

Ecological site F144AY015NY Wet Silty 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, poorly drained, alluvial soils on low floodplains of mostly large river valleys but can occasionally be found within small to medium-sized river valleys. These floodplains are subject annual spring flooding. Water is at or near the surface for much of the growing season. Representative soils are Lim, Limerick, Bash, and Linlithgo.

The reference plant community is considered to be a silver maple floodplain bottom forest. Silver maple (*Acer saccharinum*) dominates with green ash (*Fraxinus pennsylvanica*) swamp white oak (*Quercus bicolor*) or red maple (*Acer rubrum*).

Associated sites

F144AY010NH	Sandy High Floodplain
F144AY016MA	Very Wet Low Floodplain

Similar sites

F144AY026CT	Moist Silty Outwash
F144AY031MA	Very Wet Outwash

Table 1. Dominant plant species

Tree	(1) <i>Acer saccharinum</i>
Shrub	Not specified
Herbaceous	(1) <i>Boehmeria cylindrica</i>

Physiographic features

The site occurs on nearly level soils on floodplains along major perennial streams. Slopes range from 0 to 3 percent.

Table 2. Representative physiographic features

Landforms	(1) Alluvial plain > Flood plain (2) Depression
Runoff class	Negligible to low
Flooding duration	Brief (2 to 7 days)
Flooding frequency	None to frequent
Ponding frequency	None to frequent
Elevation	0–549 m
Slope	0%
Water table depth	0–61 cm
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)	120-151 days
Freeze-free period (characteristic range)	146-183 days
Precipitation total (characteristic range)	1,067-1,245 mm
Frost-free period (actual range)	105-167 days
Freeze-free period (actual range)	133-204 days
Precipitation total (actual range)	1,041-1,270 mm
Frost-free period (average)	136 days
Freeze-free period (average)	165 days
Precipitation total (average)	1,143 mm

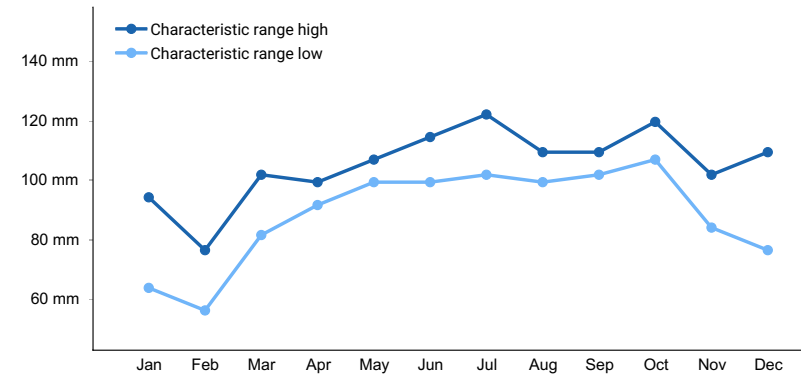


Figure 1. Monthly precipitation range

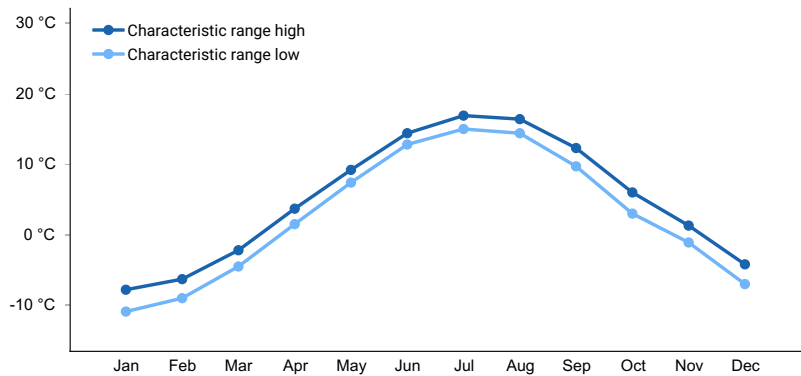


Figure 2. Monthly minimum temperature range

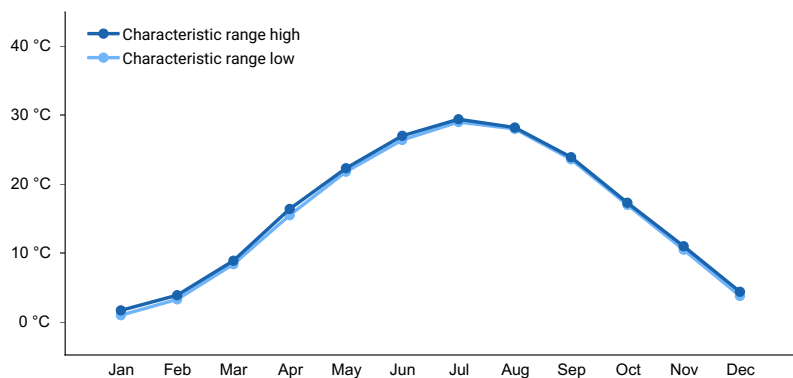


Figure 3. Monthly maximum temperature range

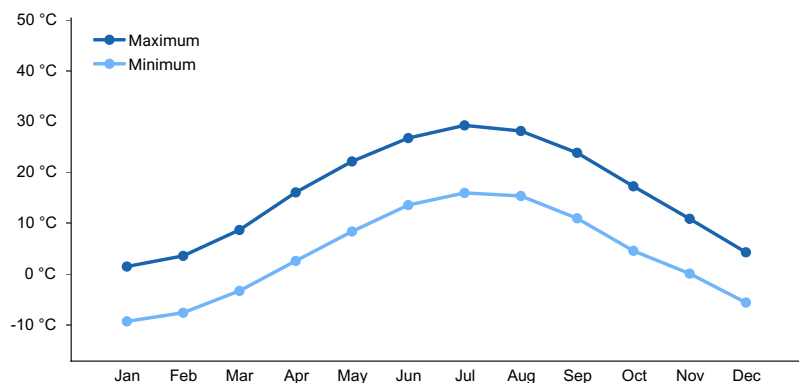


Figure 4. Monthly average minimum and maximum temperature

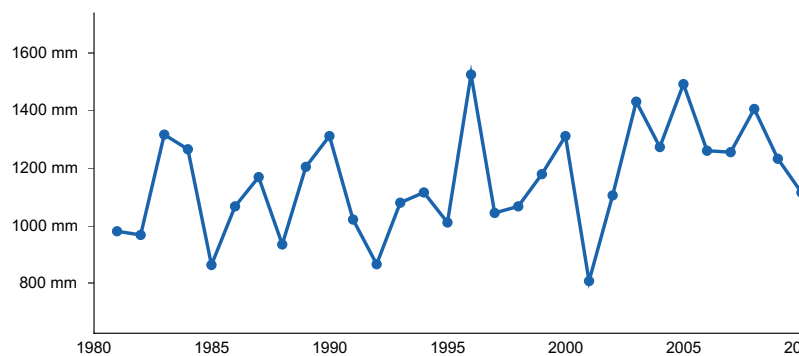


Figure 5. Annual precipitation pattern

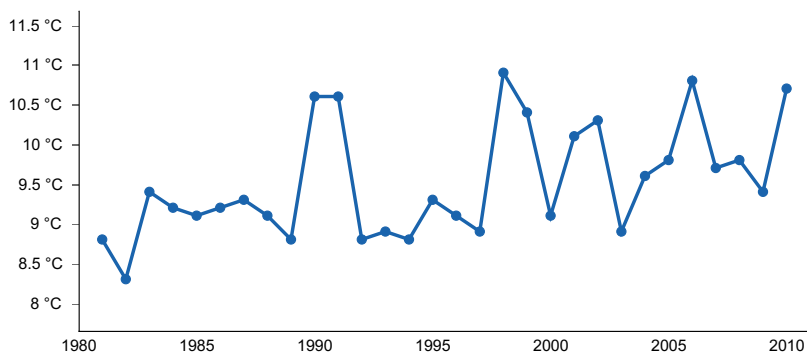


Figure 6. Annual average temperature pattern

Climate stations used

- (1) RHINEBECK 4SE [USC00307035], Rhinebeck, NY
- (2) VALATIE 1 N [USC00308746], Valatie, NY
- (3) HUDSON COR.FACILITY [USC00304025], Athens, NY

- (4) WEST POINT [USC00309292], Cold Spring, 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 deep, coarse-loamy and silty, poorly drained, alluvial soils on low floodplains of mostly large river valleys but can occasionally be found within small river valleys. These floodplains are subject annual spring flooding. Water is at or near the surface for much of the growing season.

Representative soils are Lim, Limerick, Bash, and Linlithgo.

Table 4. Representative soil features

Parent material	(1) Alluvium—igneous and metamorphic rock (2) Granite and gneiss (3) Schist (4) Sandstone and shale
Surface texture	(1) Silt loam (2) Loam
Family particle size	(1) Coarse-loamy (2) Coarse-silty (3) Fine-loamy over sandy or sandy-skeletal (4) Loamy
Drainage class	Very poorly drained to moderately well drained
Permeability class	Very slow to moderate
Depth to restrictive layer	183 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (Depth not specified)	10.16–22.86 cm
Soil reaction (1:1 water) (0-101.6cm)	4.5–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–29%

Subsurface fragment volume >3" (Depth not specified)	0–5%
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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).

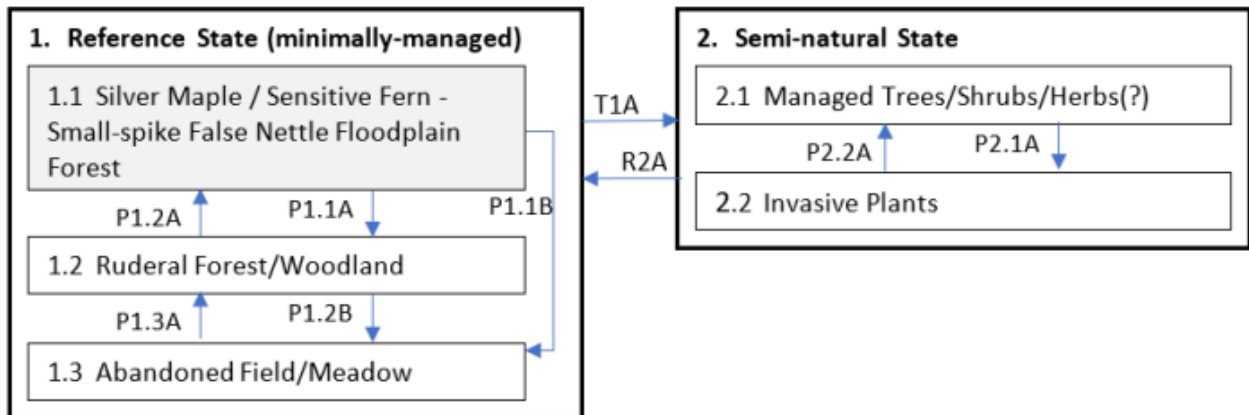
The Wet Silty Low Floodplain ecological site is characteristic of the Laurentian-Acadian Floodplain Forest system (CES201.587) and to a lesser the extent the Central Appalachian River Floodplain Forest system (CES201.587) (NatureServe 2015). This floodplain develops on large to medium river systems. 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.

Common invasive exotic plants are honeysuckles (*Lonicera* spp), moneywort (*Lysimachia nummularia*), garlic mustard (*Alliaria petiolate*) and Japanese stiltgrass (*Microstegium viminium*).

[*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

144AY015 – Wet Silty Low Floodplain



Transition	Drivers/practices
T1A	Forest mgmt., Disturbance
R2A	Restoration & <u>Mgmt</u> , Forest Stand Improvement, Early Successional Habitat Development, Upland Wildlife <u>Mgmt</u> , 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: • Silver Maple Floodplain Bottom Forest (Sensitive Fern Type) (CEGL006176) *Acer saccharinum* / *Onoclea sensibilis* - *Boehmeria cylindrica* Floodplain Forest) ([Translated] Silver Maple / Sensitive Fern - Small-spike False Nettle Floodplain Forest)

Community 1.1

Silver Maple / Sensitive Fern - Small-spike False Nettle Floodplain Forest (CEGL006176)

Silver Maple Floodplain Bottom Forest (Sensitive Fern Type) (CEGL006176) *Acer saccharinum* / *Onoclea sensibilis* - *Boehmeria cylindrica* Floodplain Forest) ([Translated] Silver Maple / Sensitive Fern - Small-spike False Nettle Floodplain Forest) These silver maple floodplain is more typical of large and medium-sized river systems. The canopy is dominated by silver maple (*Acer saccharinum*). Associated trees include green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), and occasionally swamp white oak (*Quercus bicolor*) or red maple (*Acer rubrum*). The shrub layer is very sparse to non-existent. The herb layer is seasonally variable, with spring ephemerals succeeded by dense cover of mixed ferns, forbs and graminoids. Summer-dominant herbs include sensitive fern (*Onoclea sensibilis*) and small-spiked false nettle (*Boehmeria cylindrica*). (Source:

NatureServe 2018 [accessed 2019], USNVC 2017 [accessed 2019]). CT: Silver maple /small-spiked false nettle floodplain forest (Metzler and Barrett, 2006) MA: Transitional Floodplain Forest (Swain and Kearsley, 2001) NH: Silver maple – false nettle – sensitive fern Floodplain Forest (Sperduto and Nichols, 2011) NY: Floodplain Forest (Edinger et al., 2014) RI: undisclosed (Enser 2006)

Dominant plant species

- silver maple (*Acer saccharinum*), tree
- smallspike false nettle (*Boehmeria cylindrica*), other herbaceous
- sensitive fern (*Onoclea sensibilis*), other herbaceous

Community 1.2

Ruderal Wet Forest / Wet Woodland

Community 1.3

Abandoned Wet Field / Wet Meadow

Pathway P1.1A

Community 1.1 to 1.2

Disturbance

Pathway P1.1B

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 State

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

Common invasive exotic plants are honeysuckles (*Lonicera* spp), moneywort (*Lysimachia nummularia*), garlic mustard (*Alliaria petiolate*) and Japanese stiltgrass (*Microstegium viminium*).

Pathway P2.1A

Community 2.1 to 2.2

Disturbance, Invasive species establishment

Pathway P2.2A

Community 2.2 to 2.1

Invasive spp. Control, Forest mgmt.

Transition T1A

State 1 to 2

Forest management or disturbance with invasive plant establishment

Restoration pathway R2A

State 2 to 1

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

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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Contributors

Nels Barrett, Ph.D. (vegetation)

Approval

Greg Schmidt, 10/04/2024

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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):

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

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

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

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

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:

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

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

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

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:
-

17. **Perennial plant reproductive capability:**
-