

Ecological site F120BY013IN

Moist Terraces

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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): 120B–Kentucky and Indiana Sandstone and Shale Hills and Valleys, Northwestern Part

120B–Kentucky and Indiana Sandstone and Shale Hills and Valleys, Northwestern Part is located in Indiana and covers about 3,040 sq.mi. This area is in the Highland Rim Section of the Interior Low Plateaus Province of the Interior Plains. Tributaries of the Ohio River dissect the uplands. The major streams and rivers have well defined valleys with broad flood plains and numerous stream terraces. The geologic materials in this area are of Early and Middle Pennsylvanian and Late Mississippian age. The rocks consist mainly of flat-lying, interbedded sandstone, shale, coal, and siltstone with minor areas of limestone. Bedrock outcrops are common on river bluffs. The dominant soil orders in this MLRA are Alfisols, Ultisols, and Inceptisols. The soils in the area have a mesic soil temperature regime, a udic or aquic soil moisture regime, and dominantly mixed mineralogy. They formed dominantly in less than 40 inches of loess and in residuum or colluvium derived from sandstone, shale, and siltstone. The soils range from moderately deep to very deep and from poorly drained to somewhat excessively drained and are loamy, silty, or clayey. Fragiudalfs (Apalona, Zanesville) and Hapludalfs (Wellston) are the dominant soils on ridgetops and upper slopes. Hapludults (Adyeville) and Dystrudepts (Tipsaw) are on side slopes, and Hapludults (Tulip) are on footslopes. Hapludalfs (Deuchars, Ebal, Kitterman) are on structural benches and scarps. Endoaquepts (Zipp), Epiaqualfs (McGary), and Hapludalfs (Shircliff, Markland) are formed in lacustrine sediments. Hapludults (Millstone), Hapludalfs (Elkinsville), Fragiudalfs (Sciotoville), and Epiaqualfs (Hatfield) are on terraces along the Ohio River. Hapludolls (Huntington), Eutrudepts (McAdoo, Lindside), and Endoaquepts (Newark) are on flood plains along the major streams. Dystrudepts (Cuba, Steff), Eutrudepts (Gatchel, Haymond), Endoaquepts (Belknap, Stendal), and Fluvaquents (Birds, Bonnie) are on local flood plains.

Classification relationships

Fagus grandifolia - *Acer saccharum* - *Liriodendron tulipifera* Unglaciaded Forest, CEG002411 SOUTH-CENTRAL INTERIOR MESOPHYTIC FOREST (CES202.887)

Ecological site concept

The moist Terraces ecological site occurs on somewhat poorly to moderate well-drained alluvium. Representative soils include: Bartle, Hartz, Hatfield, Henshaw, Lauer, McGary, Pekin, Percell, Sciotoville, Shircliff, Uniontown, Peoga. The communities described in this provisional document reflect plant communities that are likely to be found on these soils and have not been field verified. This PES has not been developed utilizing site-specific ecological field monitoring. This PES does not encompass the entire complexity or diversity of these sites. Field studies would be required to develop a comprehensive and science-based restoration plan for these sites. State 1, Phase 1.1: Forestland. Plant species dominant: 1.1. American beech (*Fagus grandifolia*) - sugar maple (*Acer saccharum*) / spicebush (*Lindera benzoin*) - paw paw (*Asimina triloba*) / wild ginger (*Asarum canadense*) - Jack in the pulpit (*Arisaema triphyllum*) Many of these sites historically may have included a larger oak-hickory component that has been removed by disturbances such as logging, wild fire reduction, and cropping. More mesophytic species are dominant on the majority of these sites today. State 2, Phase 2.1: Pastureland. Plant species dominant: *Schedonorus arundinaceus* (tall fescue). Species present are dependent upon seeding and management. State: 3. Phase 3.1: Transitional (Abandoned Field) The transitional phase plant community composition will depend upon previous land uses – pasture type, management while in pasture (high quality pasture versus minimal managed grass-shrub –sapling community), and adjacent seed sources. State 3 listed below is assuming a transition from a fescue pasture. This phase is best described as an old field habitat with a mixture of native and introduced grasses and a variety of native and non-native herbs, forbs, seedlings, and saplings. Nearby available seed sources will greatly influence the makeup of this successional community. Plant species dominant: maple (*Acer* spp.) – ash (*Fraxinus*) / *Rosa* spp. / wingstem (*Verbesina alternifolia*) -fescue (*Schedonorus arundinaceus*) State 4, Phase 4.1: Abandoned Cropland Plant species dominant: henbit deadnettle (*Lamium amplexicaule*) – mouse-eared chickweed (*Cerastium* L.) Abandonment of cropland would result in many weed species taking over the site. Initially, annual weeds would be predominate followed by grasses, shrubs and pioneers trees. State 5, Phase 5.1: Cropland. Plant species dominants: dependent upon seeding and management.

Associated sites

F120BY011IN	Well Drained Terraces Well Drained Terraces
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Table 1. Dominant plant species

Tree	(1) <i>Fagus grandifolia</i> (2) <i>Acer saccharum</i>
Shrub	(1) <i>Lindera benzoin</i> (2) <i>Asimina triloba</i>
Herbaceous	(1) <i>Asarum canadense</i> (2) <i>Arisaema triphyllum</i>

Physiographic features

These sites are located generally on stream terraces.

Table 2. Representative physiographic features

Landforms	(1) Terrace (2) Flood-plain step (3) Lake plain
Runoff class	Low to very high
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	None to rare
Ponding frequency	None
Elevation	100 – 310 m
Slope	0 – 30 %
Water table depth	30 – 180 cm
Aspect	Aspect is not a significant factor

Climatic features

Table 3 Representative climatic features

Frost-free period (characteristic range)	160-170 days
Freeze-free period (characteristic range)	180-200 days
Precipitation total (characteristic range)	1,220 mm
Frost-free period (actual range)	150-180 days
Freeze-free period (actual range)	180-200 days
Precipitation total (actual range)	1,190-1,220 mm
Frost-free period (average)	160 days
Freeze-free period (average)	190 days
Precipitation total (average)	1,220 mm

- (1) TELL CITY [USC00128698], Hawesville, IN
- (2) SAINT MEINRAD [USC00127724], Ferdinand, IN
- (3) SHOALS 8 S [USC00128036], Shoals, IN

Influencing water features

These sites are influenced by shallow to moderately deep water tables and may incur brief flooding.

Soil features

These soils are somewhat poorly drained or fine-silty, moderately well drained, with a fragipan. These sites have a high levels of available water. Representative soils include: Bartle, Hartz, Hatfield, Henshaw, Lauer, McGary, Pekin, Percell, Sciotoville, Shircliff, Uniontown, Peoga.

Table 4. Representative soil features

Parent material	(1) Lacustrine deposits – conglomerate (2) Alluvium
Surface texture	(1) Silty clay loam (2) Silt loam
Family particle size	(1) Fine-silty

Drainage class	Somewhat poorly drained to moderately well drained
Permeability class	Slow to very slow
Soil depth	100 – 180 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	12.7 – 20.32 cm
Calcium carbonate equivalent (0-101.6cm)	0 – 20 %
Soil reaction (1:1 water) (0-101.6cm)	3.5 – 8.4
Subsurface fragment volume <=3" (Depth not specified)	Not specified
Subsurface fragment volume >3" (Depth not specified)	Not specified

Ecological dynamics

The communities described in this provisional document reflect plant communities that are likely to be found on these soils and have not been field verified. This PES has not been developed utilizing site-specific ecological field monitoring. This PES does not encompass the entire complexity or diversity of these sites. Field studies would be required to develop a comprehensive and science-based restoration plan for these sites.

State 1, Phase 1.1: Forestland.

Plant species dominant:

1.1. American beech-(*Fagus grandifolia*) - sugar maple (*Acer saccharum*) / spicebush (*Lindera benzoin*) - paw paw (*Asimina triloba*) / wild ginger (*Asarum canadense*) - Jack in the pulpit (*Arisaema triphyllum*)

Many of these sites historically may have included a larger oak-hickory component that has been removed by disturbances such as logging, wild fire reduction, and cropping. More mesophytic species are dominant on the majority of these sites today.

State 2, Phase 2.1: Pastureland. Plant species dominant: *Schedonorus arundinaceus* (tall fescue). Species present are dependent upon seeding and management.

State: 3. Phase 3.1: Transitional (Abandoned Field)

The transitional phase plant community composition will depend upon previous land uses – pasture type, management while in pasture

(high quality pasture versus minimal managed grass-shrub –sapling community), and adjacent seed sources.

State 3 listed below is assuming a transition from a fescue pasture. This phase is best described as an old field habitat with a mixture of native and introduced grasses and a variety of native and non-native herbs, forbs, seedlings, and saplings. Nearby available seed sources will greatly influence the makeup of this successional community.

Plant species dominant: maple (*Acer* spp.) – ash (*Fraxinus*) / *Rosa* spp. / wingstem (*Verbesina alternifolia*) -fescue (*Schedonorus arundinaceus*)

State 4, Phase 4.1: Abandoned Cropland

Plant species dominant: henbit deadnettle (*Lamium amplexicaule*) – mouse-eared chickweed (*Cerastium* L.)

Abandonment of cropland would result in many weed species taking over the site. Initially, annual weeds would be predominate followed by grasses, shrubs and pioneers trees.

State 5, Phase 5.1: Cropland.

Plant species dominants: dependent upon seeding and management.

State and transition model

Figure 7. MLRA 120B, Group 13

Additional community tables

Inventory data references

Site Development and Testing Plan 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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USNVC [United States National Vegetation Classification]. 2019. United States National Vegetation Classification Database, V2.03. Federal Geographic Data Committee, Vegetation Subcommittee, Washington DC. (<http://usnvc.org>).

Approval

Greg Schmidt, 10/01/2024

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	09/18/2026
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:

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:
