USDA Natural Resources
Conservation Service

Ecological site F116AY041MO
Loamy Floodplain Forest

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Accessed: 05/05/2024

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.

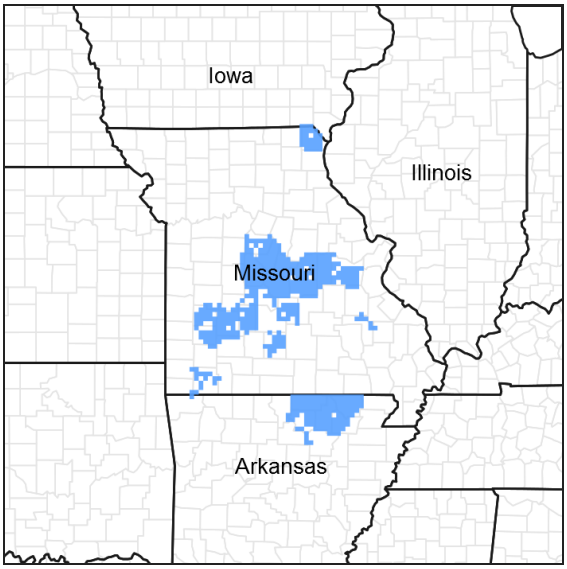


Figure 1. Mapped extent

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): 116A–Ozark Highland

The Ozark Highland constitutes the Salem Plateau of the Ozark Uplift. Elevation ranges from about 300 feet on the southeast edge of the Ozark escarpment, to about 1,600 feet in the west, adjacent to the Burlington Escarpment of the Springfield Plateau. The underlying bedrock is mainly horizontally bedded Ordovician-aged dolomites and sandstones that dip gently away from the uplift apex in southeast Missouri. Cambrian dolomites are exposed on deeply dissected hillslopes. In some places, Pennsylvanian and Mississipian sediments overlie the plateau. Relief varies, from the gently rolling central plateau areas to deeply dissected hillslopes associated with drainageways such as the Buffalo, Current, Eleven Point and White Rivers.

Classification relationships

Terrestrial Natural Community Type in Missouri (Nelson, 2010):
The reference state for this ecological site is most similar to a Riverfront Forest.

Missouri Department of Conservation Forest and Woodland Communities (MDC, 2006):
The reference state for this ecological site is most similar to Riverfront Bottomland Forest.

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

The reference state for this ecological site is most similar to a Fraxinus pennsylvanica - Celtis spp. - Quercus spp. - Platanus occidentalis Bottomland Forest (CEGL002410).

Geographic relationship to the Missouri Ecological Classification System (Nigh & Schroeder, 2002):
This ecological site is widespread across the Ozark Highlands Section.

Ecological site concept

NOTE: This is a “provisional” Ecological Site Description (ESD) that is under development. It contains basic ecological information that can be used for conservation planning, application and land management. After additional information is collected, analyzed and reviewed, this ESD will be refined and published as “Approved”.

Loamy Floodplain Forests are widely distributed throughout the Ozark Highland. Soils are loamy and very deep, and are subject to frequent flooding. The reference plant community is a forest dominated by American elm, hackberry, sycamore, eastern cottonwood, and green ash.

Associated sites

F116AY011MO	**Chert Upland Woodland** Chert Upland Woodlands, and other upland and backslope ecological sites, are upslope.
F116AY034MO	**Loamy Terrace Forest** Loamy Terrace Forests are upslope.
F116AY035MO	**Wet Terrace Forest** Wet Terrace Forests are upslope.
F116AY039MO	**Loamy Floodplain Step Forest** Loamy Floodplain Step Forests are upslope.

Similar sites

F116AY034MO	**Loamy Terrace Forest** Loamy Terrace Forests are upslope and experience less flooding with shorter durations.

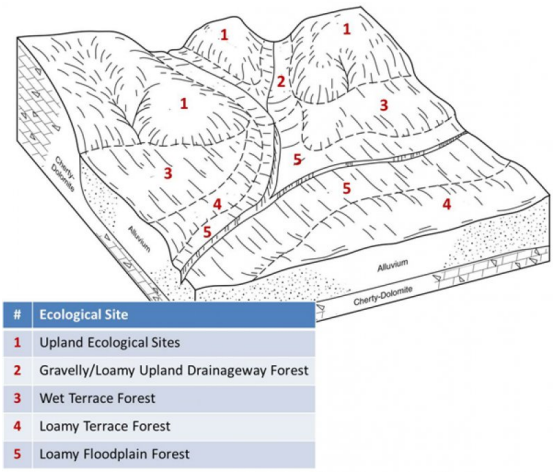
Table 1. Dominant plant species

Tree	(1) *Ulmus americana* (2) *Celtis occidentalis*
Shrub	(1) *Vitis* (2) *Staphylea trifolia*
Herbaceous	(1) *Laportea canadensis* (2) *Elymus virginicus*

Physiographic features

This site is on floodplains with slopes of 0 to 3 percent. The site receives some runoff from higher floodplains, stream terraces and uplands. This site is subject to frequent flooding.

The following figure (adapted from Skaer, 2004) shows the typical landscape position of this ecological site, and landscape relationships with other ecological sites. It is within the area labeled “5” on the figure, on the low floodplain adjacent to the current stream channel. Terrace ecological sites, labeled “3” and “4”, are often on adjacent, higher landscape positions.



#	Ecological Site
1	Upland Ecological Sites
2	Gravelly/Loamy Upland Drainageway Forest
3	Wet Terrace Forest
4	Loamy Terrace Forest
5	Loamy Floodplain Forest

Figure 2. Landscape relationships for this ecological site.

Table 2. Representative physiographic features

Landforms	(1) Flood plain
Flooding duration	Brief (2 to 7 days)
Flooding frequency	Occasional to frequent
Ponding frequency	None
Slope	0–3%
Water table depth	152 cm
Aspect	Aspect is not a significant factor

Climatic features

The Ozark Highland has a continental type of climate marked by strong seasonality. In winter, dry-cold air masses, unchallenged by any topographic barriers, periodically swing south from the northern plains and Canada. If they invade reasonably humid air, snowfall and rainfall result. In summer, moist, warm air masses, equally unchallenged by topographic barriers, swing north from the Gulf of Mexico and can produce abundant amounts of rain, either by fronts or by convectional processes. In some summers, high pressure stagnates over the region, creating extended droughty periods. Spring and fall are transitional seasons when abrupt changes in temperature and precipitation may occur due to successive, fast-moving fronts separating contrasting air masses.

The Ozark Highland experiences regional differences in climates, but these differences do not have obvious geographic boundaries. Regional climates grade inconspicuously into each other. The basic gradient for most climatic characteristics is along a line crossing the MLRA from northwest to southeast.
The average annual precipitation in almost all of this area is 38 to 45 inches. Snow falls nearly every winter, but the snow cover lasts for only a few days. The average annual temperature is about 53 to 60 degrees F. The lower temperatures occur at the higher elevations in the western part of the MLRA. Mean January minimum temperature follows a stronger north-to-south gradient. However, mean July maximum temperature shows hardly any geographic variation in the MLRA. Mean July maximum temperatures have a range of only two or three degrees across the area.

Mean annual precipitation varies along a northwest to southeast gradient. Seasonal climatic variations are more complex. Seasonality in precipitation is very pronounced due to strong continental influences. June precipitation, for example, averages three to four times greater than January precipitation. Most of the rainfall occurs as high-intensity, convective thunderstorms in summer.

During years when precipitation comes in a fairly normal manner, moisture is stored in the top layers of the soil during the winter and early spring, when evaporation and transpiration are low. During the summer months the loss of water by evaporation and transpiration is high, and if rainfall fails to occur at frequent intervals, drought will result. Drought directly affects plant and animal life by limiting water supplies, especially at times of high temperatures and

high evaporation rates.

Superimposed upon the basic MLRA climatic patterns are local topographic influences that create topoclimatic, or microclimatic variations. In regions of appreciable relief, for example, air drainage at nighttime may produce temperatures several degrees lower in valley bottoms than on side slopes. At critical times during the year, this phenomenon may produce later spring or earlier fall freezes in valley bottoms. Deep sinkholes often have a microclimate significantly cooler, moister, and shadier than surrounding surfaces, a phenomenon that may result in a strikingly different ecology. Higher daytime temperatures of bare rock surfaces and higher reflectivity of these unvegetated surfaces may create distinctive environmental niches such as glades and cliffs.

Slope orientation is an important topographic influence on climate. Summits and south-and-west-facing slopes are regularly warmer and drier than adjacent north- and-east-facing slopes. Finally, the climate within a canopied forest is measurably different from the climate of a more open grassland or savanna areas.

Source: University of Missouri Climate Center - http://climate.missouri.edu/climate.php; Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin, United States Department of Agriculture Handbook 296 - http://soils.usda.gov/survey/geography/mlra/

Table 3. Representative climatic features

Frost-free period (characteristic range)	154-179 days
Freeze-free period (characteristic range)	181-202 days
Precipitation total (characteristic range)	1,168-1,219 mm
Frost-free period (actual range)	150-186 days
Freeze-free period (actual range)	180-216 days
Precipitation total (actual range)	1,118-1,245 mm
Frost-free period (average)	167 days
Freeze-free period (average)	193 days
Precipitation total (average)	1,194 mm

Climate stations used

- (1) HARDY [USC00033132], Hardy, AR
- (2) ELDON [USC00232503], Eldon, MO
- (3) BOLIVAR 1 NE [USC00230789], Bolivar, MO
- (4) SALEM [USC00237506], Salem, MO

Influencing water features

This ecological site is typically in natural levee positions directly adjacent to a perennial stream. Stream levels typically respond quickly to storm events, especially in watersheds where surface runoff is dominant. Short- to medium- duration flooding is common in many areas, particularly during spring and early summer storm events. Constructed levees, often accompanied by stream channelization, have altered the hydrology and flooding dynamics in many places. Streambeds are typically incised into the surrounding floodplain by as much as 10 feet may be a sign of an alternative state.

Some soils in this ecological site have seasonal water tables below about two feet in the winter and spring, generally receding with the falling river levels in the early summer. The water table has a minimal effect on the vegetative community.

Stream hydrograph drives the inflows and outflows of the RIVERINE class of the Hydrogeomorphic (HGM) classification system (Brinson, 1993). Water moves into floodplain wetlands as surface water during flood stage, or as groundwater exchange from the stream channel to the floodplain during high flow stages. As the flood stage recedes, surface and groundwater return to the channel. The direction of movement is horizontal. The direction is

also bi-directional in the lateral axis across the floodplain, but is uni-directional on the longitudinal axis parallel to the valley as water flows downhill along the valley gradient.

Soil features

These soils have no rooting restriction. They were formed under forest vegetation, with periodic depositional flood events. Organic matter content is variable. Parent material is alluvium. They have silt loam or fine sandy loam surface horizons, and loamy subsoils that may be skeletal with depth. Some soils are affected by seasonal wetness, but flooding is the primary ecological determinant. Soil series associated with this site include Dameron, Dapue, Haymond, Huzzah, Jamesfin, Kaintuck, Perche, Sandbur, and Sturkie.

The accompanying picture of the Dameron series shows dark, loamy alluvium, underlain by stratified very gravelly sediments. Picture from Baker (1998).

Figure 9. Dameron series

Table 4. Representative soil features

Parent material	(1) Alluvium
Surface texture	(1) Silt loam (2) Fine sandy loam
Family particle size	(1) Loamy
Drainage class	Somewhat poorly drained to somewhat excessively drained
Permeability class	Moderately slow to moderate
Soil depth	183 cm
Surface fragment cover <=3"	0–3%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	12.7–20.32 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	4.5–7.3
Subsurface fragment volume <=3" (Depth not specified)	0–50%

Subsurface fragment volume >3" (Depth not specified)	0–10%

Ecological dynamics

Information contained in this section was developed using historical data, professional experience, field reviews, and scientific studies. The information presented is representative of very complex vegetation communities. Key indicator plants, animals and ecological processes are described to help inform land management decisions. Plant communities will differ across the MLRA because of the naturally occurring variability in weather, soils, and aspect. The Reference Plant Community is not necessarily the management goal. The species lists are representative and are not botanical descriptions of all species occurring, or potentially occurring, on this site. They are not intended to cover every situation or the full range of conditions, species, and responses for the site.

The reference plant community is a forest dominated by an overstory of eastern cottonwood, American elm and hackberry with sycamore, green ash and other early successional species scattered throughout. Occasionally, bur oak, shellbark hickory, black walnut and other hardwood species may occur in later stages of development. Canopy height is normally 85 to 110 feet and canopy closure 80 to 100 percent.

Loamy Floodplain Forests are widely distributed throughout the Ozark Highland. They occur on natural levees and low floodplains that flood frequently. Flooding of these ecological sites commonly occurs annually or at least once every 3 years. Loamy sediments, originating from the loess and weathered residuum in the surrounding uplands, make up a significant portion of the alluvium in these floodplains.

The forest is dominated by flood tolerant, tree species such as elm, hackberry, sycamore, eastern cottonwood and green ash. Young stands of these species tend to stabilize the low floodplain and continue to accumulate loamy materials. Consequently, these developing ecological sites tend to be near even aged. Young stands are often dense with a sparse understory and ground flora.

Over the long term, these floodplains may become elevated and/or isolated and begin to accumulate more fine sediments, becoming more stable and enduring. Oaks, shellbark hickory and black walnut begin to accumulate in these later stages of succession. Catastrophic floods will often partially or completely knock down the earlier species and regenerate this site creating a mosaic of early to late successional floodplain forests.

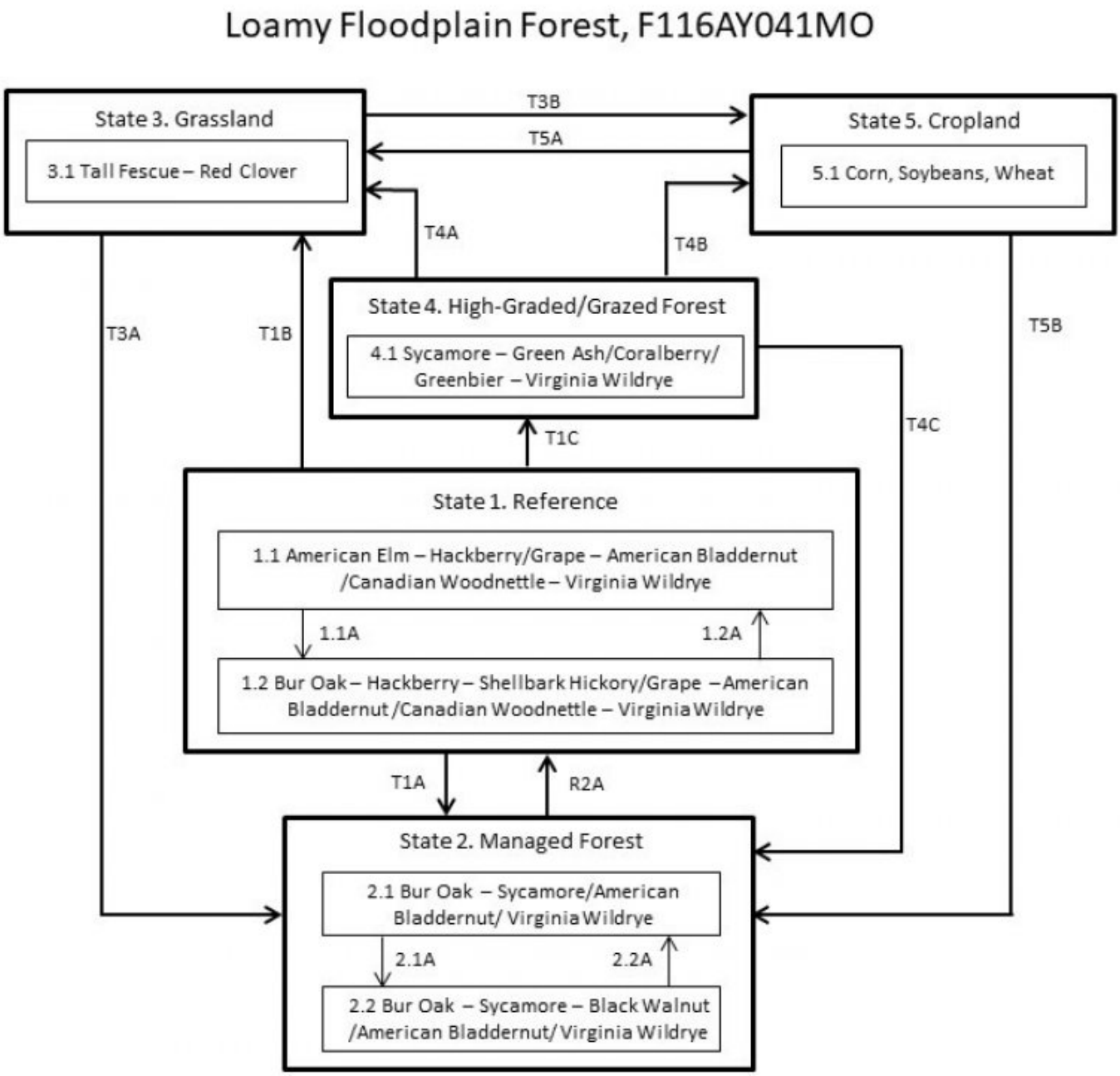
These sites are very productive. Today most of these ecological sites have been cleared and converted to agriculture. While some cleared fields have retained a narrow strip of forest along the river, other sites are often cleared right up to the bank. In such cases, flooding may cause severe stream bank erosion.

Uncontrolled grazing by domestic livestock in the remaining strips of forest is not uncommon and can cause significant damage, killing trees and removing the ground cover, resulting in further de-stabilization and degradation of this ecological site as well. Carefully planned timber harvests can be tolerated in this system, but high grading of the timber will eventually degrade the ecological site.

Loamy Floodplain Forests, generally occurring as a rather narrow band of forests traversing the river edge, are the most abundant remaining floodplain forest type in the Ozark Highlands. These bands of forest still play an important role as a source of food and shelter for migrating birds and as a source for course woody debris for the adjacent stream systems.

A State and Transition Diagram follows. Detailed descriptions of each state, transition, plant community, and pathway follow the model. This model is based on available experimental research, field observations, professional consensus, and interpretations. It is likely to change as knowledge increases.

State and transition model



Code	Event/Activity/Process
T1A	Uneven-age timber management; harvesting
T1B, T4A	Clearing; pasture planting; prescribed grazing
T5A	Pasture planting; prescribed grazing
T1C	Poorly planned harvest (high-grading); uncontrolled grazing
T3B	Tillage; conservation cropping system
T4B	Clearing ; tillage; conservation cropping system
T3A, T5B	Tree planting; long-term succession (+30-50 years); forest stand improvement; access control
T4C	Forest stand improvement; access control
R2A	Forest stand improvement; long term succession (+10-20 years)
1.1A	Long term succession (+10-30 years); sediment accumulation
1.2A	Catastrophic flood: blow-down
2.1A	Crop Tree Release; little to no harvesting (10-20 years)
2.2A	Uneven-age timber management; harvesting

Figure 10. State and Transition Model for this ecological site.

State 1

Reference

The historical reference state for this ecological site was old growth bottomland forest. Natural flooding cycles were the primary processes affecting this ecologic site. The understory was complex, with multiple layers of shade-tolerant species. A highly diverse ground flora was also present. Vines were common and went well into the canopy. Scattered open areas were common. A change to more frequent, higher-intensity floods on the modern landscape creates more frequent canopy gaps, and introduces or helps to maintain more flood-tolerant species such as sycamore, eastern cottonwood, green ash or hackberry. Over the long term, these floodplains may become more elevated and/or isolated and accumulate more fine sediments, becoming more stable and enduring. Oak, shellbark hickory and black walnut begin to accumulate in these later stages of succession. Catastrophic floods will often partially or completely knock down the early species and regenerate this site creating a mosaic of early to late successional floodplain forests.

Community 1.1
American Elm – Hackberry/Grape – American Bladdernut /Canadian Woodnettle – Virginia Wildrye

Figure 11. Reference state phase in Woodson K. Woods Memorial Conservation Area, Steelville, MO; photo credit MDC.

Natural flooding cycles were the primary processes affecting this ecologic site. The understory was complex, with multiple layers of shade-tolerant species. A highly diverse ground flora was also present. Vines were common and went well into the canopy. Scattered open areas were common.

Forest overstory. The Overstory Species list is based on field reconnaissance as well as commonly occurring species listed in Nelson 2010; names and symbols are from USDA PLANTS database.

Forest understory. The Understory Species list is based on field reconnaissance as well as commonly occurring species listed in Nelson 2010; names and symbols are from USDA PLANTS database.

Community 1.2
Bur Oak – Hackberry – Shellbark Hickory/Grape – American Bladdernut /Canadian Woodnettle – Virginia Wildrye

Natural flooding cycles were the primary processes affecting this ecologic site. The understory was complex, with multiple layers of shade-tolerant species. A highly diverse ground flora was also present. Vines were common and went well into the canopy. Scattered open areas were common.

Pathway P1.1A
Community 1.1 to 1.2

Long term succession (+10-30 years); sediment accumulation

Pathway P1.2A

Community 1.2 to 1.1

Catastrophic flood: blow-downs

State 2
Managed Forest

Where this state exists, it has often been subjected to very selective timber harvests. While these forested areas may resemble the reference state, the diversity of tree species has been selectively (removal of oak and black walnut) altered. Reducing harvests and extending rotations will cause a transition to community phase 2.2. Eliminating harvests, implementing selective thinning, and allowing long tern succession may allow a return to the reference state where hydrologic regimes are least altered.

Community 2.1
Bur Oak-Sycamore/American Bladdernut/Wildrye

Community 2.2
Bur oak-Sycamore-Black Walnut/American Bladdernut/Wildrye

Pathway P2.1A
Community 2.1 to 2.2

Crop Tree Release; little to no harvesting (10-20 years)

Pathway P2.2A
Community 2.2 to 2.1

Uneven-age timber management; harvesting

State 3
Grassland

Many acres of this ecological site have been converted to non-native grasslands of tall fescue and red clover. If the site experiences poor grassland management a shift to community phase 3.2 will occur. This phase has diminished ground cover, reduction in productivity, and an increase in oak sprouting and non-native species invasion. This state frequently transitions to a cropland state especially when commodity prices are high. A return to a near-reference state from this state is not recommended. Transitioning to a Managed Forest state is possible through long-term commitments of time and money.

Community 3.1
Tall Fescue/Red Clover

State 4
High-Graded/Grazed Forest

This state is subjected to uncontrolled grazing and high-graded timber harvests. The grazing will open up the understory and remove much of the diverse ground flora. This can lead to erosion of the topsoil during floods. Grazed units also often undergo timber harvest removing a wide variety of outstanding hardwood trees, further diminishing the structural and compositional diversity. A return to the near-reference state will require a long-term commitment including the elimination of grazing, planting of trees and perhaps shrub and herbaceous species, and very limited targeted timber harvests and thinning.

Community 4.1
Sycamore – Green Ash/Coralberry/ Greenbier – Virginia Wildrye

State 5

Cropland

Some areas of this ecological site have been converted to row crop agriculture. They often transition to a grassland state. A return to the near-reference state is not practical from this state. Transitioning to a Managed Forest state may be possible through long-term commitments of time and money.

Community 5.1
Corn, Soybeans, Wheat

Transition T1A
State 1 to 2

Uneven-age timber management and selective harvesting will result in a transition to community phase 2.1.

Transition T1B
State 1 to 3

Clearing, pasture planting and prescribed grazing will result in a transition to community phase 3.1.

Transition T1C
State 1 to 4

Poorly planned harvests (high-grading) and uncontrolled grazing will result in a transition to community phase 4.1.

Restoration pathway R2A
State 2 to 1

This state can be restored to a reference state by modifying or eliminating timber harvests, extending rotations, incorporating selective thinning and allowing long-term succession to occur.

Transition T3A
State 3 to 2

Tree planting, long-term succession (30 to 50 years), forest stand improvement and livestock access control will result in a transition to community phase 2.1.

Transition T3B
State 3 to 5

Removing the grass sod, adding conservation tillage and conservation cropping system will result in a transition to community phase 5.1.

Transition T4C
State 4 to 2

Forest stand improvement and livestock access control will result in a transition to community phase 2.1.

Transition T4A
State 4 to 3

Clearing the timber, adding pasture planting and prescribed grazing will result in a transition to community phase 3.1.

Transition T4B
State 4 to 5

Clearing timber, adding tillage and conservation cropping system will result in a transition to community phase 5.1.

Transition T5B
State 5 to 2

Tree planting, long-term succession (30 to 50 years), forest stand improvement, and livestock access control will result in a transition to community phase 2.1.

Transition T5A
State 5 to 3

Pasture planting and prescribed grazing will result in a transition to community phase 3.1.

Additional community tables

Table 5. Community 1.1 forest overstory composition

Common Name	Symbol	Scientific Name	Nativity	Height (M)	Canopy Cover (%)	Diameter (Cm)	Basal Area (Square M/Hectare)
Tree							
slippery elm	ULRU	*Ulmus rubra*	Native	–	–	–	–
American sycamore	PLOC	*Platanus occidentalis*	Native	–	–	–	–
bur oak	QUMA2	*Quercus macrocarpa*	Native	–	–	–	–
common hackberry	CEOC	*Celtis occidentalis*	Native	–	–	–	–
pawpaw	ASTR	*Asimina triloba*	Native	–	–	–	–
Ohio buckeye	AEGL	*Aesculus glabra*	Native	–	–	–	–
bitternut hickory	CACO15	*Carya cordiformis*	Native	–	–	–	–
white ash	FRAM2	*Fraxinus americana*	Native	–	–	–	–
American elm	ULAM	*Ulmus americana*	Native	–	–	–	–
Ohio buckeye	AEGL	*Aesculus glabra*	Native	–	–	–	–
black walnut	JUNI	*Juglans nigra*	Native	–	–	–	–
red mulberry	MORU2	*Morus rubra*	Native	–	–	–	–
sugarberry	CELA	*Celtis laevigata*	Native	–	–	–	–
shellbark hickory	CALA21	*Carya laciniosa*	Native	–	–	–	–
eastern cottonwood	PODE3	*Populus deltoides*	Native	–	–	–	–
green ash	FRPE	*Fraxinus pennsylvanica*	Native	–	–	–	–

Table 6. Community 1.1 forest understory composition

Common Name	Symbol	Scientific Name	Nativity	Height (M)	Canopy Cover (%)
Grass/grass-like (Graminoids)					
eastern woodland sedge	CABL	*Carex blanda*	Native	–	–
Virginia wildrye	ELVI3	*Elymus virginicus*	Native	–	–
scouringrush horsetail	EQHY	*Equisetum hyemale*	Native	–	–
hop sedge	CALU4	*Carex lupulina*	Native	–	–
squarrose sedge	CASQ2	*Carex squarrosa*	Native	–	–
Canada wildrye	ELCA4	*Elymus canadensis*	Native	–	–
Indian woodoats	CHLA5	*Chasmanthium latifolium*	Native	–	–

Forb/Herb					
Canadian woodnettle	LACA3	*Laportea canadensis*	Native	–	–
wingstem	VEAL	*Verbesina alternifolia*	Native	–	–
smallspike false nettle	BOCY	*Boehmeria cylindrica*	Native	–	–
fewflower ticktrefoil	DEPA7	*Desmodium pauciflorum*	Native	–	–
spotted ladysthumb	POPE3	*Polygonum persicaria*	Native	–	–
jumpseed	POVI2	*Polygonum virginianum*	Native	–	–
bristly buttercup	RAHI	*Ranunculus hispidus*	Native	–	–
cutleaf coneflower	RULA3	*Rudbeckia laciniata*	Native	–	–
Canadian blacksnakeroot	SACA15	*Sanicula canadensis*	Native	–	–
bottomland aster	SYON2	*Symphyotrichum ontarionis*	Native	–	–
Canadian honewort	CRCA9	*Cryptotaenia canadensis*	Native	–	–
American bellflower	CAAM18	*Campanulastrum americanum*	Native	–	–
Canadian clearweed	PIPU2	*Pilea pumila*	Native	–	–
giant goldenrod	SOGI	*Solidago gigantea*	Native	–	–
stinging nettle	URDI	*Urtica dioica*	Native	–	–
pale touch-me-not	IMPA	*Impatiens pallida*	Native	–	–
Virginia bluebells	MEVI3	*Mertensia virginica*	Native	–	–
striped cream violet	VIST3	*Viola striata*	Native	–	–
eastern waterleaf	HYVI	*Hydrophyllum virginianum*	Native	–	–
eastern false rue anemone	ENBI	*Enemion biternatum*	Native	–	–
evening campion	SINI	*Silene nivea*	Native	–	–
Shrub/Subshrub					
northern spicebush	LIBE3	*Lindera benzoin*	Native	–	–
coralberry	SYOR	*Symphoricarpos orbiculatus*	Native	–	–
burningbush	EUAT5	*Euonymus atropurpureus*	Native	–	–
American bladdernut	STTR	*Staphylea trifolia*	Native	–	–
Tree					
slippery elm	ULRU	*Ulmus rubra*	Native	–	–
Ohio buckeye	AEGL	*Aesculus glabra*	Native	–	–
American hornbeam	CACA18	*Carpinus caroliniana*	Native	–	–
red mulberry	MORU2	*Morus rubra*	Native	–	–
Vine/Liana					
eastern poison ivy	TORA2	*Toxicodendron radicans*	Native	–	–
Virginia creeper	PAQU2	*Parthenocissus quinquefolia*	Native	–	–
trumpet creeper	CARA2	*Campsis radicans*	Native	–	–
graybark grape	VICI2	*Vitis cinerea*	Native	–	–
riverbank grape	VIRI	*Vitis riparia*	Native	–	–
frost grape	VIVU	*Vitis vulpina*	Native	–	–
heartleaf peppervine	AMCO2	*Ampelopsis cordata*	Native	–	–

Animal community

Wildlife (MDC 2006):

Wild turkey, white-tailed deer, and eastern gray squirrel depend on hard and soft mast food sources and are typical upland game species of this type.

Birds associated with mid-successional stages include Whip-poor-will and Wood Thrush while birds associated with late-successional stages include Worm-eating warbler, Whip-poor-will, Great Crested Flycatcher, Ovenbird, Pileated Woodpecker, Wood Thrush, Red-eyed Vireo, Northern Parula, Louisiana Waterthrush (near streams), and Broad-winged Hawk.

Reptile and amphibian species associated with mature forests include: ringed salamander, spotted salamander, marbled salamander, central newt, long-tailed salamander, dark-sided salamander, southern red-backed salamander, three-toed box turtle, western worm snake, western earth snake, and American toad.

Other information

Forestry (NRCS 200, 2014)

Management: Field measured site index values range from 70 to 105. Timber management opportunities are good to excellent. Create group openings of at least 2 acres. Large clearcuts should be minimized if possible to reduce impacts on wildlife and aesthetics. Uneven-aged management using single tree selection or group selection cuttings of ½ to 1 acre are other options that can be used if clear cutting is not desired or warranted. Harvest methods that leave some mature trees to provide shade and soil protection may be desirable. Maintain adequate riparian buffer areas.

Limitations: Wetness – short duration flooding and/or high water table; Use of equipment may be restricted in spring and other excessively wet periods. Equipment use when wet may compact soil and damage tree roots. Tree planting is difficult during spring flooding periods. Seedling mortality may be high due to excess wetness. Ridging the soil and planting on the ridges may increase survival.

Inventory data references

Potential Reference Sites: Loamy Floodplain Forest

Plot HUZZCA04 – Sturkie soil
Located in Huzzah CA, Crawford County, MO
Latitude: 38.022491
Longitude: -91.210663

Plot WOWOCA03 – Sturkie soil
Located in Woodson K. Woods CA, Crawford County, MO
Latitude: 37.970062
Longitude: -91.516806

Plot WOWOCA04 – Sturkie soil
Located in Woodson K. Woods CA, Crawford County, MO
Latitude: 37.965213
Longitude: -91.532164

Plot BISUSP03 - Sturkie soil
Located in Big Sugar Creek SP, McDonald County, MO
Latitude: 36.624269
Longitude: -94.266176

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Contributors

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Approval

Nels Barrett, 9/24/2020

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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	05/05/2024
Approved by	Nels Barrett
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:

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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:**
