USDA Natural Resources
Conservation Service

Ecological site R024XY006OR
LAKE TERRACE

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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.

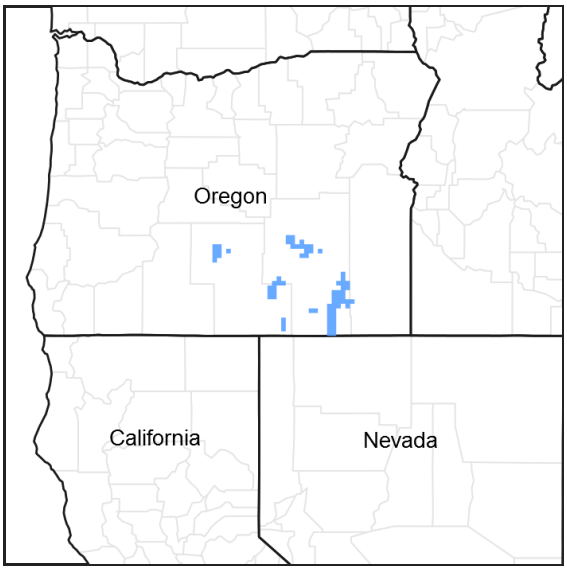

Figure 1. Mapped extent

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.

Associated sites

R024XY003OR	**SODIC BOTTOM** Sodic Bottom (bottomland position, medium textured soil, higher salts and carbonates, greater production, different composition - SAVE4/LECI4-DISP association)
R024XY004OR	**DRY FLOODPLAIN 6-10 PZ** Dry Floodplain (floodplain position, medium textured soil, moderately well to well drained, higher production, different composition - ARTRT/LECI4-LETR5 association)
R024XY005OR	**SODIC DUNES** Sodic Dunes (dune topography, coarse textured soil, higher salts and carbonates, different composition – ARTRT-SAVE4/LECI4-ACHY association)
R024XY013OR	**LOW SODIC TERRACE 6-10 PZ** Low Sodic Terrace 6-10 PZ (higher position, medium texture, greater salts and carbonates, less production, different composition – SAVE4-ATCO/ELEL5 association)

Similar sites

R024XY114OR	**SODIC LAKE TERRACE** Sodic Lake Terrace (higher salts and carbonates, different composition – SAVE4/DISP-PUCCI)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) *Leymus triticoides*

Physiographic features

This site occurs on the floors of low elevation dry lake basins and valley bottoms. It is typically found on flat areas appearing as the first low terrace above a playa. A seasonal water table is present. Slopes typically range from 0 to 3 percent. Elevations range from 4200 to 5200 feet.

Table 2. Representative physiographic features

Landforms	(1) Lake plain (2) Lake terrace
Flooding frequency	None
Ponding duration	Long (7 to 30 days)
Ponding frequency	Frequent
Elevation	4,200–5,200 ft
Slope	0–3%
Water table depth	0–30 in
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 8 to 10 inches, most of which occurs in the form of rain and snow during the months of December through April. Additional moisture is cyclically supplied to the site by spring run-off from surrounding upland sites. The soil temperature is mesic to frigid near mesic with a mean air temperature of 47 degrees F. Temperature extremes range from 100 to -10 degrees F. The frost-free period ranges from 70 to 110 days. The optimum period for plant growth is from late April to early July.

Table 3. Representative climatic features

Frost-free period (average)	110 days
Freeze-free period (average)	0 days
Precipitation total (average)	10 in

Influencing water features

Soil features

The soils of this site are fine textured, very deep and poorly drained. The surface layer is a silt to silty clay loam 2 to 8 inches over a silty clay subsoil. Substratums are lacustrine sediments. Soils are only mildly sodium affected. Shallow ponding typically occurs for short periods in the spring. Extended long duration deep ponding over a larger area is infrequent occurring three in fifty years. Permeability is slow to moderately slow. The available water holding capacity (AWC) is 1 to 7 inches. Depth to a seasonal water table is normally 0 to 30 inches. The potential for wind and water erosion is slight.

Table 4. Representative soil features

Parent material	(1) Lacustrine deposits–tuff
Surface texture	(1) Loam (2) Clay loam

Family particle size	(1) Clayey
Drainage class	Poorly drained to somewhat poorly drained
Permeability class	Slow to moderately slow
Soil depth	60 in
Available water capacity (0-40in)	0.5–7.2 in
Calcium carbonate equivalent (0-40in)	0–15%
Electrical conductivity (0-40in)	0–32 mmhos/cm
Sodium adsorption ratio (0-40in)	0–200
Soil reaction (1:1 water) (0-40in)	7.4–9.6

Ecological dynamics

The reference native plant community is strongly dominated by a uniform stand of beardless (creeping) wildrye. Other grasses and forbs are minor. Vegetative composition is greater than 95 percent grass/grass-like and 5 percent forbs. Shrubs are absent. The approximate ground cover is 70 to 80 percent (basal and crown).

Three states have been identified for this site: a reference state; a state with the presence of annuals weeds; and a state with annual dominance. Annual production will fluctuate with the extent and duration of flooding, surface ephemeral flows or seasonal depth to ground water.

Reference State: The role of fire is unknown. The introduction of invasive annual weeds transitions into state 2.

State 2: Compositionally similar to the reference state with a trace of annual weeds. Ecological function has not changed, however the resiliency of the state has been reduced by the presence of invasive weeds. Prescribed grazing maintains state dynamics. Improper grazing management leads to a decline in perennial grasses and an increase in annual weeds creating an at-risk community phase. Prescribed grazing may reverse this trend. Continuous mismanagement of grazing practices leads to state 3.

State 3: Annual weeds control site resources and drive ecological dynamics. Bare ground is abundant. Creeping wildrye exists in patches. Bunchgrasses may be present in trace amounts. Decadent sagebrush may be present on some sites. Spatial and temporal energy capture and nutrient cycling has been truncated. Infiltration may be reduced due to reduced ground cover.

Range in Characteristics-
This site is very uniform in appearance with little variation in creeping wildrye composition. Along moist fringe areas rushes and other wetland species increase. Production will fluctuate with the duration and depth of available subsurface moisture. Occasional to rare flooding events will increase the presence of wetland species for a short period of time and eliminate shrub encroachment from associated sites.

Response to Disturbance - States
If the condition of the site deteriorates as a result of over grazing, beardless (creeping) wildrye will decrease in the stand. Poverty weed will increase. With further deterioration annual mustards and other forbs invade. Bare ground becomes extensive under deteriorated conditions.

States: IVAX-annual and other forbs/bare ground; Bare ground

State and transition model

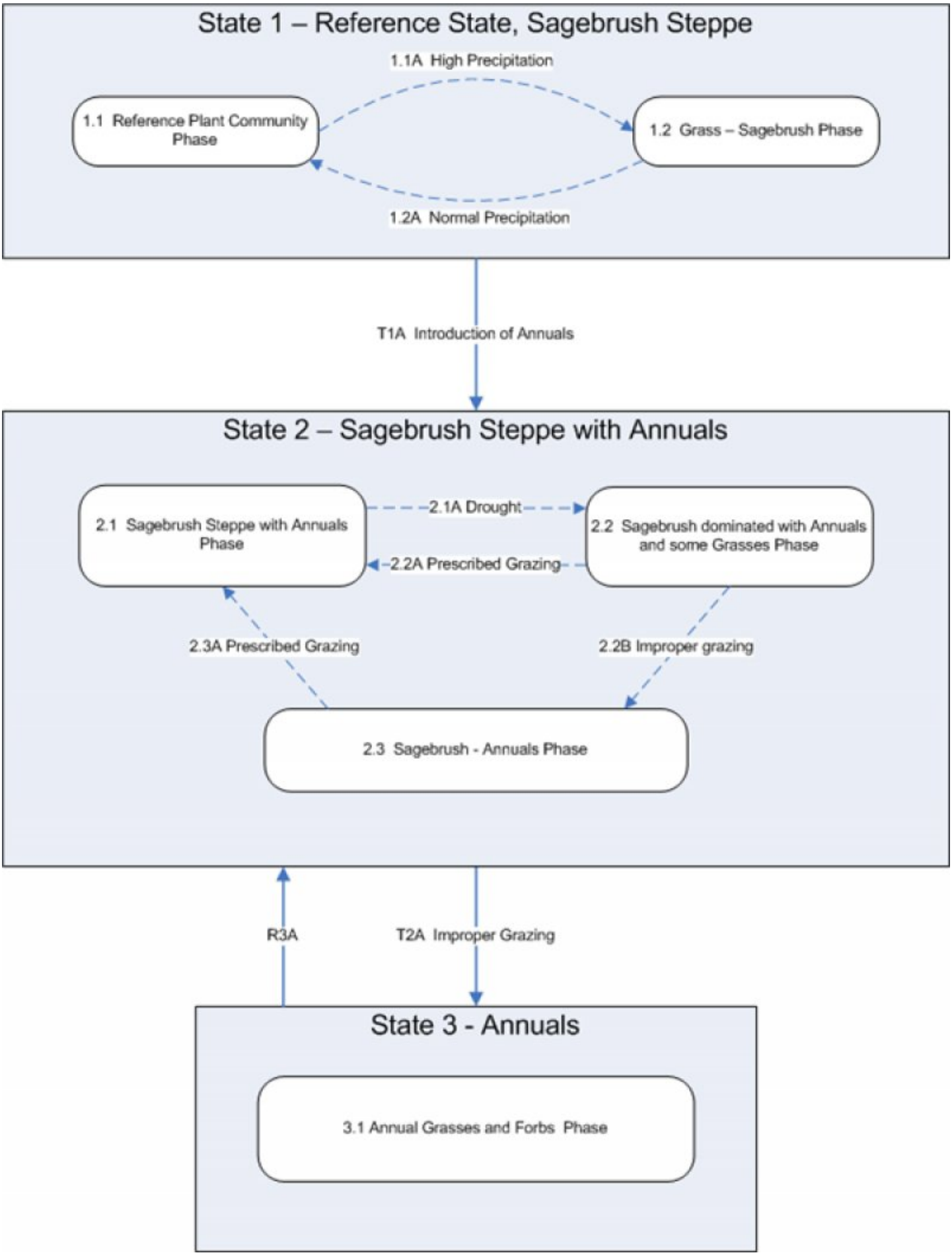

Figure 2. Group 4, STM

State 1
Reference State

Community 1.1
Reference Plant Community

The reference native plant community is strongly dominated by a uniform stand of beardless (creeping) wildrye. Other grasses and forbs are minor. Vegetative composition is greater than 95 percent grass/grass-like and 5 percent forbs. Shrubs are absent. The approximate ground cover is 70 to 80 percent (basal and crown).

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	475	570	760
Forb	25	30	40
Total	**500**	**600**	**800**

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Moderately-deep rooted rhizomatus grass**			540–600	
	beardless wildrye	LETR5	*Leymus triticoides*	540–600	–
4	**Other perennial grasses and grass-like**			18–36	
	squirreltail	ELEL5	*Elymus elymoides*	0–18	–
	spikerush	ELEOC	*Eleocharis*	0–18	–
	rush	JUNCU	*Juncus*	0–18	–
	mat muhly	MURI	*Muhlenbergia richardsonis*	0–18	–
	bluegrass	POA	*Poa*	0–18	–
Forb					
6	**Perennial forbs**			6–12	
	povertyweed	IVAX	*Iva axillaris*	6–12	–
	dock	RUMEX	*Rumex*	6–12	–
7	**Other perennial forbs**			0–6	
	arnica	ARNIC	*Arnica*	0–6	–
	evening primrose	OENOT	*Oenothera*	0–6	–
	knotweed	POLYG4	*Polygonum*	0–6	–
	candytuft	SMELO	*Smelowskia*	0–6	–
	fiveleaf clover	TRAN	*Trifolium andersonii*	0–6	–

Animal community

Livestock Grazing:
This site can easily be damaged if grazed when the soils are wet. It is well suited for livestock grazing use in the summer and fall under a planned grazing system. Use should be postponed until the soils are firm enough to prevent trampling damage and soil compaction. Grazing management should be keyed for creeping wildrye. Creeping wildrye can be severely damaged if heavily grazed during periods of grass seed formation before root reserves have accumulated and soil moisture is low. Deferred grazing or rest is recommended at least once every three years.

Wildlife:

This site provides water for numerous species of wildlife and waterfowl when ponded. Antelope prefer this site and make excellent use of it when forage is readily available. Various species use this site during the fall and winter. Cover is limited.

Hydrological functions

The soils of this site are typically near the lowest topographic position and when occasionally ponded have little runoff potential. Occasional very shallow ponding is extensive because of low soil intake rates. The hydrologic cover condition is good when the ecological condition is high. Hydrologic cover is high when creeping wildrye is greater than 70 percent of potential. The soils are in hydrologic group D.

Other information

This site has poor potential for range seeding because of occasional ponding, clayey subsoils and the present lack of creeping wildrye seed.

Contributors

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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:**