Ecological site F094DY019WI
Upper Riparian Terraces

Accessed: 08/07/2026

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): 094D–Northern Highland Sandy Pitted Outwash

About 13% of MLRA 94D is surface water: lakes, reservoirs, ponds, rivers and streams. The interaction of land and water is important to this region. Riparian ecological sites are in the zone of maximum interaction. The Upper Riparian Terrace ecological site occupies about 5000 acres in MLRA 94D.

Classification relationships

This site is not a floodplain forest but rather an upland forest that is influenced by the proximity of a water body, either a river, stream or lake. If the site is directly adjacent to water, as opposed to sites with intervening floodplains or beaches, than the site has sufficient elevation to be a mesic or dry-mesic site.

Ecological site concept

ATTENTION: This ecological site meets the NESH 2014 requirements for PROVISIONAL. A provisional ecological site is established after broad ecological site concepts are identified and an initial state-and-transition model is drafted. Following quality control and quality assurance reviews of the ecological site concepts, an identification number and name for the provisional ecological site are entered into ESIS. A provisional ecological site may include literature reviews, land use history information, some soils data, legacy data, ocular estimates for canopy and/or species composition by weight, and even some line-point intercept information. A provisional ecological site does not meet the NESH 2014 standards for an Approved ESD, but does provide the conceptual framework of soil-site correlation for the development of the ESD. For more information about this ecological site, please contact your local NRCS office. The Upper Riparian Terrace ecological site is near the waterfront with buildable sites. As such, it is subject to highest level of development pressure in the region apart from urban land, unless it is in a protected status of some kind. This site, unlike the other shoreland ecological site, has enough elevation above the waterline so that it never floods. This site is not a floodplain forest but rather an upland forest that is influenced by the proximity of a water body, either a river, stream or lake. If the site is directly adjacent to water, as opposed to sites with intervening floodplains or beaches, than the site has sufficient elevation to be a mesic or dry-mesic site. The site is occurs in a relatively narrow band adjacent to water or adjacent to the lower-lying shoreland sites. Thus it is not of large extent, but it is important due to the high economic and environmental value it holds. Often these sites are redeveloped from small seasonal cabins to larger, year-round dwellings. This site is distinctive ecologically for its impact on water bodies and wildlife. To maximize water quality and maintain fish and wildlife populations, it is important to minimize human disturbance on these sites. However, the conflict between develop and preservation has led to many controversies.

Associated sites

F094DY018WI	**Lower Riparian Terraces** Upper Riparian Terraces are occasionally adjacent to Lower Riparian Terraces.

Table 1. Dominant plant species

Tree	(1) *Pinus resinosa* (2) *Quercus rubra*

Shrub	(1) *Rubus allegheniensis* (2) *Prunus virginiana*
Herbaceous	(1) *Carex pensylvanica* (2) *Galium triflorum*

Physiographic features

This ecological site is characterized by its proximity to surface water and the ecological interactions produced by that location. There are major hydrological, micro-climatic, and biological implications to the upper riparian terrace ecological site. While the site will seldom if ever flood, often there are old channels on the site that are mostly dry but will on occasion run with water. The climate on the site is affected by close-by water bodies, but ironically that makes some sites warmer and some cooler than average.

Figure 1. Upper Riparian Terrace

Table 2. Representative physiographic features

Landforms	(1) Terrace
Flooding frequency	None to very rare
Ponding frequency	None
Elevation	410 – 560 m
Slope	0 – 40 %
Water table depth	200 cm
Aspect	Aspect is not a significant factor

Climatic features

The climate is humid continental with very cold winters and warm summers. As is common across northern Wisconsin, two-thirds of the precipitation falls as rain during the relatively short growing season of late May to early September. Most of the rainfall is transpired by plants. Snow cover is likely in the months of November through April. Snow cover prevents deep frost penetration which promotes groundwater recharge.

Table 3 Representative climatic features

Frost-free period (average)	100 days
Freeze-free period (average)	120 days
Precipitation total (average)	860 mm

- (1) LONG LAKE DAM [USC00474829], Eagle River, WI
- (2) NORTH PELICAN [USC00476122], Rhinelander, WI
- (3) REST LAKE [USC00477092], Manitowish Waters, WI
- (4) WILLOW RSVR [USC00479236], Hazelhurst, WI

Influencing water features

Soil features

Upper Riparian Terraces ecological sites have well drained, somewhat excessively drained, or excessively drained soils characterized by the Vilas, Sayner, Pence, and Keweenaw soil components. Vilas and Sayner soils have a thin loamy sandy sand surface layer with a sand or gravelly sand substratum. Pence soils have thin sandy loam surface layer over sand or gravelly sand and Keweenaw soils have a thick loamy sand mantle over stony or cobbly sand. Soil variability occurs from site to site but is relatively uniform within a particular site, given the relatively narrow band these sites occupy adjacent to water, beaches, lower terrace or floodplains. Because these sites are found well above a water body in elevation, they are not flood-prone sites. However, they are major contributors to surface water levels and/or floodplain water levels through runoff or subsurface flow. Additionally, springs and side hill seeps are more common adjacent to these sites than elsewhere.

Table 4. Representative soil features

Surface texture	(1) Loamy sand (2) Sand (3) Sandy loam
Family particle size	(1) Sandy
Drainage class	Well drained to excessively drained
Soil depth	200 cm
Surface fragment cover <=3"	0 – 20 %
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	5.08 – 20.32 cm
Calcium carbonate equivalent (0-101.6cm)	Not specified
Electrical conductivity (0-101.6cm)	Not specified

Sodium adsorption ratio (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	10 – 5.9
Subsurface fragment volume <=3" (Depth not specified)	0 – 50 %
Subsurface fragment volume >3" (Depth not specified)	0 – 40 %

Ecological dynamics

The Upper Riparian Terraces ecological sites includes both river front and lake shoreline areas. As such the ecological dynamics varies from site to site. This site does flood because of the elevation above the stream but the internal drainage of the site is altered by high water conditions. Also this site is likely to have springs or seep areas along the riser portion of the terrace. The site is also likely to conduct water toward the stream or lake both on the surface and sub-surface. These sites are important wildlife corridors and also influence aquatic habitat by adding nutrients and woody debris to the water body. If the surface of these sites is disturbed they are likely to erode and cause sedimentation within the water body. The Reference State has become rare along lakes because this is an ideal building site for recreational property and lake homes.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)

Table 6. Community 1.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)

Table 7. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)

Table 8. Community 2.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)

Table 9. Community 3.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)

Table 10. Community 3.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)

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Contributors

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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	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

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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):**

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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:**
