

# Ecological site F134XY005MO Loamy Upland Woodland

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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.



Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

## MLRA notes

Major Land Resource Area (MLRA): 134X–Southern Mississippi Valley Loess

The Southern Mississippi Valley Loess (outlined in red on the map; northern portion only) is a relatively narrow strip of the coastal plain bordering the Mississippi River valley, that is blanketed with loess. The northern part of this MLRA, discussed here, is locally referred to as Crowley's Ridge. Elevation ranges from about 300 feet on the footslopes to nearly 600 feet on the highest ridges. Loess caps the summits and upper slopes, and Pliocene-aged sand and gravel deposits of the coastal plain influence soils on lower, steeper slopes.

## Classification relationships

Terrestrial Natural Community Type in Missouri (Nelson, 2010):

The reference state for this ecological site is most similar to a Dry-Mesic Chert Woodland.

Missouri Department of Conservation Forest and Woodland Communities (Missouri Department of Conservation, 2006):

The reference state for this ecological site is most similar to a Mixed Oak Woodland.

National Vegetation Classification System Vegetation Association (NatureServe, 2010):

The reference state for this ecological site is most similar to a *Quercus alba* - *Quercus falcata* - *Quercus velutina* / *Ostrya virginiana* Forest (CEGL004068).

Geographic relationship to the Missouri Ecological Classification System (Nigh & Schroeder, 2002):  
This Ecological Site occurs in the Crowley's Ridge Subsection.

## Ecological site concept

Loamy Upland Woodlands are within the green areas on the map (Missouri portion only; distributions farther south are currently under review). These sites are not extensive, occurring in scattered upland locations in Stoddard county, Missouri. Soils are very deep, and are silt loam loess overlying gravelly coastal plain sediments. The reference plant community is woodland with an overstory dominated by white oak and black oak, and a ground flora of native grasses and forbs.

**Table 1. Dominant plant species**

Tree	(1) <i>Quercus alba</i> (2) <i>Quercus rubra</i>
Shrub	(1) <i>Cercis canadensis</i> (2) <i>Cornus florida</i>
Herbaceous	(1) <i>Elymus hystrix</i> (2) <i>Aster</i>

## Physiographic features

This site is on convex upland summit crests and shoulders with slopes of 3 to 15%. The site generates runoff to adjacent, downslope ecological sites. This site does not flood.

**Table 2. Representative physiographic features**

Landforms	(1) Ridge (2) Interfluve (3) Hill
Flooding frequency	None
Ponding frequency	None
Slope	3–15%
Aspect	Aspect is not a significant factor

## Climatic features

**Table 3. Representative climatic features**

Frost-free period (characteristic range)	168-187 days
Freeze-free period (characteristic range)	197-211 days
Precipitation total (characteristic range)	48 in
Frost-free period (actual range)	164-191 days
Freeze-free period (actual range)	193-215 days
Precipitation total (actual range)	47-49 in
Frost-free period (average)	178 days
Freeze-free period (average)	204 days
Precipitation total (average)	48 in

## Climate stations used

- (1) WAPPAPELLO DAM [USC00238700], Wappapello, MO
- (2) ADVANCE 1 S [USW00093825], Advance, MO

## Influencing water features

### Soil features

These soils have acidic subsoils that are low in bases. The soils were formed under woodland vegetation, and have thin, light-colored surface horizons. Parent material is loess over coastal plain sediments. The soils have silt loam surface horizons. Subsoils are silty clay loam in the upper part, and are very gravelly fine sandy loam in the underlying material. These soils are not affected by seasonal wetness. Soil series associated with this site include Brandon.

**Table 4. Representative soil features**

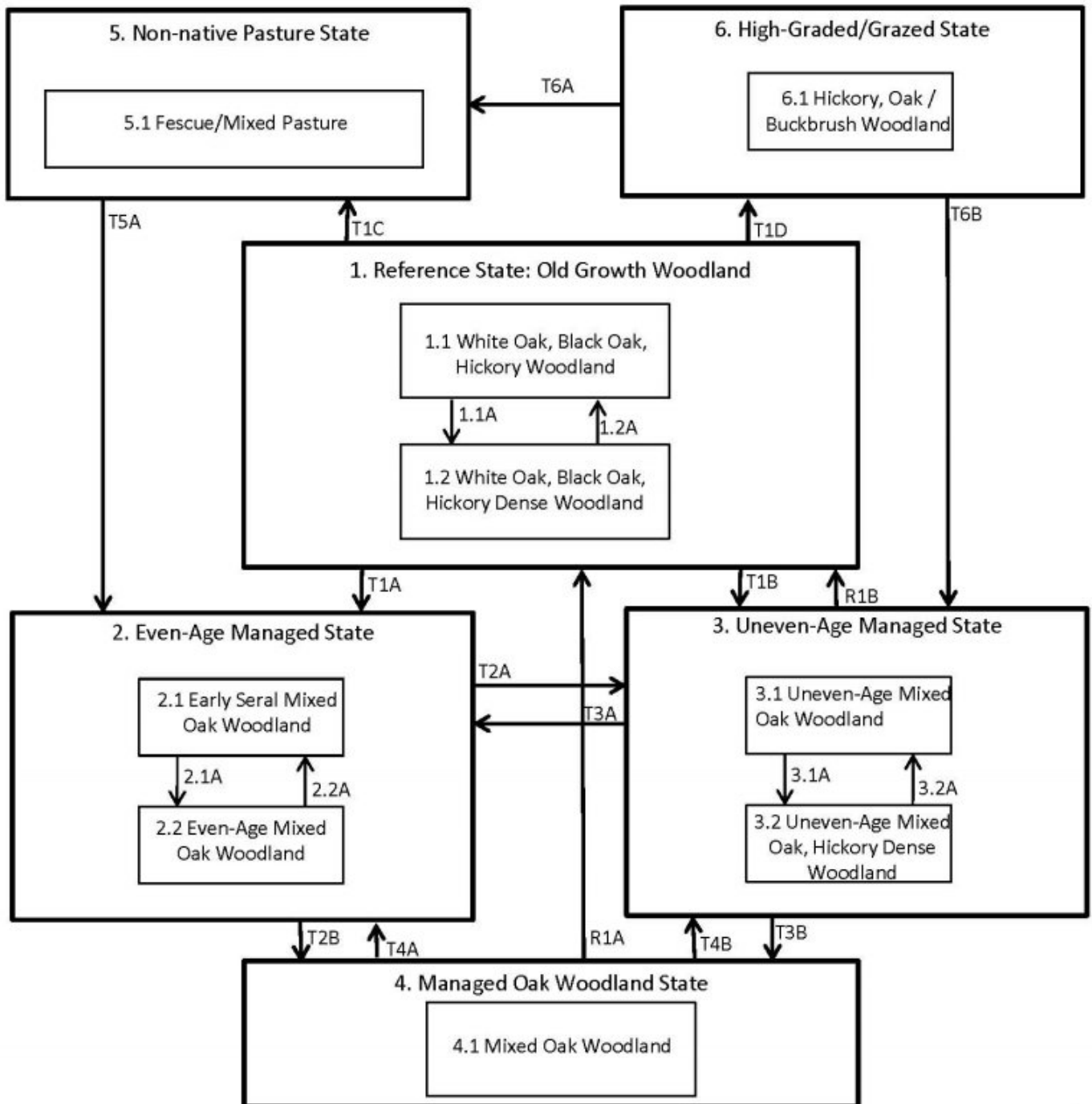
Parent material	(1) Residuum–limestone
Surface texture	(1) Silt loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Slow to moderately slow
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	8 in
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0–2 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	4.5–6
Subsurface fragment volume <=3" (Depth not specified)	0–25%
Subsurface fragment volume >3" (Depth not specified)	0–2%

## Ecological dynamics

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## State and transition model

## Alfic Loess Over Residuum Upland Woodlands



Code	Practice	Code	Practice
T1A	Even-aged mgt (clear cut, seed tree, shelterwood)	1.1A, 2.1A, 3.1A	No disturbance (10+ yrs)
T1B	Fire suppression; uneven-age mgt (single tree or group selection)	1.2A	Disturbance (fire, wind, ice) < 10 yrs
T2B, T3B	Prescribed fire; thinning	2.2A	Even-age mgt.
T1C, T6A	Clearing & pasture planting	3.2A	Uneven-age mgt.
T1D	Poorly planned harvest & grazing		
T2A, T4B	Uneven-age mgt		
T3A, T4A	Even-age mgt		
T5A	Tree planting; long-term succession		
T6B	Uneven-age mgt; tree planting		
R1A	Prescribed fire & extended rotations		
R1B	Uneven-age mgt, extended rotations		

Figure 8. Alfic Loess Over Residuum Upland Woodland

## Mixed Dry-Mesic Woodland

### Community 1.1

#### White Oak-Post Oak-Black Oak/Little Bluestem Woodland



Figure 9. private land, Boone Co.

## Additional community tables

Table 5. Community 1.1 forest overstory composition

Common Name	Symbol	Scientific Name	Nativity	Height (Ft)	Canopy Cover (%)	Diameter (In)	Basal Area (Square Ft/Acre)
<b>Tree</b>							
white oak	QUAL	<i>Quercus alba</i>	Native	–	–	–	–
post oak	QUST	<i>Quercus stellata</i>	Native	–	–	–	–
black oak	QUVE	<i>Quercus velutina</i>	Native	–	–	–	–

Table 6. Community 1.1 forest understory composition

Common Name	Symbol	Scientific Name	Nativity	Height (Ft)	Canopy Cover (%)
<b>Grass/grass-like (Graminoids)</b>					
little bluestem	SCSC	<i>Schizachyrium scoparium</i>	Native	–	–

## Contributors

Fred Young

## 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	

## 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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