

Ecological site F114XA305IN Non-Acidic Upland Forest

Accessed: 05/11/2025

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): 114X–Southern Illinois and Indiana Thin Loess and Till Plain

MLRA 114A makes up about 4,550 square miles (11,795 square kilometers). The three parts of this MRLA are mostly in the Till Plains Section of the Central Lowland Province of the Interior Plains. The western third of the western part is in the Highland Rim Section of the Interior Low Plateaus Province of the Interior Plains. The eastern half of the eastern part is in the Kanawha Section of the Appalachian Plateaus Province of the Appalachian Highlands. Both large and small tributaries of the Ohio River dissect the nearly level to very steep glaciated uplands in this area. The major streams and rivers have well defined valleys with broad flood plains and numerous stream terraces. The flood plains along the smaller streams are narrow. Broad summits are nearly level to gently sloping. Elevation ranges from 320 feet (100 meters) on the southernmost flood plain along the Ohio River to 1,250 feet (380 meters) on the highest ridges. Local relief is mainly 10 to 50 feet (3 to 15 meters), but it can be 50 to 100 feet (15 to 30 meters) along drainageways and streams. Also, the Ohio River bluffs are as much as 300 feet (90 meters) above the river valley floor.

Classification relationships

USFS: 222 Eastern Broadleaf Forest (Continental) Province

Homoya's Natural Regions of Indiana: Bluegrass Region

The following NatureServe Explorer Ecological System Record(s) have a high level of probability to match the ecological site reference community found on these soils.

Scientific Name: Southern Interior Low Plateau Dry-Mesic Oak Forest- Unique Identifier: CES202.898

Ecological site concept

Non-Acidic Upland Forest sites were historically old-growth upland oak-hickory forests with a high level of canopy, shrub and understory diversity. Oak and hickory species exhibit dominance on these sites along with a robust native plant herbaceous layer. Multiple oak and hickory species may be present on these sites depending on available water, aspect, disturbance history, and seed sources. Oak species found on sites include white oak (*Quercus alba*), northern red oak (*Q. rubra*), Shumard oak (*Q. shumardii*), black oak (*Q. velutina*), and on drier or shallower sites, chinkapin oak (*Q. muehlenbergii*) or scarlet oak (*Q. coccinea*). Hickory species common to these sites include shagbark hickory (*Carya ovata*), mockernut hickory (*C. tomentosa*, *C. alba*), and bitternut hickory (*C. tomentosa*).

Other hardwoods in the canopy may include black walnut (*Juglans nigra*), American elm (*Ulmus americana*), white ash (*Fraxinus alba*), and sugar maple (*Acer saccharum*). Mid-canopy constituents include eastern redbud (*Cercis canadensis*), flowering dogwood (*Cornus florida*), blue ash (*Fraxinus quadrangulata*), slippery elm (*Ulmus alata*), eastern red cedar (*Juniperous virginiana*) and hophornbeam (*Ostrya virginiana*). Due to changes in the natural fire regime and historic disturbances (logging, grazing) sites are now often mid-age hardwood stands that have a predominance of tulip poplar, sugar maple, white ash, boxelder, and red maple.

Associated sites

F114XA502IN	Till Uplands Till Upland forest. Sites with hardwood forests on till plains.
F114XA504IN	Sloping Till Upland Forest Sloping Till Upland Forest. Sites with hardwood forests on sloping till soils.

Similar sites

F114XA302IN	Acidic Upland Forest Acidic Upland Forest. These sites also exhibit a oak-hickory forest, but the dominant species will be those that prefer acidic soils.
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Table 1. Dominant plant species

Tree	(1) <i>Quercus alba</i> (2) <i>Quercus muehlenbergii</i>
Shrub	(1) <i>Cercis canadensis</i> (2) <i>Ostrya virginiana</i>
Herbaceous	(1) <i>Jeffersonia diphylla</i> (2) <i>Delphinium tricorne</i>

Physiographic features

These sites are located on backslopes, shoulders and summits on non-acidic residuum.

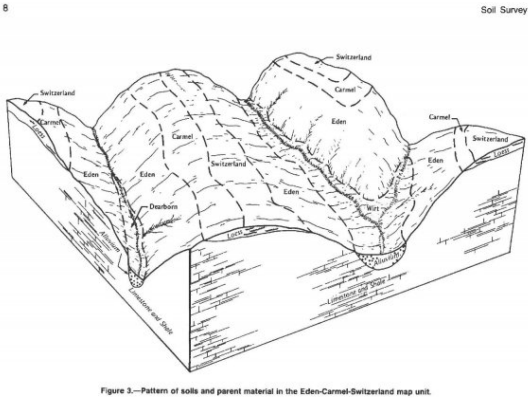
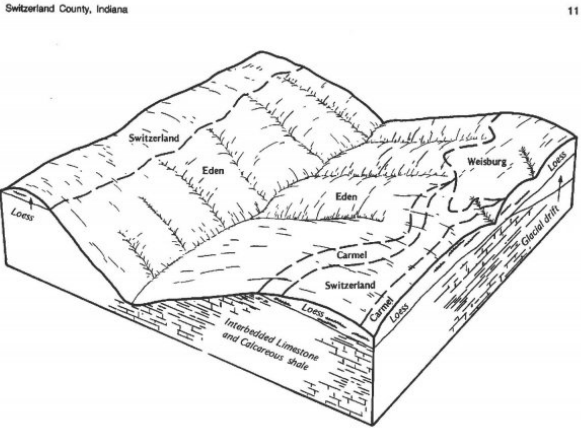


Figure 1. Physiographic image - Block diagram with Carmel, Eden and Switzerland soils on the landscape.



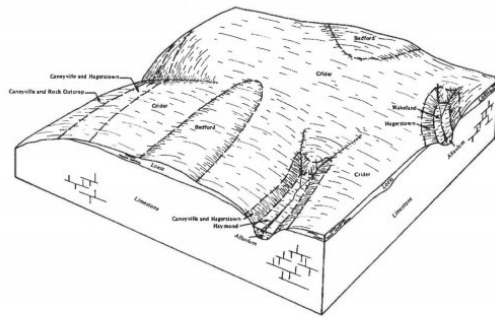


Figure 2.—Pattern of soils and parent material in Crider-Bedford map unit.

Figure 3. Physiographic image - Block diagram with Bedford and Crider soils on the landscape.

Table 2. Representative physiographic features

Landforms	(1) Upland > Hill (2) Upland > Hillside (3) Upland > Hillslope
Runoff class	Low to medium
Flooding frequency	None
Ponding frequency	None
Elevation	351–1,401 ft
Slope	6–25%
Water table depth	39 in
Aspect	W, NW, N, NE, E, SE, S, SW

Table 3. Representative physiographic features (actual ranges)

Runoff class	Not specified
Flooding frequency	Not specified
Ponding frequency	Not specified
Elevation	Not specified
Slope	0–45%
Water table depth	Not specified

Climatic features

About 60 percent of the precipitation falls during the freeze-free period. Most of the rainfall occurs as high-intensity, convective thunderstorms during summer. Snowfall is common in winter. The freeze-free period averages about 180 days .

Influencing water features

Soil features

Ecological dynamics

State and transition model

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)	A. Arends, ESI Specialist
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Date	05/11/2025
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):**
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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:

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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