

# **Ecological site F101XY009NY**

## **Moist Lake Plain**

Last updated: 10/03/2024  
Accessed: 05/21/2025

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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): 101X—Ontario-Erie Plain and Finger Lakes Region

Most of the MLRA is a nearly level to rolling plain. Low remnant beach ridges are commonly interspersed with a relatively level lake plain in the northern part of the area. Drumlins (long, narrow, steep-sided, cigar shaped hills) are prominent in an east-west belt in the center of the area. The Finger Lakes Region consists of a gently sloping to rolling till plain. Elevation t increases gradually from the shores of Lake Ontario and Lake Oneida to the Allegheny Plateau, the southern border of the area. The bedrock underlying this area consists of alternating beds of limestone, dolomite, sandstone, and shale of Ordovician to Devonian age. Most of the surface of the area is covered with glacial till or lake sediments. The texture of the lake sediments is silt, loam, or sand. Ancient beaches, formed at different lake levels, form ridges along the shoreline of Lake Erie and Lake Ontario. Stratified drift (eskers and kames) and glacial outwash deposits are in many of the valleys. A large drumlin field occurs in the Finger Lakes Region.

### **Classification relationships**

USDA-NRCS (USDA, 2006):

Land Resource Region (LRR): L — Lake States Fruit, Truck Crop, and Dairy Region

Major Land Resource Area (MLRA): 101— Ontario-Erie Plain and Finger Lakes Region

USDA-FS (Cleland et al., 2007)

Province: 211 — Northeastern Mixed Forest Province (in part)

Section: 211J — Mohawk Valley (in part)

Subsection: 211Jd — Mohawk Valley

Province: 222 — Midwest Broadleaf Forest Province (in part)

Section: 222I — Erie and Ontario Lake Plain

Subsection: 222la — Lake Erie Plain  
222lb — Erie-Ontario Lake Plain  
222lc — Eastern Ontario Till Plain  
222ld — Cattaraugus Finger Lakes Moraine and Hills  
222le — Eastern Ontario Lake Plain

## Ecological site concept

### Landform/Landscape Position:

The site occurs on lake plains and lacustrine terraces. Slopes range from 0 to 25 percent.

### Soils:

The site consists of moderately deep to very deep, moderately well drained or somewhat poorly drained soils formed in glaciolacustrine deposits. Soil textures are mostly fine or fine silty. Representative soils are Barcelona, Cayuga, Churchville, Collamer, Elmwood, Hudson, Rhinebeck, Schoharie, Tonawanda, Niagara, Odessa, Wallington, and Williamson.

### Vegetation

The reference community coincides with NY Natural Heritage Community: Maple-basswood rich mesic forest.

## Associated sites

F101XY010NY	<b>Wet Lake Plain Depression</b> Wet Lake Plain Depression sites are lower in the landscape profile.
F101XY012NY	<b>Till Upland</b>

## Similar sites

F101XY006NY	<b>Moist Outwash</b> Moist Outwash is typically less enriched.
F101XY013NY	<b>Moist Till</b> Moist Till may be considered less enriched.

**Table 1. Dominant plant species**

Tree	(1) <i>Acer saccharum</i> (2) <i>Tilia americana</i>
Shrub	(1) <i>Acer spicatum</i> (2) <i>Hamamelis virginiana</i>
Herbaceous	(1) <i>Polystichum acrostichoides</i> (2) <i>Trillium cernuum</i>

## Physiographic features

The site occurs on lake plains and lacustrine terraces. Slopes range from 0 to 25 percent.

**Table 2. Representative physiographic features**

Landforms	(1) Lake plain > Lake plain (2) Till plain > Lake terrace (3) Depression (4) Terrace (5) Outwash terrace
Runoff class	Very low to very high
Flooding frequency	None
Ponding frequency	None
Elevation	24–750 m
Slope	0–25%
Water table depth	18–76 cm
Aspect	Aspect is not a significant factor

## Climatic features

The Koppen-Geiger climate classification of the area in which this MLRA occurs is Dfb, Warm-summer humid continental. Rainfall occurs as high-intensity, convective thunderstorms in the summer. However, snow comprises most of the precipitation in this area. The frost-free-free period in this area averages 165 days and ranges from 130 to 200 days, with the coldest temperatures and the shortest frost-free periods occurring in the high-elevation areas in the eastern part of the MLRA.

**Table 3. Representative climatic features**

Frost-free period (characteristic range)	136-140 days
Freeze-free period (characteristic range)	173-186 days
Precipitation total (characteristic range)	940-1,067 mm
Frost-free period (actual range)	135-140 days
Freeze-free period (actual range)	167-187 days
Precipitation total (actual range)	889-1,067 mm
Frost-free period (average)	138 days
Freeze-free period (average)	179 days
Precipitation total (average)	991 mm

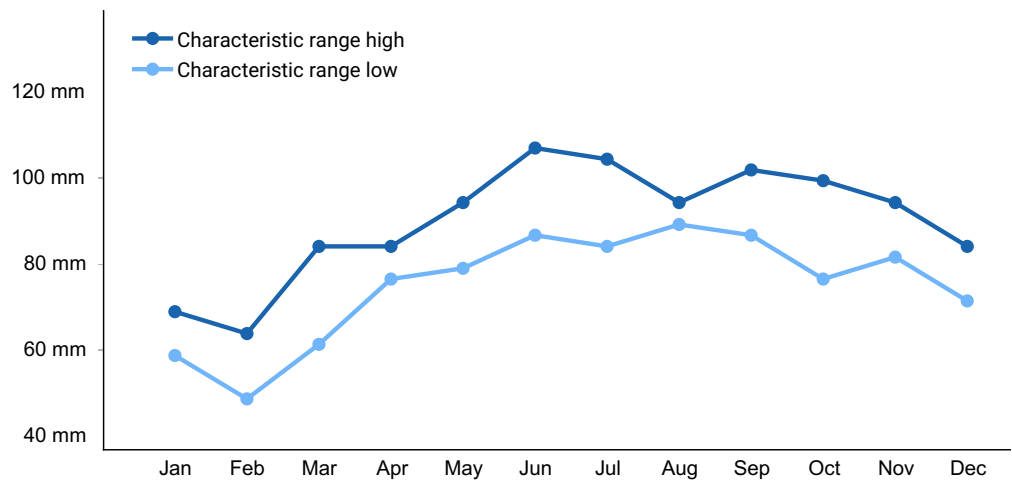


Figure 1. Monthly precipitation range

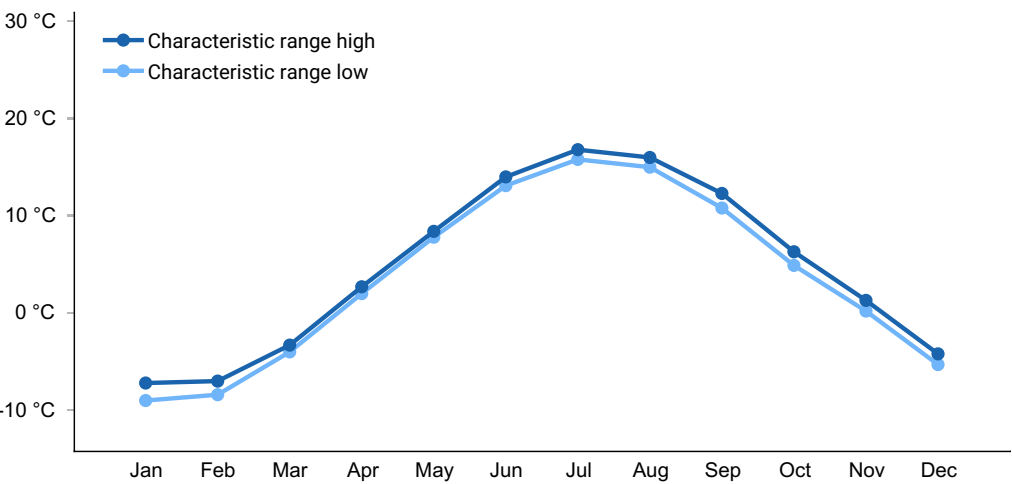


Figure 2. Monthly minimum temperature range

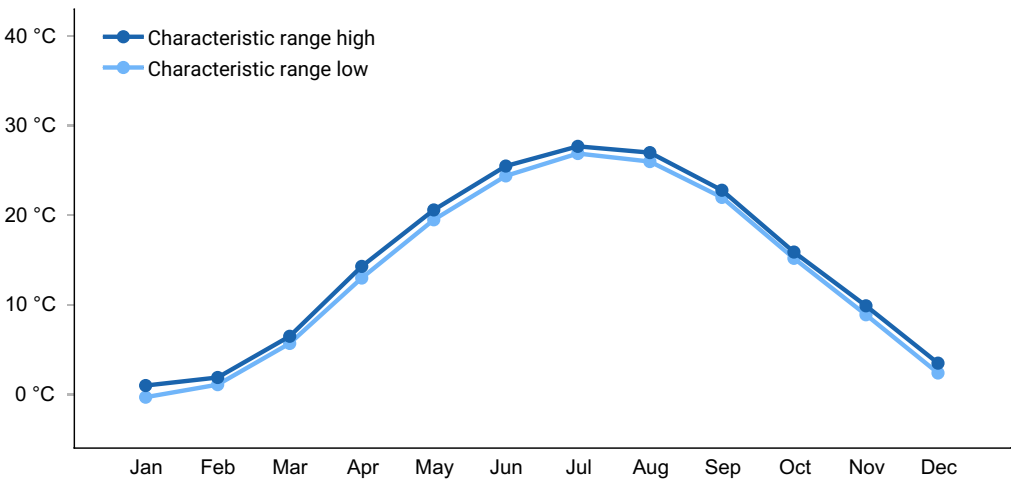
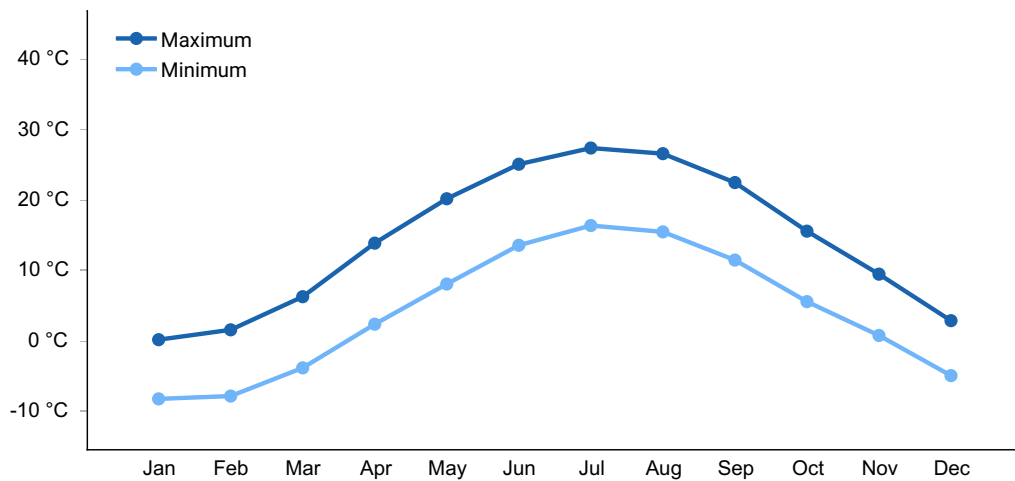
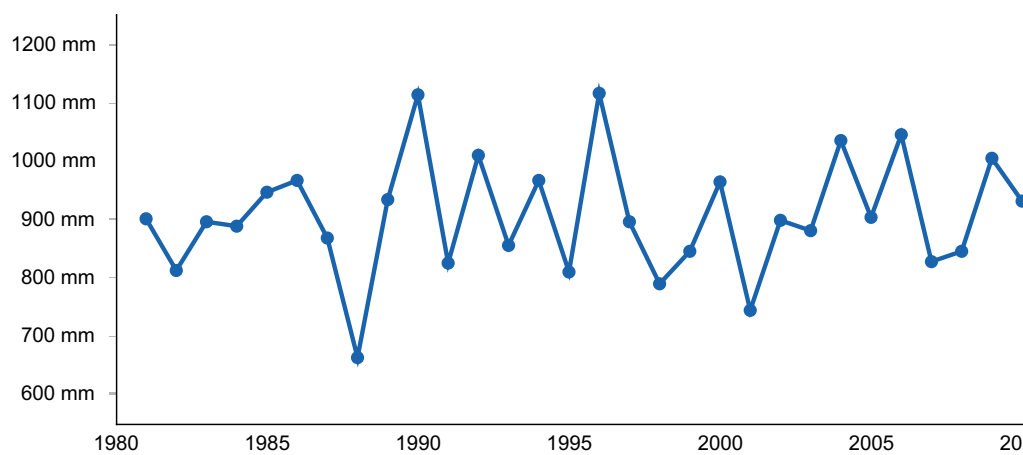


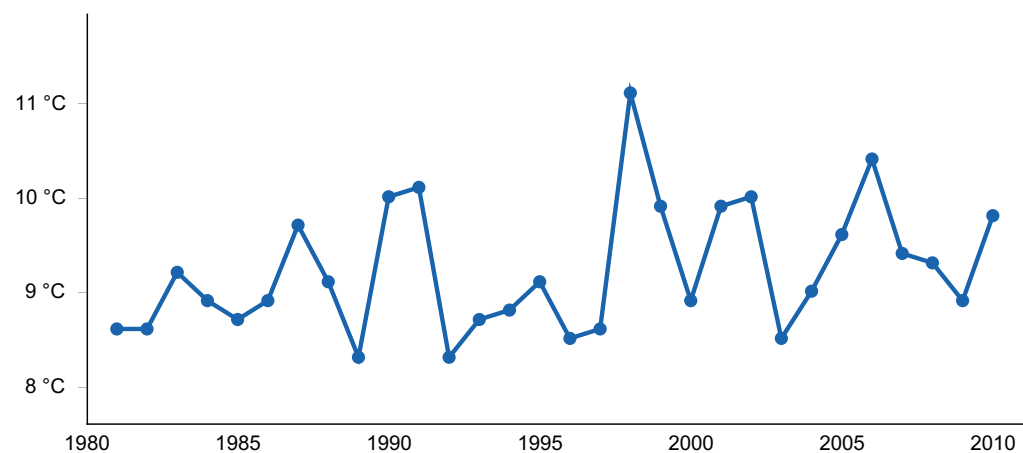
Figure 3. Monthly maximum temperature range



**Figure 4. Monthly average minimum and maximum temperature**



**Figure 5. Annual precipitation pattern**



**Figure 6. Annual average temperature pattern**

## Climate stations used

- (1) SUNY ESF SYRACUSE [USC00308386], Syracuse, NY
- (2) DELANSON 2NE [USC00302031], Delanson, NY
- (3) ROCHESTER GTR INTL AP [USW00014768], Rochester, NY
- (4) DUNKIRK CHAUTAUQUA AP [USW00014747], Dunkirk, NY

- (5) LOCKPORT 3 S [USC00304844], Lockport, NY

## Influencing water features

NONE

## Wetland description

NONE

## Soil features

The site consists of moderately deep to very deep, moderately well drained or somewhat poorly drained soils formed in glaciolacustrine deposits. Soil textures are mostly fine or fine silty. Representative soils are Barcelona, Cayuga, Churchville, Collamer, Elmwood, Hudson, Rhinebeck, Schoharie, Tonawanda, Niagara, Odessa, Wallington, Elmridge, Scio, and Williamson.

**Table 4. Representative soil features**

Parent material	(1) Glaciolacustrine deposits—limestone, sandstone, and shale (2) Till (3) Alluvium (4) Eolian deposits
Surface texture	(1) Silt loam (2) Silty clay loam (3) Fine sandy loam (4) Gravelly loam (5) Very fine sandy loam
Family particle size	(1) Coarse-loamy over clayey (2) Coarse-silty (3) Fine (4) Fine-silty (5) Loamy
Drainage class	Somewhat poorly drained to well drained
Permeability class	Very slow to moderately slow
Depth to restrictive layer	38–183 cm
Surface fragment cover ≤3"	0%
Surface fragment cover >3"	0%
Available water capacity (Depth not specified)	7.62–20.32 cm

Soil reaction (1:1 water) (Depth not specified)	3.5–8.4
Subsurface fragment volume ≤3" (Depth not specified)	0–34%
Subsurface fragment volume >3" (Depth not specified)	0–27%

## Ecological dynamics

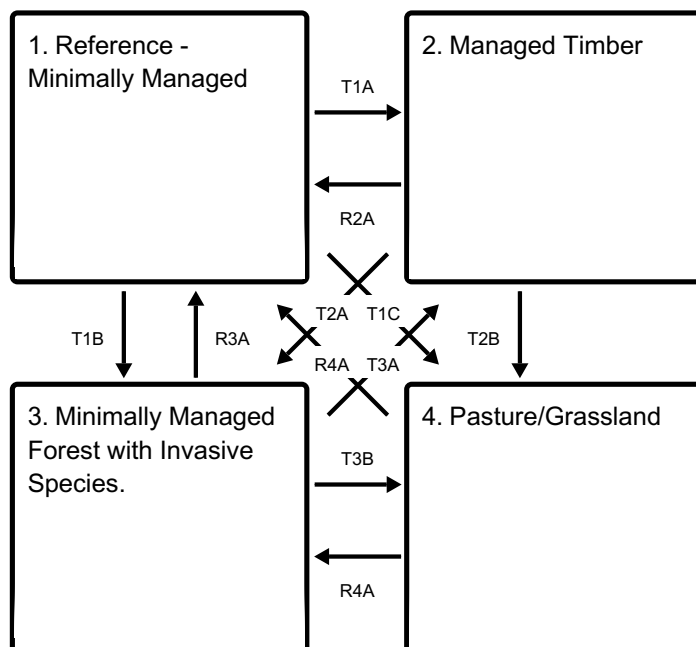
The reference coincides with Maple-Basswood Rich Mesic Forest (NY Natural Heritage Program) and International Vegetation Classification Sugar Maple – American Basswood / Blue Cohosh Forest

*Acer saccharum* – *Tilia americana* / *Caulophyllum thalictroides* Forest (CEGL006637)

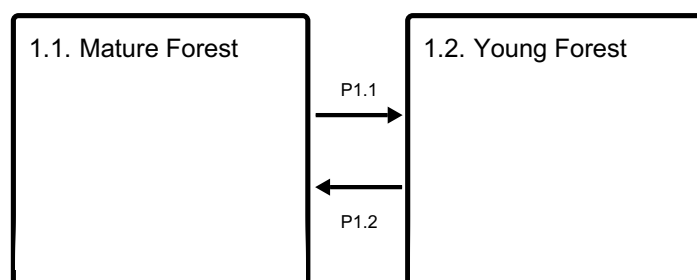
Common trees are sugar maple, northern red oak, basswood, yellow birch, white ash, and hop hornbeam. Shrubs include striped maple, witch-hazel, and dogwood. Dynamics includes conversion of site into agricultural production and invasive species establishment. Disturbances include wind, ice, insects, and land clearing or timber harvest.

## State and transition model

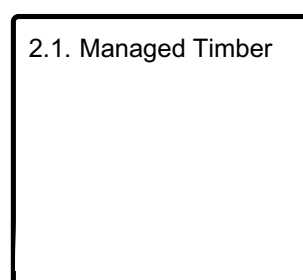
### Ecosystem states



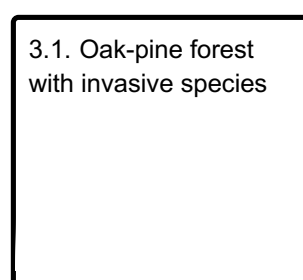
### State 1 submodel, plant communities



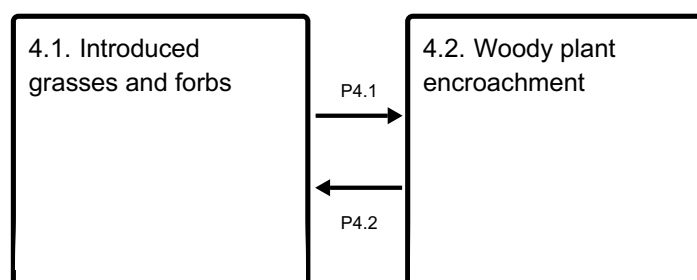
### State 2 submodel, plant communities



### State 3 submodel, plant communities



### State 4 submodel, plant communities



## State 1

### Reference - Minimally Managed

Reference is Maple-basswood rich mesic forest. Natural disturbances such as wind and ice storms, tree fall, insect damage will create openings for an early successional plant community or young forest. This forest may have at one time been cleared or plowed during colonial times.

**Characteristics and indicators.** Soil may have evidence of an historic plow layer (Ap horizon).

**Resilience management.** Ensure that regenerating trees and shrubs are not heavily browsed by deer that they cannot replace overstory trees. Deer have been shown to have



negative effects on forest understories (New York Natural Heritage Program, 2020). Avoid cutting old-growth forests.

## **Community 1.1**

### **Mature Forest**

Mature, late successional closed canopy forest. The reference community coincides with NY natural heritage community: Rich mesophytic forest.

## **Community 1.2**

### **Young Forest**

Open canopy, early successional, young forest.

## **Pathway P1.1**

### **Community 1.1 to 1.2**

Natural disturbances - wind/ice storm, tree fall, and insect damage.

## **Conservation practices**

Early Successional Habitat Development/Management
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## **Pathway P1.2**

### **Community 1.2 to 1.1**

Time (succession).

## **State 2**

### **Managed Timber**

The state is characterized by active logging. Composition of forest stands will vary based on management objectives.

## **Community 2.1**

### **Managed Timber**

## **State 3**

### **Minimally Managed Forest with Invasive Species.**

Invasive species such as Japanese barberry, bush honeysuckle, multiflora rose, garlic mustard, and stiltgrass are common in the understory.

## **Community 3.1**

### **Oak-pine forest with invasive species**

## **State 4**

### **Pasture/Grassland**

Forest has been cleared and grasses and forbs have been introduced for livestock grazing, hay production, and/or wildlife.

## **Community 4.1**

### **Introduced grasses and forbs**

## **Community 4.2**

### **Woody plant encroachment**

## **Pathway P4.1**

### **Community 4.1 to 4.2**

Abandonment (lack of mowing or fire suppression)

## **Pathway P4.2**

### **Community 4.2 to 4.1**

Mowing, prescribed fire, and/or brush management.

## **Conservation practices**

Brush Management
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## **Transition T1A**

### **State 1 to 2**

Timber harvest; logging.

## **Transition T1B**

### **State 1 to 3**

Introduction of invasive species usually after disturbance.

## **Transition T1C**

### **State 1 to 4**

Land use conversion.

## **Restoration pathway R2A**

### **State 2 to 1**

Time (succession). Forest stand improvement, restoration.

## **Transition T2A**

### **State 2 to 3**

Introduction of invasive species. Lack of timber management.

## **Transition T2B**

### **State 2 to 4**

Land use conversion

## **Restoration pathway R3A**

### **State 3 to 1**

Brush management, invasive species management.

## **Transition T3A**

### **State 3 to 2**

Timber management/harvest, logging.

## **Transition T3B**

### **State 3 to 4**

Land use conversion.

## **Restoration pathway R4A**

### **State 4 to 1**

Abandonment, Time (succession), forest restoration.

## **Restoration pathway R4A**

### **State 4 to 3**

Abandonment, time (sucession) and introduction of invasive species.

## **Additional community tables**

## **Inventory data references**

## Site Development and Testing Plan:

Future work to validate the vegetation information in this provisional ecological site description is needed. This will include field activities to collect low and medium intensity sampling and analysis of that data. Field reviews should be done by soil scientists and vegetation specialists. A final field review, peer review, quality control, and quality assurance reviews of the ESD will be needed to produce the final approved level document. Reviews of the project plan are to be conducted by the Ecological Site Technical Team.

## Other references

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Cowardin L. M., Carter V., Golet F. C., and LaRoe E.T. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. U.S. Government Printing Office, Washington, D.C., 20402.

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## Contributors

## Approval

Greg Schmidt, 10/03/2024

## 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	05/21/2020
Approved by	Greg Schmidt
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:**

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3. **Number and height of erosional pedestals or terracettes:**

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

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5. **Number of gullies and erosion associated with gullies:**

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6. **Extent of wind scoured, blowouts and/or depositional areas:**

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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:**

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