USDA Natural Resources Conservation Service

Ecological site F116AY051MO
Loamy Dolomite Exposed Backslope Woodland

Last updated: 9/24/2020
Accessed: 04/11/2026

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 Dry-Mesic Limestone/Dolomite Woodland.

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

National Vegetation Classification System Vegetation Association (NatureServe, 2010):
The reference state for this ecological site is most similar to a Quercus muehlenbergii - Fraxinus (quadrangulata, americana) / Schizachyrium scoparium Woodland (CEGL002143).

Geographic relationship to the Missouri Ecological Classification System (Nigh & Schroeder, 2002):
This ecological site occurs primarily within the following Subsections:
Inner Ozark Border
Meramec River Hills
St. Francois Knobs and Basins

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”.

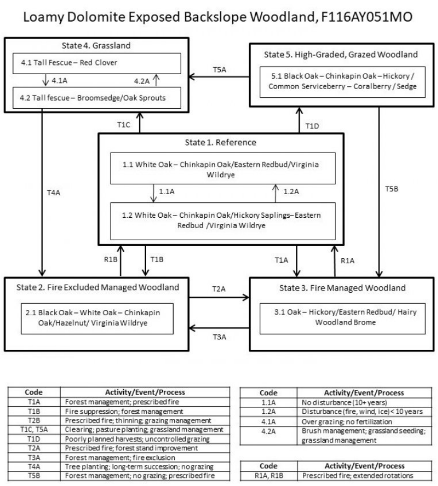
The Loamy Dolomite Exposed Backslope Woodlands occupy the southerly and westerly aspects of steep, dissected slopes, and are mapped in complex with the Loamy Dolomite Protected Backslope Forest ecological site. These ecological sites occur primarily in the Ozark Border counties of the northeastern Ozark Highland, near the border with MLRA 115B. Soils are typically moderately deep over dolomite bedrock, with loamy surfaces and clayey subsoils. The reference plant community is woodland with an overstory dominated by white oak and chinkapin oak, with minor amounts of post oak, black oak, northern red oak, and hickory and a ground flora of native grasses and forbs with scattered shrubs.

Associated sites

F116AY018MO	**Loamy Dolomite Upland Woodland** Loamy Dolomite Upland Woodlands are upslope, on shoulders and upper backslopes.
F116AY019MO	**Loamy Dolomite Protected Backslope Forest** Loamy Dolomite Protected Backslope Forests are mapped in complex with this ecological site, on steep lower backslopes with northern to eastern exposures.
F116AY037MO	**Gravelly/Loamy Upland Drainageway Forest** Gravelly/Loamy Upland Drainageway Forests are often downslope.
F116AY044MO	**Chert Dolomite Upland Woodland** Chert Dolomite Upland Woodlands are adjacent or upslope, where loess is thinner.

Similar sites

F116AY019MO	**Loamy Dolomite Protected Backslope Forest** Loamy Dolomite Protected Backslope Forests are mapped in complex with this ecological site, on steep lower backslopes with northern to eastern exposures.



Code	Activity/Event/Process
T1A	Forest management; prescribed fire
T1B	Fire suppression; forest management
T2B	Prescribed fire; thinning; grazing management
T1C, T5A	Clearing; pasture planting; grassland management
T1D	Poorly planned harvests; uncontrolled grazing
T2A	Prescribed fire; forest stand improvement
T3A	Forest management; fire exclusion
T4A	Tree planting; long-term succession; no grazing
T5B	Forest management; no grazing; prescribed fire

Code	Activity/Event/Process
1.1A	No disturbance (10+ years)
1.2A	Disturbance (fire, wind, ice) < 10 years
4.1A	Over grazing; no fertilization
4.2A	Brush management; grassland seeding; grassland management

Code	Activity/Event/Process
R1A, R1B	Prescribed fire; extended rotations

Figure 2.

Table 1. Dominant plant species

Tree	(1) *Quercus alba* (2) *Quercus muehlenbergii*
Shrub	(1) *Cercis canadensis*

Herbaceous	(1) *Elymus virginicus*

Physiographic features

This site is on upland backslopes with slopes of 15 to 40 percent. It is on exposed aspects (south, southwest, and west), which receive significantly more solar radiation than the protected aspects. The site receives runoff from upslope summit and shoulder sites, and generates runoff to adjacent, downslope ecological sites. This site does not flood.

The following figure (adapted from Skaer and Cook, 2005) shows the typical landscape position of this ecological site, and landscape relationships with other ecological sites. It is within the area labeled “” on the figure, on lower backslopes with southerly to westerly exposures. Loamy Dolomite Protected Backslope Forest sites are on the corresponding northerly to easterly exposures. Loamy Dolomite Upland Woodland sites, labeled “2”, are typically upslope. Loamy Upland Woodland sites are often on local crests, labeled “1”. The dashed lines within the Loamy Upland Woodland area indicate the various soils included in this ecological site. Chert Dolomite Upland Woodland sites, labeled “3”, occur where the loess thins and surface chert fragment content increases.

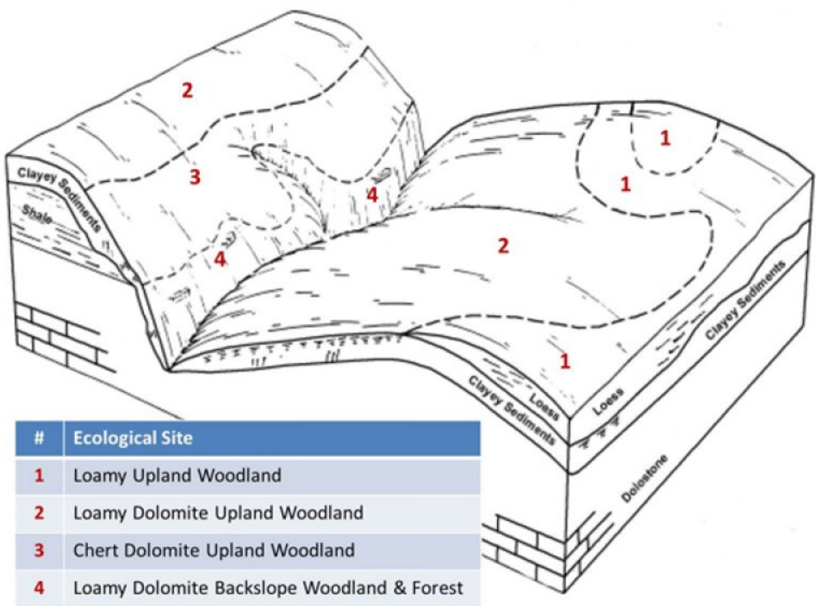


Figure 3. Landscape relationships for this ecological site.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Hillslope
Flooding frequency	None
Ponding frequency	None
Slope	15–35%
Water table depth	60 in

Aspect	W, SE, S, SW

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)	149-158 days
Freeze-free period (characteristic range)	172-189 days
Precipitation total (characteristic range)	46-48 in
Frost-free period (actual range)	149-162 days
Freeze-free period (actual range)	168-193 days
Precipitation total (actual range)	45-48 in
Frost-free period (average)	154 days
Freeze-free period (average)	180 days
Precipitation total (average)	47 in

Climate stations used

- (1) GILBERT [USC00032794], Saint Joe, AR
- (2) FREEDOM [USC00233043], Linn, MO
- (3) CLEARWATER DAM [USC00231674], Ellington, MO

Influencing water features

Water features associated with this upland ecological site are influenced by karst landscapes throughout the area (see diagram). Rainfall enters the groundwater system through the soil or by flowing into sinkholes and streams. Springs form where land drops low enough to meet underground water tables. Dissolution of carbonate rocks along fractures and faults has produced cave systems, sinkholes (closed and open), springs, and natural tunnels in the region. These sinkholes and losing streams can rapidly transfer water from upland recharge areas to spring outlets. The most common mechanism for groundwater recharge occurs by the relatively slow downward movement of water through soil and carbonate bedrock over a large area known as diffuse recharge, which maintains a high storage volume providing a consistent supply of water to springs. In addition to diffuse recharge, aquifers in karst terrain receive the relatively rapid transfer of water through sinkholes or losing streams connected by subsurface conduits. Surface water entering the aquifer in this fashion has very little contact with soil or rock and consequently the chemical nature of the water changes little in route. Discharge variability does not seem to be controlled by drainage area, but rather the conduit capacity of losing stream sections that can transport the entire volume of base-flow during dry periods in the year. High variability in base ?ow shows the impact of karst in the form of losing and gaining stream sections (Owen and Pavlowsky 2010).

The accompanying map depicts the distribution of these karst-related features in the state of Missouri. Relative cave density per USGS 7.5" quadrangle is depicted by shades of red, deeper red signifying a larger number of caves in the quadrangle. Stretches of losing streams are shown in yellow. Known springs are shown as blue dots. Image from Wikimedia Commons developed from the Missouri Department of Natural Resources, Division of Geology and Land Survey.

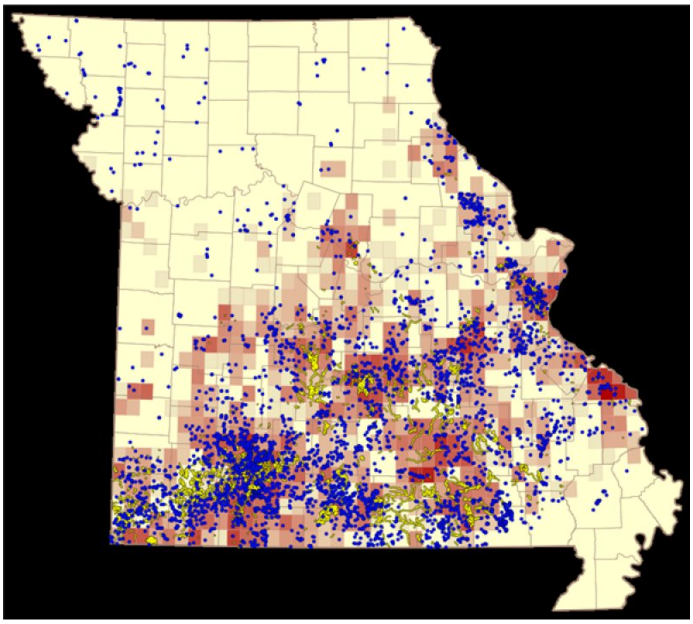


Figure 10. Distribution of karst-related features in Missouri. Image from Wikimedia Commons developed from the Missouri Department of Natural Resources, Division of Geology and Land Survey.

Soil features

These soils are underlain with dolomite bedrock at 20 to 40 inches depth. The soils were formed under woodland vegetation, and have thin, light-colored surface horizons. Parent material is a thin layer of loess, over slope alluvium, over residuum weathered from dolomite, overlying dolomite bedrock. Some areas are underlain with shale. They have silt loam surface layers, with clayey subsoils that have low to moderate amounts of chert gravel and cobbles. Some soils are affected by seasonal wetness in spring months from a water table perched on the clayey subsoil. Soil series associated with this site include Caneyville, Eden, Newnata, and Ventris.

Table 4. Representative soil features

Parent material	(1) Residuum–dolomite (2) Loess
Surface texture	(1) Silt loam
Family particle size	(1) Clayey
Drainage class	Moderately well drained to well drained
Permeability class	Very slow to slow
Soil depth	20–40 in
Surface fragment cover <=3"	0–9%
Surface fragment cover >3"	1–40%
Available water capacity (0-40in)	4–6 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)	4.5–7.3
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0–3%

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 somewhat shallow soils and south to west aspects of Loamy Dolomite Exposed Backslope Woodlands limits the growth of trees and supports an abundance of native grasses and forbs in the understory. While more productive than adjacent glades moderately tall (50 to 70 feet) white oak and chinkapin oak dominated a semi-open overstory, with occasional post oak, black oak, northern red oak and hickory. Shrubs were scattered within a dense matrix of native grasses and forbs. Woodlands are distinguished from forest, by their relatively open understory, and the presence of sun-loving ground flora species. Characteristic plants in the ground flora can be used to gauge the restoration potential of a stand along with remnant open-grown old-age trees, and tree height growth.

Fire played an important role in the maintenance of these systems. It is likely that these ecological sites, along with adjacent glades and woodlands burned at least once every 5 years. These periodic fires kept woodlands open, removed the litter, and stimulated the growth and flowering of the grasses and forbs. They would have also further limited the growth and dominance of trees, especially eastern redcedar. During fire free intervals, woody species would have increased and the herbaceous understory diminished. But the return of fire would have re-opened the woodlands and stimulated the ground flora. In the long term absence of fire, woody species, especially eastern red cedar have encroached into these ecological sites. Most of these ecological sites today are dense, and shady with a greatly diminished ground flora. Removal of the younger understory by chainsaw and the application of prescribed fire have proven to be effective restoration methods.

Loamy Dolomite Exposed Backslope Woodlands were also subjected to occasional disturbances from wind and ice, as well as grazing by native large herbivores, such as bison, elk, and white-tailed deer. Wind and ice would have periodically opened the canopy up by knocking over trees or breaking substantial branches off canopy trees. Grazing by native herbivores would have effectively kept understory conditions more open, creating conditions more favorable to oak reproduction and sun-loving ground flora species.

Uncontrolled domestic grazing has also impacted these communities, further diminishing the diversity of native plants and introducing species that are tolerant of grazing, such as buckbrush, gooseberry, and Virginia creeper. It also promotes the invasion of eastern red cedar. Grazed sites have a more open understory. In addition, soil compaction and soil erosion from grazing can be a problem and lower site productivity.

These ecological sites are only moderately productive, especially when compared to adjacent protected slopes and loess covered units. Maintenance of the oak component may require disturbances that will encourage more sun adapted species and reduce shading effects although the droughty site characteristics do help to maintain oak naturally on the site.

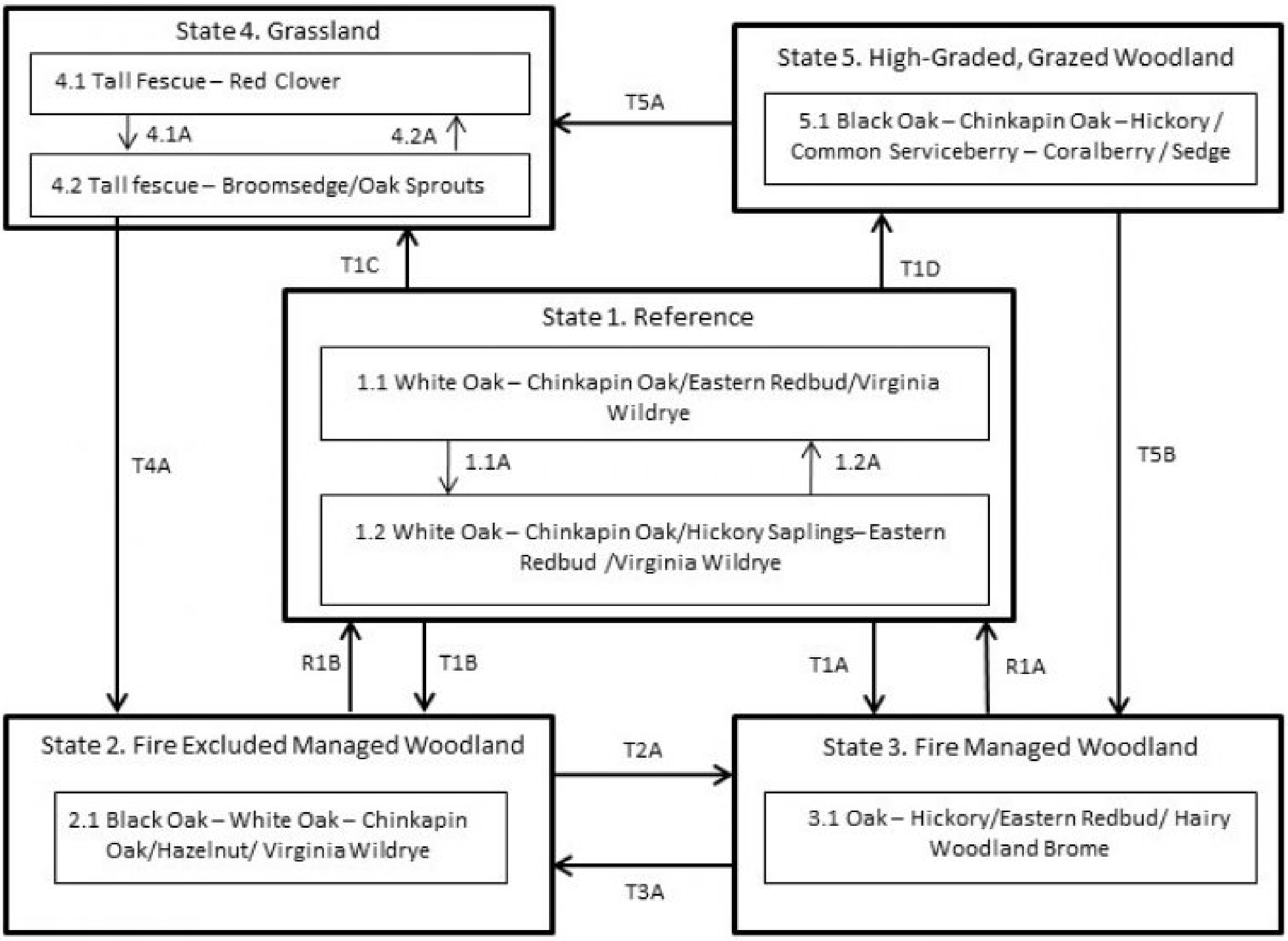
Single tree selection timber harvests are common for this ecological site and often results in removal of the most productive trees (high grading) in the stand leading to poorer quality timber and a shift in species composition away from more valuable oak species. Better planned single tree selection or the creation of group openings can help regenerate and maintain more desirable oak species and increase vigor on the residual trees.

Clearcutting also occurs and results in dense, even-aged stands dominated by oak. This may be beneficial for existing stands whose composition has been highly altered by past management practices. However, without some thinning of the dense stands and application of prescribed fire, the ground flora diversity can be shaded out and diversity of the stand will suffer.

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

Loamy Dolomite Exposed Backslope Woodland, F116AY051MO



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T1D	Poorly planned harvests; uncontrolled grazing
T2A	Prescribed fire; forest stand improvement
T3A	Forest management; fire exclusion
T4A	Tree planting; long-term succession; no grazing
T5B	Forest management; no grazing; prescribed fire

Code	Activity/Event/Process
1.1A	No disturbance (10+ years)
1.2A	Disturbance (fire, wind, ice) < 10 years
4.1A	Over grazing; no fertilization
4.2A	Brush management; grassland seeding; grassland management

Code	Activity/Event/Process
R1A, R1B	Prescribed fire; extended rotations

Figure 11. State and Transition Model for this ecological site.

State 1
Reference

The historical reference state for this ecological site was old growth, oak woodland. The reference state was dominated by white oak and chinkapin oak. Periodic disturbances from fire, wind or ice maintained the woodland structure and diverse ground flora species. Long disturbance-free periods allowed an increase in both the density of trees and the abundance of shade tolerant species. Two community phases are recognized in the reference state, with shifts between phases based on disturbance frequency. Reference states are rare today. Many sites have been converted to grassland (State 4). Others have been subject to repeated, high-graded timber harvest coupled with uncontrolled domestic livestock grazing (State 5). Fire suppression has resulted in increased canopy density, which has affected the abundance and diversity of ground flora. Some former reference states have been managed as woodlands with fire (State 2) or without fire (State 3).

Community 1.1
White Oak – Chinkapin Oak/Eastern Redbud/Virginia Wildrye

Periodic disturbances from fire, wind or ice maintained the woodland structure and diverse ground flora species.

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
White Oak – Chinkapin Oak/Hickory Saplings– Eastern Redbud /Virginia Wildrye

Long disturbance-free periods allowed an increase in both the density of trees and the abundance of shade tolerant species. Two community phases are recognized in the reference state, with shifts between phases based on disturbance frequency and intensity.

Pathway P1.1A
Community 1.1 to 1.2

No disturbance (10+ years)

Pathway P1.2A
Community 1.2 to 1.1

Disturbance (fire, wind, ice) < 10 years

State 2
Fire Excluded Managed Woodland

These stands will slowly increase in more shade tolerant species and white oak will become less dominant. These woodlands tend to be rather dense, with a sparse understory and ground flora. Thinning can increase overall tree vigor and improve understory diversity. However, in the absence of fire, the diversity and cover of the ground flora is still diminished. Without periodic disturbance, stem density and fire intolerant species, like sassafras and hickory, increase in abundance. Prescribed fire along with a more open canopy can transition this state to a Fire Managed Woodland state (State 3).

Community 2.1
Black Oak – White Oak – Chinkapin Oak/Hazelnut/ Virginia Wildrye

State 3
Fire Managed Woodland

The Fire Managed Woodland state results from managing woodland communities (States 2) with prescribed fire and canopy thinning,. This state can resemble the reference state, but with younger maximum tree ages, more open canopies and lower ground flora diversity. Cessation of prescribed fire will allow transition to various managed woodland states.

Community 3.1
Oak – Hickory/Eastern Redbud/ Hairy Woodland Brome

State 4
Grassland

Conversion of woodlands to planted, non-native cool season grassland species such as tall fescue is common for this region. Steep slopes, surface fragments, low organic matter contents and soil acidity make grasslands harder to maintain in a healthy, productive state on this ecological site. Two community phases are recognized in the grassland state, with shifts between phases based on types of management. Poor management will result in a shift to Community 4.2 that shows an increase in oak sprouting and increases in broomsedge densities. If grazing and active pasture management is discontinued, the site will eventually transition to State 2 from this phase.

Community 4.1
Tall Fescue-Red Clover

Two community phases are recognized in the grassland state, with shifts between phases based on types of management.

Community 4.2
Tall Fescue-Broomsedge/Oak Sprouts

Poor management will result in a shift to Community 4.2 that shows an increase in oak sprouting and increases in broomsedge density.

Pathway P4.1A
Community 4.1 to 4.2

Over grazing; no fertilization

Pathway P4.2A
Community 4.2 to 4.1

Brush management; grassland seeding; grassland management

State 5
High-Graded, Grazed Woodland

States that were subjected to repeated, high-grading timber harvests and uncontrolled domestic grazing transitioned to a High-Graded, Grazed Woodland state. This state exhibits an over-abundance of hickory and other less desirable tree species, and weedy understory species such as coralberry, gooseberry, poison ivy and Virginia creeper. The existing vegetation offers little nutritional value for cattle, and excessive cattle stocking damages tree boles, degrades understory species composition and results in soil compaction and accelerated erosion and runoff. Two common transitions from this state are woody clearing and conversion to State 5, grassland or removing livestock, limited harvesting, and allowing long term succession to occur to some other woodland state.

Community 5.1
Black Oak – Chinkapin Oak – Hickory/Common Serviceberry – Coralberry /Sedge

Transition T1B
State 1 to 2

Fire suppression; uneven-age management

Transition T1A
State 1 to 3

Forest management; prescribed fire

Transition T1C
State 1 to 4

Clearing; pasture planting; grassland management

Transition T1D
State 1 to 5

Poorly planned harvests; uncontrolled grazing

Restoration pathway R1B
State 2 to 1

Prescribed fire; extended rotations

Transition T2A
State 2 to 3

Prescribed fire; forest stand improvement

Restoration pathway R1A
State 3 to 1

Prescribed fire; extended rotations

Transition T3A
State 3 to 2

Forest management; fire exclusion

Transition T4A
State 4 to 2

Tree planting; long-term succession; no grazing

Transition T5B
State 5 to 3

Forest management; no grazing; prescribed fire; access control

Transition T5A
State 5 to 4

Clearing; pasture planting; grassland management

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)
Tree							
chinquapin oak	QUMU	*Quercus muehlenbergii*	Native	–	–	–	–
white oak	QUAL	*Quercus alba*	Native	–	–	–	–
northern red oak	QURU	*Quercus rubra*	Native	–	–	–	–
shagbark hickory	CAOV2	*Carya ovata*	Native	–	–	–	–
black oak	QUVE	*Quercus velutina*	Native	–	–	–	–
post oak	QUST	*Quercus stellata*	Native	–	–	–	–

Table 6. Community 1.1 forest understory composition

Common Name	Symbol	Scientific Name	Nativity	Height (Ft)	Canopy Cover (%)
Grass/grass-like (Graminoids)					
Virginia wildrye	ELVI3	*Elymus virginicus*	Native	–	–
hairy woodland brome	BRPU6	*Bromus pubescens*	Native	–	–
oval-leaf sedge	CACE	*Carex cephalophora*	Native	–	–
Muhlenberg's sedge	CAMU4	*Carex muehlenbergii*	Native	–	–
reflexed sedge	CARE9	*Carex retroflexa*	Native	–	–
Indian woodoats	CHLA5	*Chasmanthium latifolium*	Native	–	–
eastern bottlebrush grass	ELHY	*Elymus hystrix*	Native	–	–
rock muhly	MUSO	*Muhlenbergia sobolifera*	Native	–	–
Forb/Herb					
largebract ticktrefoil	DECU	*Desmodium cuspidatum*	Native	–	–
pointedleaf ticktrefoil	DEGL5	*Desmodium glutinosum*	Native	–	–
eastern purple coneflower	ECPU	*Echinacea purpurea*	Native	–	–
shining bedstraw	GACO3	*Galium concinnum*	Native	–	–

spotted geranium	GEMA	*Geranium maculatum*	Native	–	–
hairy sunflower	HEHI2	*Helianthus hirsutus*	Native	–	–
eastern greenviolet	HYCO6	*Hybanthus concolor*	Native	–	–
violet lespedeza	LEVI6	*Lespedeza violacea*	Native	–	–
widowsfrill	SIST	*Silene stellata*	Native	–	–
elmleaf goldenrod	SOUL2	*Solidago ulmifolia*	Native	–	–
Ozark milkvetch	ASDI4	*Astragalus distortus*	Native	–	–
eastern beebalm	MOBR2	*Monarda bradburiana*	Native	–	–
white arrowleaf aster	SYUR	*Symphyotrichum urophyllum*	Native	–	–
tall blazing star	LIAS	*Liatris aspera*	Native	–	–
Shrub/Subshrub					
fragrant sumac	RHAR4	*Rhus aromatica*	Native	–	–
American hazelnut	COAM3	*Corylus americana*	Native	–	–
dwarf hackberry	CEPU10	*Celtis pumila*	Native	–	–
Carolina buckthorn	FRCA13	*Frangula caroliniana*	Native	–	–
Tree					
eastern redbud	CECA4	*Cercis canadensis*	Native	–	–
hophornbeam	OSVI	*Ostrya virginiana*	Native	–	–

Animal community

Wildlife (MDC 2006):

Oaks provide hard mast for wildlife; scattered shrubs provide soft mast.

Sedges and native grasses provide green browse; native grasses provide cover and nesting habitat and a diversity of forbs provides a diversity and abundance of insects.

Post-burn areas can provide temporary bare-ground – herbaceous cover habitat important for turkey poults and quail chicks.

Bird species associated with Dolomite Woodlands include Indigo Bunting, Red-headed Woodpecker, Eastern Bluebird, Northern Bobwhite, Summer Tanager, Eastern Wood-Pewee, Whip-poor-will, Chuck-will's widow, and Red-eyed Vireo.

Reptiles and amphibians associated with mature Dolomite Woodlands include: ornate box turtle, northern fence lizard, five-lined skink, coal skink, broad-headed skink, six-lined racerunner, western slender glass lizard, prairie ring-necked snake, flat-headed snake, rough earth snake, red milk snake, western pygmy rattlesnake, and timber rattlesnake.

Other information

Forestry (NRCS 2002, 2014):

Management: Field measured site index values average 56 for oak. Timber management opportunities are fair. This site responds well to prescribed fire as a management tool. Using prescribed fire as a management tool could have a negative impact on timber quality if timber management is the primary objective.

Limitations: Large amounts of coarse fragments throughout profile; bedrock within 40 inches. Surface stones and rocks are problems for efficient and safe equipment operation and will make equipment use somewhat difficult. Disturbing the surface excessively in harvesting operations and building roads increases soil losses, which leaves a greater amount of coarse fragments on the surface. Hand planting or direct seeding may be necessary. Seedling mortality due to low available water capacity may be high. Mulching or providing shade can improve seedling survival. Mechanical tree planting will be limited. Erosion is a hazard when slopes exceed 15 percent. On steep slopes greater than 35 percent, traction problems increase and equipment use is not recommended.

Inventory data references

Potential Reference Sites: Loamy Dolomite Exposed Backslope Woodland

No quality reference sites are known to exist.

Other references

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Contributors

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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	04/11/2026
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):**

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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:

---

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):**

---

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:**
