USDA Natural Resources Conservation Service

Ecological site F144AY016MA
Very Wet Low Floodplain

Last updated: 10/04/2024
Accessed: 05/12/2025

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.

MLRA notes

Major Land Resource Area (MLRA): 144A–New England and Eastern New York Upland, Southern Part

MLRA 144A: New England and Eastern New York Upland, Southern Part

The eastern half of the eastern part of this MLRA is in the Seaboard Lowland Section of the New England Province of the Appalachian Highlands. The western half of the eastern part and the southeastern half of the western part are in the New England Upland Section of the same province and division. The northwestern half of the western part is in the Hudson Valley Section of the Valley and Ridge Province of the Appalachian Highlands. This MLRA is a very scenic area of rolling to hilly uplands that are broken by many gently sloping to level valleys that terminate in coastal lowlands. Elevation ranges from sea level to 1,000 feet in much of the area, but it is 2,000 feet on some hills. Relief is mostly about 6 to 65 feet in the valleys and about 80 to 330 feet in the uplands.

This area has been glaciated and consists almost entirely of till hills, drumlins, and bedrock-controlled uplands with a mantle of till. It is dissected by narrow glacio-fluvial valleys. The southernmost boundary of the area marks the farthest southward extent of Wisconsinian glaciation on the eastern seaboard. The river valleys and coastal plains are filled with glacial lake sediments, marine sediments, and glacial outwash. The bedrock in the eastern half of the area consists primarily of igneous and metamorphic rocks of early Paleozoic age. Granite is the most common igneous rock, and gneiss, schist, and slate are the most common metamorphic rocks. In the parts of the MLRA in eastern and southeastern New York, Devonian- to Pennsylvanian-age sandstone, shale, and limestone are dominant. Carbonate rocks, primarily dolomite and limestone, are the dominant kinds of bedrock in the part of this MLRA in northwestern Connecticut.

Classification relationships

USDA-NRCS (USDA 2006):
Land Resource Region (LRR): N—East and Central Farming and Forest Region
Major Land Resource Area (MLRA): 144A— New England and Eastern New York Upland, Southern Part.

USDA-FS (Cleland et al. 2007)
Province: 221 - Eastern Broadleaf Province
Section: 221A - Lower New England
Subsection: 221Aa – Boston Basin
221Ac – Narragansett-Bristol Lowland and Islands
221Ad – Southern New England Coastal Lowland
221Ae – Hudson Highlands
221Ag - Southeast New England Coastal Hills and Plains
221Ah - Worcester-Monadnock Plateau
221Ai – Gulf of Maine Coastal Plain
221Ak - Gulf of Maine Coastal Lowland
Section: 221B – Hudson Valley

Subsection: 221Ba – Hudson Limestone Valley
221Bb - Miami – Taconic Foothills
221Bc – Hudson Glacial Lake Plains

Ecological site concept

The site consists of deep, coarse-silty, very poorly drained, alluvial soils on low floodplains of variously sized river valleys. These floodplains are subject annual flooding. Water is at or near the surface for much of the growing season. The representative soil is Saco, Sloan, Wallkill, and Wayland.

The reference plant community is considered to be an alluvial shrubland swamp. Alders (Alnus spp.) are the most common shrub but other shrubs such as silky dogwood (*Cornus amomum*), willows (Salix spp.), highbush blueberry (*Vaccinium corymbosum*), winterberry (Ilex vericillata), steeplebush (*Spiraea tomentosa*) and common buttonbush (*Cephalanthus occidentalis*). Devil's darning needles (*Clematis virginiana*) is a vine that may be found tangled over the shrubs. Canada bluejoint (*Calamagrostis canadensis*), smallspike false nettle (*Boehmeria cylindrica*), wild rye (Elymus spp.) and tussock sedge (Carex stricta) may also be present. Red maple (*Acer rubrum*) may occur but tree cover is low due to the very wet conditions.

Associated sites

F144AY014CT	**Wet Sandy Low Floodplain**
F144AY015NY	**Wet Silty Low Floodplain**

Similar sites

F144AY006CT	**High Floodplain Levee**

Table 1. Dominant plant species

Tree	(1) *Acer rubrum*
Shrub	(1) *Alnus serrulata* (2) *Salix sericea*
Herbaceous	(1) *Carex stricta*

Physiographic features

The site occurs on low floodplains and depressions of mostly small to medium sized river valleys but can also be found within large river valleys. These floodplains are subject annual flooding. Water is at or near the surface for much of the growing season.

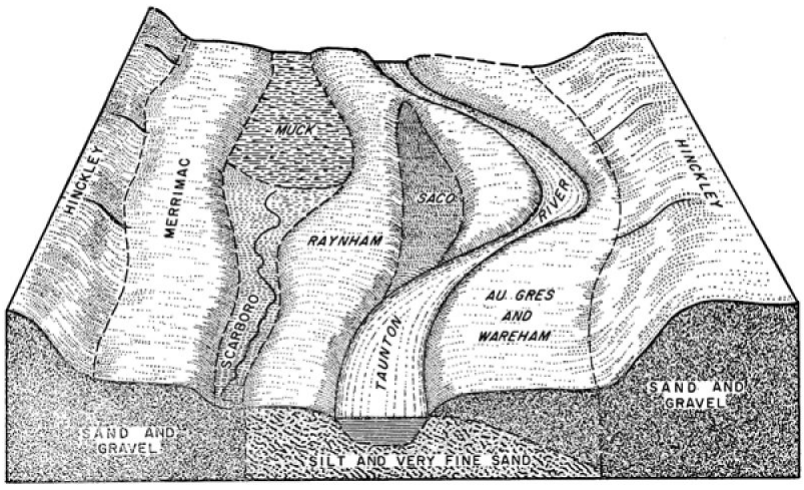


Figure 1. Very Wet Low Floodplain (Saco soils)

Table 2. Representative physiographic features

Landforms	(1) Alluvial plain > Flood plain (2) River valley > Depression (3) Alluvial flat (4) Outwash plain
Runoff class	Negligible to low
Flooding duration	Brief (2 to 7 days)
Flooding frequency	None to frequent
Ponding frequency	None to frequent
Elevation	0–1,499 ft
Slope	0–3%
Water table depth	0–12 in
Aspect	Aspect is not a significant factor

Climatic features

The Koppen-Geiger climate classification of the area in which this MLRA occurs varies between Dfb (Warm-summer humid continental) in the North, and Dfa (Hot-summer humid continental) in the southern portion of the MLRA. Precipitation is usually uniformly distributed throughout the year. Near the coast, however, it is slightly lower in summer. Precipitation is slightly higher in spring and fall in inland areas. Rainfall occurs as high-intensity, convective thunderstorms during the summer. During the winter, most of the precipitation occurs as moderate-intensity storms (northeasters) that produce large amounts of rain or snow. The freeze-free period increases in length to the south.

Table 3. Representative climatic features

Frost-free period (characteristic range)	131-135 days
Freeze-free period (characteristic range)	163-184 days
Precipitation total (characteristic range)	47-50 in
Frost-free period (actual range)	127-148 days
Freeze-free period (actual range)	150-187 days
Precipitation total (actual range)	42-52 in
Frost-free period (average)	135 days
Freeze-free period (average)	170 days
Precipitation total (average)	48 in

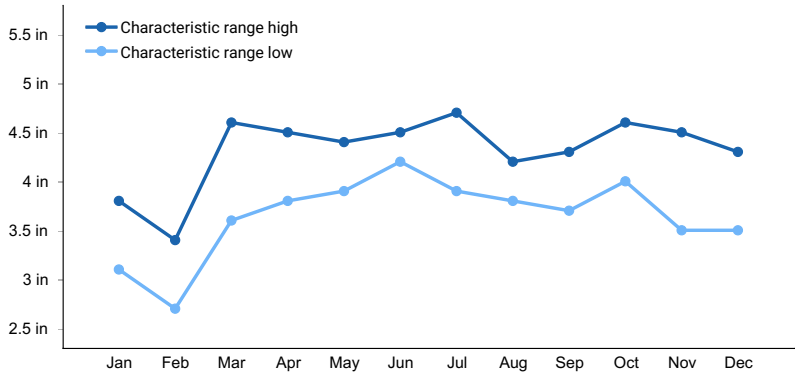


Figure 2. Monthly precipitation range

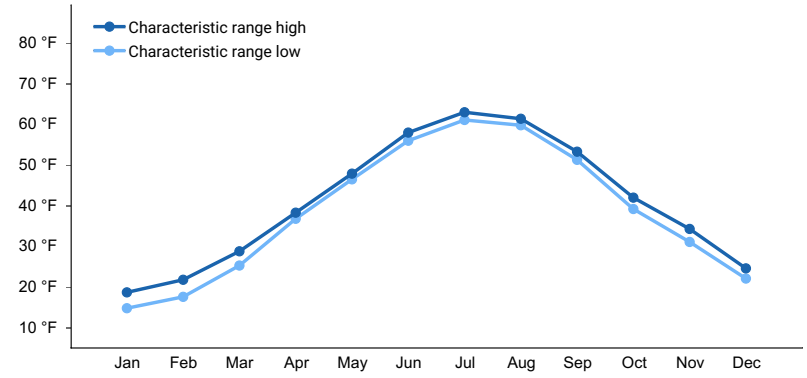


Figure 3. Monthly minimum temperature range

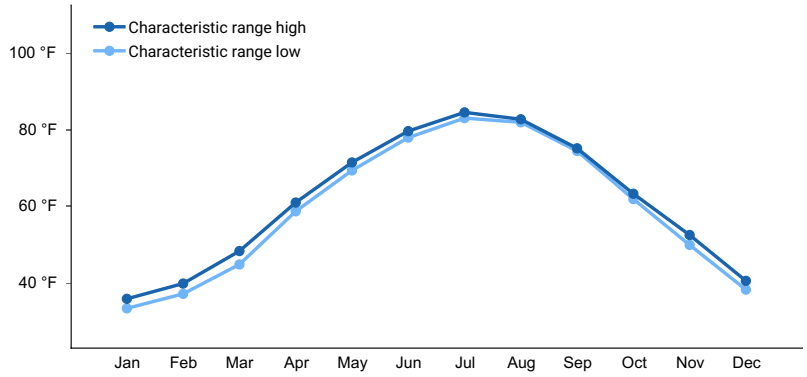


Figure 4. Monthly maximum temperature range

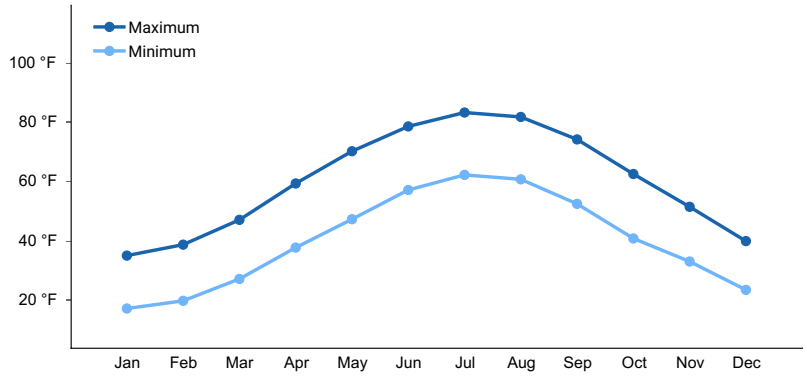


Figure 5. Monthly average minimum and maximum temperature

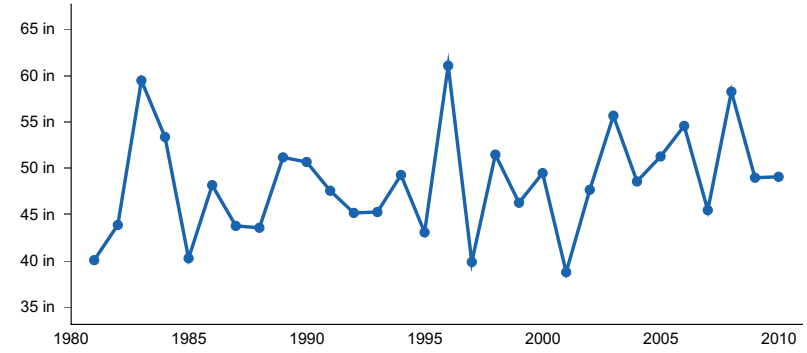


Figure 6. Annual precipitation pattern

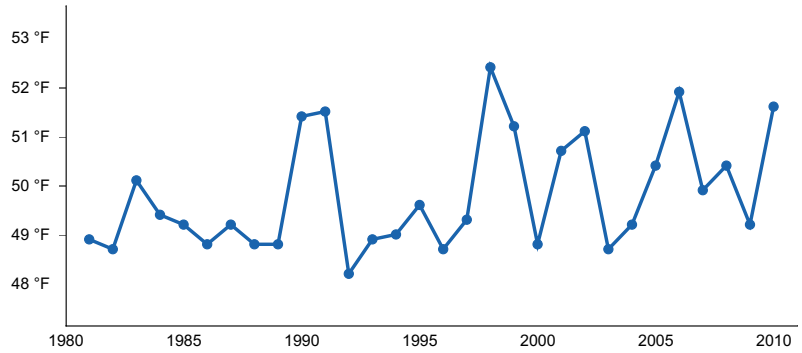


Figure 7. Annual average temperature pattern

Climate stations used

- (1) TROY L&D [USC00308600], Troy, NY
- (2) DANBURY [USC00061762], Bethel, CT
- (3) TAUNTON [USC00198367], Raynham, MA
- (4) STORRS [USC00068138], Storrs Mansfield, CT
- (5) MAYNARD 2 [USC00194580], Maynard, MA
- (6) POUGHKEEPSIE DUTCHESS CO AP [USW00014757], Wappingers Falls, NY

Influencing water features

Poorly drained
Water is removed so slowly that the soil is wet at shallow depths periodically during the growing season or remains wet for long periods. Internal free water occurrence is shallow or very shallow and common or persistent. Free water is commonly at or near the surface long enough during the growing season that most mesophytic crops cannot be grown, unless the soil is artificially drained. The soil, however, is not continuously wet directly below plow depth. Free water at shallow depth is common. The water table is commonly the result of low or very low saturated hydraulic conductivity, nearly continuous rainfall, or a combination of these.

Very poorly drained
Water is removed from the soil so slowly that free water remains at or very near the surface during much of the growing season. Internal free water occurrence is very shallow and persistent or permanent. Unless the soil is artificially drained, most mesophytic crops cannot be grown. The soils are commonly level or depressed and frequently ponded. In areas where rainfall is high or nearly continuous, slope gradients may be greater.

Wetland description

National Wetland Classification (Cowardin et al., 1979):

Palustrine, class variable, leaf morphology variable, water regime variable, chemistry modifier variable.

Soil features

The site consists of very deep, very poorly drained soils formed in silty alluvium derived mostly from granite, gneiss, schist, shale and sandstone. Permeability is moderate in the silty layers and rapid or very rapid in the underlying sandy materials. The representative soils are Saco, Wayland, Sloan(?), and Wallkill.

Table 4. Representative soil features

Parent material	(1) Alluvium–sandstone and shale (2) Herbaceous organic material–granite and gneiss (3) Coprogenic material–schist (4) Organic material (5) Eolian deposits

Surface texture	(1) Silt loam (2) Muck (3) Mucky silt loam
Family particle size	(1) Coarse-silty over sandy or sandy-skeletal (2) Fine-loamy (3) Fine-silty (4) Sandy
Drainage class	Very poorly drained to poorly drained
Permeability class	Very slow to moderate
Depth to restrictive layer	72 in
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	4–12 in
Soil reaction (1:1 water) (0-40in)	3.5–9
Subsurface fragment volume <=3" (Depth not specified)	0–6%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

[Caveat: The vegetation information contained in this section and is only provisional, based on concepts, not yet validated with field work.*]

The vegetation groupings described in this section are based on the terrestrial ecological system classification and vegetation associations developed by NatureServe (Comer 2003). Terrestrial ecological SYSTEMS are specifically defined as a group of plant community-types called ASSOCIATIONS that tend to [co-]occur within landscapes with similar ecological processes, substrates, and/or environmental gradients. Any given system will typically manifest itself in a landscape at intermediate geographic scales of tens-to-thousands of hectares and will persist for 50 or more years. A vegetation association is a plant community that is much more specific to a given soil, geology, landform, climate, hydrology, and disturbance history. It is the basic unit for vegetation classification and recognized by the US National Vegetation Classification (US FDGC 2008). Each association will be named by the diagnostic and often dominant species that occupy the different height strata (tree, sapling, shrub, and herb). Within the NatureServe Explorer database (NatureServe, 2015), ecological systems are numbered by a Community Ecological System Code (CES) and individual vegetation associations are assigned an identification number called a Community Element Global Code (CEGL).

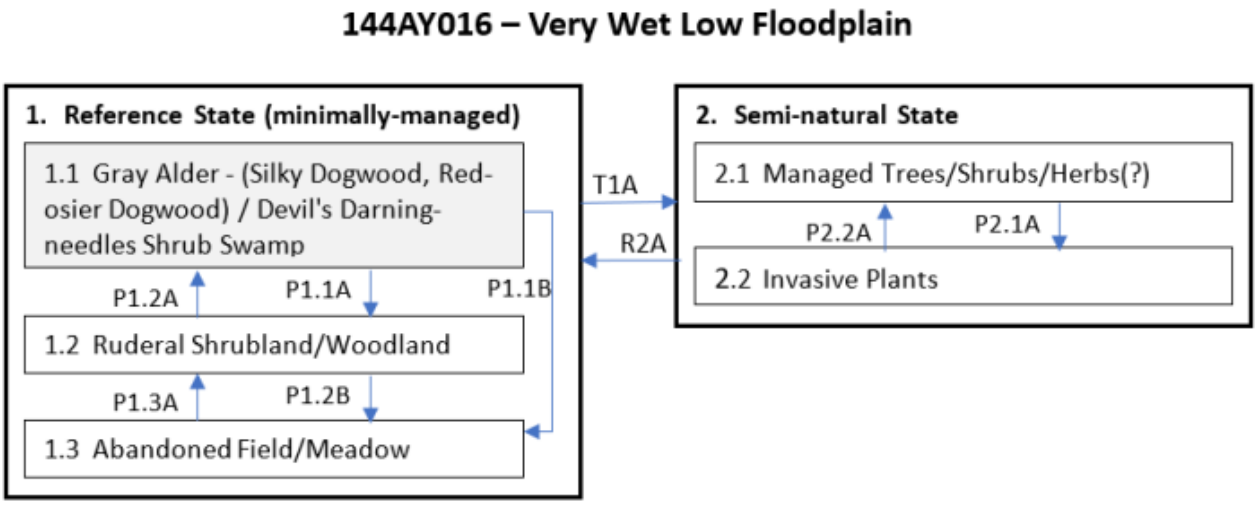
Additional and more localized vegetation information is provided by the State Natural Heritage Programs of Connecticut (Metzler and Barrett 2001), Massachusetts (Swain and Kearsley 2001), New Hampshire (Sperduto and Nichols, 2011), New York (Edinger et al., 2014), and Rhode Island (Enser and Lungren, 2006).

The Wet Silty Low Floodplain ecological site is characteristic of the Laurentian-Acadian Floodplain Forest system (CES201.587) and to a lesser the extent the Central Appalachian River Floodplain Forest system (CES201.587) (NatureServe 2015). This floodplain develops on variously sized river systems especially in wet or back water conditions where water is at or near the surface for much of the growing season. This site is annually flooded. Disturbances are related to the magnitude, frequency, and seasonal timing of flooding. Differences in hydrologic regime and fluvial geomorphology will result in changes in community composition (Marks et al. 2011). Due to their poorly drained nature, wet floodplain are not typically converted to agriculture.

[*Caveat] The information presented is representative of very complex vegetation communities. Key indicator plants and ecological processes are described to help inform land management decisions. Plant communities will differ across the MLRA because of the naturally occurring variability in weather, soils, and geography. The reference

plant community is not necessarily the management goal. The drafts of species lists are merely representative and are not botanical descriptions of all species occurring, or potentially occurring, on this site. They are not intended to cover every situation or the full range of conditions, species, and responses for the site.

State and transition model



Transition	*Drivers/practices*
T1A	Forest mgmt., Disturbance
R2A	Restoration & Mgmt, Forest Stand Improvement, Early Successional Habitat Development, Upland Wildlife Mgmt, Invasive spp. Control, Plant establishment
P2.1A	Disturbance, Invasive species establishment
P2.2A	Invasive spp. Control, Forest mgmt..
P1.3A, P1.2A	Abandonment, succession
P1.1A, P1.2B	Disturbance, Early Successional Habitat Development

State 1
Reference State (minimally-managed)

The reference community is: • Alluvial Alder Thicket (CEGL006062) *Alnus incana* – Cornus spp. / *Clematis virginiana* Alluvial Shrub Swamp ([Translated] Gray Alder - Dogwood species / Devil's Darning-Needles Alluvial Shrub Swamp)

Community 1.1
Gray Alder - (Silky Dogwood, Red-osier Dogwood) / Devil's Darning-needles Shrub Swamp (CEGL6062)

Alluvial Alder Thicket (CEGL006062) *Alnus incana* – Cornus spp. / *Clematis virginiana* Alluvial Shrub Swamp

([Translated] Gray Alder - Dogwood species / Devil's Darning-Needles Alluvial Shrub Swamp) Tall shrubs dominate the vegetation, sometimes creating a dense thicket. The amount of lower shrub and herb vegetation is proportional to the openness of the tall-shrub canopy. Speckled alder (*Alnus incana* ssp. rugosa dominates in admixture with smooth alder (*Alnus serrulata*), silky dogwood (*Cornus amomum*), willows (Salix spp.), highbush blueberry (*Vaccinium corymbosum*), winterberry (Ilex vericillata), steeplebush (*Spiraea tomentosa*) and common buttonbush (*Cephalanthus occidentalis*). Red maple (*Acer rubrum*) may occur but tree cover is low due to the very wet conditions. Devil's darning needles (*Clematis virginiana*) is a vine that may be found tangled over the shrubs. Herbs include Canada bluejoint (*Calamagrostis canadensis*), smallspike false nettle (*Boehmeria cylindrica*), wild rye (Elymus spp.) spotted Joe-pye-weed (Eupatorium maculatum), blueflag iris (*Iris versicolor*), northern bugleweed (*Lycopus uniflorus*), fringed looswstrife (Lysimachia ciliate), swamp yellow loosestrife (*Lysimachia terrestris*), and tussock sedge (Cares stricta). (Source: NatureServe 2018 [accessed 2019], USNVC 2017 [accessed 2019]). Cross-referenced plant community concepts (typically by political state): CT: Speckled alder Temporarily -flooded wetland (Metzler and Barret, 2006) MA: Shrub Swamp (Swain and Kearsley, 2001) NH: Alder -dogwood -arrowwood Alluvial Thicket (Sperduto and Nichols, 2011) NY: Floodplain Forest (Edinger et al., 2014) RI: Alluvial Shrub Thicket (Enser 2006)

Dominant plant species

- speckled alder (*Alnus incana ssp. rugosa*), shrub
- hazel alder (*Alnus serrulata*), shrub
- bluejoint (*Calamagrostis canadensis*), other herbaceous
- upright sedge (*Carex stricta*), other herbaceous

Community 1.2
Ruderal Wet Shrubland / Wet Woodland

Community 1.3
Abandoned Wet Field / Wet Meadow

Pathway P1.1A
Community 1.1 to 1.2

Disturbance

Pathway P1.2B
Community 1.1 to 1.3

Disturbance

Pathway P1.2A
Community 1.2 to 1.1

Abandonment, succession

Pathway P1.2B
Community 1.2 to 1.3

Disturbance

Pathway P1.3A
Community 1.3 to 1.2

Abandonment, succession

State 2
Semi-natural

The Semi-natural State would expect plant communities where ecological processes are primarily operating with some land conditioning in the past or present, e.g., managed forests, or plant communities that are an artifact of land management e.g., predominately invasive plants.

Community 2.1
Managed [Trees]/Shrubs/Herbs(?)

Community 2.2
Invasive Plants

Invasiveplants may include garlic mustard (Alliaria petiolate) and Japanese stiltgrass (Microstegium viminium).

Pathway P 2.1A
Community 2.1 to 2.2

Disturbance, Invasive species establishment

Pathway P2.2A
Community 2.2 to 2.1

Invasive spp. Control, Vegetation mgmt..

Transition T1A
State 1 to 2

Human disturbance with invasive plant establishment or Forest management

Restoration pathway R2A
State 2 to 1

Plant removals, plantings, Invasive plant control, successional mgmt., Restoration & Mgmt, Forest Stand Improvement, Early Successional Habitat Development, Wildlife Mgmt, Invasive spp. Control, Plant establishment

Conservation practices

Wetland Wildlife Habitat Management
Early Successional Habitat Development/Management
Restoration and Management of Natural Ecosystems
Native Plant Community Restoration and Management
Invasive Plant Species Control

Additional community tables

Inventory data references

Future work is needed, as described in a future project plan, to validate the information presented in this provisional ecological site description. Future work includes field sampling, data collection and analysis by qualified vegetation ecologists and soil scientists. As warranted, annual reviews of the project plan can be conducted by the Ecological Site Technical Team. A final field review, peer review, quality control, and quality assurance reviews of the ESD are necessary to approve a final document.

Other references

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Washington DC.

Contributors

Nels Barrett, Ph.D. (vegetation)

Approval

Greg Schmidt, 10/04/2024

Acknowledgments

Michael Margo and tech team provided earlier drafts. Josh Hibit made compliance updates w/ 2021 Checklist V.2

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	05/12/2025
Approved by	Greg Schmidt
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):**

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

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

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

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17. **Perennial plant reproductive capability:**