Ecological site R010XY030ID
Marsh TYLA-SCAC3

Last updated: 9/23/2020
Accessed: 04/26/2024

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.

Classification relationships

No data.

Associated sites

R010XY023ID	**Meadow DECA18-CANE2**
R010XY024ID	**Dry Meadow PONE3-PHAL2**
R011XY015ID	**Loamy Bottom 8-14 PZ ARTRT/LECI4**
R012XY045ID	**Riparian Wet Meadow Salix/Carex**

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) *Typha latifolia* (2) *Schoenoplectus acutus*

Physiographic features

This site generally occurs on nearly level margins of streams, ponds, lakes, springs, and reservoirs and as stringers paralleling stream and river channels. This site can also occur as parts of old stream courses, oxbows, and potholes. Slopes are less than 2 percent. Elevations range between 2500-6800 feet (750-2100 meters).

Table 2. Representative physiographic features

Landforms	(1) Hill
Flooding duration	Long (7 to 30 days)
Flooding frequency	Frequent
Ponding duration	Long (7 to 30 days)
Ponding frequency	Frequent
Elevation	2,500–6,800 ft
Slope	0–2%
Ponding depth	2–12 in
Water table depth	0–1 in

Climatic features

The elevation of MLRA 10 ranges from 1791 feet to 9236 feet, with a mean of 4602 feet. Overall, elevation increases from west to east. However, average annual precipitation decreases from west to east, ranging from 16.59 inches to 22.17 inches, with a mean of 19.56 inches, based on 7 long term climate stations throughout the MLRA. In general, precipitation peaks in December and January, with a steady decline to a low in July and August, then a steep increase during the autumn months. Most of the winter precipitation falls as snow, and maximum annual snowfalls of up to 82 inches have been recorded.

There is considerable variation in temperature throughout the year. Temperatures as low as -52° Fahrenheit and as high as 117° Fahrenheit are on record. Some areas have recorded the occurrence of more than 50 days with temperatures above 90° Fahrenheit. The average maximum annual temperature is 63 degrees F, while the average minimum temperature is 36.2 degrees F.The frost-free period can range from 128 to 152 days, while the freeze-free period can be from 164 to 189 days.

Both the average morning and average afternoon relative humidity values are lowest in July and August, and are below the national average. The number of clear, sunny days peaks during this same period, and is higher then the national average. During the Spring and Summer months high-intensity convective thunderstorms are not unusual.

Table 3. Representative climatic features

Frost-free period (average)	152 days
Freeze-free period (average)	189 days
Precipitation total (average)	22 in

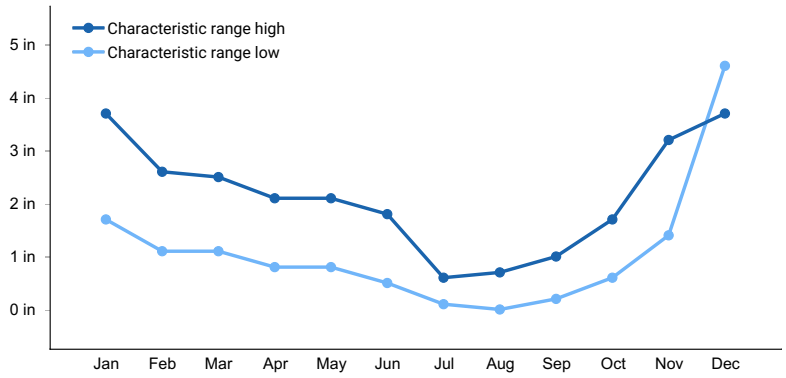


Figure 1. Monthly precipitation range

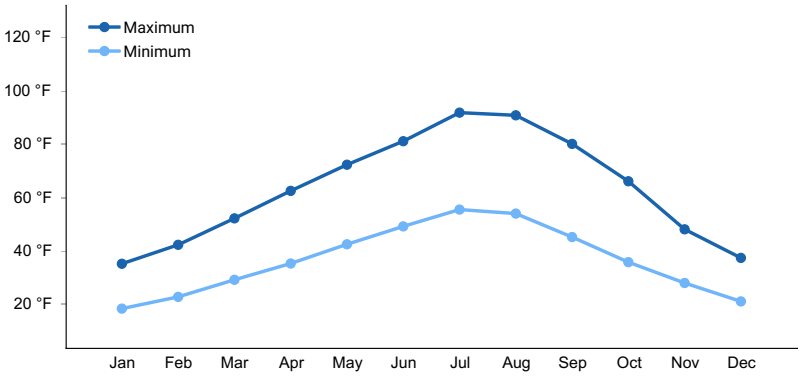


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

The Marsh site is influenced by additional water from either adjacent streams through seasonal flooding, water table, seeps or springs, or from run-on from adjacent sites. The site may include the following wetlands and stream types.

Soil features

Typically these soils are erratically stratified with a surface mat of roots 4 or more inches deep over 3 to 6 inches of organic material over clays, clay loams, or silty clay loams that are over 60 inches deep. These soils are poorly drained and alluvial in origin. The soils are usually slightly acid to slightly alkaline in pH. Soils are saturated throughout the growing season and usually have standing water at or above the surface into the late summer.

Flooding can be frequent during snowmelt and just after snowmelt. Ponding is normal. The plant community is dependent on saturated soils and standing water during the growing season.

Ecological dynamics

The dominant visual aspect of this site is broadleaf cattail and/or hardstem bulrush. Hardstem bulrush is more dominant where water is 6 to 8 inches deep or deeper throughout the growing season. Broadleaf cattail is often more dominant where the water is at the soil surface through most of the growing season and may dry out at the surface later in the summer. When the two species occur together, broadleaf cattail is in shallower water than the hardstem bulrush. This is common on margins of ponds, lakes, and reservoirs.

The site often occurs within a complex of wetland sites when adjacent to streams or rivers. In these situations, the soil surface of the area where the site is found is typically slightly undulating causing small depressions and high spots with variable soil moisture regimes. The plant communities found on these areas are sites within the complex. Characteristics of these sites are as follows:

1. Marsh site. Deeper depressions with the water table at or near the surface or slightly above the surface for the entire growing season. This site is dominated by broadleaf cattail, hardstem bulrush, and common threesquare.

2. Wet Meadow site. Shallow to depression areas with the water table at or near the surface for the entire growing season. This site is dominated by Carex spp. and Junus spp.
3. Meadow site. Slightly higher areas that are drier during the growing season. The water table is down to a depth of 20 to 40 inches by the end of the growing season. This site is dominated by tufted hairgrass and Nebraska sedge.

4. Dry Meadow site. Even higher areas that are even drier during the growing season and the water table is > 40 inches deep by the end of the growing season. The plant community is dominated by Nevada bluegrass and alpine timothy.

Either hardstem bulrush or broadleaf cattail can form impenetrable monotypic stands. Composition by weight is 95 percent grass or grass-like and 5 percent forbs.

During the last few thousand years, this site has evolved in semi-arid and montane climates characterized by dry summers and cold, moist, or wet winters. The site has evolved on deep alluvial soils that are saturated at the soil surface or standing water throughout most of the growing season. Herbivory has historically occurred on this site at very low levels of utilization. Herbivory by some small mammals such as muskrats does occur.

Fire has had little influence on the development of the site. Rare wildfires can occur following consecutive drought years, particularly in broadleaf cattail stands that go dry late in the summer.

The conditions for the plant community of this site are variable due to differences in the duration and depth of standing water. Dominant species are mostly rhizomatous and can form monotypic stands.

An infinite number of combinations of factors that influence the ecology of potential plant communities exist. For practical purposes, four plant communities where the depth to the water table drives the vegetative composition have been described. They are:

- Dry meadow Water table at >40” at end of growing season
- Meadow Water table at 20-40” at end of growing season
- Wet meadow Water table at 10-20” at end of growing season
- Marsh Water at surface to <10” at end of growing season

Most wetland species have a wide range of tolerance for variations in soil moisture. Most species occur in more than one site, although most are dominant on just one site.

The following table shows the amplitude of wetland species that occur on the four sites.

• Ecological Amplitude of Meadow/Marsh Plants.

Grass and Grass-like Species
Scientific name Dry Meadow Meadow Wet Meadow Marsh
Leymus cinereus

Danthonia californica

Carex filifolia

Pascopyron smithii

Poa nevadensis

Juncus dudleyi

Muhlenbergia richardsonis

Hordeum brachyantherum

Phleum alpinum

Scientific name Dry Meadow Meadow Wet Meadow Marsh
Juncus balticus

Juncus torreyi

Alopecurus aequalis

Carex athrostachya

Calamagrostis canadensis

Deschampsia caespitosa

Carex nebrascensis

Glyceria striata

Carex lasiocarpa

Carex utriculata

Carex aquatilis

Eleocharis palustris

Carex rostrata

Carex hoodii

Carex exsiccata

Scirpus microcarpus

Juncus effusus

Beckmannia syzigachne

Typha latifolia

Schoenoplectus acutus

Schoenoplectus pungens

Sparganium erectum

Schoenoplectus tabernaemontani

Forb Species
Scientific name Dry Meadow Meadow Wet Meadow Marsh
Arnica fulgens

Pyrrocoma lanceolata

Arenaria congesta

Artemisia ludoviciana

Achillea millefolium

Wyethia amplexicaulis

Pyrrocoma uniflora

Ranunculus spp.

Trifolium spp.

Potentilla gracilis

Senecio integerrimus

Aster spp.

Cirsium scariosum

Symphyotrichum ascendens

Iris missouriensis

Senecio serra

Helianthus nuttallii

Camassia quamash

Epilobium ciliatum

Montia chamissoi

Plantago major

Alisma triviale

Cicuta douglassii

Argentina anserina

Scientific name Dry Meadow Meadow Wet Meadow Marsh
Veronica anagallis-aquatica

Symphyotrichum frondosum

Polygonum bistortoides

Triglochin maritimum

Polygonum amphibium

Symphyotrichum foliaceum

Potamogeton natans

Lemna minor

The Reference State (State 1), moves through many phases depending on the natural and man-made forces that impact the community over time. State 1, described later, indicates some of these phases. The Reference Plant Community Phase is Phase A. This plant community is dominated by broadleaf cattail and/or hardstem bulrush. There are a few forbs that may occur in minor amounts including water knotweed, leafybract aster, floating pondweed, and common duckweed. There may also be other grass-like species occurring in minor amounts. The plant species composition of Phase A is listed later under “Reference Plant Community Phase Plant Species Composition”. The Reference Plant Community is intentionally written broadly, but these species should occur in the plant community in variable amounts.

The total annual production is 4500 pounds per acre (5040 kilograms per hectare) in a normal year. Production in a favorable year is 5500 pounds per acre (6160 kilograms per hectare). Production in an unfavorable year is 3500 pounds per acre (3920 kilograms per hectare). Most of this variation occurs from temperature differences, not moisture. Structurally, rhizomatous grass and grass-like species are very dominant, followed by perennial forbs.

This site is suitable for waterfowl, some shore birds, and small mammals. Moose graze the site occasionally. The site is not suitable for livestock grazing or big game, although some deer may use the edges for cover. Standing water limits grazing opportunities. In some drought years, some grazing can occur with livestock although wet soils should be avoided.

This site can be used for waterfowl hunting and may be adjacent to open waters that offer fishing opportunities.

The site is very resistant to degradation due to standing water, low value forage and limited grazing opportunities. Site degradation is usually the result of permanently lowering of standing water. This can occur with down cutting of adjacent stream channels and can also result from off-site conditions adjacent to the site or in the upper watershed.

Once adjacent streams down-cut, concentrated flows can lower the water table and the standing water on the site.

Impacts on the Plant Community:

Influence of fire:

This site usually does not burn from wildfire. A rare fire may occur following prolonged drought. If a fire occurs, it usually does not adversely affect the plant community due to rhizomatous species. Most plants sprout back.

Influence of improper grazing management:

Due to standing water and low value and unpalatable forage, grazing during the growing season is rare. Grazing may occur during the dormant period. If dry soil conditions occur into the spring and livestock remove the tops of either broadleaf cattail or hardstem bulrush, both species can die if water then covers the plants. Care must be exercised in grazing adjacent sites to avoid downcutting of stream channels that can influence standing water on this site. If this occurs the potential of the site can then be lost.

Weather influences:

Annual precipitation has little direct influence on this site. Prolonged drought can affect amounts and duration of standing water and can change the composition of this site.

Carex and Juncus species can increase and broadleaf cattails and hardstem bulrush can decrease. Lower production can occur with below normal spring temperatures that affect both air and water. An early, hard freeze can occasionally kill some plants.

Influence of Insects and disease:

Periodic disease and insect outbreaks can affect vegetation health. An outbreak of a particular insect is usually influenced by weather but no specific data for this site is available.

Influence of noxious and invasive plants:

Purple loosestrife can become invasive, but most plants on this site are very competitive against most potentially invasive species due to monotypic stands of plants with strong rhizomes.

Influence of wildlife:

This site is important for many species of waterfowl. Some small mammals and shore birds also use the site. Moose graze the site periodically. Big game animals use the edges for cover. Total numbers are seldom high enough to adversely affect the plant community.

Watershed:

The largest threat to degradation of this site is the lowering of permanent standing water during the growing season. Off-site conditions can affect the gradient of adjacent stream channels that can affect the water table. If down-cutting of adjacent streams occur, this can reduce the depth and duration of the standing water. High run-off events from the adjacent uplands can severely damage or change the normal stream channel on the site. As the standing water is permanently reduced, either in depth or duration, productive potential is lost. Eventually the standing water is no longer the driving factor for the plant community. The site may regress to a meadow or even a low seral upland site.

Plant Community and Sequence:

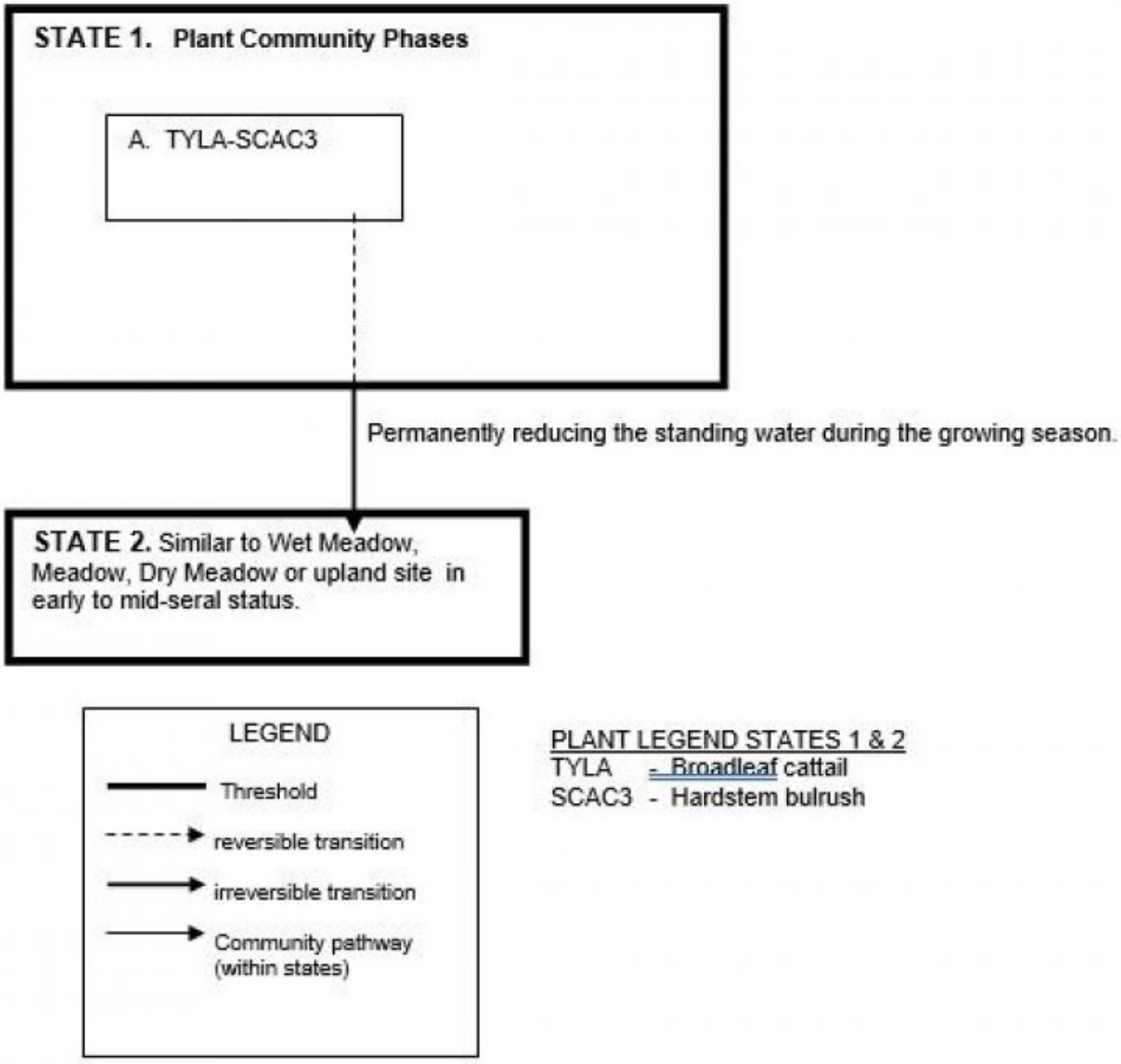
Transition pathways between common vegetation states and phases:

State 1 to State2. Develops through permanently reducing the standing water during the growing season to the point that dry soil is at the surface during the growing season. This can occur with down-cutting of adjacent stream channels.

Practice Limitations:

There are severe limitations to facilitating or accelerated practices due to standing water.

State and transition model



State 1
State 1 Phase A

Community 1.1
State 1 Phase A

State 1, Phase A. Reference Plant Community Phase. This plant community is dominated by broadleaf cattail

and/or hardstem bulrush. There are a few forbs that may occur in minor amounts including water knotweed, leafybract aster, floating pondweed, and common duckweed. There may also be other grass-like species occurring in minor amounts.

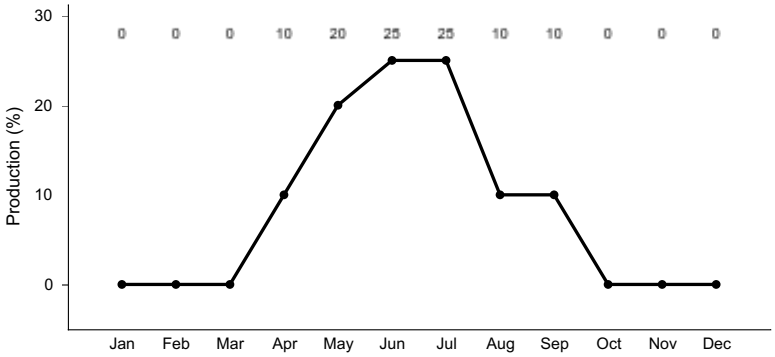


Figure 3. Plant community growth curve (percent production by month). ID0315, DRY MEADOW. State 1.

State 2
State 2

Community 2.1
State 2

State 2. This plant community may be similar to Wet Meadow, Meadow, Dry Meadow, or upland sites in low to mid-seral status. Initially, Carex and Juncus species may increase or become dominant. These species can be lost as degradation continues. Forbs may increase as degradation becomes severe. This state developed due to permanent reduction of standing water. The site has crossed the threshold. This state cannot be returned to State 1 without returning the standing water regime.

Additional community tables

Animal community

Wildlife Interpretations.

Animal Community – Wildlife Interpretations

This ecological site provides habitat value for unique wetland wildlife species. The duration of hydrology results in abundant herbaceous cover and invertebrate production, this provides food and cover for waterfowl. Wetland dependant species utilizing the site include marsh wren, great blue heron, Ibis, teal, mallard, yellow-head blackbird, red-winged blackbird, northern leopard frog, western toad, muskrat and beaver. Large herbivore use is limited to moose due to the extreme hydrologic conditions and poor forage value. Loss of site hydrology significantly reduces habitat value of the adjacent ecological sites. Open water is seasonal being provided by seasonal runoff, ponding, flooding, seasonal high water table and natural springs.

State 1 Phase 1.1 – Broadleaf Cattail/ Hardstem Bulrush Reference Plant Community (RPC): The RPC and associated hydrology exhibit deep ponded water, providing a diverse population of invertebrates (benthic and terrestrial) unique to wetlands and beneficial to water loving birds. The insects provide feed for the many predator species utilizing the site. The reptile and amphibian community is represented by western skink, rubber boa, western rattlesnake, western toad, boreal chorus frog, long-toed salamander and northern leopard frog. A diverse amphibian population is a key indicator of good ecological health on this site. The RPC provides nesting, rearing, roosting and forage for bird species such as Canada goose, American wigeon, mallard, pied billed grebe, great blue heron, sora, whimbrel, Wilson’s snipe, marsh wren and long-billed curlew. Moose can utilize the site, foraging through the submerged vegetation and emergent vegetation. Small mammal population is extremely limited due to hydrologic conditions. Deer mouse, montane vole and western jumping mouse would utilize the site for water throughout the year or in winter when water is frozen.

State 2 – Nebraska Sedge/ Sedges/ Baltic Rush/Forbs/Grasses Plant Community: The plant community is the

result of the loss of standing water throughout the growing season. Loss of historic hydrology has reduced the habitat value for many animals present in State 1. An increase in diversity of forbs would support a larger diversity and population of pollinators. The loss of historic hydrology will limit or exclude use of the site by amphibians and many reptiles. Suitable habitat cover for the northern leopard frog, a species of concern, would not be provided. With improper grazing management the loss of vertical and horizontal structure would reduce diversity and populations of all species of birds. The site would be more suitable for killdeer, western meadowlark and horned lark. Birds of prey (northern harrier and Cooper's hawk) may range throughout these areas looking for prey species. With proper grazing management the site would offer more forage value than State 1 for deer and elk. Bat populations and diversity may be reduced by the loss of hydrology and change in plant community and reduced population and diversity of prey. Small mammal diversity would increase favoring seed eating species (deer mouse) due to increased grass diversity and cover.

Grazing Interpretations:

Due to standing water and low value forage of the species present, grazing during the growing season is rare. Grazing may occur during the dormant period. If dry soil conditions occur into the spring and livestock remove the tops of either broadleaf cattail or hardstem bulrush, the plants can die if water then covers them. Care must be exercised in grazing adjacent sites to avoid downcutting of stream channels that can influence standing water in this site. The potential of the site can be lost.

Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory, past use history and type, condition of vegetation, production, season of use and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings.

Hydrological functions

No data.

Recreational uses

This site presents an aesthetically pleasing view of lush vegetation consisting primarily of grass-like plants and standing water. Hikers and fisherman often traverse the edges of this site. Fishing opportunities often exist on open waters adjacent to this site. Waterfowl hunting can occur on or adjacent to the site.

Wood products

None.

Other products

None.

Other information

Field Offices

Mountain Home, ID
Weiser, ID
Payette, ID
Emmett, ID
Meridian, ID

Inventory data references

Information presented here has been derived from NRCS clipping and other inventory data. Also, field knowledge of range-trained personnel was used. Those involved in developing this site description include:
Dave Franzen, co-owner, Intermountain Rangeland Consultants, LLC
Jacy Gibbs, co-owner, Intermountain Rangeland Consultants, LLC
Jim Cornwell, Range Management Specialist, IASCD
Dan Ogle, Plant Materials Specialist, NRCS, Idaho
Chris Hoag, Wetland Plant Ecologist, NRCS, Idaho
Brendan Brazee, State Rangeland Management Specialist, NRCS, Idaho
Leah Juarros, Resource Soil Scientist, NRCS, Idaho
Lee Brooks, Range Management Specialist, IASCD

Other references

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USDI, BLM and Idaho Conservation Data Center. 2001. Riparian and Wetland Plant Associations of Southwestern Idaho.
USDI Bureau of Land Management, US Geological Survey; USDA Natural Resources Conservation Service, Agricultural Research Service; Interpreting Indicators of Rangeland Health. Technical Reference 1734-6; Version 4-2005.

Contributors

DF

Approval

Kendra Moseley, 9/23/2020

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)	Dave Franzen and Jacy Gibbs Intermountain Range Consultants 17700 Fargo Rd. Wilder, ID 83676
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Date	04/21/2009
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** rills do not occur on this site.

2. **Presence of water flow patterns:** water-flow patterns do not occur.

3. **Number and height of erosional pedestals or terracettes:** neither occurs on this site.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** none.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** blowouts and depositional areas do not occur.

7. **Amount of litter movement (describe size and distance expected to travel):** litter may move in the standing water variable distances.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** values should range from 4 to 6 but needs to be tested.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** no data.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** the site has standing water.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** is not present.

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: rhizomatous species

    Sub-dominant: perennials forbs

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** very little mortality occurs on the site.

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14. **Average percent litter cover (%) and depth (in):** not applicable.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** is 4500 pounds per acre (5040 Kg/ha) in a year with normal amounts of standing water and temperatures. Rhizomatous species produce 90-95 percent of the total production and forbs less than 10 percent.

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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:** includes purple loosestrife and common reed.

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17. **Perennial plant reproductive capability:** all functional groups have the potential to reproduce in most years. Most of the plants can reproduce vegetatively.