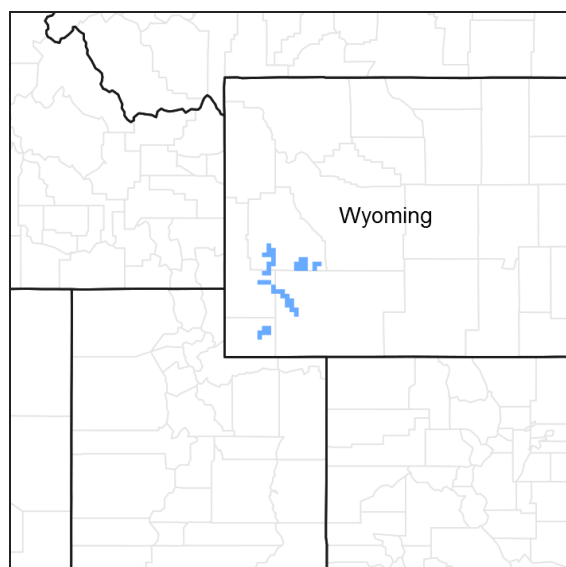


# **Ecological site R034AY174WY** **Subirrigated Green River and Great Divide Basins (Sb)**

Last updated: 2/26/2025  
 Accessed: 05/10/2025

## **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**

R034AY128WY	<b>Lowland Green River and Great Divide Basins (LL)</b> Lowland
R034AY138WY	<b>Saline Lowland Green River and Great Divide Basins (SL)</b> Saline Lowland
R034AY142WY	<b>Saline Subirrigated Green River and Great Divide Basins (SS)</b> Saline Subirrigated
R034AY178WY	<b>Wetland Green River and Great Divide Basins (WL)</b> Wetland

## **Similar sites**

R034AY274WY	<b>Subirrigated Foothills and Basins West (Sb)</b> Subirrigated (Sb) 10-14W has higher production.
R034AY178WY	<b>Wetland Green River and Great Divide Basins (WL)</b> Wetland (WL) 7-9GR has a higher water table.

**Table 1. Dominant plant species**

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

## Physiographic features

This site will usually occur on level to nearly level land along perennial or intermittent streams and near seeps, springs, and sloughs. It is found on all exposures and on slopes about 3%.

**Table 2. Representative physiographic features**

Landforms	(1) Alluvial fan (2) Stream terrace
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Rare to occasional
Ponding frequency	None
Elevation	6,000–7,200 ft
Slope	1–10%
Ponding depth	0 in
Water table depth	12–40 in
Aspect	Aspect is not a significant factor

## Climatic features

Annual precipitation ranges from 7-9 inches per year. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 50 mph.

Growth of native cool season plants begins about April 15 and continues to about July 15. Some green up of cool season plants may occur in September if moisture is available.

For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at <http://www.wcc.nrcs.usda.gov/cgibin/state.pl?state=wy> website. Other climate stations representative of this precipitation zone include “Bitter Creek”, “Farson”, “Rock Springs FAA AP”, and “Wamsutter” in Sweetwater County; “Church Buttes Gas PLT”, and Mountain View” in Uinta County; “Fontenelle”, “La Barge”, and “Sage 4 NNW” in Lincoln County; and “Big Piney” in Sublette County.

**Table 3. Representative climatic features**

Frost-free period (average)	121 days
Freeze-free period (average)	132 days
Precipitation total (average)	9 in

## Influencing water features

Stream type: C (Rosgen)

## Soil features

The soils of this site are moderately deep to very deep (greater than 15" to bedrock) and formed from alluvium from mixed sources. They have water tables below the surface for all of the growing season. The water table is non-saline and non-alkaline. They are loamy soils with a seasonal high water table depth of about 1 to 3 feet most years. These areas may have water over the surface from run-in but only for short periods of time. Soil surface usually has a high content of organic matter with mottling or gleying usually occurring within 20 to 40 inches of the surface. Soil surface textures are loam, clay loam, silt loam, fine sandy loam and sandy loam. Soil surface texture modifiers may or may not include gravelly or cobbly.

Major Soil Series correlated to this site include: Becks, Canninger, Lander, and Pescar.

**Table 4. Representative soil features**

Surface texture	(1) Loam (2) Clay loam (3) Silt loam
Drainage class	Somewhat poorly drained to moderately well drained
Permeability class	Moderately slow to moderate
Soil depth	15–60 in
Surface fragment cover ≤3"	0–20%
Surface fragment cover >3"	0–5%
Available water capacity (0–40in)	2.5–5.5 in
Calcium carbonate equivalent (0–40in)	0–40%
Electrical conductivity (0–40in)	0–8 mmhos/cm
Sodium adsorption ratio (0–40in)	0–5
Soil reaction (1:1 water) (0–40in)	6.6–8.6
Subsurface fragment volume ≤3" (Depth not specified)	0–30%
Subsurface fragment volume >3" (Depth not specified)	0–15%

## Ecological dynamics

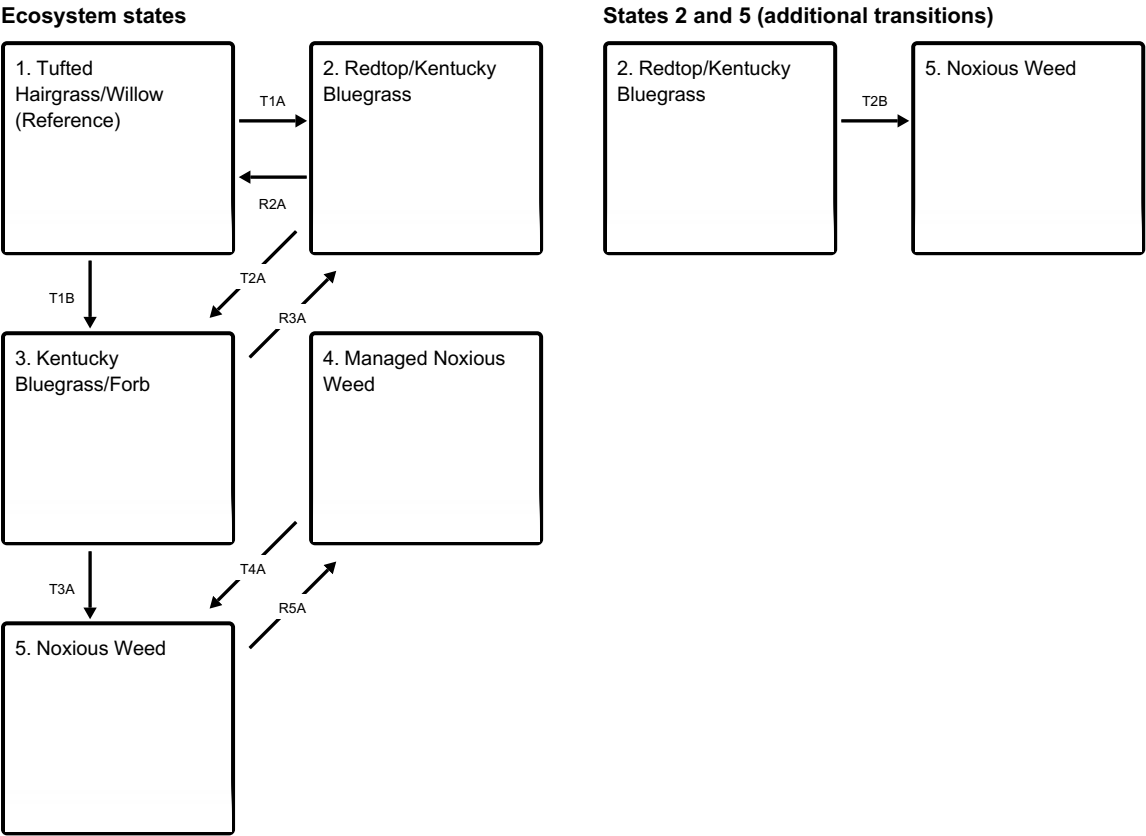
As this site deteriorates, species such as inland sedge and Baltic rush increase. Grasses such as tufted hairgrass, slender wheatgrass, Nebraska sedge, and basin wildrye will decrease in frequency and production. Willow stands will become decadent with a lack of diverse age classes as site declines. This site is vulnerable to noxious weed invasion by such species as perennial pepperweed.

These plant communities narratives may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities”. According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC’s) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

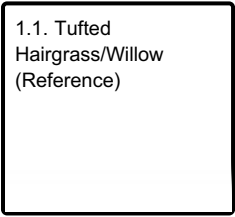
The Reference Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.

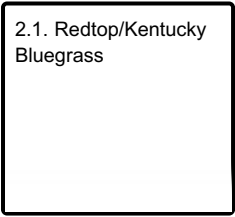
State and transition model



State 1 submodel, plant communities



State 2 submodel, plant communities



### State 3 submodel, plant communities

3.1. Kentucky  
Bluegrass/Forb

### State 4 submodel, plant communities

4.1. Managed Noxious  
Weed

### State 5 submodel, plant communities

5.1. Noxious Weed

## State 1

### Tufted Hairgrass/Willow (Reference)

#### Community 1.1

#### Tufted Hairgrass/Willow (Reference)

The interpretive plant community for this site is the Reference Plant Community. This state evolved with grazing by large herbivores and is suited for grazing by domestic livestock. Potential vegetation is estimated at 65% grasses or grass-like plants, 20% forbs and 15% woody plants. The major grasses include Basin wildrye, Nebraska sedge, tufted hairgrass, and Western wheatgrass. Other grasses and grass-like plants may include Baltic rush, tall mannagrass, bluejoint and northern reedgrass, Nuttalls alkaligrass, alkali sacaton, mat muhly, inland sedge, and slender wheatgrass. A variety of willow species are the dominant woody plants. Other woody plants may include buffaloberry, wildrose, rubber rabbitbrush, and shrubby cinquefoil. A typical plant composition for this state consists of Basin wildrye 35-50%, Nebraska sedge 10-20%, tufted hairgrass 10-20%, Western wheatgrass 5-10%, other grasses and grass-like plants 5-15%, perennial forbs 5-20%, willows 5-15%, and up to 5% other woody species. Ground cover, by ocular estimate, varies from 85-100%. The total annual production (air-dry weight) of this state is about 3000 pounds per acre, but it can range from about 2300 lbs./acre in unfavorable years to about 3500 lbs./acre in above average years. The state is stable and well adapted to the Cool Central Desertic Basins and Plateaus climatic conditions. The diversity in plant species and the reliable water table, allow for high drought resistance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity). Transitions or pathways leading to other plant communities are as follows: • Continuous Season-long Grazing will convert this plant community to the Redtop/Kentucky Bluegrass State. • Heavy Continuous Season-long Grazing will convert this plant community to the Kentucky Bluegrass/Forb State.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	1495	1950	2275
Forb	460	600	700
Shrub/Vine	345	450	525
<b>Total</b>	<b>2300</b>	<b>3000</b>	<b>3500</b>

Figure 5. Plant community growth curve (percent production by month).  
WY0403, 7-9GR, Free Water Sites - WL, Sb, SS. WL, SB, SS Free Water Sites.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	20	40	20	10	5	0	0	0

## State 2

### Redtop/Kentucky Bluegrass

#### Community 2.1

##### Redtop/Kentucky Bluegrass

This plant community evolved under moderate, continuous grazing by domestic livestock. Dominant grasses include redtop, Kentucky bluegrass, bearded wheatgrass, spike sedge and Baltic rush. Mature and/or decadent willows are common in the overstory, but woody plants are lacking in a diversity of age classes. The total annual production (air-dry weight) of this state is about 2500 pounds per acre, but it can range from about 1800 lbs./acre in unfavorable years to about 3000 lbs./acre in above average years. Site stability is moderate. The biotic integrity is somewhat compromised by a shift in species composition toward introduced and less palatable plants. The watershed is usually functioning, but at risk. Transitional pathways leading to other plant communities are as follows: • Prescribed Grazing will result in a plant community very similar to the Reference Plant Community (Tufted Hairgrass/Willow State) although Kentucky bluegrass will remain a part of the plant community. • Continued Heavy Continuous Season-long Grazing and Brush Management will convert this plant community to the Kentucky Bluegrass/Forb State. • Noxious Weed Invasion will convert this plant community to the Noxious Weed State.

Figure 6. Plant community growth curve (percent production by month).  
WY0403, 7-9GR, Free Water Sites - WL, Sb, SS. WL, SB, SS Free Water Sites.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	20	40	20	10	5	0	0	0

## State 3

### Kentucky Bluegrass/Forb

#### Community 3.1

##### Kentucky Bluegrass/Forb

This plant community evolved under continuous heavy grazing pressure by domestic livestock. Kentucky bluegrass dominates as the site dries out. American licorice and herbaceous cinquefoils are dominant forbs. Remnant willows continue to mature and die without replacement seedlings and saplings. The total annual production (air-dry weight) of this state is about 1500 pounds per acre, but it can range from about 800 lbs./acre in unfavorable years to about 2000 lbs./acre in above average years. The state is unstable and vulnerable to excessive erosion. The biotic integrity of this plant community and watershed is nonfunctioning. Transitional pathways leading to other plant communities are as follows: • Prescribed Grazing will convert this plant community to the Redtop/Kentucky Bluegrass State. • Noxious Weed Invasion will convert this plant community to the Noxious Weed State.

Figure 7. Plant community growth curve (percent production by month).  
WY0403, 7-9GR, Free Water Sites - WL, Sb, SS. WL, SB, SS Free Water Sites.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	20	40	20	10	5	0	0	0

## State 4

### Managed Noxious Weed

#### Community 4.1

##### Managed Noxious Weed

This plant community is the result of noxious weed control and prescribed grazing. Grazing is used as a tool to control introduced and noxious weeds by selecting livestock type and timing use during the flowering of the identified weed such as perennial pepperweed. Other weed control efforts such as chemical, mechanical, or biological methods are employed in conjunction with a grazing management scheme. The native plant community responds to this management by increasing in production and vigor, however it is very sensitive to any management change that allows the seed production and increase of noxious weeds such as nonuse or overuse. Noxious weeds are still present, but in smaller amounts and may be isolated to exposed or bare ground areas such as sandbars. The total annual production (air-dry weight) of this state is about 2500 pounds per acre, but it can range from about 1800 lbs./acre to about 3000 lbs./acre depending on irrigation water management practices. Bare ground has decreased. The soil of this state is moderately protected. Degraded stream banks may still erode, but increased amounts of deep-rooting sedges provide adequate stability to the system. The biotic community has been compromised, but is relatively stable and at risk due to invasive plants. The watershed is functioning, but is at risk of degrading rapidly with the introduction of improper management techniques. Transitional pathways leading to other plant communities are as follows: • Nonuse OR Continuous Season-long Grazing will convert this plant community to the Noxious Weed State.

**Figure 8. Plant community growth curve (percent production by month).**  
**WY0403, 7-9GR, Free Water Sites - WL, Sb, SS. WL, SB, SS Free Water Sites.**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	20	40	20	10	5	0	0	0

## **State 5**

### **Noxious Weed**

#### **Community 5.1**

##### **Noxious Weed**

This plant community is the result of long-term improper grazing use and subsequent downcutting of watercourses resulting in a lowered water table. Bare ground has allowed the invasion of noxious weeds such as perennial pepperweed. The site has dried out, and most plants requiring additional moisture have disappeared. Rhizomatous wheatgrass and Kentucky bluegrass are dominant grasses. Rubber rabbitbrush is the dominant woody plant. Willows have disappeared although remnants may still exist. The total annual production (air-dry weight) of this state is about 800 pounds per acre, but it can range from about 500 lbs./acre in unfavorable years to about 1300 lbs./acre in above average years. Bare ground has increased. The soil of this state is not well protected. Degraded stream banks erode due to the lack of deep-rooted riparian plants. The watershed is nonfunctioning and usually produces excessive runoff. The biotic community is nonfunctioning due to invasive plants. Transitional pathways leading to other plant communities are as follows: • Noxious Weed Control in conjunction with Prescribed Grazing and Streambank Stabilization will convert this state to the Managed Noxious Weed State.

**Figure 9. Plant community growth curve (percent production by month).**  
**WY0403, 7-9GR, Free Water Sites - WL, Sb, SS. WL, SB, SS Free Water Sites.**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	20	40	20	10	5	0	0	0

## **Transition T1A**

### **State 1 to 2**

Continuous Season-long Grazing will convert this plant community to the Redtop/Kentucky Bluegrass State.

## **Transition T1B**

### **State 1 to 3**

Heavy Continuous Season-long Grazing will convert this plant community to the Kentucky Bluegrass/Forb State.

## **Restoration pathway R2A**

## State 2 to 1

Prescribed Grazing will result in a plant community very similar to the Reference Plant Community (Tufted Hairgrass/Willow State) although Kentucky bluegrass will remain a part of the plant community.

## Transition T2A

### State 2 to 3

Continued Heavy Continuous Season-long Grazing and Brush Management will convert this plant community to the Kentucky Bluegrass/Forb State.

## Transition T2B

### State 2 to 5

Noxious Weed Invasion will convert this plant community to the Noxious Weed State.

## Restoration pathway R3A

### State 3 to 2

Prescribed Grazing will convert this plant community to the Redtop/Kentucky Bluegrass State.

## Transition T3A

### State 3 to 5

Noxious Weed Invasion will convert this plant community to the Noxious Weed State.

## Transition T4A

### State 4 to 5

Nonuse OR Continuous Season-long Grazing will convert this plant community to the Noxious Weed State.

## Restoration pathway R5A

### State 5 to 4

Noxious Weed Control in conjunction with Prescribed Grazing and Streambank Stabilization will convert this state to the Managed Noxious Weed State.

## Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
1				1050–1500	
	basin wildrye	LECI4	<i>Leymus cinereus</i>	1050–1500	–
2				300–600	
	tufted hairgrass	DECE	<i>Deschampsia cespitosa</i>	300–600	–
3				300–600	
	Nebraska sedge	CANE2	<i>Carex nebrascensis</i>	300–600	–
4				150–300	
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	150–300	–
5				300–600	
	Grass, perennial	2GP	<i>Grass, perennial</i>	0–150	–
	bluejoint	CACA4	<i>Calamagrostis canadensis</i>	0–150	–
	Island sedge	CANI44	<i>Carex intortens</i>	0–150	



	inland seage	CAINT1	<i>Carex interior</i>	0–150	–
	northern reedgrass	CASTI3	<i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>	0–150	–
	slender wheatgrass	ELTR7	<i>Elymus trachycaulus</i>	0–150	–
	fowl mannagrass	GLST	<i>Glyceria striata</i>	0–150	–
	mountain rush	JUARL	<i>Juncus arcticus</i> ssp. <i>littoralis</i>	0–150	–
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	0–150	–
	Nuttall's alkaligrass	PUNU2	<i>Puccinellia nuttalliana</i>	0–150	–
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	0–150	–
<b>Forb</b>					
6				150–600	
	Forb, perennial	2FP	<i>Forb, perennial</i>	0–150	–
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–150	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–150	–
	scouringrush horsetail	EQHY	<i>Equisetum hyemale</i>	0–150	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–150	–
	aster	EUCEP2	<i>Eucephalus</i>	0–150	–
	American licorice	GLLE3	<i>Glycyrrhiza lepidota</i>	0–150	–
	iris	IRIS	<i>Iris</i>	0–150	–
	mint	MENTH	<i>Mentha</i>	0–150	–
	cinquefoil	POTEN	<i>Potentilla</i>	0–150	–
	buttercup	RANUN	<i>Ranunculus</i>	0–150	–
	goldenbanner	THERM	<i>Thermopsis</i>	0–150	–
	clover	TRIFO	<i>Trifolium</i>	0–150	–
	arrowgrass	TRIGL	<i>Triglochin</i>	0–150	–
	violet	VIOLA	<i>Viola</i>	0–150	–
<b>Shrub/Vine</b>					
7				150–450	
	willow	SALIX	<i>Salix</i>	150–450	–
8				30–150	
	shrubby cinquefoil	DAFRF	<i>Dasiphora fruticosa</i> ssp. <i>floribunda</i>	0–150	–
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	0–150	–
	Woods' rose	ROWOW	<i>Rosa woodsii</i> var. <i>woodsii</i>	0–150	–
	silver buffaloberry	SHAR	<i>Shepherdia argentea</i>	0–150	–

## Animal community

### Animal Community – Wildlife Interpretations

Tufted Hairgrass/Willow Plant Community (HCPC): This plant community is very important for most wildlife in the area. Over 80% of all wildlife use this site to fulfill some part of their habitat needs. It provides forage and thermal and hiding cover for mule deer and moose. It provides nesting habitat for shorebirds, songbirds, and waterfowl as well as ground nesting birds such as harriers. The lush herbaceous material produces insects for sage grouse brood rearing and foraging. Dense ground cover provides escape cover, forage, and breeding areas for small mammals which draw predators such as raptors, red fox and coyote. Other birds that would frequent this plant community include red-wing blackbirds, sandhill cranes, western meadowlarks, neotropical migrants, and golden eagles.

Redtop/Kentucky Bluegrass Plant Community: This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover.

Kentucky Bluegrass/Forb Plant Community: This plant community may be beneficial for some of the same wildlife that would use the Historic Climax Plant Community. However, the woody component is typically less productive and unable to support large browsers such as moose. As woody plants decrease, structural diversity is lost for neotropical migrants, cover decreased for deer, and nesting for shrub-nesting birds is impacted. It may provide some brood rearing and foraging opportunities for sage grouse when it occurs proximal to woody cover.

Noxious Weed Plant Community: This plant community is less diverse, and thus, less able to meet the habitat needs of many wildlife. Herbaceous forage and cover is not as dense and will aid in successful predation of nesting birds, therefore improving habitat for predators such as raptors, red fox, and coyote. It may provide some brood rearing and foraging opportunities for sage grouse when it occurs proximal to woody cover.

Managed Noxious Weed Plant Community: This plant community may be beneficial for the same wildlife that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover due to enhanced insect populations.

#### Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity.

#### Plant Community Production (lb./ac) and Carrying Capacity\* (AUM/ac)

Tufted Hairgrass/Willow (HCPC) 2300-3500 lb./ac and .9 AUM/ac

Redtop/Kentucky Bluegrass 1800-3000 lb./ac and .8 AUM/ac

Kentucky Bluegrass/Forb 800-2000 lb./ac and .5 AUM/ac

Noxious Weed 500-1300 lb./ac and .25 AUM/ac

Managed Noxious Weed 1800-3000 lb./ac and .8 AUM/ac

\* - Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

#### Hydrological functions

Climate is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group C. Infiltration rate is slow when soils are thoroughly wet. These soils have a slow rate of water transmission due to moderately fine to fine textures and/or high water table conditions. However, high forage production on this site diminishes runoff potential as long as site is managed for maintaining adequate residual vegetation. (Refer to Part 630, NRCS National Engineering Handbook for detailed hydraulic information).

Rills and gullies should not typically be present. Water flow patterns may be present if associated with a perennial flowing stream. Litter typically falls in place, and signs of movement are not common unless associated with a perennial flowing stream. Chemical and physical crusts are rare to non-existent.

## Recreational uses

This site provides a variety of hunting opportunities as well as providing popular camping areas for recreationists. This site has a wide variety of forbs which bloom throughout spring and summer, providing esthetic values that appeal to visitors.

## Wood products

No appreciable wood products are present on the site.

## Other products

None noted.

## Inventory data references

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel were also used. Those involved in developing this site include: Bill Christensen, Range Management Specialist, NRCS; Karen Clause, Range Management Specialist, NRCS; and Everet Bainter, Range Management Specialist, NRCS. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

## Contributors

Karen Clause

## Approval

Kirt Walstad, 2/26/2025

## 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.

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Date	03/16/2007
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

1. **Number and extent of rills:** Rare to nonexistent.

- 
2. **Presence of water flow patterns:** Water flow patterns sometimes evident in floodplain zone where this site occurs.
- 
3. **Number and height of erosional pedestals or terracettes:** Rare to nonexistent.
- 
4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is typically less than 5%.
- 
5. **Number of gullies and erosion associated with gullies:** Active gullies should not be present.
- 
6. **Extent of wind scoured, blowouts and/or depositional areas:** Minimal to nonexistent.
- 
7. **Amount of litter movement (describe size and distance expected to travel):** Herbaceous litter not expected to move.
- 
8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil Stability Index ratings typically 6.0.
- 
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface highly variable with OM of 1-3%.
- 
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plant community consists of 60-75% grasses, 20% forbs, and 5-20% shrubs. Dense plant canopy (70-100%) and litter plus moderate to moderately rapid infiltration rates result in minimal to nonexistent runoff until soils are saturated. Basal cover is typically greater than 5% for this site and effectively reduces runoff on this site.
- 
11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** No compaction layer exists.
- 
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: tall, cool season bunchgrasses>rhizomatous grass-likes>mid-size, cool season bunchgrasses> perennial shrubs>perennial forbs>cool season rhizomatous grasses

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Minimal decadence, typically associated with shrub component.
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14. **Average percent litter cover (%) and depth ( in):** Litter ranges from 1-25% of total canopy measurement with total litter (including beneath the plant canopy) from 75-100% expected. Herbaceous litter depth typically ranges from 10-25 mm. Woody litter can be up to a couple inches (4-6cm).
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** English: 2300-3500 lb/ac (3000 lb/ac average); Metric: 2576-3920 kg/ha (3360 kg/ha average).
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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:** Bare ground greater than 25% and presence of noxious weeds or Kentucky bluegrass are the most common indicators of a threshold being crossed. Baltic rush, inland sedge, and American licorice are common increasers. Kentucky bluegrass, perennial pepperweed, and Canada thistle are common invasive species.
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17. **Perennial plant reproductive capability:** All species are capable of reproducing, except in drought years.
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