-production** (this is TOTAL above-ground annual-production, not just forage annual-production):
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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:
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17. **Perennial plant reproductive capability:**
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