

Appendix A

Terrestrial Natural Communities



Cover photo: Open Woodland Indicator Community, Department of Natural Resources
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Appendix A

Terrestrial Natural Communities

Introduction

Management Prescription 1.1 and 1.2 areas are distributed across the Forest, and in almost every subsection of the Ozark Highlands. General locations are shown below (see Appendix H: District Area Maps for area boundaries).

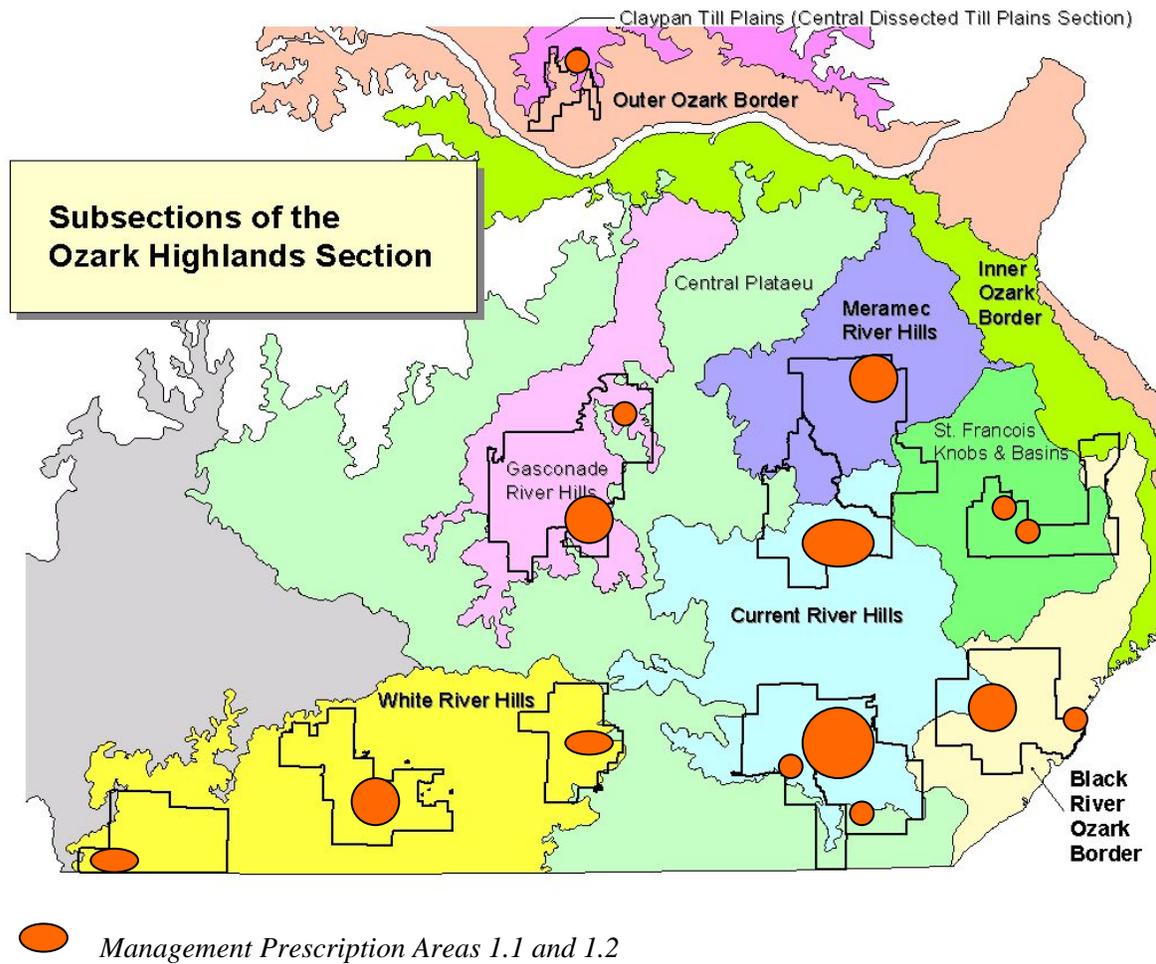


Figure A-1. Relationship of MP 1.1 and 1.2 Areas to Subsections of Ozark Highlands

Desired Conditions for Natural Community Types by Management Prescription

Table A-1 describes the general range of ecological parameters desired for respective natural communities in Management Prescription 1.1 and 1.2. Moving toward the desired condition may take 15 to 25 years for ground cover and more than 100 years for the composition and structure of respective canopy characteristics.

Table A-1. Range of Ecological Parameters for respective natural communities in Management Prescriptions 1.1 and 1.2

Natural Community Types	% canopy	Basal area	Canopy Gap Size	Understory	Aspect, slope, roughness	Shrub layer	Structural age/growth stages per decade	Ground organic layer	% ground cover	Patch Size
Prairie	< 10	NA	NA	NA	All aspects; gentle slopes; plains	Sparse	Grassland with few scattered shrubs and trees	Grass, sedge and forb cover	90 – 100	10 to 200 acres
Savanna	10 – 30	<30	5-20 acres with 2 per 100 acres	scattered oaks and shrubs	Broad ridges; all aspects; gentle sloping	Dense; mostly scattered oaks and other shrubs	Shrub oak/pine covering 10-25% of area	Grassland, sedge and forb cover	90 – 100 grasses dominant	50 to over 1,000 acres
Open Woodland	30 - 50	30 - 50	10 acres with 1-3 per 100 acres	mixed shrubs, early-mid seral	southwest facing to upper ridges; gentle to steep; gentle plains and hills	dense; mostly scattered oaks and various shrubs	Shrub oak/pine covering 10-25% of area; even age stands	Grass, sedge and forb cover; little accumulated leaf litter	60 – 80 grasses dominant	10 to 100 acres
Closed woodland	50 – 80	50 - 90	3 acres with 1-5 per 100 acres	early-mid seral trees	Some upper ridges to base of north-facing slopes; gentle to steep; hills and breaks	sparse; mostly scattered oak and various shrubs	Shrub oak/pine in 5-10% of area; even age stands	Shallow leaf litter; mixed grasses, sedges and herbs	80 - 100	100 to over 1,000 acres
Upland forest	80 – 100	80 - 100	1% per year	shade tolerant shrubs and small trees	Generally north-facing slopes; steep to very steep; hills and breaks	Sparse; scattered; vines present	Oak/mixed species of variable age; small isolated gaps 1-5 acres	Moderately deep leaf litter	50 - 70	10 to 100 acres
Bottomland forest	80 - 100	90 - 100	1% per year	shade tolerant shrubs and small trees	North-facing slopes; very steep or broad-level floodplains; hills and breaks	Sparse; vines present	Multi-layered; uneven age; few gaps	Deep leaf litter; ephemeral herbs	50 - 70	10 to 500 acres
Fen	<10	NA	NA	NA	Toe slopes, ravines and floodplains	Dense to sparse or none; variable	Vary from shrub thickets to open herb/sedge meadows	Shallow marly to deep muck	90-100	<100 sq ft. to 15 acres
All glade types	<10	NA	NA	Small shrubs and trees restricted to rock outcrops and borders	Generally southwest-facing but all aspects on igneous and White River; steep to very steep; hills and breaks	Variable	Primarily grass or mixed herb cover with scattered shrubs	Sparse to dense cover of grasses; mineral soil often exposed	30 – 90 grasses dominant	½ to 300 acres

Management within the other Management areas will also use natural community characteristics in defining the desired condition. However, the range of ecological parameters desired for respective natural communities will not be as close to the ideal for the natural communities as those in MP 1.1 and 1.2.

Even so, achieving the desired condition may take 15 to 25 years for ground cover and more than 100 years for the composition/structure of respective canopy characteristics.

The following table shows the range of ecological parameters for use in Management Prescription 2.1, 6.1, 6.2, 6.3, and 8.1.

Table A-2. Desired conditions for natural community types in MP 2.1, 6.1, 6.2, 6.3, 8.1.

Natural Community Types (NCT)	Overstory Trees		Shrubs	Ground Cover Layer	
	% canopy	Basal area (sq. ft.)	Percent shrub layer	Ground organic layer	% ground cover
Prairie	< 10	NA	<10	Scattered grasses, sedges and forbs	90 - 100
Savanna	20 – 40	40 – 60	50	Scattered grasses, sedges and forbs; 60 – 80% leaf litter cover	30 - 50
Open Woodland	40 - 70	40 - 70	20-40	Scattered grasses, sedges and forbs; 30 –50% leaf litter cover	30 - 40
Closed woodland	70 - 90	80 - 100	5-10	Scattered sparse grasses, sedges and forbs; 100% leaf litter cover	20 - 30
Upland Forest	90 - 100	80 – 100	50% in 2 acre openings/wind gaps; < 5 % elsewhere	Moderately deep leaf litter; sparse ground cover	< 30
Bottomland forest	90 - 100	90 - 100	Multi-layered; uneven age; few gaps	Deep leaf litter; ephemeral herbs	50 - 70
Fen	<10	NA	Variable	Shallow marly to deep muck	90 – 100
All glade types	<20	NA	< 40	Sparse to dense thatch of grasses; mineral soil sometimes exposed	50 – 80

Shrubs are all native woody species including regenerating trees less than 10 feet tall generally consisting of multiple stems rising from the ground.

Management Prescription 1.1

Following are brief descriptions for each Management Prescription 1.1 area, including a list of under represented natural communities that will be the focus of restoration efforts. These communities have been identified based on historic land survey data and natural community descriptions. The general natural community type name from which the desired condition charts are derived (couched within the more specific natural community/plant association name) is noted in bold italics.

Big Creek Basin Glades – Ava unit, Ava/Cassville/Willow Springs Ranger District

Situated in the central White River Hills Subsection, this landscape is distinguished by Missouri's most extensive distribution of dolomite glades supporting many rare and endemic plant species, and desert-adapted animals at the easternmost extent of their geographic range. Prescribed burning, removal of red cedar and small diameter woody vegetation, and control of sericea lespedeza, crown vetch and spotted knapweed are primary management needs. Restoration practices shall strive to restore chinquapin and post oak as part of adjacent limestone/dolomite woodlands and a variety of dominant oak species in adjacent chert woodlands.

Dolomite Glade

Limestone/dolomite Savanna

Post Oak Chert Savanna

Open Dry Limestone/dolomite Woodland

Post Oak/Black Oak Open Dry Chert Woodland

White Oak/Black Oak Open and Closed Dry-mesic Woodland

Cassville Glades – Cassville unit, Ava/Cassville/Willow Springs Ranger District

A deeply dissected forested/woodland area along the western portion of the White River Hills Subsection, this area contains extensive glades interspersed over more deeply wooded and forested breaks. The area contains endemic and restricted species associated with both glades and mesic north-facing woodland slopes. A distinctive band of bench cliffs occurs on steep midslopes. Prescribed burning, removal of red cedar and small diameter woody vegetation and control of sericea lespedeza, crown vetch and spotted knapweed are primary management needs. Restoration practices shall strive to restore chinquapin and post oak as part of adjacent limestone/dolomite woodlands and a variety of dominant oak species in adjacent chert woodlands.

Dolomite Glade

Chinquapin Oak Ash Open Dry Limestone/Dolomite Woodland

White Oak Black Oak, Shortleaf Pine Open Dry Chert Woodland

Post Oak Chert Savanna

Post Oak Black Oak Dry Open Chert Woodland

White Oak Black Oak Open Dry-mesic Woodland

North Fork River – Willow Springs unit, Ava/Cassville/Willow Springs Ranger District

This area consists of both the deeply dissected hills/breaks and dissected plains encompassing a major portion of the North Fork White River basin. The upper portions of the watershed are moderately dissected and historically contained shortleaf pine and pine/oak woodland. This moderate dissection gives way to steep slopes of narrow, sinuous valleys lined with low cliffs and many seep/spring-fed moist cliffs and fens. Karst features are common, including caves, springs, fens and losing streams. Numerous rare terrestrial and aquatic species sites are associated with the North Fork River. Primary management needs include various thinning treatments to meet the desired conditions for woodland natural communities, prescribed burning and control of sericea lespedeza and multiflora rose. Restoration practices should strive to restore a mix of shortleaf pine and oak-codominated woodlands and savannas as patterned by variations in landforms. This unit provides one of the few opportunities on the Mark Twain National Forest to restore shortleaf pine/oak woodlands on plains and oak savannas.

Post Oak Chert Savanna

Shortleaf Pine-Oak/Bluestem (Open) Dry Chert and Sandstone Woodland

Shortleaf Pine-Oak/Vaccinium (Open) Dry Chert and Sandstone Woodland

White Oak-Black Oak-Shortleaf Pine (Open) Dry-Mesic Chert and Sandstone Woodland

White oak-Black Oak (Closed) Dry-mesic Chert and Sandstone Woodland

Mixed Oak-Hickory/Dogwood (Closed) Dry-mesic Chert and Sandstone Forest

Mesic Bottomland Forest

Ozark Fen

Big Piney South –Houston/Rolla/Cedar Creek Ranger District

Located in the Gasconade River Hills, the rugged, dissected portions of the upper Big Piney River becomes a focal point for a variety of woodland and forested natural communities owing to the dissected nature of the landscape through sandstone and dolomite rock substrates. The primary distinction for this unit is the inclusion of numerous outcrops of Roubidoux sandstone overlying the upper and lower Gasconade Formation. Shortleaf pine remains prominent, but diminishes toward the northern end of the management area where it intermixes with white oak, black oak, blackjack oak and hickory. Primary management needs include prescribed burning, red cedar removal on sandstone glades, various thinning treatments to meet desired conditions for woodland natural communities and reforestation of select bottomland forests.

Shortleaf Pine-Oak/Bluestem (Open) Dry Chert and Sandstone Woodland

Shortleaf Pine-Oak/Vaccinium (Open) Dry Chert and Sandstone Woodland

White Oak-Black Oak-Shortleaf Pine (Open) Dry-mesic Chert and Sandstone Woodland

White Oak-Shortleaf Pine/Mixed Oak (Closed) Dry-mesic Chert and Sandstone Woodland

Mixed Oak-Hickory/Dogwood (Closed) Dry-mesic Chert Forest

Sandstone Glade

Cane Ridge Pinery – Poplar Bluff Ranger District

This area of the Black River Ozark Border and small portion of the Current River subsections is distinguished by dominance of shortleaf pine mixed with some oak occupying a gently dissected plain capped in mixed Roubidoux sandstone residuum and loess soil. According to the land survey records, much of the area contained open barrens and shrublands dominated by scattered pine. A rich, distinctive assemblage of groundcover herbs and grasses occupies the dry-mesic sandy loam loess soils. Prescribed burning and thinning to meet desired conditions for shortleaf pine natural communities are primary management needs.

*Shortleaf Pine/Oak **Open** Dry and Dry-mesic **Woodland***

*Oak/Shortleaf Pine **Closed** Dry-mesic Chert **Woodland***

Sinkhole Pond Shrub Swamp

Current River Pinery – Doniphan/Eleven Point Ranger District

This area occurs within the natural range of shortleaf pine on the dissected plains of the southern Current River Hills. It is distinguished as Missouri's largest remaining and most extensive cover of shortleaf pine dry chert woodland interspersed with sinkhole ponds, losing streams and several caves that harbor many species of conservation concern. Prescribed burning and various silvicultural methods to meet desired conditions for shortleaf pine natural communities are primary management needs. Primary management needs include prescribed burning and various silvicultural methods to meet desired conditions to maintain large forest and woodland blocks for forest interior species.

*Shortleaf Pine/Oak/Bluestem (**Open**) Dry and Dry-mesic Chert **Woodland**.*

*Oak/Shortleaf Pine (**Closed**) Dry-mesic Chert **Woodland**.*

Sinkhole Pond Shrub Swamp

Cave

Eleven Point Breaks – Doniphan/Eleven Point Ranger District

Situated along the north side of the Eleven Point River, this small area of the Current River Hills Subsection consists of deeply dissected cherty hills with narrow ridges, steep sideslopes and narrow sinuous valleys. A very high concentration of sites for rare and endangered species occupy a wide assortment of small patch cliffs, springs, glades, caves, mixed woodlands and forests. The area also encompasses an extensive karst area with numerous subterranean aquatic stream systems and endemic cave species. Select prescribed burns and removal of red cedar on glades and adjacent woodlands, and cave protection are primary management needs.

*Dolomite **Glade***

*Shortleaf Pine, Oak/Blueberry (**Open**) Dry Chert **Woodland***

*Shortleaf Pine/Oak/Bluestem (**Open**) Dry and Dry-mesic Chert **Woodland***

*Mixed Oak-Hickory/Dogwood (**Closed**) Dry-mesic Chert **Forest***

Dry and Moist Limestone/Dolomite Cliffs

Cave

Bald Hill Glades/Woodland – Doniphan/Eleven Point Ranger District

This area contains the largest dolomite glade/dry woodland complex in this portion of the Central Plateau Subsection, and in the southeastern portion of the Ozarks. Remnant virgin stands of black, post, and chinquapin oak occur. Primary management needs include prescribed burning and thinning to meet desired conditions for oak woodland natural communities. Restoration activities shall strive to retain and restore structure to groupings of black, post and chinquapin oak (greater than 175 years old) associated with the following natural communities.

*Dolomite **Glade***

*Post Oak-Chinquapin Oak (**Open**) Dry Limestone/Dolomite **Woodland***

*Post Oak-Blackjack Oak (**Open**) Dry Chert **Woodland***

*White Oak-Black Oak (**Open**) Dry-mesic Chert **Woodland***

*White Oak-Mixed Oak (**Closed**) Dry-mesic Chert **Woodland***

Western Star Savanna/Woodland – Houston/Rolla/Cedar Creek Ranger District

The area contains Missouri's highest quality, largest example of a flatwoods natural community. Remnant pockets of virgin post oak still occupy the broad, flat ridgetops providing excellent opportunities to restore open post oak/bluestem woodland and savanna. Shortleaf pine is at the northernmost extent of its range, primarily restricted to Roubidoux sandstone outcrops along ridge and bluff tops. Large sinkholes are prominent. Caves, springs, and fens harbor rare invertebrate species. Primary management needs include prescribed burning and thinning to meet desired conditions for oak woodland, oak savanna, and glade natural communities

Post Oak Flatwoods

*Oak/Bluestem (**Open**) Dry Chert and Sandstone **Woodland***

*White Oak-Post Oak-Black Oak (**Open**) Dry-mesic Chert **Woodland***

*Mixed Oak Hickory/Dogwood (**Closed**) Dry-Mesic Chert and Sandstone **Forest***

Mud Creek Hardwoods – Poplar Bluff Ranger District

This represents the only area on the Mark Twain National Forest where dry upland cherty woodlands gradually transcend to wet bottomland forest and swamp across two very distinct ecological provinces: the Lower Mississippi Riverine Forest and the Ozark Broadleaf Forest provinces. Mud Creek Natural Area (in Management Prescription 8.1) is the opportunity core of this unit. Management needs should be consistent for both areas. Plant species (and several animals) that distinguish each province intermingle within a distance of several miles in two local watersheds. This intermingling makes for a very diverse biological area. Primary management needs include prescribed burning and some thinning to meet desired conditions for upland woodlands and forest, and control of illegal ATV trespass/exotic species in the bottomland forest.

*Wet **Bottomland Forest***

*Wet-mesic **Bottomland Forest***

*Mesic **Bottomland Forest***

*White Oak-Black Oak (**Open**) Dry-mesic Chert **Woodland***

*Post Oak-Black Oak-Scarlet Oak (**Open**) Dry Chert **Woodland***

White Oak/Mixed Oak (Closed) Dry-mesic Chert Woodland

Mixed Oak-Hickory/Dogwood (Closed) Dry-mesic Chert Forest

Lower St. Francois Mountains – Fredericktown unit of the Potosi

This area embraces the distinctive igneous knobs and basins of the volcanic-derived St. Francois Mountains along the lower St. Francis River. This major landform is restricted to the southeastern portion of the Potosi Ranger District including the Fredericktown unit. Target natural communities include dry to dry-mesic upland and bottomland woodlands, forests and igneous glades/barrens occurring over acidic igneous and chert substrates across landscapes that had a history of fire and other natural disturbances. This landscape is the best representation of an igneous system developed in granite. Prescribed burning and removal of undesirable woody vegetation from igneous glades and woodlands are primary management needs.

Oak/Shortleaf Pine (Open) Dry-mesic Igneous and Chert Woodland

Post Oak-Blackjack Oak/Bluestem (Open) Dry Igneous Woodland

Post Oak-Black Oak-Scarlet Oak (Open) Dry Igneous Woodland

Shortleaf Pine/Oak, Blueberry (Open) Dry Igneous Woodland

White Oak/Dogwood (Closed) Dry-mesic Igneous Forest

Igneous Glade

Current River Watershed – Salem and a small portion of the Potosi Ranger District

This area embraces Missouri's most deeply dissected hills and breaks found within the Current River Hills Subsection. This dissection, along with the presence of many permanent streams and rivers, likely restricted the spread and intensity of historic fires to the extent that both dry oak and oak pine woodlands and true forests prevailed. The unit is known for its many large fens, dolomitic spring seeps, limestone/dolomite cliffs, caves and a wide variety of forest/woodland plant associations. Many locations for rare and restricted plants and animals occur. Primary management needs include prescribed burning and various silvicultural methods to meet desired conditions, respond to areas of oak decline and maintain large forested blocks for forest interior species.

Dolomite Glade

Post Oak-Ash-Chinquapin Oak/Bluestem (Open) Dry Limestone/dolomite Woodland

White Oak-Black Oak/Shortleaf Pine (Open) Dry Chert Woodland

Shortleaf Pine/Oak/Blueberry (Open) Dry Chert Woodland

Mixed Oak-Hickory/Dogwood (Closed) Dry-mesic Chert Forest

Mesic Bottomland Forest

Ozark Fen

Meramec River Hills East – Potosi Ranger District

This area contains a highly variable mixture of natural communities associated with the deeply dissected streams draining into the Meramec River basin. Karst, losing streams and large springs are characteristic. A variety of woodland natural communities occurs. Small fens, springs and seeps are common in headwater stream valleys. Shortleaf pine is at the

northeastern extent of its natural range here. Primary management needs include intermediate harvests and prescribed burns to restore woodlands, especially on mixed oak/shortleaf pine plains.

Shortleaf Pine-Oak/Bluestem (Open) Dry Chert Woodland

Post Oak-Black Oak-Scarlet Oak (Open) Dry Chert Woodland

Mixed Oak-Hickory/Dogwood (Closed) Dry-mesic Chert Woodland

White Oak/Dogwood (Closed) Dry-mesic Chert Forest

Red Oak-White Oak-Sugar Maple Mesic Limestone/Dolomite

Dolomite Glades

Chinquapin Oak/Ash/Little Bluestem Dry and Dry-mesic Limestone/Dolomite Open Woodland

Cedar Creek Prairie -- Cedar Creek unit

This very small area contains the Mark Twain National Forest's only currently known opportunity to restore and maintain still intact northern Missouri loess/glacial till prairie relicts and adjacent former savannas. Many relict prairie plants remain. Prairie once dominated some 800,000 acres of the nearly level to rolling "Grand Prairie" situated immediately north of this area. Today, less than 200 acres remains (Tucker Prairie) attesting to the importance of the Cedar Creek Unit. Primary management needs include extensive thinning, brush control, prescribed burning, and control of sericea lespedeza.

Dry-mesic Loess/Glacial Till Bluestem Prairie

Bur Oak Loess/Glacial Till Savanna

White Oak (Open) Dry-mesic Loess/Glacial Till Woodland

Management Prescription 1.2

Following are brief descriptions for each Management Prescription 1.2 area, including a list of under represented natural communities that will be the focus of restoration efforts. These communities have been identified based on historic land survey data and natural community descriptions. The general natural community type name (couched within the more specific natural community/plant association name) is noted in bold italics.

Ava Glades – Ava unit, Ava/Cassville/Willow Springs Ranger District

Situated in the central White River Hills Subsection, this landscape is distinguished by Missouri's most extensive distribution of dolomite glades supporting many rare and endemic plant species, and desert-adapted animals at the easternmost extent of their geographic range. Prescribed burning, removal of red cedar and small diameter woody vegetation, and control of sericea lespedeza, crown vetch and spotted knapweed are primary management needs. Restoration practices shall strive to restore chinquapin and post oak as part of adjacent limestone/dolomite woodlands and a variety of dominant oak species in adjacent chert woodlands.

Dolomite Glade

Limestone/dolomite Savanna

Post Oak Chert Savanna

Open Dry Limestone/dolomite Woodland

Post Oak/Black Oak Dry Chert Woodland

*White Oak/Black Oak **Open** and Closed Dry-mesic Woodland*

Big Piney North – Houston/Rolla/Cedar Creek Ranger District

Located in the Gasconade River Hills, the rugged, dissected portions of the upper Big Piney River becomes a focal point for a variety of woodland and forest natural communities, owing to the dissected nature of the landscape through sandstone and dolomite rock substrates. The primary distinction for this unit is the inclusion of numerous outcrops of Roubidoux sandstone overlying the upper and lower Gasconade Formation. Shortleaf pine remains prominent, but diminishes toward the northern end of the management area where it intermixes with white oak, black oak, blackjack oak and hickory. Primary management needs include prescribed burning, red cedar removal on sandstone glades, various thinning treatments to meet desired conditions for woodland natural communities and reforestation of select bottomland forests.

*Shortleaf Pine-Oak/Bluestem (**Open**) Dry Chert and Sandstone Woodland*

*Shortleaf Pine-Oak/Vaccinium (**Open**) Dry Chert and Sandstone Woodland*

*White Oak-Black Oak-Shortleaf Pine (**Open**) Dry-mesic Chert and Sandstone Woodland*

*White Oak-Shortleaf Pine/Mixed Oak (**Closed**) Dry-mesic Chert and Sandstone Woodland*

*Mixed Oak-Hickory/Dogwood (**Closed**) Dry-mesic Chert Forest*

Sandstone Glade

Kaintuck Hollow – Houston/Rolla/Cedar Creek Ranger District

The area contains significant, good quality, and restorable open post oak woodlands, and a large, deep muck fen complex. Remnant pockets of virgin post oak still occupy the broad, flat ridgetops providing excellent opportunities to restore open post oak/bluestem woodland and savanna. Shortleaf pine is at the northernmost extent of its range, primarily restricted to Roubidoux sandstone outcrops along ridge and bluff tops. Large sinkholes are prominent. Caves, springs, and fens harbor rare invertebrate species. Primary management needs include prescribed burning and thinning to meet desired conditions for oak woodland, oak savanna,

*Oak/Bluestem (**Open**) Dry Chert and Sandstone Woodland*

*White Oak-Post Oak-Black Oak (**Open**) Dry-mesic Chert Woodland*

Ozark Fen

*Mixed Oak Hickory/Dogwood (**Closed**) Dry-Mesic Chert and Sandstone Forest*

Upper St. Francois Mountains – Fredericktown unit of the Potosi

Dominant natural communities include dry to dry-mesic woodlands, forests, and igneous glades/barrens occurring over acidic igneous and chert substrates across landscapes that had a history of fire and other natural disturbances. This portion of the St. Francois Mountains is dominated by rhyolitic igneous rock while the Lower St. Francois Mountains MA 1.2 area is confined to granitic igneous rock. Prescribed burning and removal of undesirable woody vegetation from igneous glades and open woodlands are primary management needs.

*Oak/Shortleaf Pine (**Open**) Dry-mesic Igneous and Chert Woodland*

*Post Oak-Blackjack Oak/Bluestem (**Open**) Dry Igneous Woodland*

*Post Oak-Black Oak-Scarlet Oak (**Open**) Dry Igneous Woodland*

*Shortleaf Pine/Oak, Blueberry (**Open**) Dry Igneous Woodland*

*White Oak/Dogwood (Closed) Dry-mesic Igneous **Forest***
*Igneous **Glade***

Meramec River Hills West – Potosi Ranger District

This area contains a highly variable mixture of natural communities associated with the deeply dissected streams draining into the Meramec River basin. Karst, losing streams and large springs are characteristic. A variety of woodland natural communities occurs. Small fens, springs and seeps are common in headwater stream valleys. Shortleaf pine is at the northeastern extent of its natural range here. Primary management needs include intermediate harvests and prescribed burns to restore woodland and forest types.

*Shortleaf Pine-Oak/Bluestem (**Open**) Dry Chert **Woodland***

*Post Oak-Black Oak-Scarlet Oak (**Open**) Dry Chert **Woodland***

*Mixed Oak-Hickory/Dogwood (**Closed**) Dry-mesic Chert **Woodland***

*White Oak/Dogwood (Closed) Dry-mesic Chert **Forest***

*Red Oak-White Oak-Sugar Maple Mesic Limestone/Dolomite **Forest***

