USDA Natural Resources
Conservation Service

Ecological site R024XY012OR
SANDY 6-10 PZ

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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.

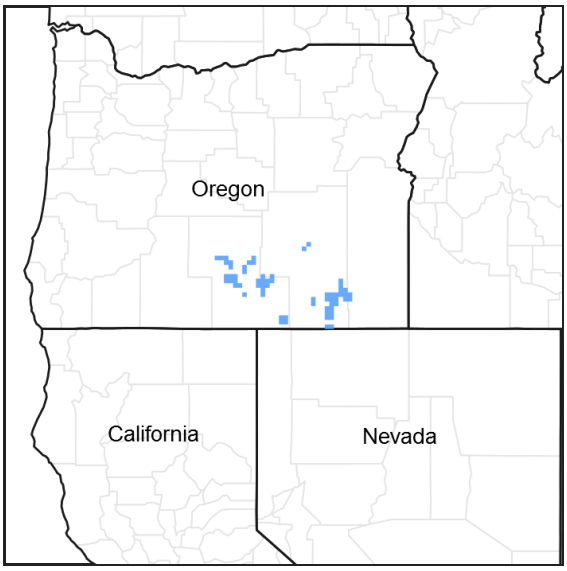


Figure 1. Mapped extent

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

R024XY005OR	**SODIC DUNES** Sodic Dunes (sodic sandy dunes, lower production, different composition – SAVE4 co- dominant with ARTRT, DISP present)
R024XY013OR	**LOW SODIC TERRACE 6-10 PZ** Low Sodic Terrace 6-10 PZ (loamy surface, higher salts and carbonates, droughtier conditions, lower production, different composition – SAVE4 dominant, GRSP, ATCO, PIDE4 prominent, HECO26 minor)
R024XY014OR	**SODIC TERRACE 6-10 PZ** Sodic Terrace 6-10 PZ (loamy surface, higher salts and carbonates, lower production, different composition – ARTR and GRSP co-dominant, SAVE4, ATCO and PIDE4 prominent, HECO26 minor)
R024XY015OR	**DESERT LOAM 6-10 PZ** Desert Loam 6-10 PZ (loamy surface, higher salts and carbonates, shallower soil, lower production, droughtier conditions, different composition – ATCO-PIDE4 dominant, HECO26 absent)
R024XY016OR	**LOAMY 8-10 PZ** Loamy 8-10 PZ (loamy surface, different composition – ARTRW8 and ACTH7 dominant, PSSPS and ACHY prominent, HECO26 present)
R024XY018OR	**SANDY LOAM 8-10 PZ** Sandy Loam 8-10 PZ (finer sandy surface, different composition – ATCA2 absent, ARTRW8(T)/HEC026 strongly dominant, ACHY prominent)

Similar sites

R024XY018OR	**SANDY LOAM 8-10 PZ** Sandy Loam 8-10 PZ (finer sandy surface, different composition – ATCA2 absent, ARTRW8(T)/HEC026 strongly dominant, ACHY prominent)
R024XY110OR	**DUNES** Dunes (sandy dune topography, higher production, different composition – ATCA2 absent, LECI4 common)
R024XY005OR	**SODIC DUNES** Sodic Dunes (sodic sandy dunes, lower production, different composition – SAVE4 co- dominant with ARTRT, DISP present)

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex canescens* (2) *Artemisia tridentata ssp. tridentata*
Herbaceous	(1) *Hesperostipa comata* (2) *Achnatherum hymenoides*

Physiographic features

This site occurs on fans and terraces adjacent to lake basins. It is found on topography with level to gentle slopes. Slopes typically range from 2 to 8 percent. Elevation varies from 3800 to 4800 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan (2) Terrace (3) Pluvial lake (relict)
Elevation	1,219–1,463 m
Slope	2–8%
Water table depth	0 cm
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 6 to 10 inches, most of which occurs in the form of snow and rain during the months of December through March. The soil temperature regime is mesic to frigid near mesic with a mean annual air temperature of 48 degrees F. Air temperature extremes range from 110 to -20 degrees F. The frost free period ranges from 90 to 120 days. The optimum growth period for native plants is from the first of April through early June.

Table 3. Representative climatic features

Frost-free period (average)	120 days
Freeze-free period (average)	0 days
Precipitation total (average)	254 mm

Influencing water features

Soil features

The soils of this site are typically very deep over lacustrine sediments, alluvial fan remnants or low terraces. Surface textures are loamy fine sands to sandy loams over fine sandy loam subsoils. Substratums are fine sands. Soils are

somewhat excessively drained. Permeability is rapid. The available water holding capacity (AWC) is about 3 to 6 inches for the profile. The potential for wind erosion is moderate to severe. Water erosion potential is slight.

Table 4. Representative soil features

Parent material	(1) Eolian sands–rhyolite (2) Volcanic ash–granodiorite
Surface texture	(1) Loamy fine sand (2) Sandy loam
Family particle size	(1) Sandy
Drainage class	Somewhat excessively drained to well drained
Permeability class	Very rapid to rapid
Soil depth	152–183 cm

Ecological dynamics

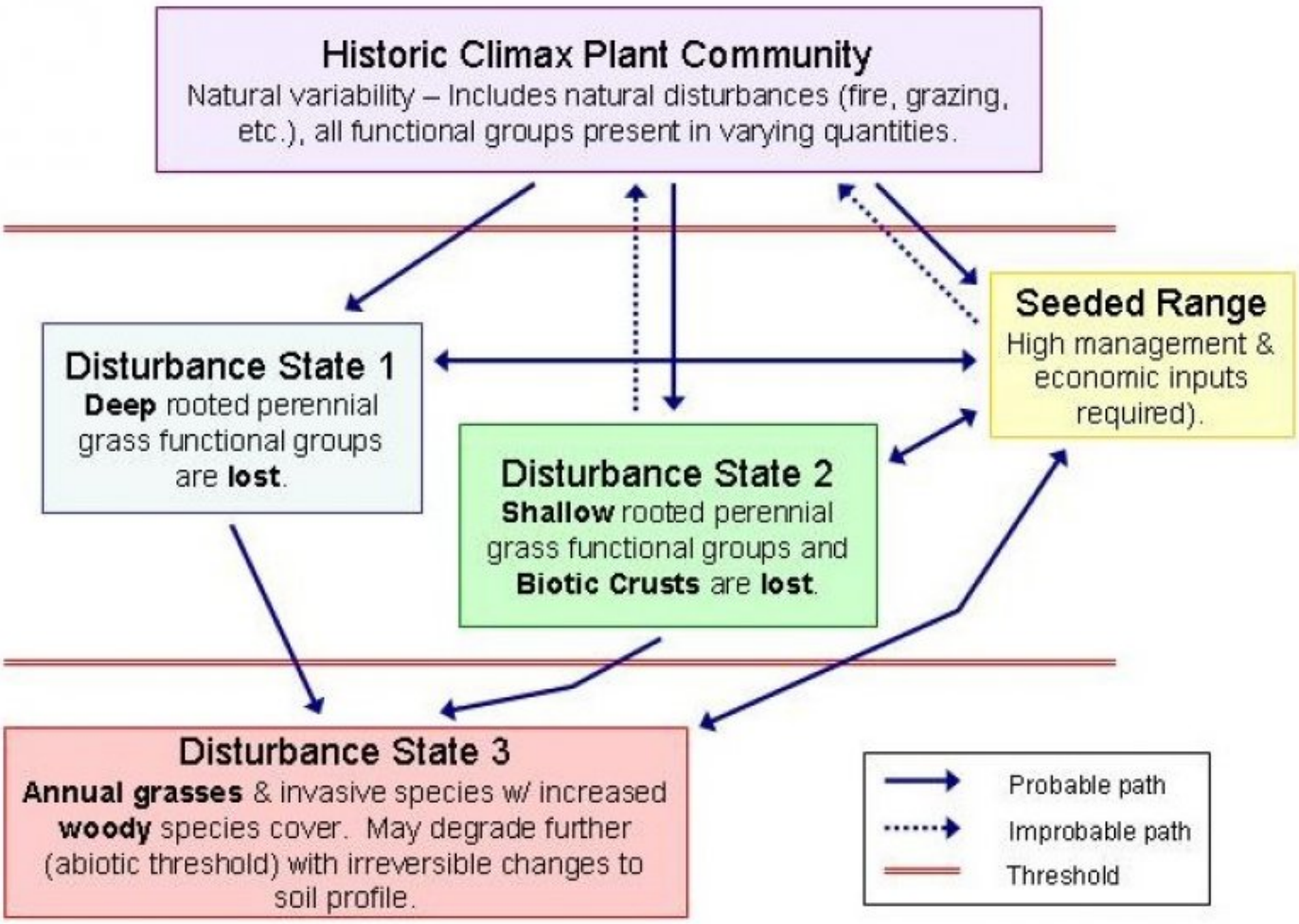
The potential native plant community is dominated by fourwing saltbush and needle and thread. Indian ricegrass is prominent. Basin big sagebrush is common. Basin wildrye, beardless (creeping) wildrye and a variety of forbs are present. Vegetative composition of the community is approximately 60 percent grasses, 10 percent forbs and 30 percent shrubs. The approximate ground cover is 40-60% (basal and crown).

Range in Characteristics:
Production will increases at the upper end of the precipitation zone. Both needle and thread and Indian ricegrass are indicative of the coarseness of the soil on this site. Needle and thread increases on fine sandy loam surfaces. Indian ricegrass increases on coarse sandy surfaces. Fourwing saltbush, a C4 plant, increases in warm mesic areas on deep soils. When fourwing saltbush is present in higher densities it adds considerably to total production. Basin wildrye a minor component increases with available deep subsurface water.

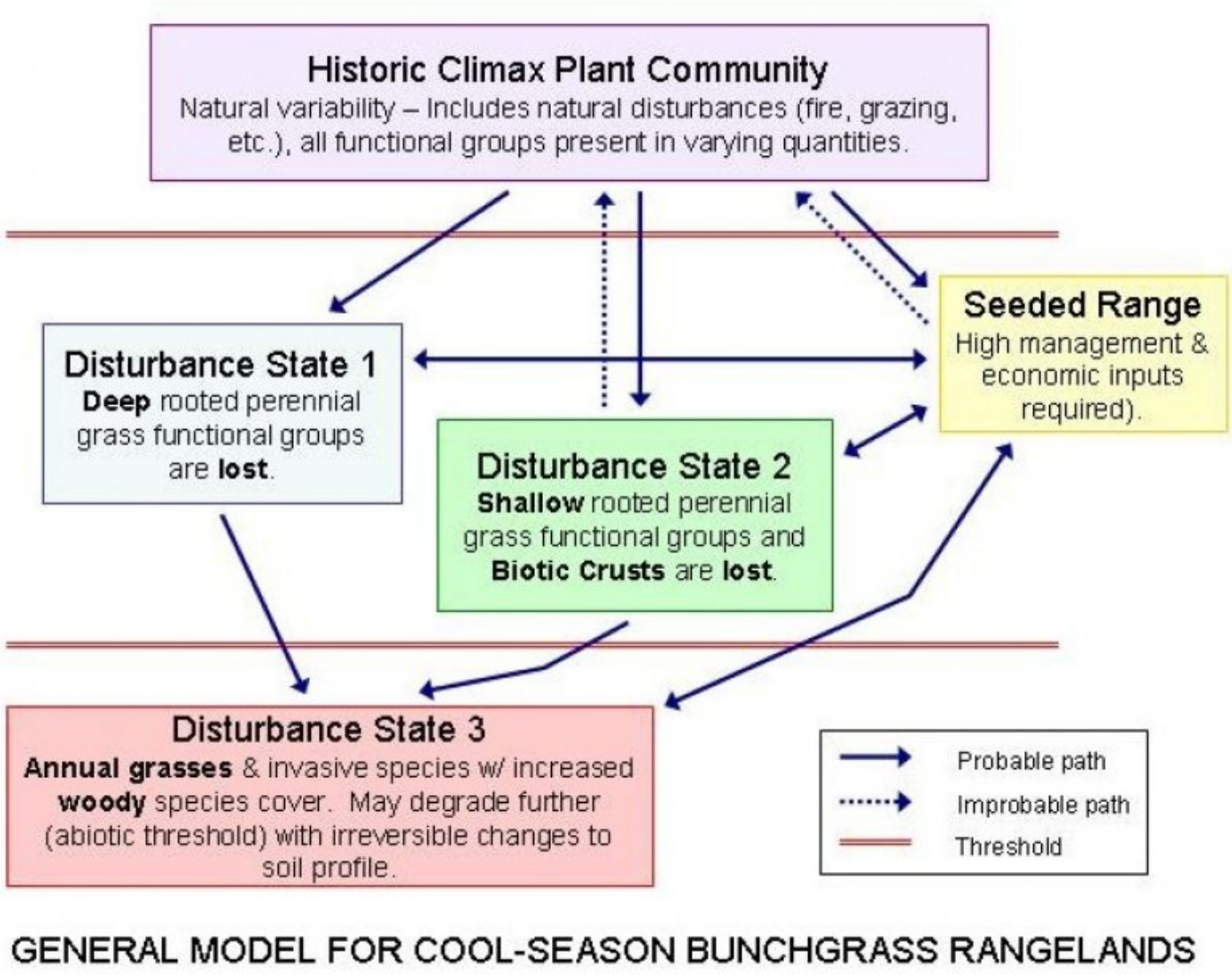
Response to Disturbance - States:
If the condition of the site deteriorates as a result of over grazing, fourwing saltbush, needle and thread and Indian ricegrass will decrease in the stand. Basin big sagebrush and bottlebrush squirreltail will increase. Bare ground increases and annuals invade. With further deterioration annuals continue to invade, bare ground increases and wind erosion reduces the site productivity. Annual invasion is prevalent under deteriorated conditions following fire.

States: ARTRT/ELEL5-annuals-bare ground; Annuals-bare ground following fire under deteriorated conditions

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference Plant Community

Community 1.1
Referencer Plant Community

The reference native plant community is dominated by fourwing saltbush and needle and thread. Indian ricegrass is prominent. Basin big sagebrush is common. Basin wildrye, beardless (creeping) wildrye and a variety of forbs are present. Vegetative composition of the community is approximately 60 percent grasses, 10 percent forbs and 30 percent shrubs. The approximate ground cover is 40-60% (basal and crown).

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	336	538	673
Shrub/Vine	168	269	336
Forb	56	90	112
Total	**560**	**897**	**1121**

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	**Dominant, moderate rooted bunchgrass**			269–359	
	needle and thread	HECO26	*Hesperostipa comata*	269–359	–
2	**Sub-dominant, moderate rooted bunchgrass**			179–269	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	179–269	–
3	**Common, perennial, rhizomatous grass**			17–45	
	beardless wildrye	LETR5	*Leymus triticoides*	17–45	–
5	**Other perennial grasses**			34–101	
	basin wildrye	LECI4	*Leymus cinereus*	17–45	–
	Sandberg bluegrass	POSE	*Poa secunda*	6–17	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	0–17	–
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	0–17	–
	squirreltail	ELEL5	*Elymus elymoides*	6–17	–
	thickspike wheatgrass	ELLA3	*Elymus lanceolatus*	0–17	–
Forb					
9	**Perennial forbs**			17–90	
	hawksbeard	CREPI	*Crepis*	2–9	–
	milkvetch	ASTRA	*Astragalus*	2–9	–
	buckwheat	ERIOG	*Eriogonum*	2–9	–
	granite prickly phlox	LIPU11	*Linanthus pungens*	0–9	–
	desertparsley	LOMAT	*Lomatium*	2–9	–
	lupine	LUPIN	*Lupinus*	2–9	–
	common yarrow	ACMI2	*Achillea millefolium*	2–6	–
	sandwort	ARENA	*Arenaria*	0–6	–
	evening primrose	OENOT	*Oenothera*	2–6	–
	phlox	PHLOX	*Phlox*	2–6	–
	fleabane	ERIGE2	*Erigeron*	2–6	–
	scarlet globemallow	SPCO	*Sphaeralcea coccinea*	0–3	–
	foothill deathcamas	ZIPA2	*Zigadenus paniculatus*	1–3	–
	beardtongue	PENST	*Penstemon*	0–3	–
	Douglas' dustymaiden	CHDO	*Chaenactis douglasii*	0–3	–
	blazingstar	MENTZ	*Mentzelia*	0–3	–
	silverpuffs	MICRO6	*Microseris*	0–2	–
	larkspur	DELPH	*Delphinium*	0–2	–
Shrub/Vine					
11	**Dominant, deciduous, sprouting shrub**			45–359	
	fourwing saltbush	ATCA2	*Atriplex canescens*	45–359	–
12	**Sub-dominant, evergreen, non-sprouting shrub**			45–90	
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	45–90	–
15	**Other shrubs**			45–112	
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	6–28	–
	spiny hopsage	GRSP	*Grayia spinosa*	6–28	–
	winterfat	KRLA2	*Krascheninnikovia lanata*	0–28	–
	bud sagebrush	PIDE4	*Picrothamnus desertorum*	0–22	–

	littleleaf horsebrush	TEGL	*Tetradymia glabrata*	6–22	–

Animal community

Livestock Grazing:
This site is suitable for livestock grazing use in spring, fall and early winter 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 needle and thread, Indian ricegrass and fourwing saltbush. Needle and thread and Indian ricegrass can be severely damaged if heavily grazed during periods of flowering and grass seed formation before root reserves have accumulated and soil moisture is low. Fourwing saltbush can be severely damaged by heavy late winter/early spring grazing during periods of “bark slippage”. Deferred grazing or rest is recommended at least once every three years.

Wildlife:
This site offers food and cover for antelope, mule deer, desert bighorn sheep, sage grouse and a variety of other birds, rodents and their associated predators. It is an important spring, fall and winter use area for sage grouse, antelope, mule deer and desert bighorn sheep.

Hydrological functions

The soils of this site have high wind erosion and low runoff potential. The hydrologic cover condition is good when the deep rooted bunchgrass component is greater than 70 percent of potential. The soils are in hydrologic groups A.

Other information

This site has moderately low potential for range seeding because it is very droughty and subject to wind erosion.

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:**

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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:**
