USDA Natural Resources Conservation Service

Ecological site R048AY006UT
Semiwet Fresh Streambank

Last updated: 3/01/2024
Accessed: 05/13/2025

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.

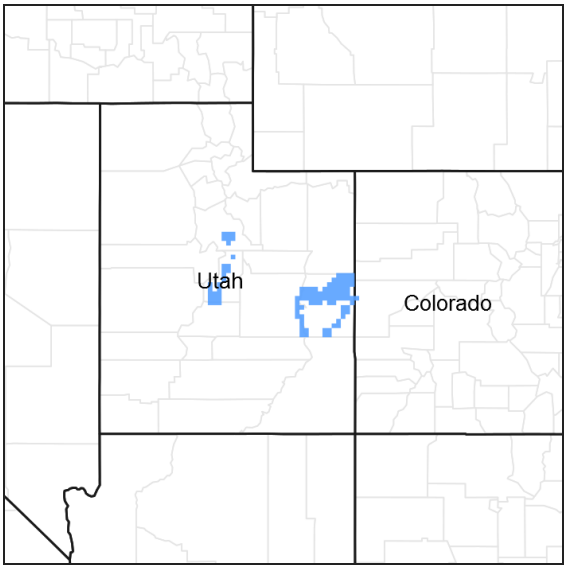


Figure 1. Mapped extent

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.

MLRA notes

Major Land Resource Area (MLRA): 048A–Southern Rocky Mountains

MLRA 48A makes up about 45,920 square miles (119,000 square kilometers) and is the southern part of the Rocky Mountains. The Southern Rocky Mountains lies east of the Colorado Plateau, south of the Wyoming Basin, west of the Great Plains, and north of the Rio Grande Rift. It is in western and central Colorado, southeastern Wyoming, eastern Utah, and northern New Mexico. The headwaters of major rivers such as the Colorado, Yampa, Arkansas, Rio Grande, North Platte and South Plate rivers are located here. This MLRA has numerous national forests, including the Medicine Bow National Forest in Wyoming; the Routt, Arapaho, Roosevelt, Pike, San Isabel, White River, Gunnison, Grand Mesa, Uncompahgre, Rio Grande, and San Juan National Forests in Colorado; the Carson National Forest and part of the Santa Fe National Forest in New Mexico. Rocky Mountain National Park also is in this MLRA.

MLRA 48A is the southern Rocky Mountains physiographic region. The Southern Rocky Mountains consist primarily of two belts of strongly sloping to precipitous mountain ranges trending north to south. Several basins, or parks, are between the belts. Some high mesas and plateaus are included. It is characterized by mountain ranges that were uplifted during the Laramide Orogeny and then had periods of glaciation. The ranges include the Sangre de Cristo Mountains, the Laramie Mountains, and the Front Range in the east and the San Juan Mountains and the Sawatch and Park Ranges in the west. The ranges are dissected by many narrow stream valleys having steep gradients. In some areas the upper mountain slopes and broad crests are covered by snowfields and glaciers. Elevation typically

ranges from 6,500 to 14,400 feet (1,980 to 4,390 meters) in this area. The part of this MLRA in central Colorado includes the highest point in the Rockies, Mount Elbert, which reaches an elevation of 14,433 feet (4,400 meters). More than 50 peaks in the part of the MLRA in Colorado are at an elevation of more than 14,000 feet (4,270 meters). Many small glacial lakes are in the high mountains.

The mountains in this area were formed mainly by crustal uplifts during the late Cretaceous and early Tertiary periods. This large MLRA can be subdivided into at least 4 large general divisions. First is the Rockies on the east side of this area are called the “Front Range,” which is a fault block that has been tilted up on edge and uplifted and is largely igneous and metamorphic geology. It was tilted up on the east edge, so there is a steep front on the east and the west side is more gently sloping and in the south east there are rocks exposed in the mountains are mostly Precambrian igneous and metamorphic rocks. Second is the tertiary rocks, primarily basalt and andesitic lava flows, tuffs, breccias, and conglomerates, are throughout this area (San Juan Mountains Area). The third division is Northwest part of the MLRA is dominantly sedimentary rock from the cretaceous/tertiary and Permian/ Pennsylvanian periods. The fourth subset is the long and narrow Sangre de Cristos mountains uplifted in the Cenozoic are between the Rio Grande rift and the great plains. Many of the highest mountain ranges were reshaped by glaciation during the Pleistocene. Alluvial fans at the base of the mountains are recharge zones for local basin and valley fill aquifers. They also are important sources of sand and gravel.

The average annual precipitation ranges predominantly from 12 to 63 inches. Summer rainfall commonly occurs as high-intensity, convective thunderstorms. About half of the annual precipitation occurs as snow in winter; this proportion increases with elevation. In the mountains, deep snowpacks accumulate throughout the winter and generally persist into spring or early summer, depending on elevation. Some permanent snowfields and small glaciers are on the highest mountain peaks. In the valleys at the lower elevations, snowfall is lighter and snowpacks can be intermittent. The average annual temperature is 26 to 54 degrees F (-3 to 12 degrees C). The freeze-free period averages 135 days and ranges from 45 to 230 days, decreasing in length with elevation. The climate of this area is strongly dependent upon elevation; precipitation is greater, and temperatures are cooler at the higher elevations. The plant communities vary with elevation, aspect and change in latitudes due to changing in precipitation kind and timing and temperature.

The dominant soil orders in this MLRA are Mollisols, Alfisols, Inceptisols, and Entisols. The soils in the area dominantly have a frigid or cryic soil temperature regime and an ustic or udic soil moisture regime. Mineralogy is typically mixed, smectitic, or paramicaceous. In areas with granite, gneiss, and schist bedrock, Glossocryalfs (Seitz, Granile, and Leadville series) and Haplocryolls (Rogert series) formed in colluvium on mountain slopes. Dystrocryepts (Leighcan and Mummy series) formed on mountain slopes and summits at the higher elevations. In areas of andesite and rhyolite bedrock, Dystrocryepts (Endlich and Whitecross series) formed in colluvium on mountain slopes. In areas of sedimentary bedrock, Haplustolls (Towave series) formed on mountain slopes at low elevations and with low precipitation. Haplocryolls (Lamphier and Razorba series), Argicryolls (Cochetopa series), and Haplocryalfs (Needleton series) formed in colluvium on mountain slopes at high elevations.

Ecological site concept

The soils of this site formed mostly in alluvium from sedimentary sources. Surface soils are sandy loam to fine sandy loam in texture. Rock fragments may be present on the soil surface and throughout the profile, but make up less than 35 percent of the soil volume. These soils are deep to very deep, somewhat poorly to poorly drained, and have moderately slow to moderately rapid permeability. pH is neutral to slightly alkaline. Available water-holding capacity ranges from 4 to 8 inches of water in the upper 60 inches of soil. The soil moisture regime is mostly ustic and the soil temperature regime is frigid. Precipitation ranges from 14-20 inches annually.

Associated sites

R048AY008UT	**Wet Fresh Meadow (Willow-Sedge)**

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified

Herbaceous	(1) *Elymus trachycaulus* (2) *Leymus cinereus*

Physiographic features

Flood plains

Table 2. Representative physiographic features

Landforms	(1) Flood plain
Runoff class	Low
Flooding duration	Brief (2 to 7 days) to long (7 to 30 days)
Flooding frequency	None to occasional
Ponding frequency	None
Elevation	1,981–2,438 m
Slope	0–5%
Ponding depth	Not specified
Water table depth	30–102 cm

Climatic features

Average annual precipitation is 14 to 20 inches. Approximately 55 percent occurs as rain from May through October. On the average, November through June are the driest months and July through October are the wettest months. Cool temperatures and length of growing season are important environmental factors in this site. In average years, plants begin growth around april 20 and end growth around september 30.

Table 3. Representative climatic features

Frost-free period (characteristic range)	
Freeze-free period (characteristic range)	30-70 days
Precipitation total (characteristic range)	356-508 mm

Influencing water features

This site has a water table from 12-40 inches in depth and occurs along streams.

Soil features

The soils of this site formed mostly in alluvium from sedimentary sources. Surface soils are sandy loam to fine sandy loam in texture. Rock fragments may be present on the soil surface and throughout the profile, but make up less than 35 percent of the soil volume. These soils are deep to very deep, somewhat poorly to poorly drained, and have moderately slow to moderately rapid permeability. pH is neutral to slightly alkaline. Available water-holding capacity ranges from 4 to 8 inches of water in the upper 60 inches of soil. The soil moisture regime is mostly ustic and the soil temperature regime is frigid. Precipitation ranges from 14-20 inches annually.

Modal Soil: Firth Family – coarse-loamy, mixed Aquaic Haploborolls

Table 4. Representative soil features

Parent material	(1) Alluvium–sedimentary rock
Surface texture	(1) Loam (2) Sandy loam

Family particle size	(1) Fine-loamy (2) Coarse-loamy
Drainage class	Somewhat excessively drained to poorly drained
Permeability class	Moderately slow to moderately rapid
Depth to restrictive layer	152–254 cm
Soil depth	152–254 cm
Surface fragment cover <=3"	0–5%
Surface fragment cover >3"	0%
Available water capacity (Depth not specified)	10.16–20.32 cm
Calcium carbonate equivalent (Depth not specified)	1–15%
Electrical conductivity (Depth not specified)	0–1 mmhos/cm
Sodium adsorption ratio (Depth not specified)	0
Soil reaction (1:1 water) (Depth not specified)	6.6–7.8
Subsurface fragment volume <=3" (Depth not specified)	5–9%
Subsurface fragment volume >3" (Depth not specified)	0–7%

Ecological dynamics

Community Phase 1.1: Reference State
The Reference State is a description of this ecological site just prior to Euro-American settlement but long after the arrival of Native Americans. The description of the Reference State was determined by NRCS Soil Survey Type Site Location information and familiarity with rangeland relict areas where they exist. The Reference State would have been in any of three phases depending on stream gradient and how recently fire had occurred or when beavers had last been present. Along steeper stream gradients, succession would have rapidly proceeded from low-statured graminoids (1.1), to shrubs (1.2), and lastly to trees that reproduce in their own shade (1.3). A complete list of species by lifeform for the Reference State is available in accompanying tables in the “Plant Community Composition by Weight and Percentage” section of this document. Along gentle gradients beavers would have consumed all the largely deciduous woody stems and constructed dams. Once the nearby food and building materials were exhausted, the colony of beavers would have moved to another reach of the stream, making the abandoned dams and depleted stretch vulnerable to blow out from the next large convectional storm. This phase is short since most of the woody species re-sprout and are dominant again within a decade or so.

The resulting drop in the water table would have stressed the moisture-demanding woody species and favored the graminoids, allowing the graminoids to eventually reclaim the drier streamside banks. Thus, rather than one plant community becoming stable, these stretches of stream would have been in a continual state of change. Fur trapping in the 1820s-1830s resulted in the reduction of beaver by about 95% (Parson 1996). Without these animals to maintain their stair-step configuration of dams, the whole hydrologic regime of these drainages changed. What were once small perennial streams became ephemeral, and succession was truncated. Beaver have not returned in number until recent decades (when the fur trade diminished and furbearers began to be raised on farms). Thus, by the time of the European settlement period, huge changes in these systems had already taken place.

Community Phase 1.1: graminoid dominance (rushes & sedges)
This early seral phase would have been dominated by rushes (Juncus spp.), sedges (Carex spp.), and native perennial water-demanding species such as reed canarygrass (*Phalaris arundinacea*), and mountain brome (*Bromus marginatus*). Heavy local utilization by moose or beaver would have kept back the woody species, allowing

this graminoid phase to persist.

Community Pathway 1.1a:
Along gentler stream gradients, ponding caused by construction of beaver dams would have brought the water table up in areas that would have otherwise been dry. Heavy grazing by bison and/or elk would have reduced the graminoids, giving way first to some taller forbs such as Missouri goldenrod (*Solidago missouriensis*) and feathery false lily of the valley (*Maianthemum racemosum*). Quickly following were a set of water-loving shrubs and small trees including water birch (*Betula occidentalis*), Drummond's willow (*Salix drummondiana*), and gray alder (*Alnus incana*). The same successional process would have taken place along steeper gradients, but at a more rapid rate.

Community Phase 1.2: mesic shrub dominance (birch, alder, & willow)
A set of mesic shrubs including water birch, yellow willow, and gray alder would have quickly overtopped the graminoids, unless shrubs were cropped by moose or beaver.

Community Pathway 1.2a:
The presence of narrowleaf cottonwood (*Populus angustifolia*) seeds being carried by water would have provided for the rapid succession from shrubs to a gallery forest.

Community Pathway 1.2b:
As the supply of palatable deciduous shrubs and trees increased, beaver numbers would also have increased. With time, a heavy concentration of beaver and moose would have reduced the woody component, with the exception of the less palatable shrubs (e.g. Woods' rose (*Rosa woodsii*) and hawthorn (*Crataegus douglasii*)), causing the canopy to open up.

Community Phase 1.3: gallery forest (narrowleaf cottonwood)
Without beaver, tree cutting, and/or fire, a thick streamside (gallery) forest dominated by shade-tolerant narrowleaf cottonwood would have developed.

Community Pathway 1.3a:
A strong convectional storm associated with flash flooding would have blown out existing beaver dams. Unless the beavers were still occupying the area and rebuilt their dams, the water table would have eventually returned to previously lower levels. This would have allowed the graminoids to reclaim the site. Wildfire would have had a similar effect by removing most of the woody vegetation and debris, thereby re-opening the site to graminoids.

Community Pathway 1.3b:
This community pathway would be similar to 1.2b, except less intense. Flash flooding may blow out existing beaver dams following convectional storm events, but some smaller-statured trees and shrubs would persist, leaving enough woody material such that beavers could subsist and rebuild their dams.

Transition T1a: from State 1 to State 2 (Reference State to Xerified Shrub and Tree Dominated Drained State)
The simultaneous introduction of European livestock and exotic plant species, the near extirpation of beaver along with its influence on the hydrologic regime, and a warmer drier climate were all factors involved in the transition to State 2. A return to State 1 would not be impractical because of these issues.

Community Phase 2.2: Xerified Shrub and Tree Dominated Drained State
State 2 is similar to State 1 in form and function, with the exception of the presence of non-native plants and animals, possible extinctions, and a different climate. State 2 is a description of the ecological site shortly following Euro-American settlement. This state can be regarded as the current potential. Depending on the size of the watershed above, the stream could well have changed from a perennial to ephemeral drainage. Many of the same species of plants found in the Reference State continue to exist in the latter situation because of hyporheic (i.e. below ground) movement of water, although the period of greenery and its productivity are lessened. The introduction of cattle put pressure on the graminoids (2.1a) and hastened the conversion to shrubs (2.2). The lack of beaver dams meant that sediment moved more rapidly downstream with flashy (short duration, high intensity) precipitation events. Stream channelization occurred with increased rates of flow, leading to xerification of the streamside. With beaver temporarily absent, livestock numbers relatively reduced due to lack of forage, and lack of natural disturbances (2.2a), the shrubs and trees grow larger and shade out many of the forage species favored by livestock (2.3). The most disturbed phase of this State would be the graminoid-dominant phase (2.1), which occurs if moose effectively browse out the shrubby vegetation (2.2b). Kentucky bluegrass (*Poa pratensis*) was introduced

at some sites for livestock forage; however it is not capable of holding the stream banks together during convectional storms.

Community Phase 2.1: graminoid dominance
This graminoid-dominated phase is frequently dominated by Kentucky bluegrass. The Forest Service regards this as an introduced species, but it is preferred by livestock over other native graminoids. It is, however, less able to protect stream banks than its native counterparts because of its shallower, weaker roots.

Community Pathway 2.1a:
Heavy season-long use by cattle will diminish the grass component and allow an increase in tall forbs. Sheep will consume most of the forbs and shrubs, but will leave the thistles (Cirsium spp.), horsetail (Equisetum spp.), Woods' rose, skunkbush sumac (*Rhus trilobata*), and silver buffaloberry (*Shepherdia argentea*).

Community Phase 2.2: mesic shrub dominance
This plant community will be dominated by unpalatable mesic shrubs such as Woods' rose, sumac, and silver buffaloberry, with an understory of unpalatable herbs including thistles and horsetail. Species composition will depend upon the type of livestock utilizing the area.

Community Pathway 2.2a:
Without moose and/or beaver consumption of shrubs and sapling trees, the shrub phase quickly transforms to a gallery forest.

Community Pathway 2.2b:
Moose have become more abundant of late and focus their attention on yellow willow and water birch, especially during the winter. This will cause a retardation of the shift to shrub and tree dominance.

Community Phase 2.3: gallery forest (narrowleaf cottonwood)
This plant community is dominated by narrowleaf cottonwood, a shade-tolerant species, which will persist in the absence of wildfire, wood cutting, and/or large storm events.

Community Pathway 2.3a:
A gallery forest can persist in the absence of fire or wood cutting, creating a jack-strawing of downed trees that will make access to the site difficult for large animals.

Transition T2a: from State 2 to State 3 (Xerified Shrub and Tree Dominated Drained State to Improved Pasture State)
Since there is diminished forage production in the woody plant-dominated phases of State 2, some private landholders have, through prescribed fire and mechanical treatments, cleared out the streamside vegetation and planted exotic species such as smooth brome (*Bromus inermis*) or orchardgrass (*Dactylis glomerata*) to replace the native species.

State 3: Improved Pasture State

Community Phase 3.3: Improved Pasture State
Some private land owners have bulldozed the streamside vegetation to remove trees needed by beavers to pond up the stream and/or to remove shade to increase forage production for livestock. Introduced species such as orchardgrass and smooth brome have been planted as the site became xerified, but more conducive to cattle grazing. The early seral vegetation created constitutes Phase 3.1. With time and heavy cattle grazing (3.1a), the tendency is for the original shrubs and trees to return (3.2). If introduced grass dominance is desired, mechanical or chemical retreatment to reduce the woody plants will be required (3.2a).

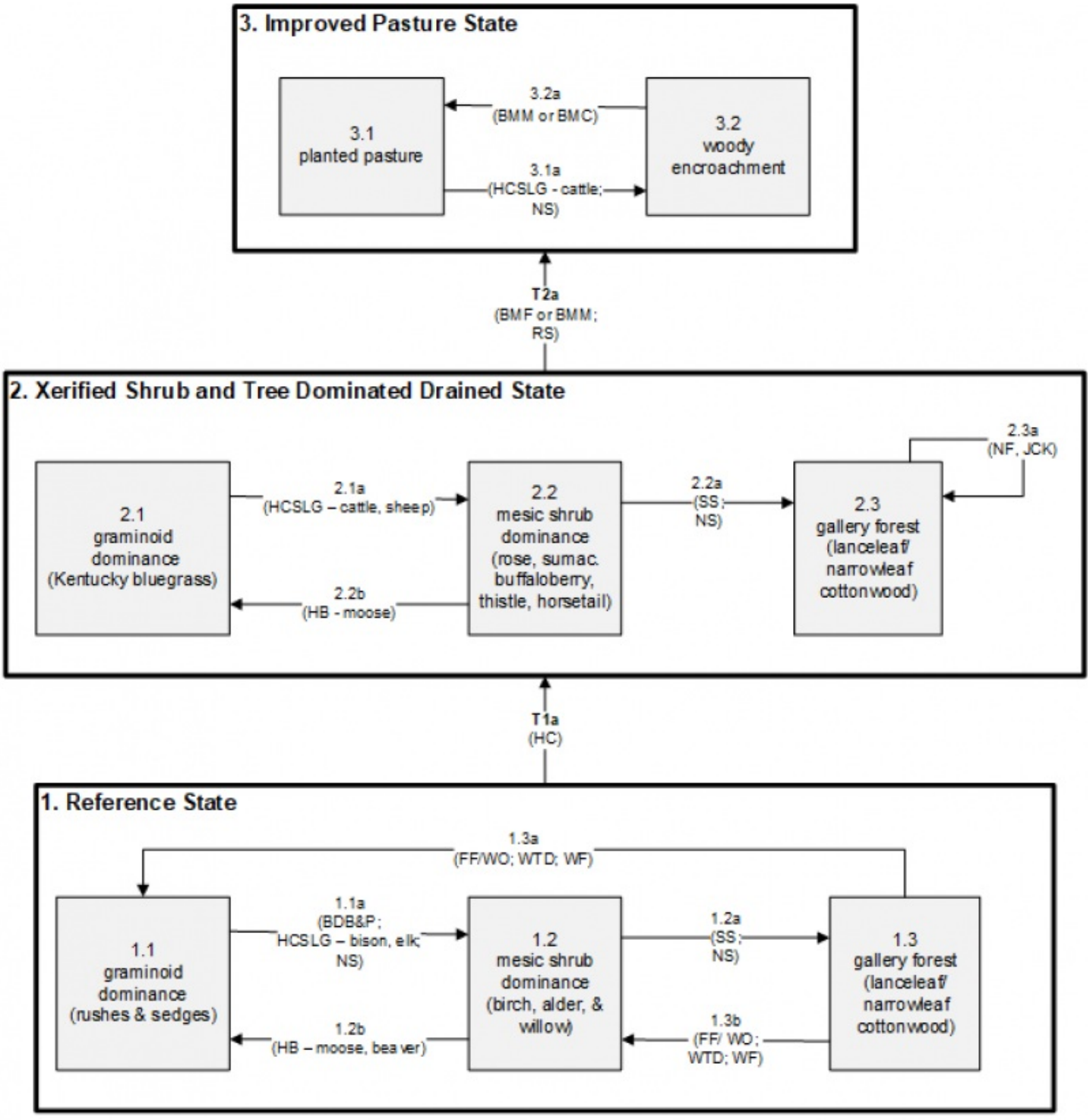
Community Phase 3.1: planted pasture
This plant community will be dominated by introduced species such as orchardgrass and smooth brome.

Community Pathway 3.1a:
In order to maintain an herbaceous-dominant phase, the native woody species may require re-treatment using mechanical or chemical means.

Community Phase 3.2: woody encroachment
This plant community will be a mix of introduced grasses and native shrubs that have re-established following a period of heavy continuous season-long grazing.

Community Pathway 3.2a:
Some re-establishment of native shrubs will occur if the site is heavily grazed during the growing season of the grasses.

State and transition model



BDB&P	Beaver Dam Building & Ponding
BMC	Brush Management (chemical)
BMF	Brush Management (fire)
BMM	Brush Management (mechanical)
FF/WO	Flash Flood/Washout
HB	Heavy Browsing
HC	Historic Change

HCSLG	Heavy Continuous Season Long Grazing
JCK	Jack-strawing (downed old trees)
NF	No Fire
NS	Natural Succession
RS	Reseed
SS	Seed Source
WF	Wildfire
WTD	Water Table Drop

State 1
Reference State

Community 1.1
Reference Plant Community

The vegetation of this site usually has a variable overstory of water-loving trees and shrubs of approximately 40

percent of the total production annually on an air-dry weight basis. Grasses are about 45 percent of the plant composition and forbs 15 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	732	984	1236
Shrub/Vine	650	874	1098
Forb	243	327	411
Total	**1625**	**2185**	**2745**

Table 6. Ground cover

Tree foliar cover	19-21%
Shrub/vine/liana foliar cover	39-41%
Grass/grasslike foliar cover	39-41%
Forb foliar cover	4-6%
Non-vascular plants	0%
Biological crusts	0%
Litter	0%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

Table 7. Canopy structure (% cover)

Height Above Ground (M)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.15	–	–	–	–
>0.15 <= 0.3	–	–	–	–
>0.3 <= 0.6	–	–	–	4-6%
>0.6 <= 1.4	–	–	39-41%	–
>1.4 <= 4	–	39-41%	–	–
>4 <= 12	19-21%	–	–	–
>12 <= 24	–	–	–	–
>24 <= 37	–	–	–	–
>37	–	–	–	–

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Tree					
0	**Dominant Trees**			22–112	
	narrowleaf cottonwood	POAN3	*Populus angustifolia*	22–112	–

Shrub/Vine					
0	**Dominant Shrubs**			247–448	
	Drummond's willow	SADR	*Salix drummondiana*	112–224	–
	water birch	BEOC2	*Betula occidentalis*	67–112	–
	chokecherry	PRVI	*Prunus virginiana*	67–112	–
3	**Sub-Dominant Shrubs**			516–1211	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	224–336	–
	gray alder	ALIN2	*Alnus incana*	22–67	–
	Saskatoon serviceberry	AMAL2	*Amelanchier alnifolia*	22–67	–
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	22–67	–
	western white clematis	CLLI2	*Clematis ligusticifolia*	22–67	–
	redosier dogwood	COSE16	*Cornus sericea*	22–67	–
	rubber rabbitbrush	ERNAO	*Ericameria nauseosa ssp. consimilis var. oreophila*	22–67	–
	twinberry honeysuckle	LOIN5	*Lonicera involucrata*	22–67	–
	creeping barberry	MARE11	*Mahonia repens*	22–67	–
	wax currant	RICE	*Ribes cereum*	22–67	–
	Woods' rose	ROWO	*Rosa woodsii*	22–67	–
	blue elderberry	SANIC5	*Sambucus nigra ssp. cerulea*	22–67	–
	silver buffaloberry	SHAR	*Shepherdia argentea*	22–67	–
	mountain snowberry	SYOR2	*Symphoricarpos oreophilus*	22–67	–
Grass/Grasslike					
0	**Dominant Grasses**			359–673	
	slender wheatgrass	ELTR7	*Elymus trachycaulus*	112–224	–
	basin wildrye	LECI4	*Leymus cinereus*	112–224	–
	western wheatgrass	PASM	*Pascopyrum smithii*	67–112	–
	mountain brome	BRMA4	*Bromus marginatus*	67–112	–
1	**Sub-Dominant Grasses**			516–807	
	Grass, annual	2GA	*Grass, annual*	224–336	–
	Grass, perennial	2GP	*Grass, perennial*	224–336	–
	clustered field sedge	CAPR5	*Carex praegracilis*	22–67	–
	mountain rush	JUARL	*Juncus arcticus ssp. littoralis*	22–67	–
Forb					
2	**Sub-Dominant Forbs**			336–560	
	Forb, annual	2FA	*Forb, annual*	224–336	–
	Forb, perennial	2FP	*Forb, perennial*	224–336	–
	nettleleaf giant hyssop	AGUR	*Agastache urticifolia*	22–67	–
	white sagebrush	ARLU	*Artemisia ludoviciana*	22–67	–
	Richardson's geranium	GERI	*Geranium richardsonii*	22–67	–
	common	HEMA80	*Heracleum maximum*	22–67	–

	common cowparsnip	[illegible]	*Heracleum maximum*	[illegible]	
	showy goldeneye	HEMU3	*Heliomeris multiflora*	22–67	–
	Nevada pea	LALA3	*Lathyrus lanszwertii*	22–67	–
	western sweetroot	OSOC	*Osmorhiza occidentalis*	22–67	–
	slender cinquefoil	POGR9	*Potentilla gracilis*	22–67	–
	tall ragwort	SESE2	*Senecio serra*	22–67	–
	Missouri goldenrod	SOMI2	*Solidago missouriensis*	22–67	–
	mountain goldenbanner	THMOM3	*Thermopsis montana var. montana*	22–67	–
	longstalk clover	TRLO	*Trifolium longipes*	22–67	–
	tobacco root	VAED	*Valeriana edulis*	22–67	–

Animal community

This site has been grazed heavily since the settlements because it is near communities and ranch headquarters and produces a large volume of very nutritious native forage plants. It provides excellent grazing for sheep, cattle, goats, and horses. It is adapted for use in the spring, summer, and fall. If grazed in the winter, protein supplement should be provided. To control soil erosion and degradation of the plant community, this site may be properly grazed early with the animals being removed early to allow key plants to go ungrazed during the last part of the growing season. A stubble height of 4 to 6 inches should be adhered to
The potential is good to fair for openland habitat, good for woodland habitat, fair for wetland habitat and good for rangeland habitat. This site is valuable for most species of wildlife due to the variety of grasses, forbs, shrubs, and trees and the interspersion of this vegetation with other range sites which in turn provides a great diversity and abundance of food and cover.

It provides valuable habitat for pheasants, mule deer, quail, elk, moose, squirrels, rabbits, coyotes, eagles, hawks, woodpeckers, wading birds, and numerous song birds.

Hydrological functions

Soils in this site are grouped mainly into hydrologic group D. They have moderately high runoff potential. When the vegetation is in climax (potential), the hydrologic curves are 80 to 82. Refer to SCS national engineering handbook section 4 to determine runoff quantities by use of these curves. Where range condition has declined from climax, field investigation is needed to determine hydrologic curve numbers.

Recreational uses

This site has good values for aesthetics and natural beauty. It has a large number of forbs and shrubs which have flowers in bloom from early spring throughout the summer and into the fall. It has a combination of grasses, forbs, small shrubs, large shrubs, and trees, which offer excellent possibilities for screening and high value as camping and picnicking areas. Hunting for upland game birds, cottontail rabbits, elk, and mule deer is good to excellent on this site. Fishing is opportune on streams through this site. Summer homes are a possibility on this site, but detailed on-site investigation should be made to determine feasibility of the soils for septic tanks and sewage disposal facilities when specific locations are tentatively planned for summer homes or other building sites. Due to the high water table, sewage disposal is extremely difficult.

Wood products

The tree species, except for cottonwood, do not grow large enough to make them valuable for lumber. Occasionally cottonwood had been used for saw timber. No site index determinations have been made to date on this species. Some values exist for fence posts and fuel for fireplaces and campfires. Some species furnish raw material for knick knacks, ornamental uses, and firewood.

Inventory data references

Type Location: Consult the Grand County Soil Survey Report

Contributors

David Somerville

Approval

Kirt Walstad, 3/01/2024

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	05/13/2025
Approved by	Kirt Walstad
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):**

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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:**
