USDA Natural Resources
Conservation Service

Ecological site R029XY033NV
LOAMY SLOPE 3-5 P.Z.

Accessed: 05/11/2025

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.

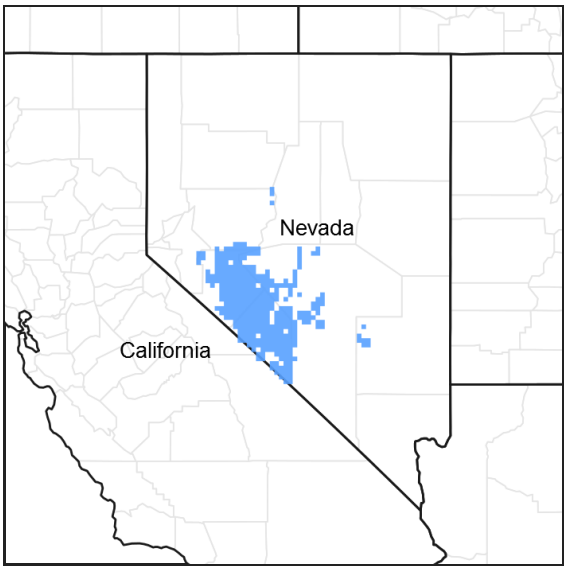

Figure 1. Mapped extent

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

R029XY021NV	**LOAMY HILL 5-8 P.Z.**
R029XY032NV	**SODIC LOAM 3-5 P.Z.**
R029XY035NV	**LOAMY 3-5 P.Z.**

Similar sites

R029XY022NV	**LOAMY SLOPE 5-8 P.Z.** More productive site
R029XY032NV	**SODIC LOAM 3-5 P.Z.** More productive site
R029XY087NV	**GRAVELLY LOAM 5-8 P.Z.** More productive site; SABA14 dominant shrub
R027XY043NV	**COARSE GRAVELLY LOAM 3-5 P.Z.** ATCO & Lycium spp. codominant with SABA14
R029XY017NV	**LOAMY 5-8 P.Z.** More productive site; SABA14 rare to minor shrub

R029XY035NV	**LOAMY 3-5 P.Z.** ATCO - Lycium spp. codominant
R029XY059NV	**SHALLOW SILTY 5-8 P.Z.** Essentially a pure ATCO site
R029XY039NV	**COARSE GRAVELLY LOAM 3-5 P.Z.** More productive site; AMDU2 - Lycium spp. codominant
R029XY024NV	**SODIC TERRACE 5-8 P.Z.** SAVE4 dominant shrub
R029XY021NV	**LOAMY HILL 5-8 P.Z.** GRSP- Lycium spp. codominant shrubs

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex confertifolia*
Herbaceous	(1) *Achnatherum hymenoides*

Physiographic features

This site occurs on summits and sideslopes of fan piedmonts, rock pediments, hills, mountains and fan remnants on all aspects. Slopes range from 4 to 75 percent, but slope gradients of 8 to 75 percent are typical. Elevations are 4200 to about 6800 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan piedmont (2) Hill (3) Mountain
Elevation	4,200–6,800 ft
Slope	4–75%
Aspect	Aspect is not a significant factor

Climatic features

The climate associated with this site is arid, characterized by cool, moist winters and hot, dry summers. Average annual precipitation is 3 to 5 inches. Mean annual air temperature is 50 to 56 degrees F. The average growing season is about 140 to 235 days.

Table 3. Representative climatic features

Frost-free period (average)	235 days
Freeze-free period (average)	0 days
Precipitation total (average)	5 in

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soils of this site are typically very shallow to shallow, well drained to somewhat excessively drained, and are typically calcareous or carbonatic. Reaction is moderately to strongly alkaline. The soils are formed in volcanic rocks or tuffaceous sedimentary rocks. There are high amounts of rock fragments on the soil surface and in the profile.

The soil moisture regime is typic aridic and the soil temperature regime is mesic. Soil surface textures are generally loams to sandy loams. The soil series associated with this site include Blacktop, Roic and Theriot.

The representative soil series is Blacktop, a loamy-skeletal, mixed, superactive, calcareous, mesic Lithic Torriorthents.

Table 4. Representative soil features

Parent material	(1) Residuum–basalt (2) Residuum–tuff
Surface texture	(1) Extremely stony fine sandy loam (2) Very gravelly fine sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderate to moderately rapid
Soil depth	5–10 in
Surface fragment cover <=3"	28–35%
Surface fragment cover >3"	2–25%
Available water capacity (0-40in)	0.2–2.9 in
Calcium carbonate equivalent (0-40in)	0–10%
Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–12
Soil reaction (1:1 water) (0-40in)	8–8.6
Subsurface fragment volume <=3" (Depth not specified)	10–35%
Subsurface fragment volume >3" (Depth not specified)	2–25%

Ecological dynamics

As ecological condition deteriorates, bud sagebrush, Nevada ephedra, and Indian ricegrass decline. Species likely to invade this site are cheatgrass, burrobrush, snakeweed, halogeton, Russian thistle, and annual mustards.

Fire Ecology:
The mean fire return interval for shadscale-greasewood communities range from 35 to over 100 years. Shadscale communities are usually unaffected by fire because of low fuel loads, although a year of exceptionally heavy winter rains can generate fuels by producing a heavy stand of annual forbs and grasses.
Indian ricegrass can be killed by fire, depending on severity and season of burn. Communities in which Nevada dalea occur rarely burn, thus Nevada dalea has little adaptations to fire and is probably killed. Indian ricegrass reestablishes on burned sites through seed dispersed from adjacent unburned areas.

State and transition model

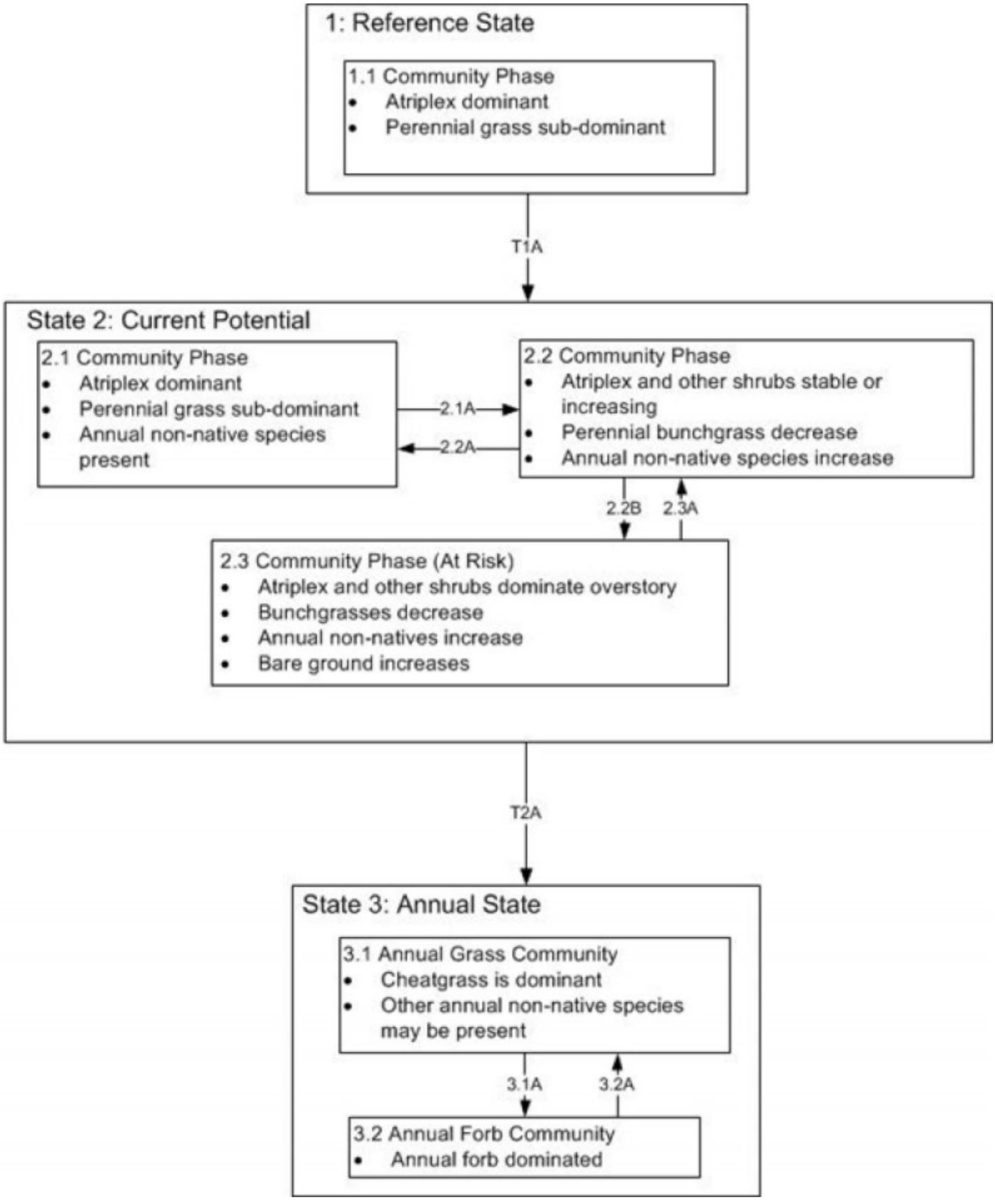

Figure 3. DRAFT STM

T1A: introduction of non-native species

2.1A: prolonged drought/ inadequate rest and recovery from defoliation
2.2A: rest and recovery
2.2B:prolonged drought/ inadequate rest and recovery from defoliation
2.3A: recovery or changes in management

T2A: Inadequate rest and recovery from defoliation and/or prolonged drought/Catastrophic wildfire.

3.1A: fire or cheatgrass die off
3.2A: time

Figure 4. DRAFT STM LEGEND

State 1
Reference State

Community 1.1
Reference Plant Community

The reference plant community is dominated by shadscale. Bailey greasewood and Nevada dalea are important species associated with this site. Potential vegetative composition is about 10% grasses, 5% forbs and 85% shrubs. Approximate ground cover (basal and crown) is less than 5 percent. Bare ground is 30 to over 50%, surface rock fragments are variable but often more than 45%, shrub canopy less than 10% foliar cover for perennial herbaceous plants is less than 5%. Dead branches within individual shrubs are common and standing dead shrub canopy material may be as much as 35% of total woody canopy. Some of the mature bunchgrasses (approximately 25%) have dead centers. Within plant interspaces litter is less than 1% cover.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	22	43	85
Grass/Grasslike	2	5	10
Forb	1	2	5
Total	**25**	**50**	**100**

State 2
Current Potenital State

State 3
Annual State

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	**Primary Perennial Grasses**			2–8	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	2–8	–
2	**Secondary Perennial Grasses**			1–5	
	desert needlegrass	ACSP12	*Achnatherum speciosum*	0–1	–
	King's eyelashgrass	BLKI	*Blepharidachne kingii*	0–1	–
	squirreltail	ELEL5	*Elymus elymoides*	0–1	–
Forb					
3	**Perennial**			1–5	
4	**Annual**			0–5	
Shrub/Vine					
5	**Primary Shrubs**			35–49	
	shadscale saltbush	ATCO	*Atriplex confertifolia*	35–43	–
	Nevada dalea	PSPO	*Psorothamnus polydenius*	0–3	–
6	**Secondary Shrubs**			3–8	
	Parry's saltbush	ATPA3	*Atriplex parryi*	0–1	–
	Nevada jointfir	EPNE	*Ephedra nevadensis*	0–1	–
	desert-thorn	LYCIU	*Lycium*	0–1	–
	bud sagebrush	PIDE4	*Picrothamnus desertorum*	0–1	–
	horsebrush	TETRA3	*Tetradymia*	0–1	–

Animal community

Livestock Interpretations:
This site has limited potential for domestic livestock grazing, due to very low forage production. Indian ricegrass is highly palatable to all classes of livestock in both green and cured condition. It supplies a source of green feed before most other native grasses have produced much new growth. Shadscale is a valuable browse species, providing a source of palatable, nutritious forage for a wide variety of livestock. Shadscale provides good browse for domestic sheep. Shadscale leaves and seeds are an important component of domestic sheep and cattle winter diets. Bailey’s greasewood is an important winter browse plant for domestic sheep and cattle. It also receives light to moderate use by domestic sheep and cattle during spring and summer months. Greasewood contains soluble sodium and potassium oxalates that may cause poisoning and death in domestic sheep and cattle if large amounts are consumed in a short time. Nevada dalea is of little importance to livestock due to its low palatability.

Stocking rates vary over time depending upon season of use, climate variations, site, and previous and current management goals. A safe starting stocking rate is an estimated stocking rate that is fine tuned by the client by adaptive management through the year and from year to year.

Wildlife Interpretations:
Shadscale is a valuable browse species, providing a source of palatable, nutritious forage for a wide variety of wildlife particularly during spring and summer before the hardening of spiny twigs. It supplies browse, seed, and cover for birds, small mammals, rabbits, deer, and pronghorn antelope. Bailey’s greasewood is an important winter browse plant for big game animals and a food source for many other wildlife species. It also receives light to moderate use by mule deer and pronghorn during spring and summer months. Nevada dalea has low palatability to many wildlife species. Indian ricegrass is eaten by pronghorn in moderate amounts whenever available. In Nevada, it is consumed by desert bighorns. A number of heteromyid rodents inhabiting desert rangelands show preference for seed of Indian ricegrass. Indian ricegrass is an important component of jackrabbit diets in spring and summer. In

Nevada, Indian ricegrass may even dominate jackrabbit diets during the spring through early summer months. Indian ricegrass seed provides food for many species of birds. Doves, for example, eat large amounts of shattered Indian ricegrass seed lying on the ground.

Hydrological functions

Rills are rare on this site. A few can be expected on steeper slopes in areas subjected to summer convection storms or rapid snowmelt. Water flow patterns are often numerous in areas subjected to summer convection storms. Flow patterns are short and stable. Pedestals are rare and occurrence is usually limited to areas of water flow patterns. Fine litter (foliage from grasses and annual and perennial forbs) are expected to move the distance of slope length during intense summer convection storms or rapid snowmelt events. Persistent litter (large woody material) will remain in place except during large rainfall events. Sparse shrub canopy and asociated litter provide some protection from raindrop impact.

Recreational uses

This site offers opportunities for photography and nature study. This site has potential for hiking.

Other products

Shadscale seeds were used by Native Americans of Arizona, Utah and Nevada for bread and mush.
The leaves, seeds and stems of greasewood are edible. Indian ricegrass was traditionally eaten by some Native American peoples. The Paiutes used seed as a reserve food source.

Other information

Revegetation of shadscale communities is inherently difficult. Dry soil surfaces resulting from low humidity, high irradiation, and moderate to strong winds are major obstacles in revegetation projects.

Type locality

Location 1: Esmeralda County, NV	
Township/Range/Section	T2N R37E S14
General legal description	Approximately 1.5 miles east of Coaldale junction and .5 miles north of US Hwy 95, Esmeralda County, Nevada
Location 2: Esmeralda County, NV	
Township/Range/Section	T2N R37E S23
General legal description	Approximately 1.5 miles east of Coaldale junction and .5 miles north of US Hwy 95, Esmeralda County, Nevada
Location 3: Nye County, NV	
Township/Range/Section	T2N R42E S3
General legal description	Approximately 1.5 miles southwest of Tonopah, Siebert Mountain area, Nye County Nevada. This site also occurs in Mineral County, Nevada.

Other references

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

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

Contributors

HA/GD/VWM

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)	GK BRACKLEY
Contact for lead author	State Rangeland Management Specialist
Date	06/20/2006
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills are rare. A few can be expected on steeper slopes in areas subjected to summer convection storms or rapid spring snowmelt.

2. **Presence of water flow patterns:** Water flow patterns are often numerous in areas subjected to summer convection storms. Flow patterns short and stable.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are rare with occurrence typically limited to area within water flow patterns.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground 30 to over 50% dependiing on amount of surface rock fragments.

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

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

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter (foliage from grasses and annual & perennial forbs) is expected to move the distance of slope length during intense summer convection storms or rapid snowmelt events. Persistent litter (large woody material) will remain in place except during large rainfall events.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil stability values should be 2 to 4 on most soil textures found on this site. (To be field tested.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface structure is typically massive or moderate thick platy. Soil surface colors are light grays and the soils are typified by an ochric epipedon. Organic carbon of the surface 2 to 3 inches is less than to 1 percent.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Sparse shrub canopy and associated litter provide some protection from raindrop impact.

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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):** Compacted layers are none. Massive sub-surface horizons are not to be interpreted as compacted layers.

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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: Reference Plant Community: Low-statured salt-desert shrub (shadscale)>associated low-statured salt desert shrubs. (By above ground production)

    Sub-dominant: Deep-rooted, cool season, perennial bunchgrasses > shallow-rooted, cool season, perennial grasses > deep-rooted, cool season, perennial forbs = fibrous, shallow-rooted, cool season, annual and perennial forbs. (By above ground production)

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Dead branches within individual shrubs are common and standing dead shrub canopy material may be as much as 35% of total woody canopy; mature bunchgrasses commonly (±25%) have dead centers.

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14. **Average percent litter cover (%) and depth (in):** Between plant interspaces is typically ~5%.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** For normal or average growing season (February thru April) ± 50 lbs/ac; Spring moisture significantly affects total production. Favorable years ± 100 lbs/ac and unfavorable years ± 25 lbs/ac.

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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:** Potential invaders include cheatgrass, halogeton, Russian thistle, and annual mustards.

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17. **Perennial plant reproductive capability:** All functional groups should reproduce in average and above average growing season years. Little growth and reproduction occurs in drought years.
