Ecological site F094DY009WI
Wet Sandy Drainageways

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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

MLRA 94D, the Northern Highland Sandy Drift, comprises 1.346 million acres of outwash plains, sandy moraines, wetlands and numerous water bodies (large lakes, small ponds, large rivers, small streams and flowages of all sizes). The Wet Sandy Drainageways ecological site comprises about 30,000 acres in MLRA 94D.

Classification relationships

The Wet Sandy Drainageways ecological sites correlate to the ArAbVC habitat type developed by Kotar et al (2002); this habitat type is named after Acer rubrum (red maple)-Abies balsamea (balsam fir)/Vaccinium angustifolium (low-bush blueberry)-Coptis trifolia (goldthread). These species have very high constancy value relative to this site, i.e. they are present on a higher percentage of these sites than other species. This ecological site has a wet-mesic moisture regime and is poor in nutrients.

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 Wet Sandy Drainageway ecological sites are of intermediate wetness. The soils are somewhat poorly drained, but they are not hydric. The plant communities have some wetland species, but no obligate wetland species. In other words, like the slightly drier Sandy Terraces and Plains ecological site, this site occupies the zone between wetlands and uplands where its characteristics are affected by a seasonal high water table that drains rapidly and frequent groundwater flowthrough events. The site is more species rich and more productive than the other sandy ecological site because of this wet-mesic moisture regime.

Associated sites

F094DY010WI	**Wet Sandy Depressions** Wet Sandy Depressions are common within larger Wet Sandy Drainageways.

Table 1. Dominant plant species

Tree	(1) *Acer rubrum* (2) *Abies balsamea*
Shrub	(1) *Corylus cornuta* (2) *Vaccinium myrtilloides*

Herbaceous	(1) *Clintonia borealis* (2) *Trientalis borealis*

Physiographic features

The Wet Sandy Drainageways ecological site is found on low gradient swales and toeslopes that often drain to deeper depressions and on low-lying flats that are not quite wet enough to be wetlands . In other words, these sites are low enough on the landscape to function as collection and transmission zones for soil water but the area these sites collect from is not large enough to completely swamp the sites as is the case for the Wet Sandy Depressions ecological sites.

Figure 1. Sandy ecological site in pitted outwash

Table 2. Representative physiographic features

Landforms	(1) Drainageway (2) Flat (3) Draw
Flooding frequency	None
Ponding frequency	None
Elevation	420 – 560 m
Slope	0 %
Ponding depth	0 cm
Water table depth	20 – 110 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)	110 days
Freeze-free period (average)	130 days

Precipitation total (average)	840 mm

- (1) RHINELANDER [USC00477113], Rhinelander, WI
- (2) EAGLE RIVER [USC00472314], Eagle River, WI
- (3) MINOCQUA [USC00475516], Minocqua, WI
- (4) REST LAKE [USC00477092], Manitowish Waters, WI

Influencing water features

Wet Sandy Drainageways are not wetland sites, though they have similarities to wetlands. They basically collect water from upland sites and transmit it to wetland sites at a fast enough rate to prevent seasonal ponding. Because of its landscape position, this site typically has a smaller watershed feeding it than the Wet Sandy Depressions ecological site.

Soil features

This ecological site is characterized by the Au Gres soil map unit component which is not of large extent, but is common as minor component in sandy upland map units.

Table 4. Representative soil features

Surface texture	(1) Loamy sand (2) Sand
Family particle size	(1) Sandy
Drainage class	Somewhat poorly drained
Permeability class	Rapid to very rapid
Soil depth	200 cm
Surface fragment cover <=3"	0 – 10 %
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	10.16 – 15.24 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)	4.9 – 6.1
Subsurface fragment volume <=3" (Depth not specified)	0 – 20 %
Subsurface fragment volume >3" (Depth not specified)	Not specified

Ecological dynamics

The Wet Sandy Drainageways ecological site is subject to a number of disturbance factors: wind damage, animal herbivory, snow and ice damage. However, disturbance caused by excess wetness is rare. In other words, the site is not subject ponding and will drain rapidly under normal conditions. The seasonal high water does occur within one foot of the surface in most years but the vegetation is well adapted to this level of wetness. Even after a clearcut, the site does not get too wet to regenerate forest trees, as wetland sites generally do. The fact that this site is a natural drainageway with porous soils means that water readily flows through this system from higher to lower elevations and that anaerobic conditions are transitory. Thus a large part of the root zone is oxygenated throughout the growing season.

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 1.3 plant community composition

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

Table 8. Community 2.1 plant community composition

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

Table 9. Community 2.2 plant community composition

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

Table 10. Community 3.1 plant community composition

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

Table 11. Community 3.2 plant community composition

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

Table 12. Community 4.1 plant community composition

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

Table 13. Community 4.2 plant community composition

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

Other references

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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:**

   _____

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:

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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:**
