USDA Natural Resources
Conservation Service

Ecological site R023XY115OR
WET MARSH

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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.

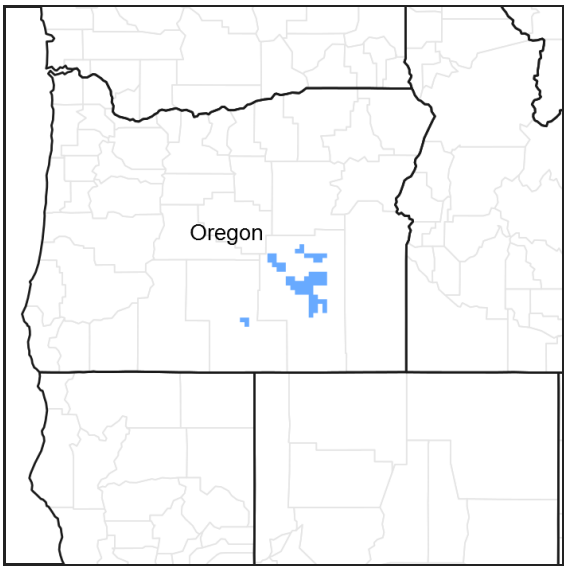


Figure 1. Mapped extent

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

R023XY116OR	**SEMI-WET MARSH** Semi-Wet Marsh
R023XY117OR	**BASIN WET MEADOW** Basin Wet Meadow
R023XY118OR	**BASIN DRY MEADOW** Basin Dry Meadow

Similar sites

R023XY116OR	**SEMI-WET MARSH** Semi-Wet Marsh (ponding depth and duration less)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) *Schoenoplectus acutus* (2) *Sparganium eurycarpum*

Physiographic features

This site occurs in basins and valleys on the floodplains of perennial drainage systems. Slopes range from 0 to 1 percent. Elevation ranges from 4000 to 4500 feet.

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Basin floor (3) Valley floor
Ponding duration	Long (7 to 30 days)
Ponding frequency	Frequent
Elevation	4,000–4,500 ft
Slope	0–1%
Ponding depth	24–36 in
Water table depth	30 in
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 8 to 12 inches, most of which occurs between the months of December through March. The mean annual air temperature is 48 degrees F. Temperature extremes range from 110 to -30 degrees F. The period of optimum plant growth is from the first of April through June.

Table 3. Representative climatic features

Frost-free period (average)	0 days
Freeze-free period (average)	0 days
Precipitation total (average)	12 in

Influencing water features

Soil features

The soils of this site are very deep and very poorly drained. Ponding to depths of 2 to 3 feet above the soil surface is frequent from March to July. A permanent water table occurs at a depth of 30 inches below the soil surface. Surface and subsurface textures vary from muck to mucky silt loams. Often there is a sand layer at approximately 5 feet.

Table 4. Representative soil features

Surface texture	(1) Silt loam
Family particle size	(1) Sandy
Drainage class	Poorly drained
Permeability class	Moderate

Ecological dynamics

Range in Characteristics:

Variation in plant composition and production results from depth and duration of surface ponding. Hardstem bulrush has a broad range, occupying the deepest ponded areas as well as shallow areas while broadfruit burreed can

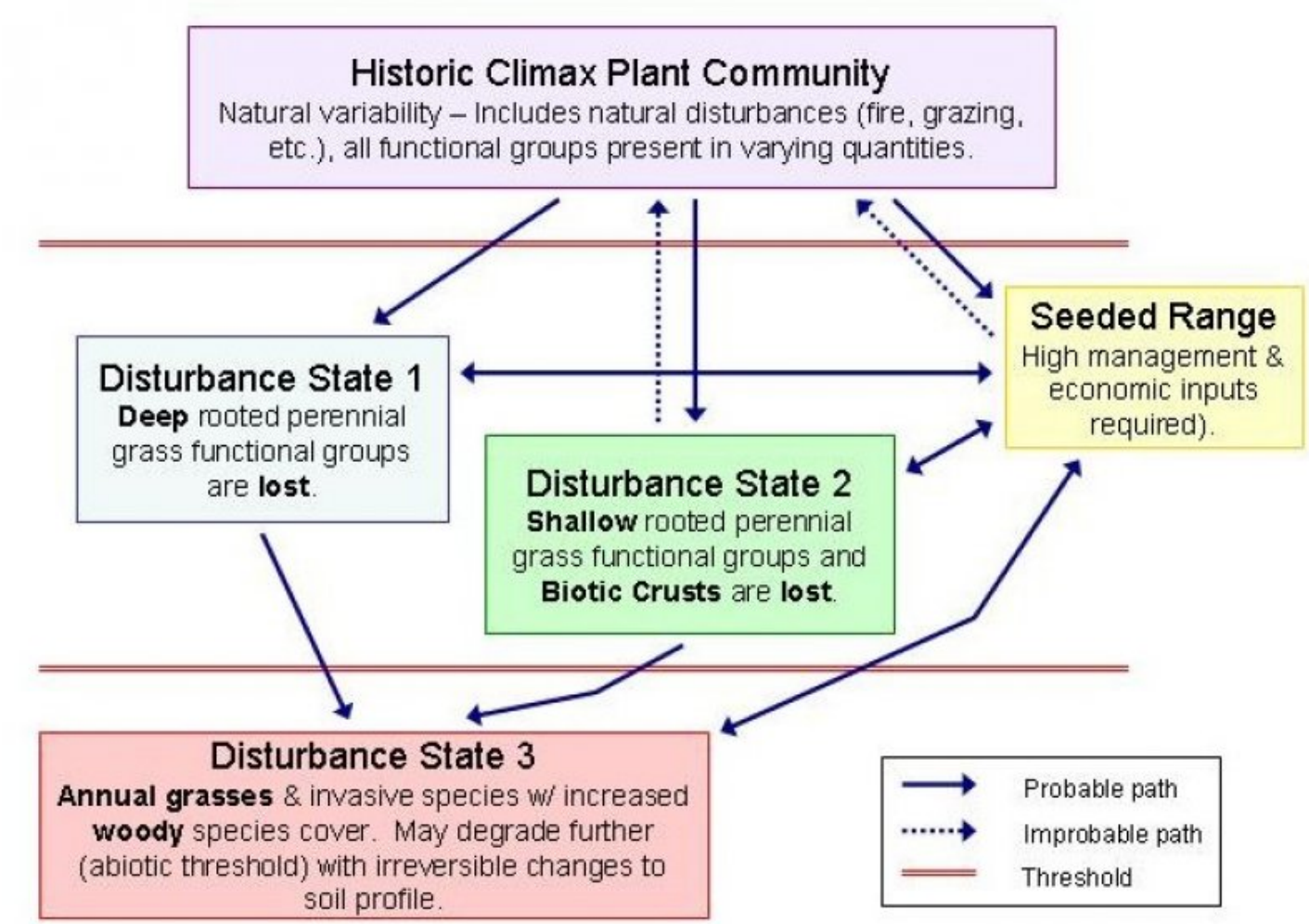
withstand prolonged submergence to depths of 2.5 to 3 feet, conditions that eliminates cattails. Cattails on the otherhand, germinate earlier and can withstand longer dry periods. As a result, hardstem bulrush and broadfruit burreed occur as pure stands in deeper ponded areas while cattails increase in shallower ponded areas.

Response to Disturbance:

If the extent and duration of ponding is reduced to critical levels through water regulation or drainage, extensive changes to dry site conditions will result. Under initial drying conditions, broadfruit burreed, a very sensitive species, will disappear and hardstem bulrush will decrease. Reed canarygrass will strongly invade and cattails will increase. With continued drying and/or disturbance reed canarygrass will dominate the site. Perennial pepperweed and Canadian thistle will also invade.

With ponding to depths greater than 3 feet or burning plus extended ponding, the amount of bulrush, burreed, and other species will be reduced. This occurs because emerged stems are necessary for air transport to submerged stems, crowns, and roots. If water drawdown occurs after deep ponding and mudflats develop, smartweeds, lamb's quarter, goosefoot, and pigweed often invade.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference State

Community 1.1
Reference Plant Community

The potential native plant community is strongly dominated by hardstem bulrush and broadfruit burreed in a pattern arrangement. Other vegetation is minor. The potential vegetative composition is approximately 50 percent bulrush and 40 percent burreed. Approximate ground cover is 90-120 percent (basal and crown).

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Forb	1500	2000	3000
Grass/Grasslike	1500	2000	3000
Total	**3000**	**4000**	**6000**

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	**Perennial, deep-rooted, rhizomatous, bulrush**			1600–2400	
	hardstem bulrush	SCAC3	*Schoenoplectus acutus*	1600–2400	–
2	**Perennial, deep-rooted, rhizomatous grass-like**			0–1000	
	softstem bulrush	SCTA2	*Schoenoplectus tabernaemontani*	0–400	–
	common reed	PHAU7	*Phragmites australis*	0–200	–
	sedge	CAREX	*Carex*	0–200	–
	spikerush	ELEOC	*Eleocharis*	0–200	–
Forb					
7	**Perennial, erect, rhizomatous, monocot**			1600–2400	
	broadfruit bur-reed	SPEU	*Sparganium eurycarpum*	1600–2400	–
8	**Perennial, erect, rhizomatous, monocot**			120–400	
	broadleaf cattail	TYLA	*Typha latifolia*	120–400	–
9	**Other perennial forbs**			120–240	
	water plantain	ALISM	*Alisma*	0–120	–
	arrowhead	SAGIT	*Sagittaria*	0–120	–

Animal community

Livestock Grazing:

Portions of this site that dry in the fall have limited suitability for cattle use. Ponding precludes use for the remainder of the year.

Native Wildlife Associated with the Climax Community:

Numerous waterfowl including sandhill cranes, diving ducks (redhead and canvas backs), black terns, and mallards use this site for nesting, brooding, food and/or cover. Burreed, the key species, provides the preferred nesting areas and brood cover. Burreed and bulrush are both preferred over cattails for nesting cover. When dry or frozen, deer utilize this site for winter cover and food.

Hydrological functions

The hydrologic cover condition is good when the ecological condition is high.

Other information

If there is adequate organic matter depth in the surface (approximately 2 feet), this site may be dried, burned, and reflooded to create more open water. This site is a Type 4 wetland (Inland Deep Fresh Marsh).

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)	Jeff Repp
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Date	08/09/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None

2. **Presence of water flow patterns:** None

3. **Number and height of erosional pedestals or terracettes:** None

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 0-5%

5. **Number of gullies and erosion associated with gullies:** None

6. **Extent of wind scoured, blowouts and/or depositional areas:** None, moderate wind erosion hazard

7. **Amount of litter movement (describe size and distance expected to travel):** Fine to moderately coarse - limited movement

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Moderately to significantly resistant to erosion: aggregate stability = 4-6

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Very deep poorly drained silt loam to muck: Moderate to high OM (3-6%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (90-120%) and gentle slopes (0-1%) effectively limit rainfall impact and overland flow

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None

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: Hardstem Bulrush > Broadfruit Burrees > other emergent grass-likes > other emergent forbs

    Sub-dominant:

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Normal decadence and mortality expected

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):** Favorable: 6000, Normal: 4000, Unfavorable: 3000 lbs/acre/year at high RSI (HCPC)

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:** Cattail species will increase with deterioration of plant community. Reed canarygrass, Meadow foxtail, Kentucky bluegrass, thistles, perennial pepperweed, and foxtail barley invade sites that have lost deep rooted perennial grass functional groups.

17. **Perennial plant reproductive capability:** All species should be capable of reproducing annually