

The Ozark Natural Division

Characteristics

The Ozark Natural Division, the part of the Ozark uplift that extends into extreme southwestern Illinois, is partially unglaciated and partially glaciated hill country that is mostly forested with many hill prairies interspersed amongst them. It is divided into three sections: Northern, Central, and Southern. The northern part of the division has an underlay of pure limestone, which is replaced in the southern part with cherty limestone that is more resistant to erosion. Underlying the central part of the division is sandstone. There are bedrock outcrops in all three sections of the division, and cave/sinkhole features are more numerous in the limestone portion of the north and less in the south. Glaciation occurred in the Central and part of the Northern sections, but none in the Southern. Topography of this division comprises a mature dissected plateau with steep bluffs along the Mississippi River, with ravines and stream canyons throughout. Deep loess soils in the Northern and Central sections make up much of the hill prairie and rock outcrop areas along the river bluffs and interior ravines. Much of the soils in the Southern Section are acidic.

Presettlement condition of this division was mostly forested, with loess hill prairie openings in the Northern Section along the river bluffs. The Ozark Division contains several Ozarkian, southern, and southwestern plant and animal species that are rare or absent elsewhere in the state, such as plains scorpion, spring cavefish, eastern narrow-mouthed toad, coachwhip, and northern flat-headed snake. Aquatic habitats of this division are few, but are represented by sinkhole ponds, springs, and creeks.

Major Habitats & Challenges

Forests - oak and hickory regeneration, overuse from recreational such as off-road vehicles and all-terrain vehicles, land clearing and fragmentation for suburban and exurban development, seed deposition and invasion by woody exotic plants such as bush honeysuckle and autumn olive, lack of fire to scarify hardwood nuts and prevent invasion of sugar maple, and overgrazing by some livestock and abundant deer populations which negatively affect forest composition and destroy rare plants

Open Woodlands/Savannas/Barrens - uncontrolled invasion of woody species, closing the grassy openings; lack of fire to maintain barrens communities; overuse from recreational such as Off-road vehicles and all-terrain vehicles can severely erode the shallow soils; invasion and seed deposition by woody exotic plants such as autumn olive

Grasslands (hill prairies) - invasion by native woody species (red cedar, smooth sumac, and gray dogwood), closing hill prairie openings and sterilizing underlying grass seedbanks; lack of fire to maintain fire-climax communities; invasion and seed deposition by exotic plants such as autumn olive and sweet clover

Lake & Ponds (sinkholes) - sinkhole ponds in the Ozark Division feed the numerous cave systems with groundwater; intentional filling, use as garbage dumps, and inadequate buffers between sinkholes and agricultural fields reduce this habitat, contribute to sedimentation, and contaminate groundwaters

Streams - springs and creeks in the Ozark Division are stressed by impaired water quality (pollution & herbicide runoff), sedimentation, development, and destructive alteration by illegal off-road vehicle and all-terrain vehicle use

Caves - sinkhole dumping and groundwater contamination (see above), disturbance to sensitive fauna such as bats during hibernation months, vandalism to underground structures such as stalagmites and stalagmites, reduction of natural quality by graffiti, garbage and trash left behind by visitors, and quarry/mining operations

Primary communities (cliffs, bluffs, glades) - mining/quarry operations along the Mississippi River limestone bluffs, development of cliff top areas into residential areas (fueled by proximity to St. Louis metro area), lack of fire to maintain glades communities, encroachment of native woody species such as red cedar, and invasion and seed deposition by exotic plants such as sweet clovers and cool-season grasses

Opportunities

This natural division has a large amount of loess hill prairies in a long corridor along the Mississippi River bluffs from southern St. Clair to northern Randolph counties, sporadically in Jackson and Union counties. There already has been a significant amount of this fragile natural community type enrolled in protection programs through the Illinois Nature Preserves Commission field preservation specialist within that corridor, both with private, public, and corporate landowners. Active management of these hill prairies by Illinois Nature Preserves Commission and Illinois Department of Natural Resources staff has been received well by local landowners, who have shown interest in preserving this natural community on private land.

This division boasts the largest amount of karst topography in the state. Much public awareness has occurred in protecting cave ecosystems both above ground and below. Many amateur speleological groups have offered to map several of the cave systems free of charge to the state. There has been a willingness of landowners to protect the karst communities by enrolling their land in protection programs offered by the Illinois Nature Preserves Commission and Illinois Department of Natural Resources. Local offices of the Natural Resources Conservation Service and Soil & Water Service have assisted in educating landowners of the need for buffers between cropland and sinkhole ponds.

Large areas of dry upland and mesic upland forest exist atop the Mississippi River bluffs and along the backside of the loess hill prairies, limestone ledges, and glades/barrens within the Ozark Division. Illinois Nature Preserves Commission and Illinois Department of

Natural Resources staff are working to reduce fragmentation, and surrounding private forest is being included in large management areas to facilitate management with prescribed fire.

Various state and federal programs assist landowners in protecting caves (sinkholes) from sedimentation and pollution, improving timber stands, retiring environmentally-sensitive croplands, and restoring and managing grasslands. Lease-hunting may prevent or delay residential development, but complicates access issues.

Management Guidelines

Landscapes

Forests - Increase forest cover by at least 10,800 acres. Forested blocks of at least 500 acres should be inventoried and prioritized for addition or linking to other forests blocks. Encourage sound management practices to promote healthy upland forests through landowner education/assistance, prescribed burning, timber stand improvements, and exotics control (mechanical, chemical, or fire). Controlling deer herds in upland forests is an issue to address.

Open Woodland/Savanna/Barrens - Increase open woodland, savanna, & barrens by at least 7,500 acres. Pro-actively manage existing habitat that is not already in a management agreement or long term protection program several blufftop glades and barrens could be targeted. Encourage sound management practices to maintain and increase the extent of natural savannas and barrens through landowner education and assistance, prescribed burning, selective woody encroachment removal and exotics control (mechanical, chemical, or fire). Law enforcement assistance should be given to landowners who wish to curb illegal all-terrain/off-road vehicle use in these shallow soil areas.

Grasslands - Encourage sound management practices to maintain and increase the extent of hill prairies to historic boundaries through landowner education and assistance, prescribed burning, selective woody encroachment removal and exotics control (mechanical, chemical, or fire). As with savannas and barrens, illegal all-terrain/off-road vehicle use in these shallow soil, steep aspect areas should be discouraged, and law enforcement assistance given to landowners who wish to have it.

Lakes & Ponds - Pro-actively manage sinkhole ponds exists that are not already in a management agreement or long term protection program. Encourage sound management sinkhole practices with landowners thorough education and assistance, creating buffer areas around the edge of sinkhole ponds with respect to herbicide application and soil disturbance, and discouraging trash dumping in these ponds. Restore amphibian breeding ponds in these sinkholes to reduce harmful parasitic insect populations.

Streams - Encourage sound management practices to maintain and upgrade the quality of streams through landowner education and assistance, adjacent buffer and riparian corridors to filter herbicide runoff, correcting degradation caused by sedimentation, development, and illegal off-road/all-terrain vehicles.

Caves - Encourage sound management practices to maintain and reduce degradation of cave systems through landowner education and incentives, promotion of cave gates with enrollment into a long term protection program to minimize disturbance to these fragile ecosystems while also protecting sensitive cave fauna and reducing vandalism to subterranean cave features. Create mapping efforts with local speleological societies for unmapped caves. Work with quarrying companies to enroll their property in long term protection plans and publicly promote their stewardship efforts. Protect recharge areas for caves that provide habitat for Illinois cave amphipod and other listed troglobitic species.

Primary Communities - Encourage sound management practices to maintain these extremely sensitive natural areas through landowner education and assistance, enrollment of qualifying properties into long term protection plans, prescribed burning, selective woody encroachment removal and exotics control (mechanical, chemical, or fire). As with savannas, barrens, grasslands, and streams, illegal all-terrain/off-road vehicle use in these shallow soil, steep aspect areas should be discouraged and law enforcement assistance given to landowners who wish to have it. Equestrian use of these areas should also be discouraged to avoid more erosion. As with caves, work with quarrying companies to enroll their property in long term protection plans and publicly promote their stewardship efforts.

Natural Communities

Dry upland forest, mesic upland forest, floodplain forest, loess hill prairie, sinkhole ponds, terrestrial and subterranean caves, bluffs, cliffs, limestone glades, and sandstone glades

Critical Species

Illinois cave amphipod, plains scorpion, spring cavefish, northern blacktail shiner, eastern narrowmouth toad, eastern coachwhip, Great Plains rat snake, flathead snake, scarlet snake, timber rattlesnake, hooded warbler, ovenbird, worm-eating warbler, and Indiana bat. Distinctive plant species include reticulate-seeded spurge, stiff bedstraw, Missouri black-eyed susan, small heliotrope, Harvey's buttercup, large-flowered rock-pink, Bradley's spleenwort fern, black spleenwort, shortleaf pine, azalea, and big-leaf snowbell-bush.

Emphasis Game Species

White tailed deer, wild turkey, eastern cottontail, northern bobwhite, gray and fox squirrels, raccoon, mourning doves, largemouth bass, black and white crappie, bluegill, red ear sunfish, spotted bass, and channel catfish

Non-game Indicator Species

Forest - bobcat, red bat, woodpeckers, Carolina chickadee, Carolina wren, eastern box turtle, spring peeper, chorus frog, gray tree frog, spotted and smallmouth salamanders, copperhead

Open Woodland/Savanna/Barrens - fence lizard, skinks, eastern hognose, copperhead,

ringneck, and red milk snakes

Grassland - loggerhead shrike, American and Fowler's toads

Caves - cave and longtail salamanders, pickerel frog, cave amphipods, bats

Recreational Opportunities

Upland and forest game hunting, trapping, fishing, hiking, wildlife observation, biking, caving, scenic roadways, and limited equestrian use. With the extensive bluff line tops raising some 350' high above the adjacent floodplain, the division offers dramatic vistas of the Mississippi River bottoms.

Educational/Interpretive

The Fults Nature Preserve is a registered National Natural Landmark. Portions of the southern section are U.S. Forest Service property, with some distinction between National Natural Landmarks and Research Natural Areas. State sites include Fults Nature Preserve, Fogelpole Cave, Illinois Caverns, Randolph County Conservation Area, and Piney Creek Ravine Nature Preserve. Ft. Kaskaskia Historic Site, on the bluffs, hosts special events.

Natural Resource Commodities

Forest products, hunting opportunities, and nature-based tourism

Conservation Opportunity Areas

Hill Prairie Corridor

Protected lands - Fults Hill Prairie Nature Preserve, Pine Hills Annex Hill Prairie, Piney Creek Ravine Nature Preserve, several privately-owned land & water reserves, nature preserves, and natural heritage landmarks

Priority resources - hill prairies and associated species

Conservation philosophy - restore, maintain and protect the fragmented hill prairies that exist on these areas to prevent their closing in by woody encroachment; protect and proactively manage for the unique flora and fauna native to these blufftop ecosystems; use sound management decisions guided by historical conditions

Objectives - expand boundaries of hill prairies to historical extent; enroll unprotected hill prairies and critical habitats for endangered/threatened species into long term protection plans; generate funding for biologist positions to provide personnel needed to proactively manage these blufftop communities

Priority actions - use prescribed burning to manage the fire climax communities of hill prairies, glades, barrens, and upland forests; permanent protection of available parcels of high quality community types; create connection of the hill prairies system along the Mississippi River bluffs from Dupo to Prairie du Rocher

Partners - Illinois Department of Natural Resources, blufftop protection groups

Conservation resources - C2000 grants, Wildlife Preservation Fund, Wildlife Habitat Incentives Program, Natural Areas Acquisition Fund

Research, monitoring & evaluation - research and management can be conducted by Illinois Department of Natural Resources, Southern Illinois University (Carbondale and Edwardsville campuses), Southwest Illinois College, and the Illinois Natural History Survey

Sinkhole Plain

Protected lands - Fogelpole Cave Nature Preserve, Illinois Caverns State Natural Area

Priority resources - sinkhole ponds, caves

Conservation philosophy - maintain and protect in perpetuity the karst topography and underlying subterranean ecosystems; protect and proactively manage for the unique flora and fauna native to these cave ecosystems; use sound management decisions guided by historical conditions

Objectives - enroll unprotected cave systems and critical habitats for endangered/threatened species into long term protection plans; generate funding for biologist positions to provide personnel needed to proactively manage these communities

Priority actions - establish buffers around sinkholes and critical groundwater recharge areas to protect water quality; increase education and technical assistance for protection of sinkhole and cave habitat

Partners - Sinkhole Plain Ecosystem Partnership (defunct), karst working groups, Natural Resources Conservation Service

Conservation resources - C2000 grants, Wildlife Preservation Fund, Wildlife Habitat Incentives Program, Natural Areas Acquisition Fund

Research, monitoring & evaluation - research and management can be conducted by Illinois Department of Natural Resources, Southern Illinois University (Carbondale and Edwardsville campuses), Southwest Illinois College, and the Illinois Natural History Survey

LaRue - Pine Hills - Western Shawnee - Trail of Tears

Protected lands - Pine Hills Ecological Area/Research Natural Area, LaRue Ecological Area/Research Natural Area, Ozark Hills Nature Preserve

Conservation philosophy - Maintain connectivity among Ozark, Shawnee Hills and Lower Mississippi River Bottomlands Natural Divisions with riverine, swamp, bottomland forest, bluff, and upland forest, glade and barrens communities; protect and proactively manage for the unique flora and fauna native to these ecosystems; use sound management decisions guided by historical conditions

Priority Resources (Pine Hills, Shawnee) - glades, barrens, large forest tracts, Neotropical migratory birds

Objectives - restoration and management of a forest >50,000 acres; enroll unprotected critical habitats for endangered/threatened species into long term protection plans; proactively manage natural communities

Priority actions - use prescribed fire to manage fire climax communities of glades, barrens, and upland forests; land acquisition of available target parcels of high quality community types; reforestation to create larger patches

Partners - Illinois Department of Natural Resources, U.S. Forest Service, The Nature Conservancy

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