Section 3. The Ecoregions of Arkansas

The Ecoregions of Arkansas

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management and monitoring of ecosystems and ecosystem components.

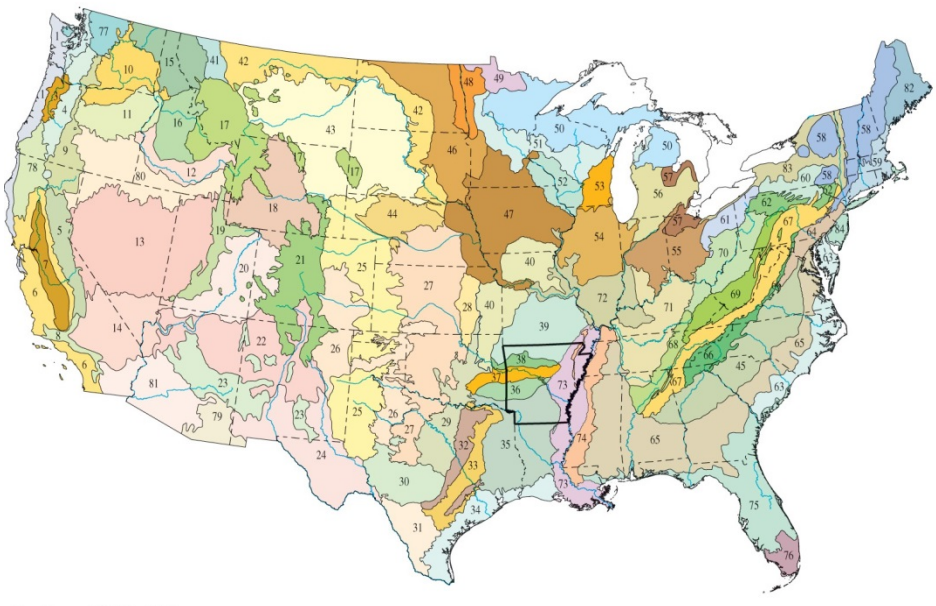
Ecoregions are general purpose regions that are critical for structuring and implementing ecosystem management strategies across federal agencies, state agencies, and nongovernment organizations that are responsible for different types of resources in the same geographical areas.

A Roman numeral hierarchical scheme has been adopted for different levels of ecological regions. Level I is the coarsest level, dividing North America into 15 ecological regions. Level II divides the continent into 52 regions. At level III, the continental United States (Figure 3.1) contains 104 ecoregions and the conterminous United States has 84 ecoregions (U.S. Environmental Protection Agency [USEPA], 2003). Level IV ecoregions are further subdivisions of level III ecoregions.

In Arkansas (Figure 3.2), there are seven level III ecoregions and 32 level IV ecoregions. Arkansas' ecological diversity is strongly related to regional physiography, geology, soil, climate and land use. Elevated karst plateaus, folded mountains, agricultural valleys, forested uplands, and bottomland forests occur. Fire-maintained prairie was once extensive in several parts of the state (adapted from Woods and others 2004).

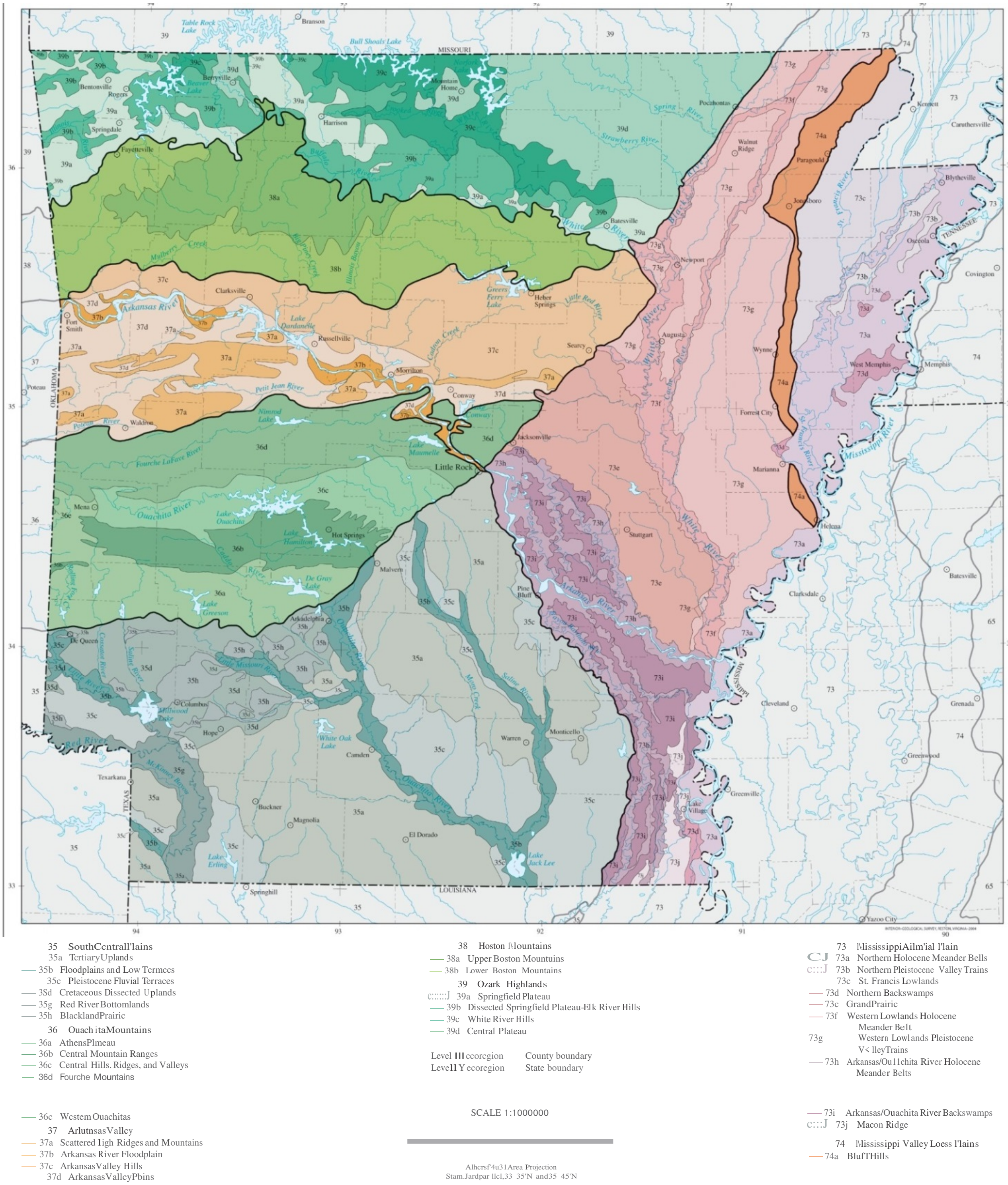
Ecoregional Assessments have been completed by The Nature Conservancy for land covered by five of the seven ecoregions. The assessments are available on the Arkansas Wildlife Action Plan website (www.wildlifearkansas.com).

Figure 3.1. Level III ecoregions in the United States.



Map Source: USEPA, 2003

Figure 3.2. Level III and IV ecoregions in Arkansas (Woods and others 2004).



Conservation priority based on evaluation of species of greatest conservation need (SGCN)

Arkansas determined which ecoregions have more species of greatest conservation concern and/or more greatly imperiled species. Ecoregion Scores (Figure 3.3) equal the sum of all Species Priority Scores within an ecoregion. A higher score implies more species of greatest conservation need and/or species with a greater need for conservation (Table 3.1).

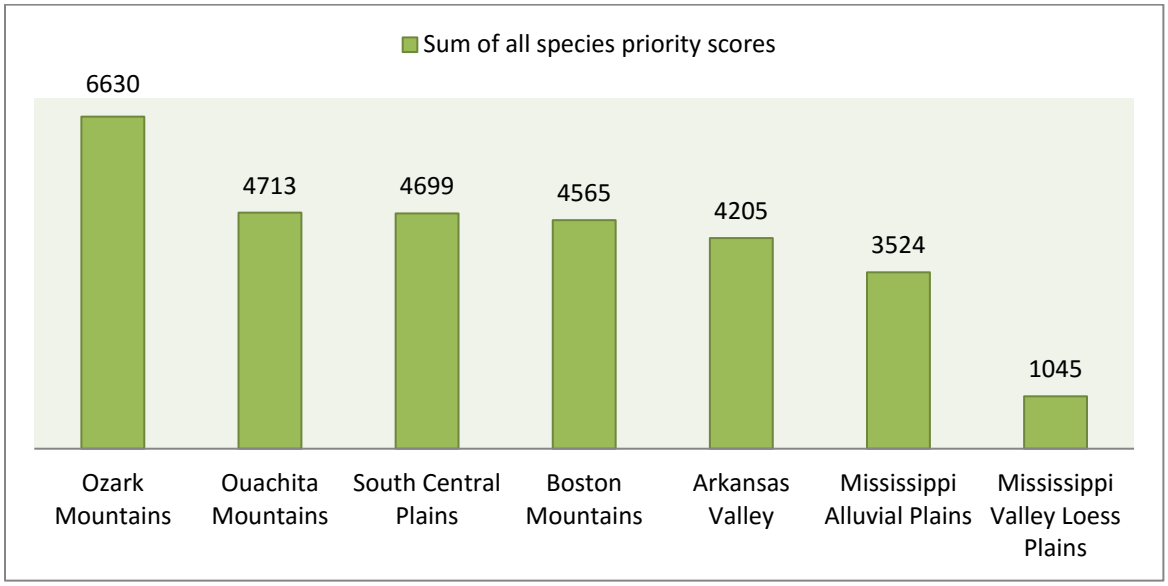


Figure 3.3. Sum of species priority scores by ecoregion.

Table 3.1. Average SPS (Species Priority Score) and number of SGCN in each ecoregion. A greater number of SGCN are affected by conservation actions in ecoregions with higher scores. A higher average SPS means that the ecoregion's species are in greater need of conservation actions.

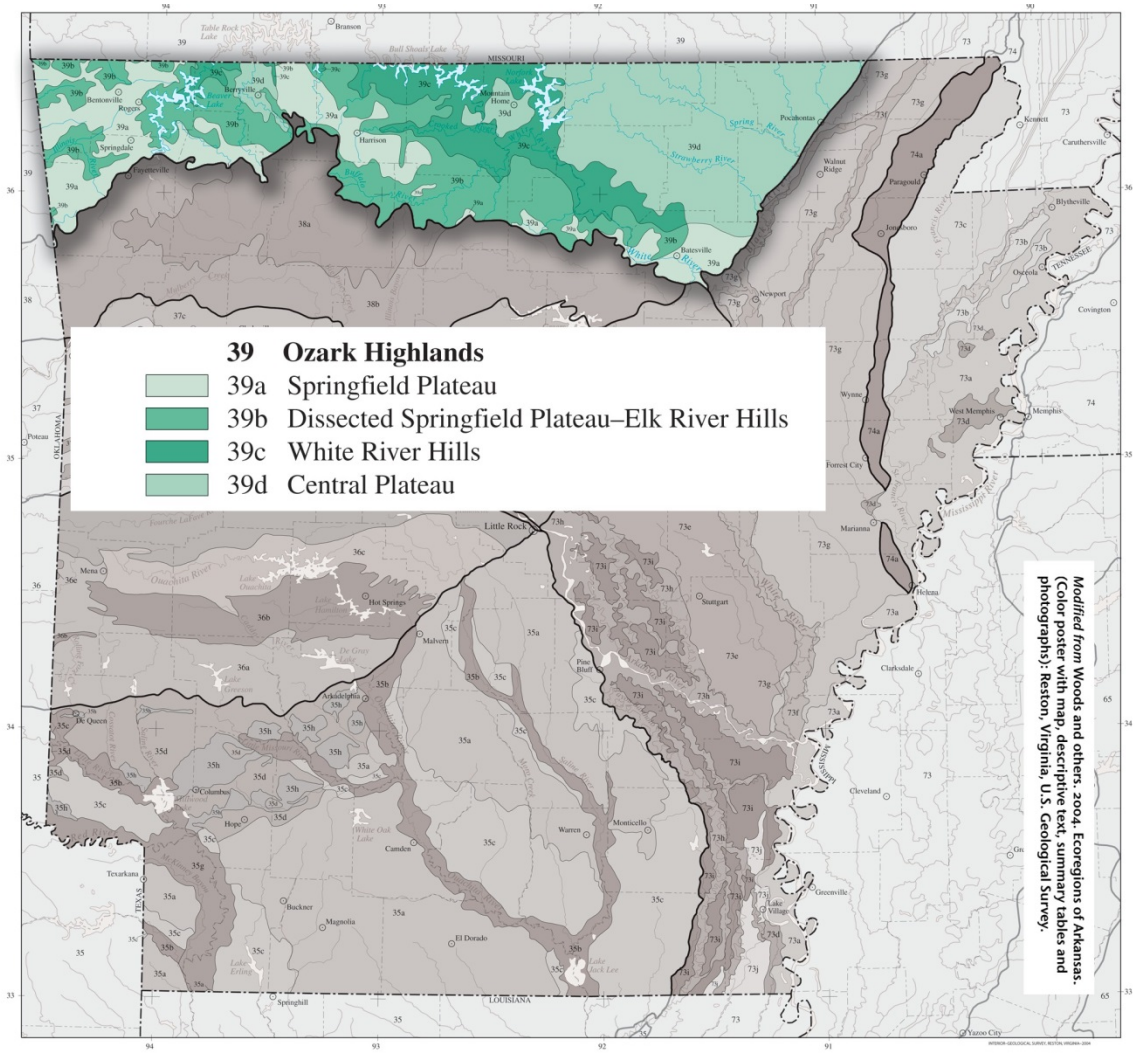
Ecoregion	Total SGCN	Average Priority Score
Ozark Mountains	218	30
South Central Plains	170	28
Ouachita Mountains	164	29
Boston Mountains	160	29
Arkansas Valley	161	26
Mississippi Alluvial Plain	146	24
Mississippi Valley Loess Plains	51	20

Ozark Highlands (Ecoregion 39)

The Ozarks formed as the Ouachita Mountains weighted down the edge of the North American continent, flexing the crust of the Arkoma Basin upward; younger sedimentary layers then eroded away, exposing the older, Paleozoic rocks that dominate the area. Ecoregion 39 is composed of the Springfield and Salem plateaus and largely underlain by highly soluble and fractured limestone and dolomite.

It is level to highly dissected, partly forested and rich in karst features. Caves, sink- holes and underground drainage occur, heavily influencing surficial water availability and water temperature. Clear, cold, perennial, spring-fed streams are common and typically have gravelly substrates; in addition, many small dry valleys occur.

Figure 3.4. Ozark Highlands Ecoregion.



Ozark Highlands - Springfield Plateau

Ecoregion 39 is not as mountainous as Ecoregions 36 or 38, but is higher and more rugged than Ecoregion 73. Habitat diversity and species richness is high. Soils are often cherty and have developed from carbonate rocks or interbedded chert, sandstone and shale; mesic Ultisols, Alfisols and Mollisols are common. Soil order mosaic, soil temperature regime and lithology are all distinct from nearby Ecoregions 36, 37, 38, and 73.

Potential natural vegetation is mostly oak–hickory forest. Open forest dominates rugged areas and pastureland and hayland are common on nearly level sites. Shortleaf pine grows on steep, cherty escarpments and on shallow soils derived from sandstone; it becomes more common in Ecoregions 35, 36 and the southern portion of Ecoregion 38. Glades dominated by grass and eastern redcedar are found on shallow, droughty soils especially over dolomite.

Primary land uses are logging, housing, recreation and, especially, poultry and livestock farming. Water quality in the Ozark Highlands (39) is different from the other ecoregions in Arkansas and is strongly influenced by lithology and land use practices. Alkalinity, total dissolved solids and total hardness values are relatively high, reflecting the influence of Ecoregion 39's distinctive limestone and dolomite. Fecal coliform and nitrite-nitrate values are elevated downstream of

improved pastureland that is intensively grazed by cattle and fields where animal wastes from confined poultry and hog operations have been applied. Parts of Ecoregion 39 are experiencing rapid population growth along with associated habitat alteration and water pollution. Fish communities characteristically have a preponderance of sensitive species and are usually dominated by a diverse minnow community along with sunfishes and darters.

Springfield Plateau

39a. The nearly level to rolling Springfield Plateau is underlain by cherty limestone of the Mississippian Boone Formation; it is less rugged and wooded than Ecoregions 38, 39b and 39c and lacks the Ordovician dolomite and limestone of Ecoregions 39c and 39d. Karst features, such as sinkholes and caves, are common. Cold, perennial, spring-fed streams occur.

Upland potential natural vegetation is primarily oak–hickory and also oak–hickory– pine forests; savannas and tall grass prairies also occurred and were maintained by fire. Today, most of the forest and almost all of the prairies have been replaced by agriculture or expanding residential areas. Poultry, cattle and hog farming are primary land uses; pastureland and hayland are common. Application of poultry litter to agricultural fields is a non-point source that can impair water quality. Total suspended solids and turbidity values in streams are usually low, but total dissolved solids and hardness values are high.

Dissected Springfield Plateau–Elk River Hills

39b. The Dissected Springfield Plateau–Elk River Hills are underlain by cherty limestone of the Mississippian Boone Formation and contain many karst features. Cold, perennial, spring-fed streams occur. Ecoregion 39b is more rugged and wooded than the lithologically similar Springfield Plateau (39a) and the lithologically dissimilar Central Plateau (39d).

Potential natural vegetation is oak–hickory and oak–hickory–pine forests. Shortleaf pine grows on the thin, cherty soils of steep slopes and is more common than in Ecoregion 39a, 39c and 39d. Scattered limestone glades occur, but are less extensive than on the dolomites of the lithologically distinct Ecoregion 39c.

Today, Ecoregion 39b remains dominated by forest and woodland. Logging, livestock farming, woodland grazing, recreation, quarrying and housing are primary land uses.

White River Hills

39c. The forested White River Hills ecoregion is a highly dissected portion of the Salem Plateau that is underlain by cherty Ordovician dolomite and limestone. Soils are usually thin, rocky, steep and nonarable. Flat land is uncommon except along the White River. Ecoregion 39c is lithologically unlike another highly dissected portion of the Ozarks, Ecoregion 39b, where Mississippian cherty limestone of the Boone Formation predominates. Clear, cold, perennial,

spring-fed streams are common, but dry valleys occur.

Potential natural vegetation is oak–hickory forest, oak–hickory–pine forest and cedar glades. Glades are more extensive than elsewhere in Arkansas and occur on thin, droughty soils derived from carbonates. Pine is most common on steep, thin, cherty soils. Ecoregion 39c includes Table Rock, Bull Shoals, Norfork and Beaver lakes. Turbidity and total suspended solids are usually low in its streams and rivers, but total dissolved solids and hardness values are high.

Central Plateau

39d. The Central Plateau is an undulating to hilly portion of the Salem Plateau that is dominated by agriculture. Ecoregion 39d is largely underlain by cherty Ordovician dolomite and limestone; it is lithologically distinct from another slightly dissected part of the Ozarks, the Springfield Plateau (39a). Karst features occur. The Central Plateau (39d) is less rugged and wooded than Ecoregions 38, 39b and 39c.

Natural vegetation is oak–hickory forest, oak–hickory–pine forest (often on soils derived from sandstone), barrens (on thin soils) and scattered cedar glades (on shallow, rocky, droughty soils from dolomite or limestone).

Today, pastureland, hayland and housing are common, but remnant forests and savannas occur in steeper areas. Turbidity, total suspended solids, total dissolved solids and hardness values are often higher than in Ecoregions 39a and 39c (adapted from Woods and others 2004).

Ozark Highlands Ecoregion:

Species of Greatest Conservation Need (SGCN)

Of the 377 SGCN, 218 occur in the Ozark Highlands ecoregion (Table 3.2).

Table 3.2. All species of greatest conservation need (SGCN) in the Ozark Highlands ranked by priority score.

Priority Score	Common Name	*Scientific Name*	Taxa Association
100	Curtis Pearlymussel	*Epioblasma florentina curtisii*	Mussel
100	Turgid Blossom	*Epioblasma turgidula*	Mussel
80	Winter Stonefly	*Allocapnia warreni*	Insect
80	Foushee Cavesnail	*Amnicola cora*	Invertebrate - other
80	Benton County Cave Crayfish	*Cambarus aculabrum*	Crayfish
80	Hell Creek Cave Crayfish	*Cambarus zophonastes*	Crayfish
80	Ozark Big-eared Bat	*Corynorhinus townsendii*	Mammal
80	Sulphur Springs Diving Beetle	*Heterosternuta sulphuria*	Insect
80	Isopod	*Lirceus bidentatus*	Invertebrate - other

80	Ozark Pyrg	*Marstonia ozarkensis*	Invertebrate - other
80	Ground Beetle	*Rhadine ozarkensis*	Insect
80	Thicklipped Pebblesnail	*Somatogyrus crassilabris*	Invertebrate - other
76	Scaleshell	*Leptodea leptodon*	Mussel
71	Ozark Hellbender	*Cryptobranchus alleganiensis bishopi*	Amphibian
65	Cave Obligate Pseudoscorpion	*Apochthonius titanicus*	Invertebrate - other
65	Cave Obligate Harvestman	*Crosbyella distincta*	Invertebrate - other
65	Cave Obligate Harvestman	*Crosbyella roeweri*	Invertebrate - other
65	Calico Rock Oval	*Patera clenchi*	Invertebrate - other
65	Cave Obligate Millipede	*Trigenotyla parca*	Invertebrate - other
65	Arkansas Wedge	*Xolotrema occidentale*	Invertebrate - other
63	Northern Long-eared Bat	*Myotis septentrionalis*	Mammal
62	Neosho Mucket	*Lampsilis rafinesqueana*	Mussel
62	Indiana Bat	*Myotis sodalis*	Mammal
57	Ozark Pocket Gopher	*Geomys bursarius ozarkensis*	Mammal
52	Rabbitsfoot	*Quadrula cylindrica cylindrica*	Mussel
50	Arkansas Agapetus Caddisfly	*Agapetus medicus*	Insect
50	Winter Stonefly	*Allocapnia jeanae*	Insect
50	Contorted Ochrotrichian Microcaddisfly	*Ochrotrichia contorta*	Insect
50	Coldwater Crayfish	*Orconectes eupunctus*	Crayfish
50	Cave Obligate Springtail	*Schaefferia alabamensis*	Invertebrate - other
46	Predaceous Diving Beetle	*Heterosternuta phoebeae*	Insect
46	Pink Mucket	*Lampsilis abrupta*	Mussel
46	Mammoth Spring Crayfish	*Orconectes marchandi*	Crayfish
43	Piping Plover	*Charadrius melodus*	Bird
43	Western Fanshell	*Cyprogenia aberti*	Mussel
43	Snuffbox	*Epioblasma triquetra*	Mussel
43	Ozark Cavefish	*Troglichthys rosae*	Fish
42	Amphipod	*Bactrurus pseudomucronatus*	Invertebrate - other
42	Cave Obligate Planarian	*Dendrocoelopsis americana*	Invertebrate - other
42	American Burying Beetle	*Nicrophorus americanus*	Insect
38	Linda's Roadside-Skipper	*Amblyscirtes linda*	Insect
38	Isopod	*Caecidotea dimorpha*	Invertebrate - other
38	Bat Cave Isopod	*Caecidotea macropropoda*	Invertebrate - other
38	Crystal Darter	*Crystallaria asprella*	Fish
38	Arkansas Darter	*Etheostoma cragini*	Fish
38	Stargazing Darter	*Percina uranidea*	Fish
38	Pyramid Pigtoe	*Pleurobema rubrum*	Mussel
34	Swamp Metalmark	*Calephelis muticum*	Insect
34	Bristly Cave Crayfish	*Cambarus setosus*	Crayfish
34	White Liptooth	*Daedalochila peregrina*	Invertebrate - other
34	Williams' Crayfish	*Orconectes williamsi*	Crayfish
34	Salamander Mussel	*Simpsonaias ambigua*	Mussel

34	Ozark Emerald	*Somatochlora ozarkensis*	Insect
33	Western Sand Darter	*Ammocrypta clara*	Fish
33	Henslow's Sparrow	*Ammodramus henslowii*	Bird
33	Sprague's Pipit	*Anthus spragueii*	Bird
33	Little Brown Bat	*Myotis lucifugus*	Mammal
33	Ozark Shiner	*Notropis ozarcanus*	Fish
33	Bachman's Sparrow	*Peucaea aestivalis*	Bird
33	Purple Lilliput	*Toxolasma lividum*	Mussel
32	Prairie Mole Cricket	*Gryllotalpa major*	Insect
32	Ozark Snaketail Dragonfly	*Ophiogomphus westfalli*	Insect
31	Slippershell Mussel	*Alasmidonta viridis*	Mussel
30	Isopod	*Caecidotea steevesi*	Invertebrate - other
30	Isopod	*Lirceus bicuspidatus*	Invertebrate - other
30	Giant Prairie Robberfly	*Microstylum morosum*	Insect
30	Meek's Short Pointed Crayfish	*Orconectes meeki brevis*	Crayfish
30	Ozark Swallowtail	*Papilio joanae*	Insect
29	Buff-breasted Sandpiper	*Calidris subruficollis*	Bird
29	Rafinesque's Big-Eared Bat	*Corynorhinus rafinesquii*	Mammal
29	Mottled Duskywing	*Erynnis martialis*	Insect
29	Strawberry River Darter	*Etheostoma fragi*	Fish
29	Least Darter	*Etheostoma microperca*	Fish
29	Rusty Blackbird	*Euphagus carolinus*	Bird
29	"Elongate" Pigtoe	*Fusconaia sp. cf. flava*	Mussel
29	Meske's Skipper	*Hesperia meskei*	Insect
29	Silver Redhorse	*Moxostoma anisurum*	Fish
29	Bewick's Wren	*Thryomanes bewickii*	Bird
27	Lace-winged Roadside-Skipper	*Amblyscirtes aesculapius*	Insect
27	Isopod	*Caecidotea ancyla*	Invertebrate - other
27	Isopod	*Caecidotea salemensis*	Invertebrate - other
27	Hubbs' Crayfish	*Cambarus hubbsi*	Crayfish
27	Appalachian Azure	*Celastrina neglectamajor*	Insect
27	Baltimore Checkerspot	*Euphydryas phaeton ozarkae*	Insect
27	Land Snail	*Gastrocopta rogersensis*	Invertebrate - other
27	Eastern Small-Footed Bat	*Myotis leibii*	Mammal
27	Midget Crayfish	*Orconectes nana*	Crayfish
27	Longnose Darter	*Percina nasuta*	Fish
27	Shelled Cave Springtail	*Pseudosinella testa*	Invertebrate - other
27	Southern Cavefish	*Typhlichthys subterraneus*	Fish
25	Giant Stag Beetle	*Lucanus elaphus*	Insect
25	Springtail	*Pygmarrhopalites clarus*	Invertebrate - other
25	Diana	*Speyeria diana*	Insect
24	American Eel	*Anguilla rostrata*	Fish
24	Ruddy Turnstone	*Arenaria interpres*	Bird
24	Smith's Longspur	*Calcarius pictus*	Bird

24	Common Nighthawk	*Chordeiles minor*	Bird
24	Eastern Collared Lizard	*Crotaphytus collaris*	Reptile
24	Migrant Loggerhead Shrike	*Lanius ludovicianus*	Bird
24	Southeastern Bat	*Myotis austroriparius*	Mammal
24	Yellow-crowned Night-Heron	*Nyctanassa violacea*	Bird
24	Black-bellied Plover	*Pluvialis squatarola*	Bird
24	Paddlefish	*Polyodon spathula*	Fish
24	American Woodcock	*Scolopax minor*	Bird
24	Cerulean Warbler	*Setophaga cerulea*	Bird
23	Lace Bug	*Acalypta susanae*	Insect
23	American Bittern	*Botaurus lentiginosus*	Bird
23	Isopod	*Caecidotea stiladactyla*	Invertebrate - other
23	Northern Metalmark	*Calephelis borealis*	Insect
23	Dusky Azure	*Celastrina nigra*	Insect
23	Outis Skipper	*Cogia outis*	Insect
23	Blue Sucker	*Cycleptus elongatus*	Fish
23	Bluntface Shiner	*Cyprinella camura*	Fish
23	Spotfin Shiner	*Cyprinella spiloptera*	Fish
23	Beetle	*Derops divalis*	Insect
23	Willow Flycatcher	*Empidonax traillii*	Bird
23	Oklahoma Salamander	*Eurycea tynerensis*	Amphibian
23	Ozark Pigtoe	*Fusconaia ozarkensis*	Mussel
23	Crawfish Frog	*Lithobates areolatus*	Amphibian
23	Sabine Shiner	*Notropis sabinae*	Fish
23	Neosho Midget Crayfish	*Orconectes macrus*	Crayfish
23	Great Plains Skink	*Plestiodon obsoletus*	Reptile
23	Yehl Skipper	*Poanes yehl*	Insect
23	Purple Gallinule	*Porphyrio martinicus*	Bird
23	Byssus Skipper	*Problema byssus*	Insect
23	Ozark Pseudactium	*Pseudactium ursum*	Insect
23	Ouachita Kidneyshell	*Ptychobranchus occidentalis*	Mussel
23	Plains Harvest Mouse	*Reithrodontomys montanus*	Mammal
23	Western Groundsnake	*Sonora semiannulata*	Reptile
23	Ozark Cave Amphipod	*Stygobromus ozarkensis*	Invertebrate - other
23	Pseudoscorpion	*Tartarocreagris ozarkensis*	Invertebrate - other
23	Lined Snake	*Tropidoclonion lineatum*	Reptile
23	Ellipse	*Venustaconcha ellipsiformis*	Mussel
23	Bleedingtooth Mussel	*Venustaconcha pleasii*	Mussel
21	Le Conte's Sparrow	*Ammodramus leconteii*	Bird
21	Bell's Roadside-Skipper	*Amblyscirtes belli*	Insect
21	Golden-banded Skipper	*Autochton cellus*	Insect
21	Scrubland Tiger Beetle	*Cicindela obsoleta*	Insect
21	Sedge Wren	*Cistothorus platensis*	Bird
21	Black-tailed Jackrabbit	*Lepus californicus*	Mammal

21	Eastern Spotted Skunk	*Spilogale putorius*	Mammal
20	Gapped Ringed Crayfish	*Orconectes neglectus*	Crayfish
19	Sharp-shinned Hawk	*Accipiter striatus*	Bird
19	Elktoe	*Alasmidonta marginata*	Mussel
19	Ringed Salamander	*Ambystoma annulatum*	Amphibian
19	Grasshopper Sparrow	*Ammodramus savannarum*	Bird
19	American Black Duck	*Anas rubripes*	Bird
19	Anhinga	*Anhinga anhinga*	Bird
19	Eastern Whip-poor-will	*Antrostomus vociferus*	Bird
19	Sanderling	*Calidris alba*	Bird
19	Dunlin	*Calidris alpina*	Bird
19	Stilt Sandpiper	*Calidris himantopus*	Bird
19	Chimney Swift	*Chaetura pelagica*	Bird
19	Yellow-billed Cuckoo	*Coccyzus americanus*	Bird
19	Northern Bobwhite	*Colinus virginianus*	Bird
19	Tricolored Heron	*Egretta tricolor*	Bird
19	Autumn Darter	*Etheostoma autumnale*	Fish
19	Sunburst Darter	*Etheostoma mihileze*	Fish
19	Current Darter	*Etheostoma uniporum*	Fish
19	Grotto Salamander "northern clade"	*Eurycea spelaea northern*	Amphibian
19	Grotto Salamander "western clade"	*Eurycea spelaea western*	Amphibian
19	American Kestrel	*Falco sparverius*	Bird
19	Common Gallinule	*Gallinula galeata*	Bird
19	Purple Finch	*Haemorhous purpureus*	Bird
19	Leonard's Skipper	*Hesperia leonardus*	Insect
19	Cobweb Skipper	*Hesperia metea*	Insect
19	Ouachita Diving Beetle	*Heterosternuta ouachita*	Insect
19	Mooneye	*Hiodon tergisus*	Fish
19	Wood Thrush	*Hylocichla mustelina*	Bird
19	Least Bittern	*Ixobrychus exilis*	Bird
19	American Brook Lamprey	*Lethenteron appendix*	Fish
19	Short-billed Dowitcher	*Limnodromus griseus*	Bird
19	Swainson's Warbler	*Limnothlypis swainsonii*	Bird
19	Pealip Redhorse	*Moxostoma pisolabrum*	Fish
19	Striped Mullet	*Mugil cephalus*	Fish
19	Redspot Chub	*Nocomis asper*	Fish
19	Crawford's Gray Shrew	*Notiosorex crawfordi*	Mammal
19	Channel Shiner	*Notropis wickliffi*	Fish
19	Black-crowned Night-Heron	*Nycticorax nycticorax*	Bird
19	Hickorynut	*Obovaria olivaria*	Mussel
19	"White" Hickorynut	*Obovaria sp. cf arkansasensis*	Mussel
19	Small-eyed Mold Beetle	*Ouachitychus parvoculus*	Insect
19	Gilt Darter	*Percina evides*	Fish
19	Slenderhead Darter	*Percina phoxocephala*	Fish

19	Ohio Pigtoe	*Pleurobema cordatum*	Mussel
19	Gray Comma	*Polygonia progne*	Insect
19	Boreal Chorus Frog	*Pseudacris maculata*	Amphibian
19	Eastern Harvest Mouse	*Reithrodontomys humulis*	Mammal
19	Oak Hairstreak	*Satyrium favonius ontario*	Insect
19	Eastern Spadefoot	*Scaphiopus holbrookii*	Amphibian
19	Hurter's Spadefoot	*Scaphiopus hurterii*	Amphibian
19	Southeastern Shrew	*Sorex longirostris*	Mammal
19	Ornate Box Turtle	*Terrapene ornata*	Reptile
19	Lilliput	*Toxolasma parvum*	Mussel
19	Bell's Vireo	*Vireo bellii*	Bird
17	Highfin Carpsucker	*Carpiodes velifer*	Fish
17	Trumpeter Swan	*Cygnus buccinator*	Bird
17	Round Pigtoe	*Pleurobema sintoxia*	Mussel
17	Little Spectaclecase group	*Villosa sp. cf lienosa*	Mussel
16	Gray Bat	*Myotis grisescens*	Mammal
16	American Badger	*Taxidea taxus*	Mammal
15	Eastern Tiger Salamander	*Ambystoma tigrinum*	Amphibian
15	Gorgone Checkerspot	*Chlosyne gorgone*	Insect
15	Cow Path Tiger Beetle	*Cicindela purpurea*	Insect
15	Monarch	*Danaus plexippus*	Insect
15	Lake Chubsucker	*Erimyzon sucetta*	Fish
15	Highland Darter	*Etheostoma teddyroosevelt*	Fish
15	Grotto Salamander "eastern clade"	*Eurycea spelaea eastern*	Amphibian
15	Least Brook Lamprey	*Lampetra aepyptera*	Fish
15	Wood Frog	*Lithobates sylvaticus*	Amphibian
15	Shoal Chub	*Macrhybopsis hyostoma*	Fish
15	Long-tailed Weasel	*Mustela frenata*	Mammal
15	Slender Glass Lizard	*Ophisaurus attenuatus*	Reptile
15	Saddleback Darter	*Percina vigil*	Fish
15	American Golden-Plover	*Pluvialis dominica*	Bird
15	Western Harvest Mouse	*Reithrodontomys megalotis*	Mammal
15	Rainbow	*Villosa iris*	Mussel
13	Twelve-spotted Tiger Beetle	*Cicindela duodecimguttata*	Insect

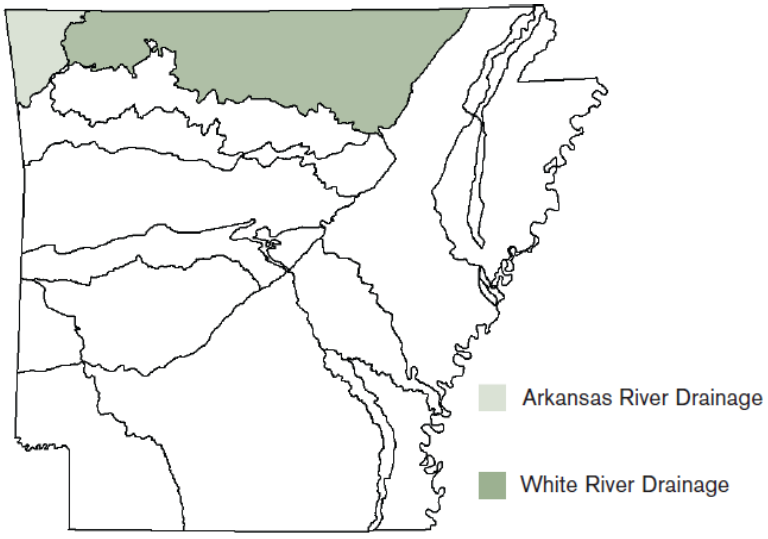
Habitats that occur in the Ozark Highlands

Of the 37 terrestrial habitats in Arkansas, 19 occur in the Ozark Highlands ecoregion (Table 3.3). Of 18 ecobasins in Arkansas, two occur in the Ozark Highlands ecoregion (Figure 3.5). These associations are described in the Section 4. Terrestrial Habitats and Section 5. Aquatic Habitats.

Table 3.3. Terrestrial Habitats in the Ozark Highlands.

Habitat Name
Caves, Mines, Sinkholes, and other Karst Habitat
Crop Land
Cultivated Forest
Herbaceous Wetland
Interior Highlands Calcareous Glade and Barrens
Interior Highlands Dry Acidic Glade and Barrens
Mud Flats
Ozark-Ouachita Cliff and Talus
Ozark-Ouachita Forested Seep
Ozark-Ouachita Dry Oak and Pine Woodland
Ozark-Ouachita Dry-Mesic Oak Forest
Ozark-Ouachita Mesic Hardwood Forest
Ozark-Ouachita Pine-Oak Forest/Woodland
Ozark-Ouachita Prairie and Woodland
Ozark-Ouachita Riparian
Pasture Land
Ponds, Lakes, and Water Holes
Ozark-Ouachita Large Floodplain
Urban/Suburban

Figure 3.5. Ecobasin Distribution in the Ozark Highlands.



Problems faced by Species of Greatest Conservation Need (SGCN)

Taxa association teams listed problems faced by SGCN individually in the Species Reports. A summary of the problems faced by SGCN in the Ozark Highlands is presented below. Each problem has a score which is a sum of all Species Priority Scores associated with species for

which this problem was assigned. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species associated with problems listed here.

Table 3.4. Problems faced by SGCN in the Ozark Highlands Ecoregion.

Problem Faced	Score
Urban development	3875
Grazing/Browsing	2720
Forestry activities	1912
Dam	1880
Agricultural practices	1878
Road construction	1800
Confined animal operations	1596
Resource extraction	1515
Recreation	1028
Municipal/Industrial point source	830
Channel alteration	734
Fire suppression	652
Channel maintenance	508
Parasites/pathogens	495
Water diversion	447
Conversion of riparian forest	427
Commercial/industrial development	403
Exotic species	402
Non-point source pollution	196
Predation	139
Excessive groundwater withdrawal	112
Excessive non-commercial harvest or collection	108
Management of/for certain species	103
Restricted range in Arkansas	57
Grazing	57
Interspecific competiton	48
Commercial harvest	43
Unknown	33

Conservation actions needed in the Ozark Highlands

Below are scores of conservation actions recommended by the taxa association teams for SGCN within the Ozark Highlands (Figure 3.6). The score associated with the conservation action category is the sum of all priority scores associated with species for which a conservation action has been assigned, weighted by the importance of the conservation action category to the species. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species would be affected by actions within this conservation action category.

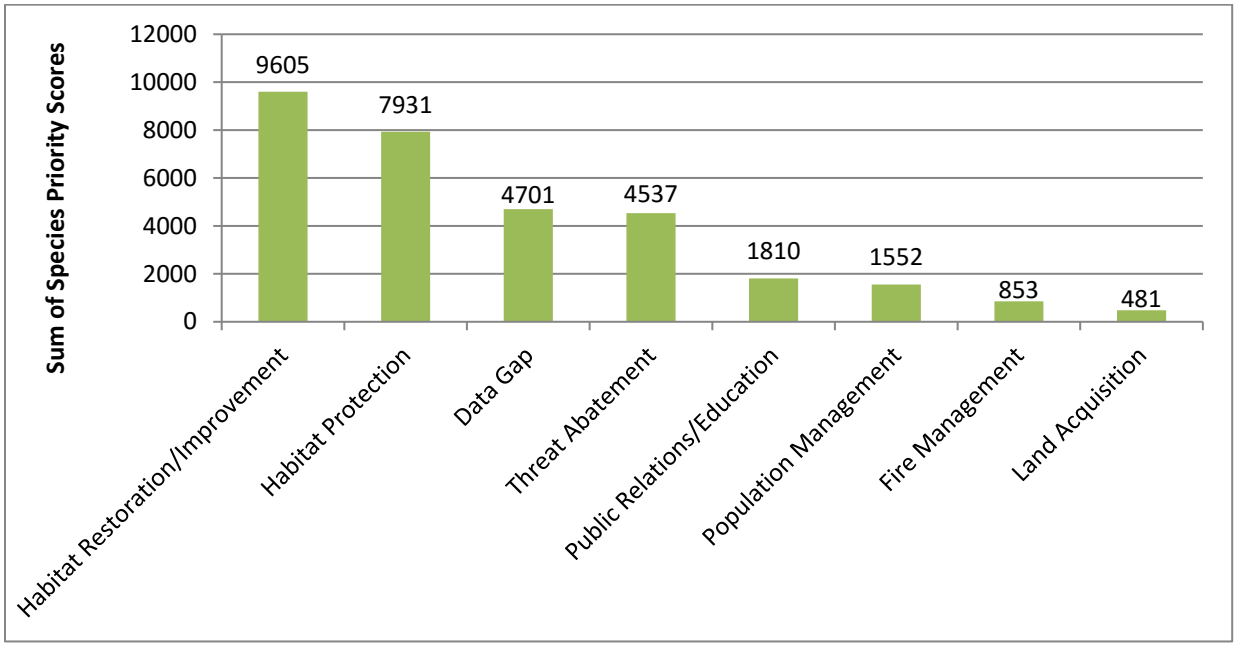


Figure 3.6. Conservation action categories recommended for the Ozark Highlands.

Boston Mountains (Ecoregion 38)

Ecoregion 38 is mountainous, forested and underlain by Pennsylvanian sandstone, shale and siltstone. It is one of the Ozark Plateaus; some folding and faulting has occurred but, in general, strata are much less deformed than in the Ouachita Mountains (36). Maximum elevations are higher, soils have a warmer temperature regime and carbonate rocks are much less extensive than in the Ozark Highlands (39). Physiography is distinct from the Arkansas Valley (37).

Upland soils are mostly Ultisols that developed under oak–hickory and oak–hickory– pine forests. Today, forests are still widespread; northern red oak, southern red oak, white oak and hickories usually dominate the uplands, but shortleaf pine grows on drier, south- and west-facing slopes underlain by sandstone.

Figure 3.7. Boston Mountains Ecoregion.

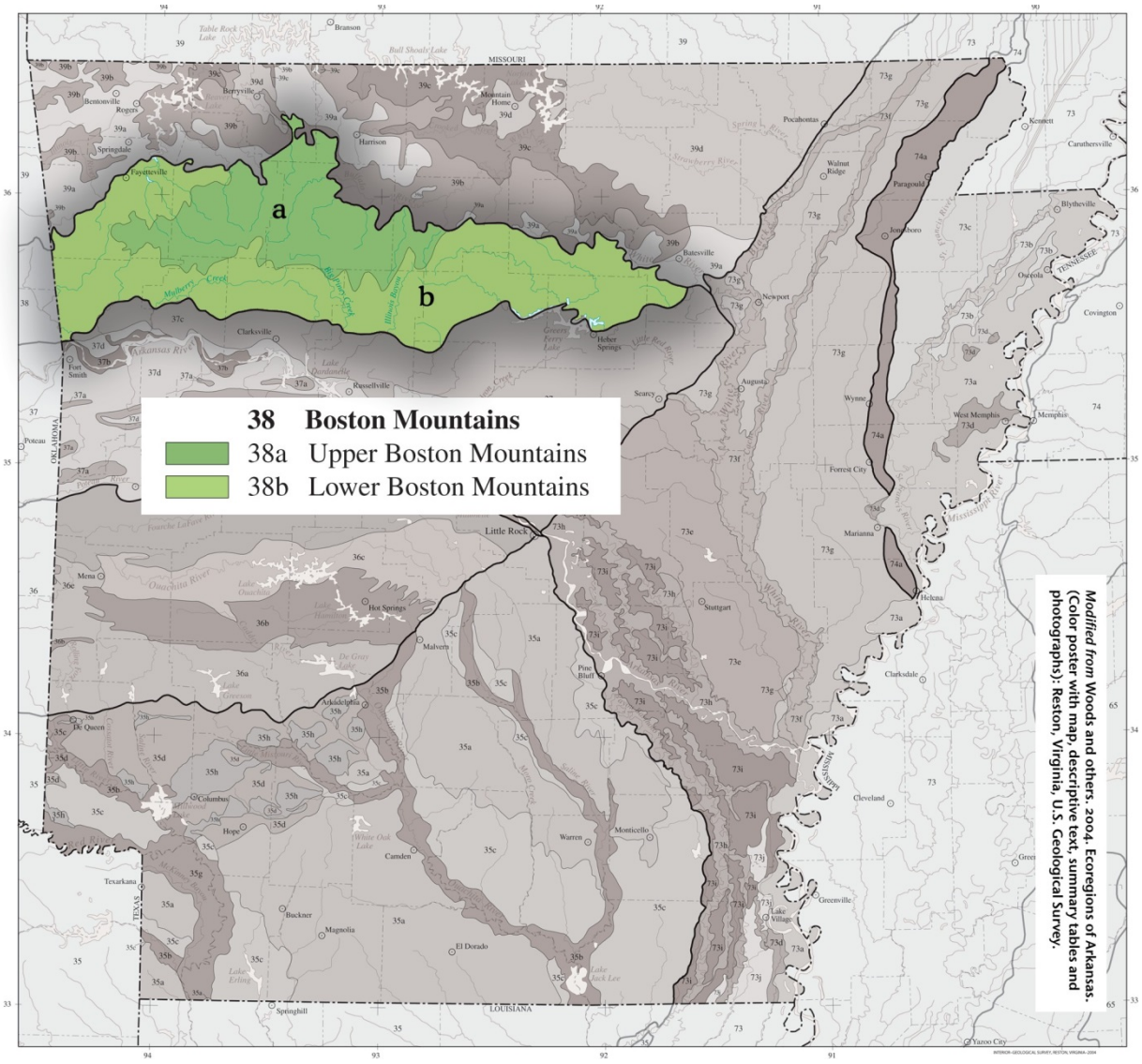


Photo by Tom Foti, AHNC

Upper Boston Mountains

Pastureland or hayland occur on nearly level ridgetops, benches and valley floors. Population density is low; recreation, logging and livestock farming are the primary land uses.

Water quality in streams is generally exceptional; biochemical, nutrient and mineral water quality parameter concentrations all tend to be very low. Fish communities are mostly composed of sensitive species; a diverse, often darter-dominated community occurs along with nearly equal proportions of minnows and sunfishes. During low flows, streams in both Ecoregions 38 and 36 usually run clear but, during high flow conditions, turbidity in Ecoregion 38 tends to be greater than in Ecoregion 36. Summer flow in many small streams is limited or nonexistent but isolated, enduring pools may occur.

Upper Boston Mountains

38a. The Upper Boston Mountains ecoregion is generally higher and more moist than the Lower Boston Mountains (38b); elevations vary from 1,900 to 2,800 feet. Potential natural vegetation is oak–hickory forest. Characteristically, the forests of the Upper Boston Mountains (38a) are more closed and contain far less pine than those of the Lower Boston Mountains (38b). North-facing slopes support mesic forests. Ecoregion 38a is underlain by Pennsylvanian sandstone, shale and siltstone that contrasts with the limestone and dolomite that dominates Ozark Highlands (39).

Water quality in streams reflects geology, soils and land use and is typically exceptional; mineral, nutrient and solid concentrations as well as turbidity all tend to be very low. During the summer, many streams do not flow.

Lower Boston Mountains

38b. The Lower Boston Mountains ecoregion is a mosaic of woodland, forest and savanna that contrasts with the denser, more moist and closed forests of the Upper Boston Mountains (38a). Potential natural vegetation is oak–hickory– pine and oak–hickory forests; pine is much more common than in Ecoregions 38a or 39. Shortleaf pine is especially widespread on drier, south- and west-facing slopes un- derlain by sandstone. Both precipitation and forest density decrease toward the west, where oak–pine woodland or savanna become common.

Ecoregion 38b is underlain by Pennsylvanian sandstone, shale and siltstone; it is lithologically distinct from the limestone- and dolomite-dominated Ozark High- lands (39).

Overall, water quality is quite similar to Ecoregion 38a, which, although generally higher, has similar lithology and land uses (adapted from Woods and others 2004).

Boston Mountain Ecoregion:

Species of Greatest Conservation Need (SGCN)

Of the 377 SGCN, 160 occur in the Boston Mountains ecoregion (Table 3.5).

Table 3.5. Species of greatest conservation need (SGCN) in the Boston Mountains ranked by priority score.

Priority Score	Common Name	Scientific Name	Taxa Association
100	Yellowcheek Darter	*Etheostoma moorei*	Fish
80	Bowed Snowfly	*Allocapnia oribata*	Insect
80	Ozark Big-eared Bat	*Corynorhinus townsendii ingens*	Mammal
80	Speckled Pocketbook	*Lampsilis streckeri*	Mussel
80	Ground Beetle	*Rhadine ozarkensis*	Insect
65	Cave Obligate Pseudoscorpion	*Apochthonius diabolus*	Invertebrate - other
65	Cave Obligate Harvestman	*Crosbyella distincta*	Invertebrate - other
65	Cave Obligate Harvestman	*Crosbyella roeweri*	Invertebrate - other
65	Nearctic Paduniellan Caddisfly	*Paduniella nearctica*	Insect
65	Cave Obligate Millipede	*Trigenotyla parca*	Invertebrate - other
63	Northern Long-eared Bat	*Myotis septentrionalis*	Mammal
62	Boston Mountains Crayfish	*Cambarus causeyi*	Crayfish
62	Neosho Mucket	*Lampsilis rafinesqueana*	Mussel
62	Indiana Bat	*Myotis sodalis*	Mammal
52	Rabbitsfoot	*Quadrula cylindrica cylindrica*	Mussel
50	Winter Stonefly	*Allocapnia jeanae*	Insect
50	Winter Stonefly	*Allocapnia ozarkana*	Insect
50	Springtail	*Pseudosinella dubia*	Invertebrate - other
50	Cave Obligate Springtail	*Schaefferia alabamensis*	Invertebrate - other

46	Predaceous Diving Beetle	*Heterosternuta phoebeae*	Insect
43	Piping Plover	*Charadrius melodus*	Bird
43	Western Fanshell	*Cyprogenia aberti*	Mussel
42	Isopod	*Caecidotea oculata*	Invertebrate - other
42	Cave Obligate Isopod	*Caecidotea simulator*	Invertebrate - other
42	Cave Obligate Planarian	*Dendrocoelopsis americana*	Invertebrate - other
38	Linda's Roadside-Skipper	*Amblyscirtes linda*	Insect
38	Isopod	*Caecidotea dimorpha*	Invertebrate - other
38	Bat Cave Isopod	*Caecidotea macropropoda*	Invertebrate - other
38	Spectaclecase	*Cumberlandia monodonta*	Mussel
38	Pyramid Pigtoe	*Pleurobema rubrum*	Mussel
34	Swamp Metalmark	*Calephelis muticum*	Insect
34	Williams' Crayfish	*Orconectes williamsi*	Crayfish
34	Salamander Mussel	*Simpsonaias ambigua*	Mussel
34	Ozark Emerald	*Somatochlora ozarkensis*	Insect
33	Henslow's Sparrow	*Ammodramus henslowii*	Bird
33	Little Brown Bat	*Myotis lucifugus*	Mammal
33	Ozark Shiner	*Notropis ozarcanus*	Fish
33	Bachman's Sparrow	*Peucaea aestivalis*	Bird
33	Purple Lilliput	*Toxolasma lividum*	Mussel
30	Mayfly	*Dannella provonshai*	Insect
30	Isopod	*Lirceus bicuspidatus*	Invertebrate - other
30	Ozark Swallowtail	*Papilio joanae*	Insect
29	Mottled Duskywing	*Erynnis martialis*	Insect
29	Rusty Blackbird	*Euphagus carolinus*	Bird
29	"Elongate" Pigtoe	*Fusconaia sp. cf. flava*	Mussel
29	Queensnake	*Regina septemvittata*	Reptile
29	Bewick's Wren	*Thryomanes bewickii*	Bird
27	Lace-winged Roadside-Skipper	*Amblyscirtes aesculapius*	Insect
27	Carolina Roadside-Skipper	*Amblyscirtes carolina*	Insect
27	Isopod	*Caecidotea ancyla*	Invertebrate - other
27	Hubbs' Crayfish	*Cambarus hubbsi*	Crayfish
27	Appalachian Azure	*Celastrina neglectamajor*	Insect
27	Baltimore Checkerspot	*Euphydryas phaeton ozarkae*	Insect
27	Ozark Clubtail Dragonfly	*Gomphus ozarkensis*	Insect
27	Eastern Small-Footed Bat	*Myotis leibii*	Mammal
27	Midget Crayfish	*Orconectes nana*	Crayfish
27	Longnose Darter	*Percina nasuta*	Fish
27	Shelled Cave Springtail	*Pseudosinella testa*	Invertebrate - other
25	Tiger Beetle	*Cicindela lepida*	Insect
25	Giant Stag Beetle	*Lucanus elaphus*	Insect
25	Springtail	*Pygmarrhopalites clarus*	Invertebrate - other
25	Diana	*Speyeria diana*	Insect
24	American Eel	*Anguilla rostrata*	Fish
24	Common Nighthawk	*Chordeiles minor*	Bird
24	Migrant Loggerhead Shrike	*Lanius ludovicianus*	Bird

24	Yellow-crowned Night-Heron	*Nyctanassa violacea*	Bird
24	Black-bellied Plover	*Pluvialis squatarola*	Bird
24	Paddlefish	*Polyodon spathula*	Fish
24	American Woodcock	*Scolopax minor*	Bird
24	Cerulean Warbler	*Setophaga cerulea*	Bird
23	American Bittern	*Botaurus lentiginosus*	Bird
23	Isopod	*Caecidotea stiladactyla*	Invertebrate - other
23	Northern Metalmark	*Calephelis borealis*	Insect
23	Dusky Azure	*Celastrina nigra*	Insect
23	Outis Skipper	*Cogia outis*	Insect
23	Bluntface Shiner	*Cyprinella camura*	Fish
23	Beetle	*Derops divalis*	Insect
23	Willow Flycatcher	*Empidonax traillii*	Bird
23	Oklahoma Salamander	*Eurycea tynerensis*	Amphibian
23	Pseudoscorpion	*Hesperochernes occidentalis*	Invertebrate - other
23	Crawfish Frog	*Lithobates areolatus*	Amphibian
23	Great Plains Skink	*Plestiodon obsoletus*	Reptile
23	Yehl Skipper	*Poanes yehl*	Insect
23	Byssus Skipper	*Problema byssus*	Insect
23	Ozark Pseudactium	*Pseudactium ursum*	Insect
23	Ouachita Kidneyshell	*Ptychobranchus occidentalis*	Mussel
23	Plains Harvest Mouse	*Reithrodontomys montanus*	Mammal
23	Ground Beetle	*Scaphinotus inflectus*	Insect
23	Ozark Cave Amphipod	*Stygobromus ozarkensis*	Invertebrate - other
23	Pseudoscorpion	*Tartarocreagris ozarkensis*	Invertebrate - other
23	Ellipse	*Venustaconcha ellipsiformis*	Mussel
23	Bleedingtooth Mussel	*Venustaconcha pleasii*	Mussel
21	Le Conte's Sparrow	*Ammodramus leconteii*	Bird
21	Bell's Roadside-Skipper	*Amblyscirtes belli*	Insect
21	Golden-banded Skipper	*Autochton cellus*	Insect
21	Woodland Tiger Beetle	*Cicindela unipunctata*	Insect
21	Sedge Wren	*Cistothorus platensis*	Bird
21	Eastern Spotted Skunk	*Spilogale putorius*	Mammal
19	Sharp-shinned Hawk	*Accipiter striatus*	Bird
19	Elktoe	*Alasmidonta marginata*	Mussel
19	Ringed Salamander	*Ambystoma annulatum*	Amphibian
19	Brown Bullhead	*Ameiurus nebulosus*	Fish
19	Grasshopper Sparrow	*Ammodramus savannarum*	Bird
19	Anhinga	*Anhinga anhinga*	Bird
19	Eastern Whip-poor-will	*Antrostomus vociferus*	Bird
19	Sanderling	*Calidris alba*	Bird
19	Dunlin	*Calidris alpina*	Bird
19	Stilt Sandpiper	*Calidris himantopus*	Bird
19	Chimney Swift	*Chaetura pelagica*	Bird
19	Yellow-billed Cuckoo	*Coccyzus americanus*	Bird
19	Northern Bobwhite	*Colinus virginianus*	Bird
19	Tricolored Heron	*Egretta tricolor*	Bird

19	Autumn Darter	*Etheostoma autumnale*	Fish
19	Sunburst Darter	*Etheostoma mihileze*	Fish
19	American Kestrel	*Falco sparverius*	Bird
19	Common Gallinule	*Gallinula galeata*	Bird
19	Purple Finch	*Haemorhous purpureus*	Bird
19	Four-toed Salamander	*Hemidactylium scutatum*	Amphibian
19	Leonard's Skipper	*Hesperia leonardus*	Insect
19	Cobweb Skipper	*Hesperia metea*	Insect
19	Ouachita Diving Beetle	*Heterosternuta ouachita*	Insect
19	Wood Thrush	*Hylocichla mustelina*	Bird
19	Least Bittern	*Ixobrychus exilis*	Bird
19	American Brook Lamprey	*Lethenteron appendix*	Fish
19	Short-billed Dowitcher	*Limnodromus griseus*	Bird
19	Swainson's Warbler	*Limnothlypis swainsonii*	Bird
19	Crawford's Gray Shrew	*Notiosorex crawfordi*	Mammal
19	Black-crowned Night-Heron	*Nycticorax nycticorax*	Bird
19	"White" Hickorynut	*Obovaria sp. cf arkansasensis*	Mussel
19	Small-eyed Mold Beetle	*Ouachitychus parvoculus*	Insect
19	Gilt Darter	*Percina evides*	Fish
19	Prairie Skink	*Plestiodon septentrionalis*	Reptile
19	Gray Comma	*Polygonia progne*	Insect
19	Gulf Mapleleaf	*Quadrula nobilis*	Mussel
19	Graham's Crayfish Snake	*Regina grahamii*	Reptile
19	Oak Hairstreak	*Satyrium favonius ontario*	Insect
19	Hurter's Spadefoot	*Scaphiopus hurterii*	Amphibian
19	Southeastern Shrew	*Sorex longirostris*	Mammal
19	Ornate Box Turtle	*Terrapene ornata*	Reptile
19	Lilliput	*Toxolasma parvum*	Mussel
19	Pondhorn	*Uniomerus tetralasmus*	Mussel
19	Bell's Vireo	*Vireo bellii*	Bird
17	Highfin Carpsucker	*Carpiodes velifer*	Fish
17	Beach-dune Tiger Beetle	*Cicindela hirticollis*	Insect
17	Sandy Stream Tiger Beetle	*Cicindela macra*	Insect
17	Western Diamond-backed	*Crotalus atrox*	Reptile
17	Trumpeter Swan	*Cygnus buccinator*	Bird
17	Round Pigtoe	*Pleurobema sintoxia*	Mussel
17	Little Spectaclecase group	*Villosa sp. cf lienosa*	Mussel
16	Gray Bat	*Myotis grisescens*	Mammal
16	American Badger	*Taxidea taxus*	Mammal
15	Gorgone Checkerspot	*Chlosyne gorgone*	Insect
15	Monarch	*Danaus plexippus*	Insect
15	Highland Darter	*Etheostoma teddyroosevelt*	Fish
15	Wood Frog	*Lithobates sylvaticus*	Amphibian
15	Long-tailed Weasel	*Mustela frenata*	Mammal
15	Slender Glass Lizard	*Ophisaurus attenuatus*	Reptile
15	American Golden-Plover	*Pluvialis dominica*	Bird

15	Rainbow	*Villosa iris*	Mussel
13	Twelve-spotted Tiger Beetle	*Cicindela duodecimguttata*	Insect

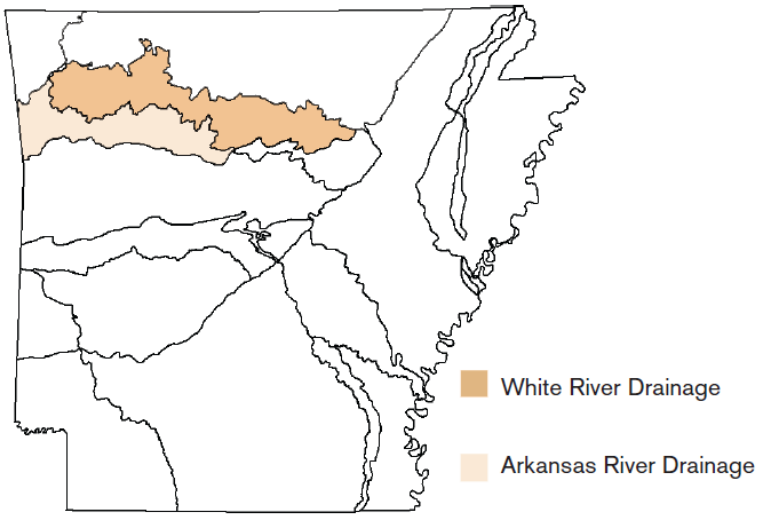
Habitats that occur in the Boston Mountains

Of the 37 terrestrial habitats in Arkansas, 19 occur in the Boston Mountains ecoregion (Table 3.6). Of 18 ecobasins in Arkansas, two occur in the Boston Mountains (Figure 3.8). These associations are described in the Section 4. Terrestrial Habitatsand Section 5. Aquatic Habitats.

Table 3.6. Terrestrial Habitats in the Boston Mountains.

Habitat Name
Caves, Mines, Sinkholes, and other Karst Habitat
Crop Land
Cultivated Forest
Herbaceous Wetland
Interior Highlands Calcareous Glade and Barrens
Interior Highlands Dry Acidic Glade and Barrens
Mud Flats
Ozark-Ouachita Cliff and Talus
Ozark-Ouachita Dry Oak and Pine Woodland
Ozark-Ouachita Dry-Mesic Oak Forest
Ozark-Ouachita Forested Seep
Ozark-Ouachita Large Floodplain
Ozark-Ouachita Mesic Hardwood Forest
Ozark-Ouachita Pine/Bluestem Woodland
Ozark-Ouachita Pine-Oak Forest/ Woodland
Ozark-Ouachita Riparian
Pasture Land
Ponds, Lakes, and Water Holes
Urban/Suburban

Figure 3.8. Ecobasin distribution in the Boston Mountains.



Problems faced by Species of Greatest Conservation Need (SGCN)

A summary of the problems faced by SGCN in the Boston Mountains is presented below. Each problem has a score which is a sum of all Species Priority Scores associated with species for which this problem was assigned. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species associated with problems listed here.

Table 3.7. Problems faced by SGCN in the Boston Mountains Ecoregion.

Problem faced	Score
Urban development	2433
Forestry activities	1733
Grazing/Browsing	1630
Agricultural practices	1561
Dam	1555
Resource extraction	1547
Road construction	793
Confined animal operations	616
Municipal/Industrial point source	586
Fire suppression	452
Channel alteration	410
Parasites/pathogens	400
Recreation	379
Channel maintenance	369
Water diversion	342

Conversion of riparian forest	333
Commercial/industrial development	286
Exotic species	283
Non-point source pollution	131
Excessive groundwater withdrawal	121
Predation	97
Grazing	57
Management of/for certain species	46
Interspecific competiton	29
Excessive non-commercial harvest or collection	27
Commercial harvest	24

Conservation actions needed in the Boston Mountains

Below are scores of conservation actions recommended by the taxa association teams for SGCN within the Ozark Highlands (Figure 3.9). The score associated with the conservation action category is the sum of all priority scores associated with species for which a conservation action has been assigned, weighted by the importance of the conservation action category to the species. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species would be affected by actions within this conservation action category.

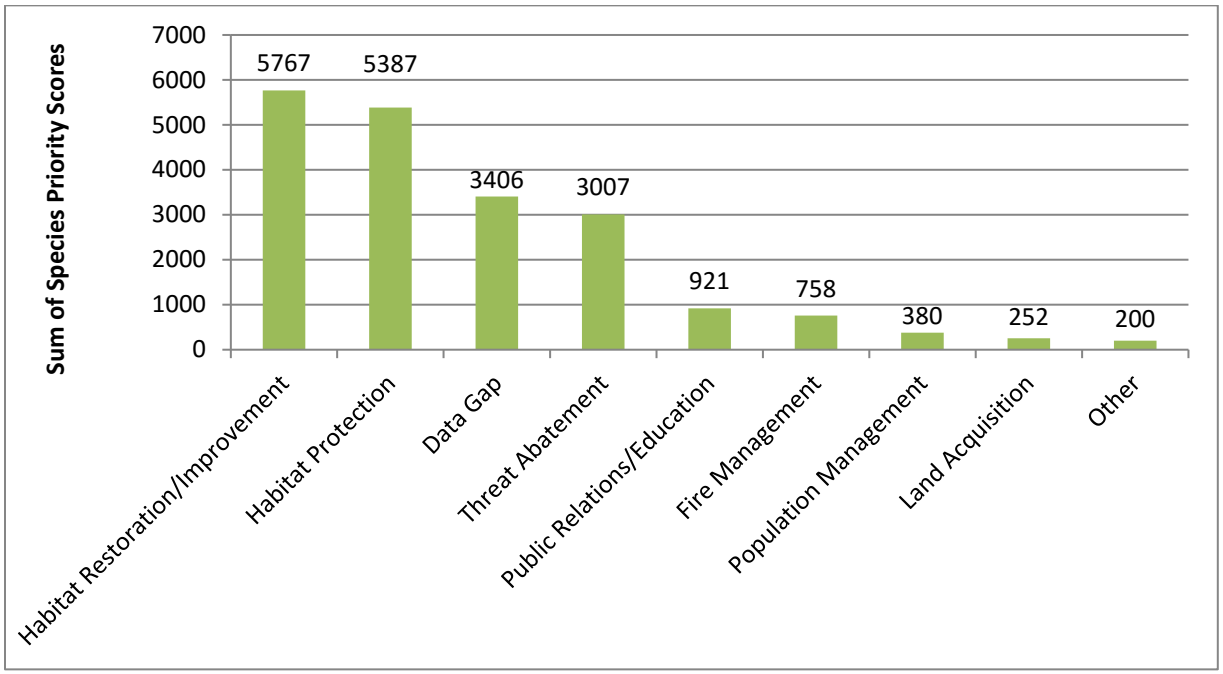


Figure 3.9. Conservation action categories recommended for the Boston Mountains.

Arkansas Valley (Ecoregion 37)

Ecoregion 37 is a synclinal and alluvial valley lying between the Ozark Highlands (39) and the Ouachita Mountains (36). The Arkansas Valley (37) is, characteristically, diverse and transitional. It generally coincides with the Arkoma Basin, an oil and gas province, that developed as sand and mud were deposited in a depression north of the rising Ouachita Mountains during the Mississippian and Pennsylvanian eras.

The Arkansas Valley (37) contains plains, hills, floodplains, terraces and scattered mountains. It is largely underlain by interbedded Pennsylvanian sandstone, shale and siltstone.

Figure 3.10. Arkansas Valley Ecoregion.

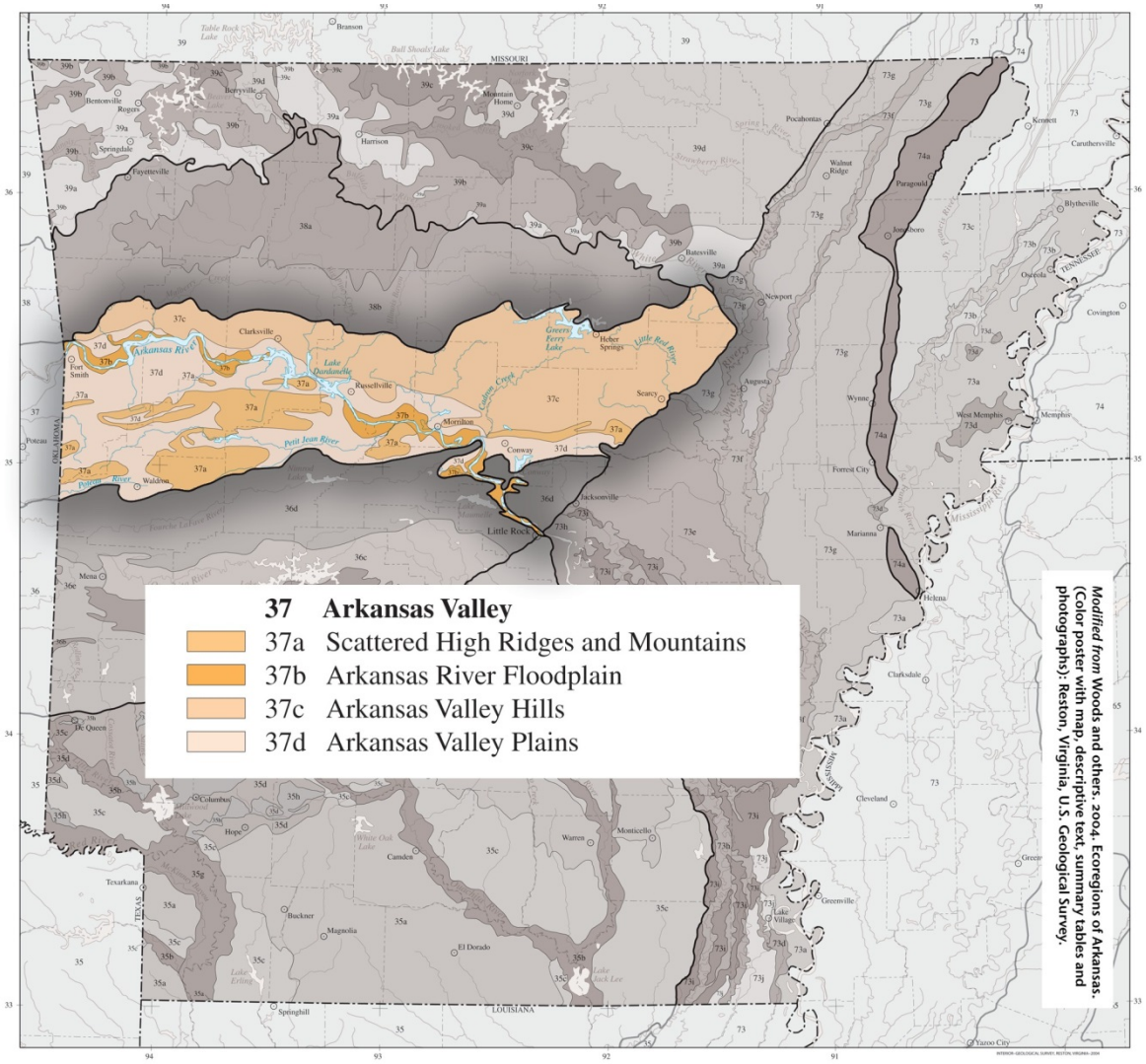


Photo by MAWPT

Prior to the 19th century, uplands were dominated by a mix of forest, woodland, savanna and prairie whereas floodplains and lower terraces were covered by bottomland deciduous forest. Today, less rugged upland areas have been cleared for pastureland or hayland. Poultry and livestock farming are important land uses.

Water quality is generally good and influenced more by land use activities than by soils or geology; average stream gradients and dissolved oxygen levels are lower in the Arkansas Valley (37) than in the Ouachita Mountains (36) or Ozark Highlands (39), whereas turbidity, total suspended solids, total organic carbon, total phosphorus and biochemical oxygen demand values are typically higher. The Arkansas River is continuously turbid. Summer flow in smaller streams is typically limited or nonexistent.

Fish communities characteristically contain a substantial proportion of sensitive species; a sunfish and minnow-dominated community exists along with substantial proportions of darters and catfishes (particularly madtoms).

Scattered High Ridges and Mountains

37a. The Scattered High Ridges and Mountains ecoregion is more rugged and wooded than Ecoregions 37b, 37c, or 37d. Ecoregion 37a is characteristically covered by savannas, open woodlands, or forests dominated or codominated by upland oaks, hickory and shortleaf pine; loblolly pine occurs but is not native. It is underlain by Pennsylvanian sandstone and shale; calcareous rocks such as those that dominate the Ozark Highlands (39) are absent.

Nutrient and mineral values (including turbidity and hardness) in streams are slightly higher than in other parts of the Arkansas Valley (37). Magazine Mountain, the highest point in Arkansas at

2,753 feet, is distinguished by diverse habitats. Its flat top is covered with xeric, stunted woodlands. Mesic sites also occur and may contain beech–maple forests.

Arkansas River Floodplain

37b. The Arkansas River Floodplain is characteristically veneered with Holocene alluvium and includes natural levees, meander scars, oxbow lakes, point bars, swales and backswamps. It is lithologically and physiographically distinct from the surrounding uplands of the Arkansas Valley (37). Mollisols, Entisols, Alfisols and Inceptisols are common; the soil mosaic sharply contrasts with nearby, higher elevation ecoregions where Ultisols developed under upland oaks, hickory and pine.

Potential natural vegetation is southern floodplain forest. Bottomland oaks including bur oak, American sycamore, sweetgum, willows, eastern cottonwood, green ash, pecan, hackberry and elm were once extensive. They have been widely cleared for pastureland, hayland and cropland. However, some forest remains in frequently flooded or poorly-drained areas. In Arkansas, bur oak is most dominant in Ecoregion 37b.

Arkansas Valley Hills

37c. The Arkansas Valley Hills are underlain by Pennsylvanian sandstone and shale and are lithologically distinct from Ecoregions 37b and 39. Ecoregion 37c is more hilly than the Arkansas Valley Plains (37d) and less rugged than Ecoregions 36, 37a and 38. Ultisols are common and support a potential natural vegetation of oak– hickory forest or oak–hickory–pine forest; both soils and natural vegetation contrast with those of Ecoregion 37b.

Today, pastureland is extensive, but rugged areas are wooded; overall, trees are much less extensive than in neighboring Ecoregions 36d, 37a and 38 but more widespread than in Ecoregions 37b and 37d. Poultry operations, livestock farming and logging are important land uses.

Arkansas Valley Plains

37d. The Arkansas Valley Plains are in the rainshadow of the Fourche Mountains and were once covered by a distinctive mosaic of prairie, savanna and woodland. Ecoregion 37d is mostly undulating but a few hills and ridges occur.

Westward, Ecoregion 37d becomes flatter, drier, more open and has fewer topographic fire barriers. Prior to the 19th century, frequently burned western areas had extensive prairie on droughty soils; scattered pine–oak savanna also occurred. Elsewhere, potential natural vegetation is primarily oak–hickory forest or oak–hickory– pine forest.

Today, pastureland and hayland are extensive but remnants of prairie, particularly the Cherokee Prairie near Fort Smith and woodland occur. Poultry and livestock farming are primary land

uses. Cropland agriculture in the Arkansas Valley Plains (37d) is less important than in Ecoregion 37b and wooded areas are not as extensive as in more rugged Ecoregions 36, 37a, 37c and 38. Stream turbidity generally remains low except during storm events (adapted from Woods and others 2004).

Arkansas Valley Ecoregion:

Species of Greatest Conservation Need (SGCN)

Of the 377 SGCN, 161 occur in the Arkansas Valley ecoregion (Table 3.8).

Table 3.8. Species of greatest conservation need (SGCN) in the Arkansas Valley ranked by priority score.

Priority Score	Common Name	Scientific Name	Taxa Association
80	Magazine Mountain Mold Beetle	*Arianops sandersoni*	Insect
80	Magazine Mountain Shagreen	*Inflectarius magazinensis*	Invertebrate - other
80	Magazine Stripetail	*Isoperla szczytkoi*	Insect
80	Striate Supercoil	*Paravitrea aulacogyra*	Invertebrate - other
80	Microcaddisfly	*Paucicalcaria ozarkensis*	Insect
65	Nearctic Paduniellan Caddisfly	*Paduniella nearctica*	Insect
65	Mayfly	*Paraleptophlebia calcarica*	Insect
65	Calico Rock Oval	*Patera clenchi*	Invertebrate - other
65	Elevated Spring Amphipod	*Stygobromus elatus*	Invertebrate - other
63	Northern Long-eared Bat	*Myotis septentrionalis*	Mammal
62	Boston Mountains Crayfish	*Cambarus causeyi*	Crayfish
52	Alabama Shad	*Alosa alabamae*	Fish
50	Arogos Skipper	*Atrytone arogos iowa*	Insect
50	Arkansas River Shiner	*Notropis girardi*	Fish
43	Piping Plover	*Charadrius melodus*	Bird
42	Hubricht's Long-tailed Amphipod	*Allocrangonyx hubrichti*	Invertebrate - other
42	Texas Frosted Elfin	*Callophrys irus hadros*	Insect
42	American Burying Beetle	*Nicrophorus americanus*	Insect
38	Isopod	*Caecidotea dimorpha*	Invertebrate - other
38	Pyramid Pigtoe	*Pleurobema rubrum*	Mussel
33	Henslow's Sparrow	*Ammodramus henslowii*	Bird
33	Sprague's Pipit	*Anthus spragueii*	Bird
33	Little Brown Bat	*Myotis lucifugus*	Mammal
33	Bachman's Sparrow	*Peucaea aestivalis*	Bird
33	King Rail	*Rallus elegans*	Bird
33	Purple Lilliput	*Toxolasma lividum*	Mussel
32	Dukes' Skipper	*Euphyes dukesi*	Insect
32	Prairie Mole Cricket	*Gryllotalpa major*	Insect
31	Interior Least Tern	*Sternula antillarum athalassos*	Bird

30	Isopod	*Lirceus bicuspidatus*	Invertebrate - other
29	Buff-breasted Sandpiper	*Calidris subruficollis*	Bird
29	Rafinesque's Big-Eared Bat	*Corynorhinus rafinesquii*	Mammal
29	Mottled Duskywing	*Erynnis martialis*	Insect
29	Rusty Blackbird	*Euphagus carolinus*	Bird
29	Meske's Skipper	*Hesperia meskei*	Insect
29	Queensnake	*Regina septemvittata*	Reptile
29	Bewick's Wren	*Thryomanes bewickii*	Bird
27	Lace-winged Roadside-Skipper	*Amblyscirtes aesculapius*	Insect
27	Alligator Gar	*Atractosteus spatula*	Fish
27	Plains Minnow	*Hybognathus placitus*	Fish
27	Eastern Small-Footed Bat	*Myotis leibii*	Mammal
27	Longnose Darter	*Percina nasuta*	Fish
27	King's Hairstreak	*Satyrium kingi*	Insect
25	Tiger Beetle	*Cicindela lepida*	Insect
25	Giant Stag Beetle	*Lucanus elaphus*	Insect
25	Diana	*Speyeria diana*	Insect
24	American Eel	*Anguilla rostrata*	Fish
24	Ruddy Turnstone	*Arenaria interpres*	Bird
24	Smith's Longspur	*Calcarius pictus*	Bird
24	Common Nighthawk	*Chordeiles minor*	Bird
24	Eastern Collared Lizard	*Crotaphytus collaris*	Reptile
24	Migrant Loggerhead Shrike	*Lanius ludovicianus*	Bird
24	Southeastern Bat	*Myotis austroriparius*	Mammal
24	Yellow-crowned Night-Heron	*Nyctanassa violacea*	Bird
24	Black-bellied Plover	*Pluvialis squatarola*	Bird
24	Paddlefish	*Polyodon spathula*	Fish
24	American Woodcock	*Scolopax minor*	Bird
24	Cerulean Warbler	*Setophaga cerulea*	Bird
23	Lace Bug	*Acalypta susanae*	Insect
23	Rufous-crowned Sparrow	*Aimophila ruficeps*	Bird
23	American Bittern	*Botaurus lentiginosus*	Bird
23	Northern Metalmark	*Calephelis borealis*	Insect
23	Outis Skipper	*Cogia outis*	Insect
23	Blue Sucker	*Cycleptus elongatus*	Fish
23	Bluntface Shiner	*Cyprinella camura*	Fish
23	Beetle	*Derops divalis*	Insect
23	Willow Flycatcher	*Empidonax traillii*	Bird
23	Oklahoma Salamander	*Eurycea tynerensis*	Amphibian
23	Crawfish Frog	*Lithobates areolatus*	Amphibian
23	Suckermouth Minnow	*Phenacobius mirabilis*	Fish
23	Great Plains Skink	*Plestiodon obsoletus*	Reptile
23	Yehl Skipper	*Poanes yehl*	Insect
23	Purple Gallinule	*Porphyrio martinicus*	Bird
23	Byssus Skipper	*Problema byssus*	Insect
23	Ouachita Pseudactium	*Pseudactium magazinensis*	Insect

23	Ground Beetle	*Scaphinotus parisiana*	Insect
23	Plains Spadefoot	*Spea bombifrons*	Amphibian
23	Bleedingtooth Mussel	*Venustaconcha pleasii*	Mussel
21	Le Conte's Sparrow	*Ammodramus leconteii*	Bird
21	Bell's Roadside-Skipper	*Amblyscirtes belli*	Insect
21	Ant-like Tiger Beetle	*Cicindela cursitans*	Insect
21	Woodland Tiger Beetle	*Cicindela unipunctata*	Insect
21	Sedge Wren	*Cistothorus platensis*	Bird
21	Black-tailed Jackrabbit	*Lepus californicus*	Mammal
21	Eastern Spotted Skunk	*Spilogale putorius*	Mammal
21	Red Milkweed Beetle	*Tetraopes quinquemaculatus*	Insect
21	Texas Milkweed Beetle	*Tetraopes texanus*	Insect
19	Lace Bug	*Acalypta lillianus*	Insect
19	Sharp-shinned Hawk	*Accipiter striatus*	Bird
19	Elktoe	*Alasmidonta marginata*	Mussel
19	Ringed Salamander	*Ambystoma annulatum*	Amphibian
19	Brown Bullhead	*Ameiurus nebulosus*	Fish
19	Grasshopper Sparrow	*Ammodramus savannarum*	Bird
19	American Black Duck	*Anas rubripes*	Bird
19	Anhinga	*Anhinga anhinga*	Bird
19	Eastern Whip-poor-will	*Antrostomus vociferus*	Bird
19	Sanderling	*Calidris alba*	Bird
19	Dunlin	*Calidris alpina*	Bird
19	Stilt Sandpiper	*Calidris himantopus*	Bird
19	Chimney Swift	*Chaetura pelagica*	Bird
19	Yellow-billed Cuckoo	*Coccyzus americanus*	Bird
19	Northern Bobwhite	*Colinus virginianus*	Bird
19	Chicken Turtle	*Deirochelys reticularia*	Reptile
19	Tricolored Heron	*Egretta tricolor*	Bird
19	Autumn Darter	*Etheostoma autumnale*	Fish
19	Sunburst Darter	*Etheostoma mihileze*	Fish
19	Dion Skipper	*Euphyes dion*	Insect
19	American Kestrel	*Falco sparverius*	Bird
19	Common Gallinule	*Gallinula galeata*	Bird
19	Great Plains Narrowmouth Toad	*Gastrophryne olivacea*	Amphibian
19	Purple Finch	*Haemorhous purpureus*	Bird
19	Leonard's Skipper	*Hesperia leonardus*	Insect
19	Cobweb Skipper	*Hesperia metea*	Insect
19	Goldeye	*Hiodon alosoides*	Fish
19	Mooneye	*Hiodon tergisus*	Fish
19	Wood Thrush	*Hylocichla mustelina*	Bird
19	Least Bittern	*Ixobrychus exilis*	Bird
19	Short-billed Dowitcher	*Limnodromus griseus*	Bird
19	Swainson's Warbler	*Limnothlypis swainsonii*	Bird
19	Pealip Redhorse	*Moxostoma pisolabrum*	Fish
19	Striped Mullet	*Mugil cephalus*	Fish
19	Crawford's Gray Shrew	*Notiosorex crawfordi*	Mammal

19	Black-crowned Night-Heron	*Nycticorax nycticorax*	Bird
19	Small-eyed Mold Beetle	*Ouachitychus parvoculus*	Insect
19	Slenderhead Darter	*Percina phoxocephala*	Fish
19	Prairie Skink	*Plestiodon septentrionalis*	Reptile
19	Gray Comma	*Polygonia progne*	Insect
19	Bismark Burrowing Crayfish	*Procambarus parasimulans*	Crayfish
19	Strecker's Chorus Frog	*Pseudacris streckeri*	Amphibian
19	Graham's Crayfish Snake	*Regina grahamii*	Reptile
19	Eastern Harvest Mouse	*Reithrodontomys humulis*	Mammal
19	Oak Hairstreak	*Satyrium favonius ontario*	Insect
19	Hurter's Spadefoot	*Scaphiopus hurterii*	Amphibian
19	Southeastern Shrew	*Sorex longirostris*	Mammal
19	Ornate Box Turtle	*Terrapene ornata*	Reptile
19	Lilliput	*Toxolasma parvum*	Mussel
19	Bell's Vireo	*Vireo bellii*	Bird
17	Highfin Carpsucker	*Carpiodes velifer*	Fish
17	Big Sand Tiger Beetle	*Cicindela formosa pigmentosignata*	Insect
17	Beach-dune Tiger Beetle	*Cicindela hirticollis*	Insect
17	Sandy Stream Tiger Beetle	*Cicindela macra*	Insect
17	Western Diamond-backed	*Crotalus atrox*	Reptile
17	Trumpeter Swan	*Cygnus buccinator*	Bird
17	Round Pigtoe	*Pleurobema sintoxia*	Mussel
17	Little Spectaclecase group	*Villosa sp. cf lienosa*	Mussel
16	Gray Bat	*Myotis grisescens*	Mammal
16	American Badger	*Taxidea taxus*	Mammal
15	Gorgone Checkerspot	*Chlosyne gorgone*	Insect
15	Monarch	*Danaus plexippus*	Insect
15	Lake Chubsucker	*Erimyzon sucetta*	Fish
15	Highland Darter	*Etheostoma teddyroosevelt*	Fish
15	Bird-voiced Treefrog	*Hyla avivoca*	Amphibian
15	"Arkoma" Fatmucket	*Lampsilis sp. A cf hydiana*	Mussel
15	Glossy Swampsnake	*Liodytes rigida*	Reptile
15	Shoal Chub	*Macrhybopsis hyostoma*	Fish
15	Long-tailed Weasel	*Mustela frenata*	Mammal
15	Slender Glass Lizard	*Ophisaurus attenuatus*	Reptile
15	Saddleback Darter	*Percina vigil*	Fish
15	American Golden-Plover	*Pluvialis dominica*	Bird
15	Fawnsfoot	*Truncilla donaciformis*	Mussel
13	Twelve-spotted Tiger Beetle	*Cicindela duodecimguttata*	Insect

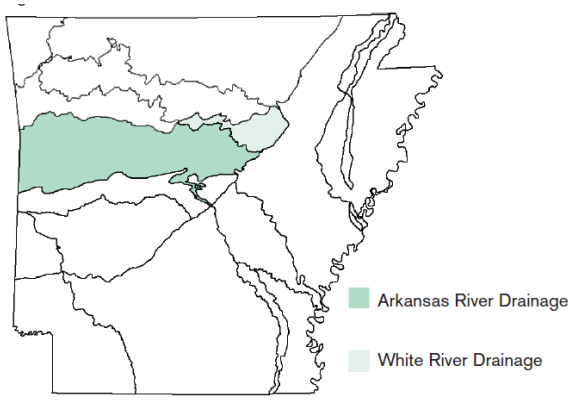
Habitats that occur in the Arkansas Valley

Of the 37 terrestrial habitats in Arkansas, 20 occur in the Arkansas Valley ecoregion (Table 3.10). Of 18 ecobasins in Arkansas, two occur in the Arkansas Valley ecoregion (Figure 3.11). These associations are described in the Section 4. Terrestrial Habitats and Section 5. Aquatic Habitats.

Table 3.10. Terrestrial Habitats in the Arkansas Valley.

Habitat Name
Caves, Mines, Sinkholes, and other Karst Habitat
Crop Land
Cultivated Forest
Herbaceous Wetland
Interior Highlands Dry Acidic Glade and Barrens
Mud Flats
Ouachita Montane Oak Forest
Ozark-Ouachita Cliff and Talus
Ozark-Ouachita Dry Oak and Pine Woodland
Ozark-Ouachita Dry-Mesic Oak Forest
Ozark-Ouachita Forested Seep
Ozark-Ouachita Large Floodplain
Ozark-Ouachita Mesic Hardwood Forest
Ozark-Ouachita Prairie and Woodland
Ozark-Ouachita Pine/Bluestem Woodland
Ozark-Ouachita Pine-Oak Forest/Woodland
Ozark-Ouachita Riparian
Pasture Land
Ponds, Lakes, and Water Holes
Urban/Suburban

Figure 3.11. Ecobasin Distribution in the Arkansas Valley.



Problems faced by Species of Greatest Conservation Need (SGCN)

A summary of the problems faced by SGCN in the Arkansas Valley is presented below. Each problem has a score which is a sum of all Species Priority Scores associated with species for which this problem was assigned. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species associated with problems listed here.

Table 3.11. Problems faced by SGCN in the Arkansas Valley.

Problem faced	Score
Agricultural practices	1895
Forestry activities	1815
Dam	1237
Urban development	1092
Grazing/Browsing	722
Resource extraction	688
Fire suppression	654
Recreation	516
Conversion of riparian forest	427
Water diversion	339
Road construction	326
Channel alteration	315
Commercial/industrial development	303
Confined animal operations	270
Channel maintenance	267
Parasites/pathogens	266
Exotic species	234
Predation	170
Municipal/Industrial point source	152
Commercial harvest	150
Excessive groundwater withdrawal	140
Management of/for certain species	103
Non-point source pollution	82
Unknown	52
Interspecific competiton	48
Excessive non-commercial harvest or collection	24

Conservation actions needed in the Arkansas Valley

Below are scores of conservation actions recommended by the taxa association teams for SGCN within the Arkansas Valley (Figure 3.12). The score associated with the conservation action category is the sum of all priority scores associated with species for which a conservation action has been assigned, weighted by the importance of the conservation action category to the species. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species would be affected by actions within this conservation action category.

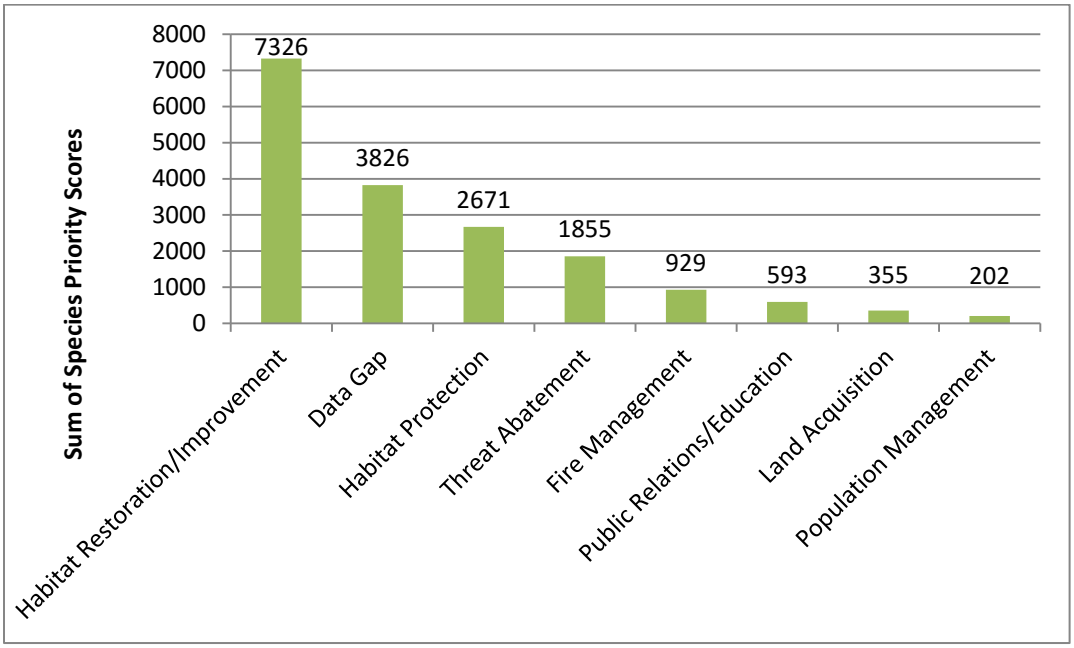


Figure 3.12. Conservation action categories recommended for the Arkansas Valley.

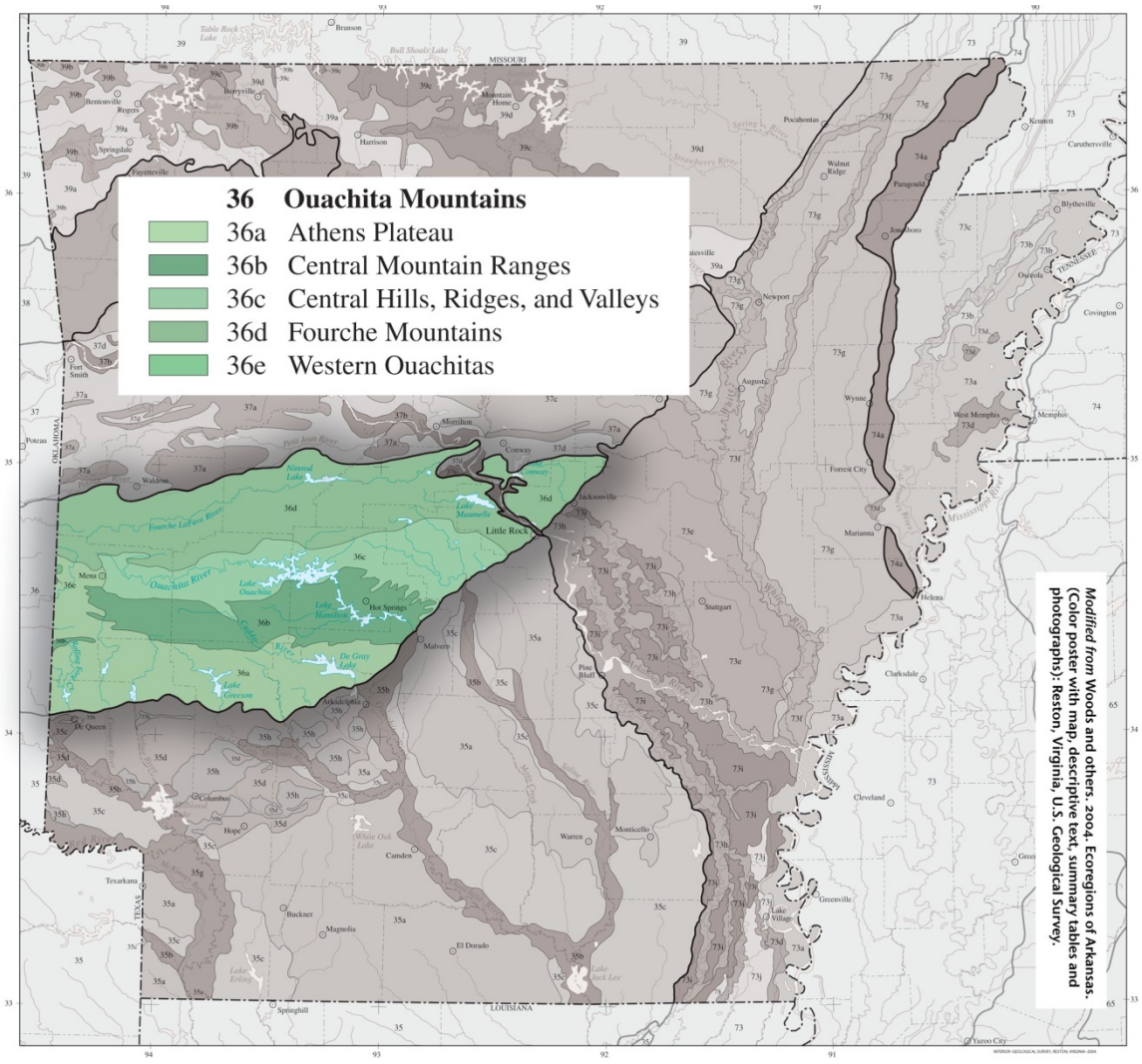
Ouachita Mountains (Ecoregion 36)

The Ouachitas are made up of ridges, hills and valleys formed by the erosion of folded and faulted Paleozoic sandstone, shale and chert, known locally as novaculite. They are a continuation of the Appalachians, formed during the late Paleozoic Era when an ocean closed and continents collided, causing marine sediments to be folded, faulted and thrust northward. The Ouachitas are structurally different from the Boston Mountains (38), more folded and rugged than the lithologically distinct Ozark Highlands (39) and physiographically unlike the Arkansas Valley (37), South Central Plains (35) and Mississippi Alluvial Plain (73).

Potential natural vegetation is oak–hickory–pine forest; it contrasts with the oak– hickory forest

that dominates Ecoregion 39 and the northern part of Ecoregion 38. Today, loblolly pine and shortleaf pine grow in a distinctive mix of thermic Ultisols and Inceptisols.

Figure 3.13. Ouachita Mountains Ecoregion.



Athens Plateau - Ouachita Mountains

Logging and recreation are major land uses and pastureland and hayland are found in broader valleys.

Regional water quality is influenced by lithology, soil composition and land use activities. In most reaches, water quality is exceptional; typically, total phosphorus, turbidity, total suspended solids and biological oxygen demand values are lower whereas dissolved oxygen levels are higher than in Ecoregions 35, 37 and 73. Water hardness varies by level IV ecoregion; Ecoregions 36d and 36e tend to have the lowest hardness values while progressively higher values occur in Ecoregions 36a, 36b and 36c. Stream substrates are made up of gravel, cobbles, boulders, or bedrock; they contrast with the fine-grained substrates of lower gradient streams in Ecoregions 35 and 73.

The fish community is dominated by sensitive species; minnows and sunfish along with darters and bass are common.

Athens Plateau

36a. The low ridges and hills of the Athens Plateau are widely underlain by shale in contrast to other parts of Ecoregion 36. Rocks are less resistant to erosion than in higher, more rugged Ecoregions 36b, 36d and 36e but are more resistant than the unconsolidated rocks of the coastal

plain in Ecoregion 35.

Ouachita Mountains Ecoregion

Today, pine plantations are widespread; they are far more extensive than in the more rugged parts of Ecoregion 36 in Arkansas. Pastureland and hayland also occur. Cattle and broiler chickens are important farm products. Water quality values are distinct from Ecoregion 36c.

Central Mountain Ranges

36b. The Central Mountain Ranges are dominated by east-west trending ridges that are characteristically steep and rugged and underlain by resistant sandstone and novaculite (chert). Igneous intrusions occur along with associated hot springs. Rock outcrops and shallow, stony soils are widespread. Novaculite glades occur.

Potential natural vegetation is oak–hickory– pine forest. Perennial springs and seeps are common and support diverse vegetation. Constricted valleys between ridges have waterfalls and rapids. The surface waters of Ecoregion 36b have very low nutrient, mineral and biochemical water quality parameter concentrations and turbidity. Logging is not nearly as common as in the less rugged Athens Plateau (36a).

Central Hills, Ridges and Valleys

36c. The Central Hills, Ridges and Valleys ecoregion is lower, less rugged and more open than neighboring Ecoregions 36b and 36d. Ecoregion 36c is underlain by folded and faulted sandstone, shale and novaculite (chert); the lithologic mosaic is distinct from the Athens Plateau (36a).

Its forests are codominated by loblolly pine–shortleaf pine and upland oak–hickory–pine forest types. Pastureland is also common, much more so than in Ecoregions 36b and 36d.

Fourche Mountains

36d. The Fourche Mountains are the archetypal Ouachita Mountains. Ecoregion 36d is composed of long, east-west trending, forested ridges composed of sandstone. Intervening valleys are cut into shale. Ridges are longer, habitat continuity is greater, the lithologic mosaic is different and the topographic orientation is more consistent than in other parts of the Ouachita Mountains (36).

Differences in moisture and temperature between north- and south-facing slopes significantly influence native plant communities; they are products of the prevailing topographic trend. Forests on steep, north-facing slopes are more mesic than on southern aspects; grassy woodlands are found on steepest, south-facing slopes.

Pastureland and hayland are restricted to a few broad valleys. Logging is not nearly as intensive as in the commercial pine plantations of the less rugged Athens Plateau.

Nutrient, mineral and biochemical water quality parameter concentrations are low in the surface waters of Ecoregion 36d but turbidity can be higher than in other mountainous parts of the Ouachitas.

Western Ouachitas

36e. The Western Ouachitas ecoregion is composed of mountains, hills and narrow valleys. In Arkansas, Ecoregion 36e is confined to Round Mountain in western Polk County, where it is underlain by sandstone and shale; novaculite (chert) is absent in contrast to the Central Mountain Ranges (36b). Ridgetop elevations exceed 2,300 feet in Arkansas; both elevation and precipitation decrease westward into Oklahoma. Ecoregion 36e in Arkansas is higher and more rugged than the lithologically distinct Athens Plateau (36a).

Today, pine and upland oak–hickory–pine forest types codominate. Ecoregion 36e in Arkansas and Oklahoma contains, perhaps, the greatest concentration of critically-imperiled and imperiled species in mid-North America (adapted from Woods and others 2004).

Ouachita Mountains Ecoregion:

Species of Greatest Conservation Need (SGCN)

Of the 377 SGCN, 164 occur in the Ouachita Mountains Ecoregion (Table 3.12).

Table 3.12. Species of greatest conservation need (SGCN) in the Ouachita Mountains ranked by priority score. A higher priority score indicates a greater need for actions to conserve the species.

Priority Score	Common Name	Scientific Name	Taxa Association
80	Caddo Madtom	*Noturus taylori*	Fish
80	Irons Fork Burrowing Crayfish	*Procambarus reimeri*	Crayfish
76	Scaleshell	*Leptodea leptodon*	Mussel
65	Caddo Sallfly	*Alloperla caddo*	Insect
65	Ouachita Spiketail	*Cordulegaster talaria*	Insect
65	Saline Burrowing Crayfish	*Fallicambarus strawni*	Crayfish
65	Rattlesnake-Master Borer Moth	*Papaipema eryngii*	Insect
65	Mountain Cave Amphipod	*Stygobromus montanus*	Invertebrate - other
63	Northern Long-eared Bat	*Myotis septentrionalis*	Mammal
62	Leopard Darter	*Percina pantherina*	Fish
57	Arkansas Fatmucket	*Lampsilis powellii*	Mussel
57	Microcaddisfly	*Ochrotrichia robisoni*	Insect

52	Alabama Shad	*Alosa alabamae*	Fish
52	Rabbitsfoot	*Quadrula cylindrica cylindrica*	Mussel
50	Arkansas Agapetus Caddisfly	*Agapetus medicus*	Insect
50	Kiamichi Slimy Salamander	*Plethodon kiamichi*	Amphibian
50	Sequoyah Slimy Salamander	*Plethodon sequoyah*	Amphibian
50	Ouachita Needlefly	*Zealeuctra wachita*	Invertebrate - other
46	Paleback Darter	*Etheostoma pallididorsum*	Fish
46	Ouachita Burrowing Crayfish	*Fallicambarus harpi*	Crayfish
46	Daisy Burrowing Crayfish	*Fallicambarus jeanae*	Crayfish
46	Ouachita Madtom	*Noturus lachneri*	Fish
46	Ouachita Darter	*Percina brucethompsoni*	Fish
46	Caddo Mountain Salamander	*Plethodon caddoensis*	Amphibian
46	Fourche Mountain Salamander	*Plethodon fourchensis*	Amphibian
46	Rich Mountain Slitmouth	*Stenotrema pilsbryi*	Invertebrate - other
43	Piping Plover	*Charadrius melodus*	Bird
43	"Ouachita" Fanshell	*Cyprogenia sp. cf aberti*	Mussel
43	Red-cockaded Woodpecker	*Picoides borealis*	Bird
42	Texas Frosted Elfin	*Callophrys irus hadros*	Insect
42	American Burying Beetle	*Nicrophorus americanus*	Insect
38	Linda's Roadside-Skipper	*Amblyscirtes linda*	Insect
38	Crystal Darter	*Crystallaria asprella*	Fish
38	Spectaclecase	*Cumberlandia monodonta*	Mussel
38	Stargazing Darter	*Percina uranidea*	Fish
38	Rich Mountain Salamander	*Plethodon ouachitae*	Amphibian
38	Pyramid Pigtoe	*Pleurobema rubrum*	Mussel
38	Indiana Phlox Moth	*Schinia indiana*	Insect
34	Ozark Emerald	*Somatochlora ozarkensis*	Insect
34	Ouachita Slitmouth	*Stenotrema unciferum*	Invertebrate - other
33	Sprague's Pipit	*Anthus spragueii*	Bird
33	Little Brown Bat	*Myotis lucifugus*	Mammal
33	Kiamichi Shiner	*Notropis ortenburgeri*	Fish
33	Peppered Shiner	*Notropis perpallidus*	Fish
33	Bachman's Sparrow	*Peucaea aestivalis*	Bird
33	Purple Lilliput	*Toxolasma lividum*	Mussel
32	Ozark Snaketail Dragonfly	*Ophiogomphus westfalli*	Insect
30	Isopod	*Lirceus bicuspidatus*	Invertebrate - other
30	Ouachita Mountain Crayfish	*Procambarus tenuis*	Crayfish
29	Buff-breasted Sandpiper	*Calidris subruficollis*	Bird
29	Rafinesque's Big-Eared Bat	*Corynorhinus rafinesquii*	Mammal
29	Mottled Duskywing	*Erynnis martialis*	Insect
29	Rusty Blackbird	*Euphagus carolinus*	Bird
29	Meske's Skipper	*Hesperia meskei*	Insect
29	Bewick's Wren	*Thryomanes bewickii*	Bird
27	Lace-winged Roadside-Skipper	*Amblyscirtes aesculapius*	Insect
27	Appalachian Azure	*Celastrina neglectamajor*	Insect
27	Ozark Clubtail Dragonfly	*Gomphus ozarkensis*	Insect
27	Ouachita Shiner	*Lythrurus snelsoni*	Fish

27	Eastern Small-Footed Bat	*Myotis leibii*	Mammal
27	Rocky Shiner	*Notropis suttkusi*	Fish
27	Mena Crayfish	*Orconectes menae*	Crayfish
27	Longnose Darter	*Percina nasuta*	Fish
25	Giant Stag Beetle	*Lucanus elaphus*	Insect
25	Diana	*Speyeria diana*	Insect
24	American Eel	*Anguilla rostrata*	Fish
24	Ruddy Turnstone	*Arenaria interpres*	Bird
24	Smith's Longspur	*Calcarius pictus*	Bird
24	Common Nighthawk	*Chordeiles minor*	Bird
24	Eastern Collared Lizard	*Crotaphytus collaris*	Reptile
24	Migrant Loggerhead Shrike	*Lanius ludovicianus*	Bird
24	Southeastern Bat	*Myotis austroriparius*	Mammal
24	Yellow-crowned Night-Heron	*Nyctanassa violacea*	Bird
24	Black-bellied Plover	*Pluvialis squatarola*	Bird
24	Paddlefish	*Polyodon spathula*	Fish
24	American Woodcock	*Scolopax minor*	Bird
24	Cerulean Warbler	*Setophaga cerulea*	Bird
23	Millipede	*Abacion wilhelminae*	Invertebrate - other
23	Rufous-crowned Sparrow	*Aimophila ruficeps*	Bird
23	Copeland's Mold Beetle	*Arianops copelandi*	Insect
23	American Bittern	*Botaurus lentiginosus*	Bird
23	Isopod	*Caecidotea fonticulus*	Invertebrate - other
23	Northern Metalmark	*Calephelis borealis*	Insect
23	Blue Sucker	*Cycleptus elongatus*	Fish
23	Beetle	*Derops divalis*	Insect
23	Willow Flycatcher	*Empidonax traillii*	Bird
23	Ouachita Streambed Salamander	*Eurycea subfluvicola*	Amphibian
23	Lowland Topminnow	*Fundulus blairae*	Fish
23	Crawfish Frog	*Lithobates areolatus*	Amphibian
23	Ouachita Shore Bug	*Pentacora ouachita*	Insect
23	Suckermouth Minnow	*Phenacobius mirabilis*	Fish
23	Great Plains Skink	*Plestiodon obsoletus*	Reptile
23	Yehl Skipper	*Poanes yehl*	Insect
23	Purple Gallinule	*Porphyrio martinicus*	Bird
23	Byssus Skipper	*Problema byssus*	Insect
23	Ouachita Pseudactium	*Pseudactium magazinensis*	Insect
23	Ouachita Kidneyshell	*Ptychobranchus occidentalis*	Mussel
21	Le Conte's Sparrow	*Ammodramus leconteii*	Bird
21	Bell's Roadside-Skipper	*Amblyscirtes belli*	Insect
21	Golden-banded Skipper	*Autochton cellus*	Insect
21	Sedge Wren	*Cistothorus platensis*	Bird
21	Eastern Spotted Skunk	*Spilogale putorius*	Mammal
19	Sharp-shinned Hawk	*Accipiter striatus*	Bird
19	Elktoe	*Alasmidonta marginata*	Mussel
19	Ringed Salamander	*Ambystoma annulatum*	Amphibian
19	Brown Bullhead	*Ameiurus nebulosus*	Fish

19	Grasshopper Sparrow	*Ammodramus savannarum*	Bird
19	Anhinga	*Anhinga anhinga*	Bird
19	Eastern Whip-poor-will	*Antrostomus vociferus*	Bird
19	Sanderling	*Calidris alba*	Bird
19	Dunlin	*Calidris alpina*	Bird
19	Stilt Sandpiper	*Calidris himantopus*	Bird
19	Chimney Swift	*Chaetura pelagica*	Bird
19	Yellow-billed Cuckoo	*Coccyzus americanus*	Bird
19	Northern Bobwhite	*Colinus virginianus*	Bird
19	Chicken Turtle	*Deirochelys reticularia*	Reptile
19	Six-banded Longhorn Beetle	*Dryobius sexnotatus*	Insect
19	Beaded Darter	*Etheostoma clinton*	Fish
19	Dion Skipper	*Euphyes dion*	Insect
19	American Kestrel	*Falco sparverius*	Bird
19	Purple Finch	*Haemorhous purpureus*	Bird
19	Four-toed Salamander	*Hemidactylium scutatum*	Amphibian
19	Leonard's Skipper	*Hesperia leonardus*	Insect
19	Cobweb Skipper	*Hesperia metea*	Insect
19	Ouachita Diving Beetle	*Heterosternuta ouachita*	Insect
19	Wood Thrush	*Hylocichla mustelina*	Bird
19	Least Bittern	*Ixobrychus exilis*	Bird
19	Southern Pocketbook	*Lampsilis ornata*	Mussel
19	Short-billed Dowitcher	*Limnodromus griseus*	Bird
19	Swainson's Warbler	*Limnothlypis swainsonii*	Bird
19	Redspot Chub	*Nocomis asper*	Fish
19	Crawford's Gray Shrew	*Notiosorex crawfordi*	Mammal
19	Black-crowned Night-Heron	*Nycticorax nycticorax*	Bird
19	Redspotted Stream Crayfish	*Orconectes acares*	Crayfish
19	Little River Creek Crayfish	*Orconectes leptogonopodus*	Crayfish
19	Small-eyed Mold Beetle	*Ouachitychus parvoculus*	Insect
19	Prairie Skink	*Plestiodon septentrionalis*	Reptile
19	Gray Comma	*Polygonia progne*	Insect
19	Bismark Burrowing Crayfish	*Procambarus parasimulans*	Crayfish
19	Oak Hairstreak	*Satyrium favonius ontario*	Insect
19	Hurter's Spadefoot	*Scaphiopus hurterii*	Amphibian
19	Southeastern Shrew	*Sorex longirostris*	Mammal
19	Lilliput	*Toxolasma parvum*	Mussel
19	Texas Lilliput	*Toxolasma texasiense*	Mussel
19	Pondhorn	*Uniomerus tetralasmus*	Mussel
19	Bell's Vireo	*Vireo bellii*	Bird
17	Sandy Stream Tiger Beetle	*Cicindela macra*	Insect
17	Western Diamond-backed	*Crotalus atrox*	Reptile
17	Trumpeter Swan	*Cygnus buccinator*	Bird
17	Earthworm	*Diplocardia meansi*	Invertebrate - other
17	Round Pigtoe	*Pleurobema sintoxia*	Mussel
17	Little Spectaclecase group	*Villosa sp. cf lienosa*	Mussel

15	Mole Salamander	*Ambystoma talpoideum*	Amphibian
15	Gorgone Checkerspot	*Chlosyne gorgone*	Insect
15	Monarch	*Danaus plexippus*	Insect
15	Bird-voiced Treefrog	*Hyla avivoca*	Amphibian
15	"Arkoma" Fatmucket	*Lampsilis sp. A cf hydiana*	Mussel
15	Long-tailed Weasel	*Mustela frenata*	Mammal
15	Slender Glass Lizard	*Ophisaurus attenuatus*	Reptile
15	Saddleback Darter	*Percina vigil*	Fish
15	American Golden-Plover	*Pluvialis dominica*	Bird
15	Broad-winged Skipper	*Poanes viator*	Insect
15	Fawnsfoot	*Truncilla donaciformis*	Mussel
13	Twelve-spotted Tiger Beetle	*Cicindela duodecimguttata*	Insect

Habitats that occur in the Ouachita Mountains

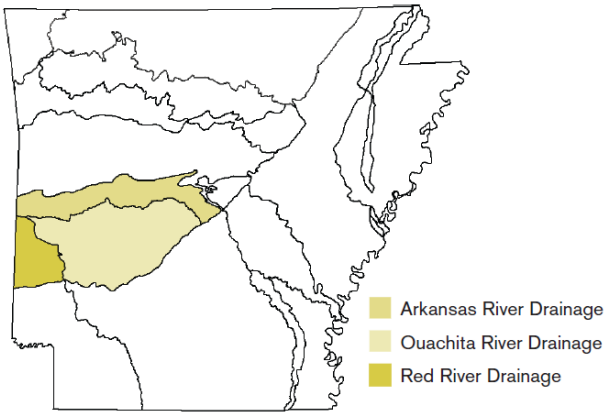
Of the 37 terrestrial habitats in Arkansas, 20 occur in the Ouachita Mountains ecoregion (Table 3.13). Of 18 ecobasins in Arkansas, three occur in the Ouachita Mountains ecoregion (Figure 3.14). These associations are described in the Section 4. Terrestrial Habitats and Section 5. Aquatic Habitats.

Table 3.13. Terrestrial Habitats in the Ouachita Mountains.

Habitat Name

Caves, Mines, Sinkholes, and other Karst Habitat
Crop Land
Cultivated Forest
Herbaceous Wetland
Interior Highlands Calcareous Glade and Barrens
Interior Highlands Dry Acidic Glade and Barrens
Mud Flats
Ouachita Montane Oak Forest
Ozark-Ouachita Cliff and Talus
Ozark-Ouachita Dry Oak and Pine Woodland
Ozark-Ouachita Dry-Mesic Oak Forest
Ozark-Ouachita Forested Seep
Ozark-Ouachita Large Floodplain
Ozark-Ouachita Mesic Hardwood Forest
Ozark-Ouachita Pine/Bluestem Woodland
Ozark-Ouachita Pine-Oak Forest/ Woodland
Ozark-Ouachita Riparian
Pasture Land
Ponds, Lakes, and Water Holes
Urban/Suburban

Figure 3.14. Ecobasin Distribution in the Ouachita Mountains.



Problems faced by Species of Greatest Conservation Need (SGCN)

A summary of the problems faced by SGCN in the Ouachita Mountains is presented below. Each problem has a score which is a sum of all Species Priority Scores associated with species for which this problem was assigned. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species associated with problems listed here.

Table 3.20. Problems faced by SGCN in the Ouachita Mountains.

Problem faced	Score
Forestry activities	2749
Dam	1755
Agricultural practices	1564
Road construction	1507
Resource extraction	1339
Grazing/Browsing	1217
Urban development	921
Fire suppression	702
Municipal/Industrial point source	597
Conversion of riparian forest	572
Water diversion	526
Confined animal operations	514
Channel alteration	477
Channel maintenance	378
Recreation	270
Parasites/pathogens	250
Predation	247
Exotic species	234
Commercial/industrial development	232

Management of/for certain species	168
Non-point source pollution	135
Unknown	52
Excessive non-commercial harvest or collection	50
Commercial harvest	43
Excessive groundwater withdrawal	40
Interspecific competiton	29

Conservation actions needed in the Ouachita Mountains

Below are categories of conservation actions recommended by the taxa association teams for SGCN within the Ouachita Mountains (Figure 3.15). The score associated with the conservation action category is the sum of all priority scores associated with species for which a conservation action has been assigned, weighted by the importance of the conservation action category to the species. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species would be affected by actions within this conservation action category.

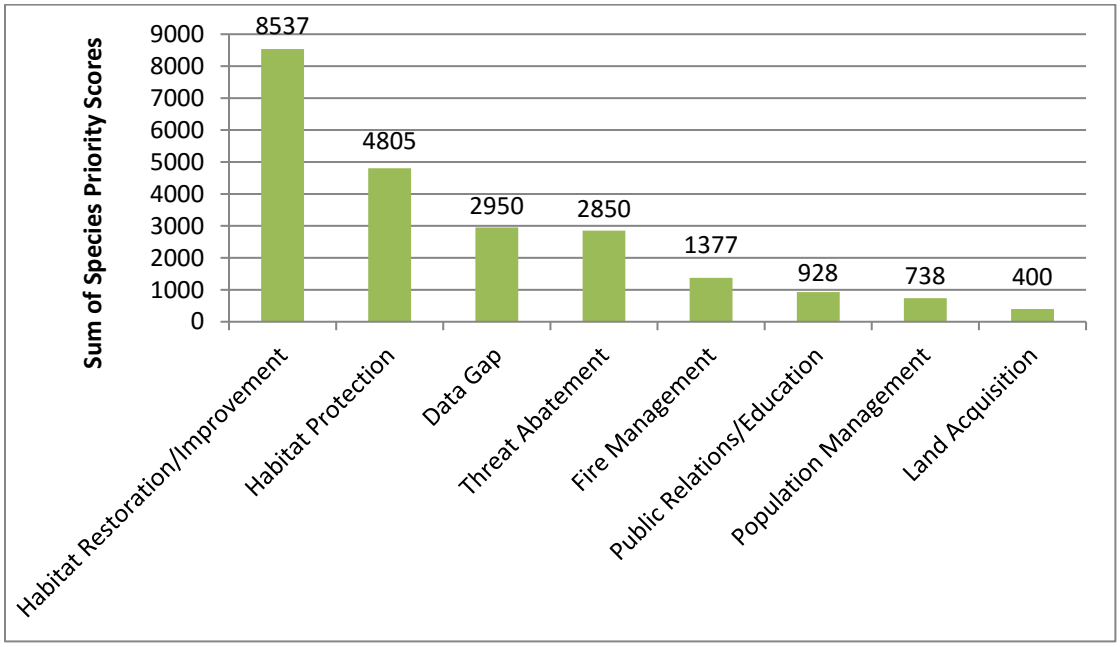


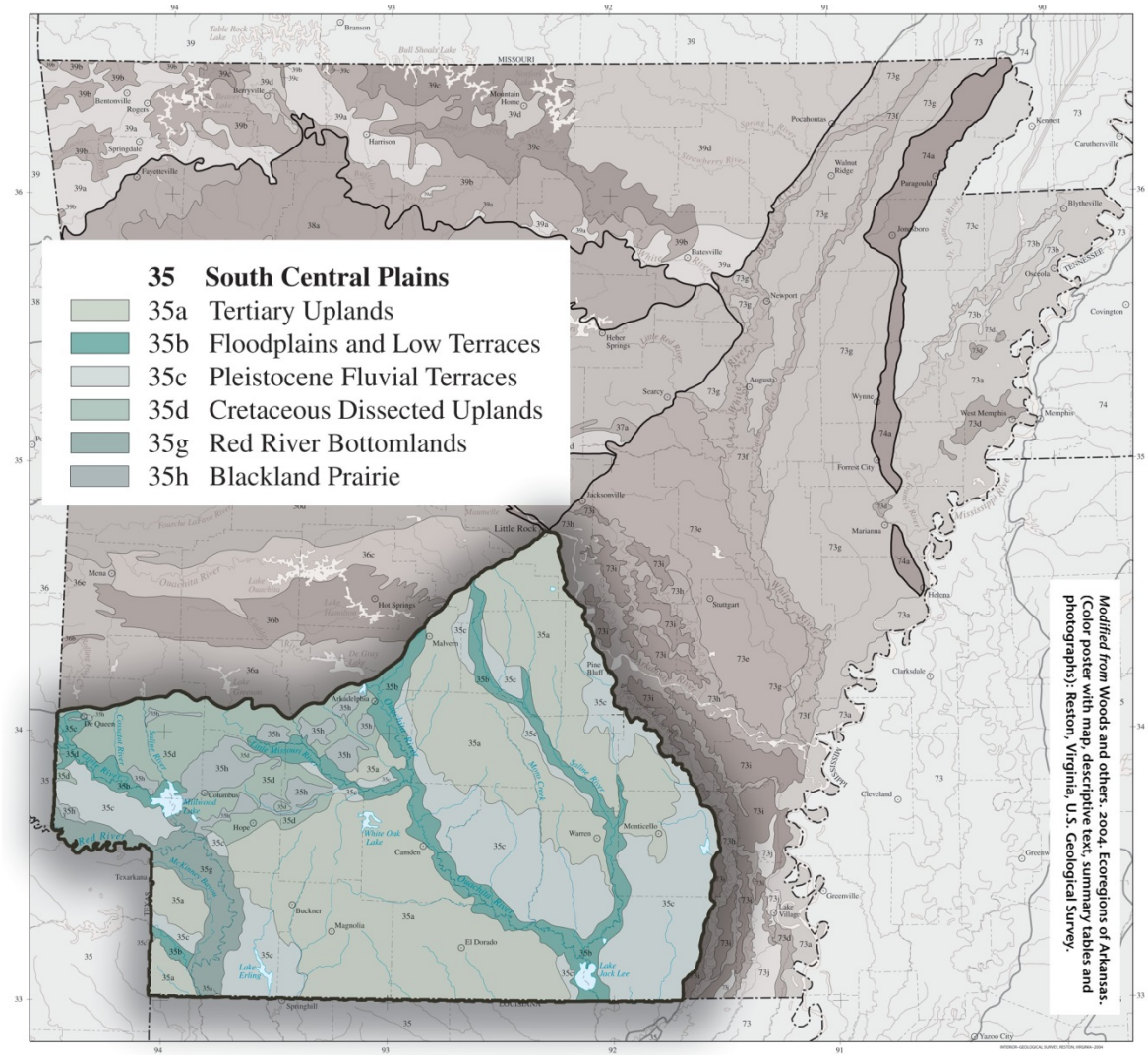
Figure 3.15. Conservation action categories recommended for the Ouachita Mountains.

South Central Plains (Ecoregion 35)

Ecoregion 35 is composed of rolling plains that are broken by nearly flat fluvial terraces, bottomlands, sandy low hills and low cuestas; its terrain is unlike the much more rugged Ouachita Mountains (36) or the flatter, less dissected Mississippi Alluvial Plain (73). Uplands are underlain by poorly-consolidated, Tertiary- through Cretaceous-age, coastal plain deposits and marginal marine sediments (laid down as the Gulf of Mexico opened and North America's southern continental margin subsided). Bottomlands and terraces are veneered with Quaternary alluvium or windblown silt deposits (loess). The lithologic mosaic is distinct from the Paleozoic rocks of Ecoregion 36 and the strictly Quaternary deposits of Ecoregion 73.

Potential natural vegetation is oak–hickory–pine forest on uplands and southern floodplain forest on bottomlands. Today, more than 75 percent of Ecoregion 35 remains wooded.

Figure 3.16. South Central Plains Ecoregion.



South Central Plains - Blackland Prairie

Extensive commercial loblolly pine–shortleaf pine plantations occur. Lumber and pulpwood production, livestock grazing and crawfish farming are major land uses.

Cropland dominates the drained bottomlands of the Red River. Turbidity and total suspended solid concentrations are usually low except in the Red River. Summer flow in many small streams is limited or nonexistent but enduring pools may occur. Fish communities typically have a limited proportion of sensitive species; sunfishes are dominant and darters and minnows are common.

Tertiary Uplands

35a. The rolling Tertiary Uplands are dominated by commercial pine plantations that have replaced the native oak– hickory–pine forest. Ecoregion 35a is underlain by poorly-consolidated Tertiary sand, silt and gravel; it lacks the Cretaceous, often calcareous rocks of Ecoregion 35d and the extensive Quaternary alluvium of Ecoregions 35b, 35g and 73.

Extensive forests dominated by loblolly and shortleaf pines grow on loamy, well- drained, thermic Ultisols; scattered, stunted, sandhill woodlands also occur.

Waters tend to be stained by organics, thus lowering water clarity and increasing total organic carbon and biochemical oxygen demand levels. Most streams have a sandy substrate and a forest canopy. Many do not flow during the summer or early fall. However, in sandhills, spring-fed, perennial streams occur; here, total dissolved solids, total suspended solids, alkalinity and hardness values are lower than elsewhere in Ecoregion 35. Water quality in forested basins is

better than in pastureland. Oil production has lowered stream quality in the south.

Floodplains and Low Terraces

35b. The Floodplains and Low Terraces ecoregion is nearly level, veneered by Holocene alluvium and contains natural levees, swales, oxbow lakes and meander scars. Longitudinal channel gradients are low and are less than in the Ouachita Mountains (36). Large parts of Ecoregion 35b are frequently flooded.

Forested wetlands are characteristic, but pastureland also occurs. Cropland is far less common than in the Red River Bottomlands (35g). Potential natural vegetation is southern floodplain forest as in the Mississippi Alluvial Plain (73); it is unlike the oak–hickory–pine forest of the higher, better drained and lithologically distinct Tertiary Uplands (35a) and Cretaceous Dissected Uplands (35d).

Pleistocene Fluvial Terraces

35c. The Pleistocene Fluvial Terraces are nearly level, poorly-drained, periodically wet, underlain by Pleistocene unconsolidated terrace deposits and covered by pine flatwoods. Loblolly pine and oaks are common and are adapted to the prevailing hydroxeric regime; pastureland and hayland are less extensive.

A vertical sequence of terraces occurs. The lowest terrace is nearly flat, clayey and has extensive hardwood wetlands. Higher terraces become progressively older and more dissected; they are dominated by pine flatwoods, pine savanna, or prairie; flatwood wetlands are less extensive than on the lowest terrace. The midlevel terrace is veneered with windblown silt deposits (loess). Streams tend to be mildly acidic and stained by organic matter. They have more suspended solids, greater turbidity and higher hardness values than Ecoregion 35a.

Cretaceous Dissected Uplands

35d. The nearly level to hilly Cretaceous Dissected Uplands ecoregion has a greater drainage density than other parts of Ecoregion 35. Ecoregion 35a is underlain by Cretaceous sandy, clayey, or gravelly deposits that are often calcareous; it is lithologically distinct from the Tertiary noncalcareous deposits of Ecoregion 35a, the Quaternary alluvium of Ecoregions 35b, 35g and 73 and the chalks and marls of Ecoregion 35h.

Native vegetation is largely oak–hickory–pine forest. Today, woods and pastureland are common. Water quality in forested watersheds tends to be good and is better than in pastureland. Streams generally have lower total dissolved solids values and much lower total organic carbon values than Ecoregions 35a and 35c, although turbidity, total suspended solids and hardness values are slightly higher. Longitudinal stream gradients and Ouachita Mountain influences are greater than in Ecoregions 35a or 35c.

Red River Bottomlands

35g. The nearly flat Red River Bottomlands ecoregion is veneered with Holocene alluvium and has been widely cleared and drained for agriculture. It contains floodplains, low terraces, oxbow lakes, meander scars, backswamps, natural levees and the meandering Red River.

Potential natural vegetation is southern floodplain forest; it is unlike the oak–hickory–pine forest of higher, better drained and lithologically distinct Ecoregions 35a and 35d. Western species, such as bur oak and Durand oak, were native to Ecoregion

35g but were typically absent from the Mississippi Alluvial Plain (73). The natural forest of Ecoregion 35g has been largely replaced by agriculture. Today, cropland is more extensive than in other parts of Ecoregion 35 in Arkansas. The Red River is almost continuously turbid; suspended sediment concentrations are usually much higher than in the Saline or Ouachita rivers of Ecoregion 35b due to land cover, land use and upstream lithology differences.

Blackland Prairie

35h. The level to rolling Blackland Prairie characteristically has dark soils derived from underlying Cretaceous marl, chalk and limestone.

Prairie was common or dominant during and shortly after the Hypsithermal Period in the middle of the Holocene Epoch. By the late 18th century, Ecoregion 35h was a mosaic of woodland, savanna and prairies, containing species that were found nowhere else in Arkansas. Today, hayland and, especially, pastureland dominate; pastureland is more common than elsewhere in Arkansas' South Central Plains (35). Only a few prairie remnants still occur and are mostly limited to the thin, droughty soils of cuesta scarps (adapted from Woods and others 2004).

South Central Plains Ecoregion: Species of Greatest Conservation Need (SGCN)

Of the 377 SGCN, 170 occur in the South Central Plains ecoregion (Table 3.21).

Table 3.21. Species of greatest conservation need (SGCN) in the South Central Plains ranked by priority score. A higher priority score indicates a greater need for actions to conserve the species.

Priority Score	Common Name	Scientific Name	Taxa Association
80	Ouachita Rock Pocketbook	*Arcidens wheeleri*	Mussel
80	Slenderwrist Burrowing Crayfish	*Fallicambarus petilicarpus*	Crayfish
80	Winged Mapleleaf	*Quadrula fragosa*	Mussel
80	Channelled Pebblesnail	*Somatogyrus wheeleri*	Invertebrate - other
76	Scaleshell	*Leptodea leptodon*	Mussel
65	Saline Burrowing Crayfish	*Fallicambarus strawni*	Crayfish
65	Louisiana Pearlshell	*Margaritifera hembeli*	Mussel

65	Rattlesnake-Master Borer Moth	*Papaipema eryngii*	Insect
65	Texas Pigtoe	*Pleurobema riddellii*	Mussel
63	Northern Long-eared Bat	*Myotis septentrionalis*	Mammal
62	Leopard Darter	*Percina pantherina*	Fish
57	Arkansas Fatmucket	*Lampsilis powellii*	Mussel
52	Alabama Shad	*Alosa alabamae*	Fish
52	Rabbitsfoot	*Quadrula cylindrica cylindrica*	Mussel
50	Bayou Bodcau Crayfish	*Bouchardina robisoni*	Crayfish
50	Jefferson County Crayfish	*Fallicambarus gilpini*	Crayfish
50	Stonefly	*Leuctra paleo*	Insect
46	Blair's Fencing Crayfish	*Faxonella blairi*	Crayfish
46	Pink Mucket	*Lampsilis abrupta*	Mussel
46	Ouachita Darter	*Percina brucethompsoni*	Fish
43	Piping Plover	*Charadrius melodus*	Bird
43	"Ouachita" Fanshell	*Cyprogenia sp. cf aberti*	Mussel
43	Red-cockaded Woodpecker	*Picoides borealis*	Bird
42	Texas Frosted Elfin	*Callophrys irus hadros*	Insect
42	American Burying Beetle	*Nicrophorus americanus*	Insect
38	Crystal Darter	*Crystallaria asprella*	Fish
38	Spectaclecase	*Cumberlandia monodonta*	Mussel
38	Stargazing Darter	*Percina uranidea*	Fish
38	Pyramid Pigtoe	*Pleurobema rubrum*	Mussel
38	Regal Burrowing Crayfish	*Procambarus regalis*	Crayfish
33	Western Sand Darter	*Ammocrypta clara*	Fish
33	Henslow's Sparrow	*Ammodramus henslowii*	Bird
33	Sprague's Pipit	*Anthus spragueii*	Bird
33	Little Brown Bat	*Myotis lucifugus*	Mammal
33	Peppered Shiner	*Notropis perpallidus*	Fish
33	Bachman's Sparrow	*Peucaea aestivalis*	Bird
33	Bluehead Shiner	*Pteronotropis hubbsi*	Fish
33	King Rail	*Rallus elegans*	Bird
33	Purple Lilliput	*Toxolasma lividum*	Mussel
32	Dukes' Skipper	*Euphyes dukesi*	Insect
32	Pine Hills Digger	*Fallicambarus dissitus*	Crayfish
31	Interior Least Tern	*Sternula antillarum athalassos*	Bird
30	Giant Prairie Robberfly	*Microstylum morosum*	Insect
30	Purple Pimpleback	*Quadrula refulgens*	Mussel
29	Buff-breasted Sandpiper	*Calidris subruficollis*	Bird
29	Rafinesque's Big-Eared Bat	*Corynorhinus rafinesquii*	Mammal
29	Swallow-tailed Kite	*Elanoides forficatus*	Bird
29	Mottled Duskywing	*Erynnis martialis*	Insect
29	Rusty Blackbird	*Euphagus carolinus*	Bird
29	Meske's Skipper	*Hesperia meskei*	Insect
29	Bewick's Wren	*Thryomanes bewickii*	Bird
27	Lace-winged Roadside-Skipper	*Amblyscirtes aesculapius*	Insect
27	Alligator Gar	*Atractosteus spatula*	Fish
27	Appalachian Azure	*Celastrina neglectamajor*	Insect
27	Ozark Clubtail Dragonfly	*Gomphus ozarkensis*	Insect
27	Plains Minnow	*Hybognathus placitus*	Fish
27	Ouachita Shiner	*Lythrurus snelsoni*	Fish
27	Georgia Satyr	*Neonympha areolatus*	Insect

27	Red River Shiner	*Notropis bairdi*	Fish
27	Brown Madtom	*Noturus phaeus*	Fish
27	Louisiana Slimy Salamander	*Plethodon kisatchie*	Amphibian
27	King's Hairstreak	*Satyrium kingi*	Insect
25	Tiger Beetle	*Cicindela lepida*	Insect
25	Giant Stag Beetle	*Lucanus elaphus*	Insect
25	Diana	*Speyeria diana*	Insect
24	American Eel	*Anguilla rostrata*	Fish
24	Ruddy Turnstone	*Arenaria interpres*	Bird
24	Smith's Longspur	*Calcarius pictus*	Bird
24	Common Nighthawk	*Chordeiles minor*	Bird
24	Migrant Loggerhead Shrike	*Lanius ludovicianus*	Bird
24	Southeastern Bat	*Myotis austroriparius*	Mammal
24	Yellow-crowned Night-Heron	*Nyctanassa violacea*	Bird
24	Black-bellied Plover	*Pluvialis squatarola*	Bird
24	Paddlefish	*Polyodon spathula*	Fish
24	American Woodcock	*Scolopax minor*	Bird
24	Cerulean Warbler	*Setophaga cerulea*	Bird
23	American Bittern	*Botaurus lentiginosus*	Bird
23	Northern Metalmark	*Calephelis borealis*	Insect
23	Dusky Azure	*Celastrina nigra*	Insect
23	Outis Skipper	*Cogia outis*	Insect
23	Blue Sucker	*Cycleptus elongatus*	Fish
23	Spotted Dusky Salamander	*Desmognathus conanti*	Amphibian
23	Willow Flycatcher	*Empidonax traillii*	Bird
23	Lowland Topminnow	*Fundulus blairae*	Fish
23	Squirrel Treefrog	*Hyla squirella*	Amphibian
23	Crawfish Frog	*Lithobates areolatus*	Amphibian
23	Chub Shiner	*Notropis potteri*	Fish
23	Yehl Skipper	*Poanes yehl*	Insect
23	Purple Gallinule	*Porphyrio martinicus*	Bird
23	Byssus Skipper	*Problema byssus*	Insect
23	Ouachita Kidneyshell	*Ptychobranchus occidentalis*	Mussel
23	Anthophorid Bee	*Tetraloniella albata*	Insect
21	Le Conte's Sparrow	*Ammodramus leconteii*	Bird
21	Bell's Roadside-Skipper	*Amblyscirtes belli*	Insect
21	Sedge Wren	*Cistothorus platensis*	Bird
21	Eastern Spotted Skunk	*Spilogale putorius*	Mammal
21	Texas Milkweed Beetle	*Tetraopes texanus*	Insect
19	Sharp-shinned Hawk	*Accipiter striatus*	Bird
19	Elktoe	*Alasmidonta marginata*	Mussel
19	Brown Bullhead	*Ameiurus nebulosus*	Fish
19	Grasshopper Sparrow	*Ammodramus savannarum*	Bird
19	American Black Duck	*Anas rubripes*	Bird
19	Anhinga	*Anhinga anhinga*	Bird
19	Eastern Whip-poor-will	*Antrostomus vociferus*	Bird

19	Sanderling	*Calidris alba*	Bird
19	Dunlin	*Calidris alpina*	Bird
19	Stilt Sandpiper	*Calidris himantopus*	Bird
19	Chimney Swift	*Chaetura pelagica*	Bird
19	Yellow-billed Cuckoo	*Coccyzus americanus*	Bird
19	Northern Bobwhite	*Colinus virginianus*	Bird
19	Chicken Turtle	*Deirochelys reticularia*	Reptile
19	Tricolored Heron	*Egretta tricolor*	Bird
19	Dion Skipper	*Euphyes dion*	Insect
19	American Kestrel	*Falco sparverius*	Bird
19	Common Gallinule	*Gallinula galeata*	Bird
19	Purple Finch	*Haemorhous purpureus*	Bird
19	Leonard's Skipper	*Hesperia leonardus*	Insect
19	Cobweb Skipper	*Hesperia metea*	Insect
19	Goldeye	*Hiodon alosoides*	Fish
19	Mooneye	*Hiodon tergisus*	Fish
19	Wood Thrush	*Hylocichla mustelina*	Bird
19	Least Bittern	*Ixobrychus exilis*	Bird
19	Southern Pocketbook	*Lampsilis ornata*	Mussel
19	"Red River" Mucket	*Lampsilis sp. B cf hydiana*	Mussel
19	American Brook Lamprey	*Lethenteron appendix*	Fish
19	Short-billed Dowitcher	*Limnodromus griseus*	Bird
19	Swainson's Warbler	*Limnothlypis swainsonii*	Bird
19	Texas Coralsnake	*Micrurus tener*	Reptile
19	Striped Mullet	*Mugil cephalus*	Fish
19	Crawford's Gray Shrew	*Notiosorex crawfordi*	Mammal
19	Blackspot Shiner	*Notropis atrocaudalis*	Fish
19	Black-crowned Night-Heron	*Nycticorax nycticorax*	Bird
19	Hickorynut	*Obovaria olivaria*	Mussel
19	Slenderhead Darter	*Percina phoxocephala*	Fish
19	Prairie Skink	*Plestiodon septentrionalis*	Reptile
19	Ohio Pigtoe	*Pleurobema cordatum*	Mussel
19	Bismark Burrowing Crayfish	*Procambarus parasimulans*	Crayfish
19	Gulf Mapleleaf	*Quadrula nobilis*	Mussel
19	Graham's Crayfish Snake	*Regina grahamii*	Reptile
19	Eastern Harvest Mouse	*Reithrodontomys humulis*	Mammal
19	Oak Hairstreak	*Satyrium favonius ontario*	Insect
19	Hurter's Spadefoot	*Scaphiopus hurterii*	Amphibian
19	Lilliput	*Toxolasma parvum*	Mussel
19	Texas Lilliput	*Toxolasma texasiense*	Mussel
19	Tapered Pondhorn	*Uniomerus declivis*	Mussel
19	Pondhorn	*Uniomerus tetralasmus*	Mussel
19	Bell's Vireo	*Vireo bellii*	Bird
17	Highfin Carpsucker	*Carpiodes velifer*	Fish
17	Beach-dune Tiger Beetle	*Cicindela hirticollis*	Insect
17	Trumpeter Swan	*Cygnus buccinator*	Bird

17	Goldstripe Darter	*Etheostoma parvipinne*	Fish
17	Round Pigtoe	*Pleurobema sintoxia*	Mussel
17	Little Spectaclecase group	*Villosa sp. cf lienosa*	Mussel
15	Mole Salamander	*Ambystoma talpoideum*	Amphibian
15	Gorgone Checkerspot	*Chlosyne gorgone*	Insect
15	Monarch	*Danaus plexippus*	Insect
15	Lake Chubsucker	*Erimyzon sucetta*	Fish
15	Swamp Darter	*Etheostoma fusiforme*	Fish
15	Dwarf Salamander	*Eurycea quadridigitata*	Amphibian
15	Bird-voiced Treefrog	*Hyla avivoca*	Amphibian
15	Glossy Swampsnake	*Liodytes rigida*	Reptile
15	Shoal Chub	*Macrhybopsis hyostoma*	Fish
15	Long-tailed Weasel	*Mustela frenata*	Mammal
15	Slender Glass Lizard	*Ophisaurus attenuatus*	Reptile
15	Saddleback Darter	*Percina vigil*	Fish
15	American Golden-Plover	*Pluvialis dominica*	Bird
15	Broad-winged Skipper	*Poanes viator*	Insect
15	Southern Mapleleaf	*Quadrula apiculata*	Mussel
15	Fawnsfoot	*Truncilla donaciformis*	Mussel
11	Winter Stonefly	*Allocapnia malverna*	Insect

Habitats that occur in the South Central Plains

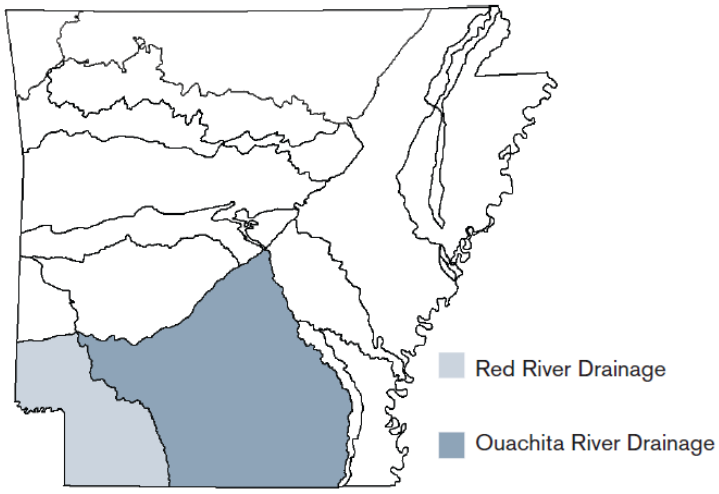
Of the 37 terrestrial habitats in Arkansas, 17 occur in the South Central Plains ecoregion (Table 3.22). Of 18 ecobasins in Arkansas, two occur in the South Central Plains ecoregion (Figure 3.17). These associations are described in the Section 4. Terrestrial Habitats and Section 5. Aquatic Habitats.

Table 3.22. Terrestrial Habitats in the South Central Plains.

Habitat Name
Crop Land
Cultivated Forest
Herbaceous Wetland
Lower Mississippi Alluvial Plain Grand Prairie
Mud Flats
Pasture Land
Ponds, Lakes, and Water Holes
Urban/Suburban
West Gulf Coastal Plain Calcareous Prairie and Woodland
West Gulf Coastal Plain Pine-Hardwood Flatwoods
West Gulf Coastal Plain Large River Floodplain Forest
West Gulf Coastal Plain Pine-Hardwood Forest/Woodland

West Gulf Coastal Plain Red River Floodplain Forest
West Gulf Coastal Plain Sandhill Oak and Shortleaf Pine Forest/Woodland
West Gulf Coastal Plain Seepage Swamp and Baygall
West Gulf Coastal Plain Small Stream/River Forest
West Gulf Coastal Plain Wet Hardwood Flatwoods

Figure 3.17. Ecobasin Distribution in the South Central Plains.



Problems faced by Species of Greatest Conservation Need (SGCN)

A summary of the problems faced by SGCN in the South Central Plains is presented below. Each problem has a score which is a sum of all Species Priority Scores associated with species for which this problem was assigned. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species associated with problems listed here.

Table 3.23. Problems faced by SGCN in the South Central Plains Ecoregion.

Problem faced	Score
Agricultural practices	2157
Dam	1783
Forestry activities	1536
Grazing/Browsing	1025
Channel alteration	993
Resource extraction	941

Channel maintenance	895
Urban development	646
Water diversion	643
Road construction	629
Confined animal operations	549
Fire suppression	450
Conversion of riparian forest	434
Parasites/pathogens	286
Exotic species	280
Recreation	257
Commercial/industrial development	237
Predation	198
Commercial harvest	115
Non-point source pollution	105
Unknown	86
Management of/for certain species	74
Municipal/Industrial point source	69
Crossbreeding	48
Interspecific competiton	48

Conservation actions needed in the South Central Plains

Below are categories of conservation actions recommended by the taxa association teams for SGCN within the South Central Plains (Figure 3.18). The score associated with the conservation action category is the sum of all priority scores associated with species for which a conservation action has been assigned, weighted by the importance of the conservation action category to the species. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species would be affected by actions within this conservation action category.

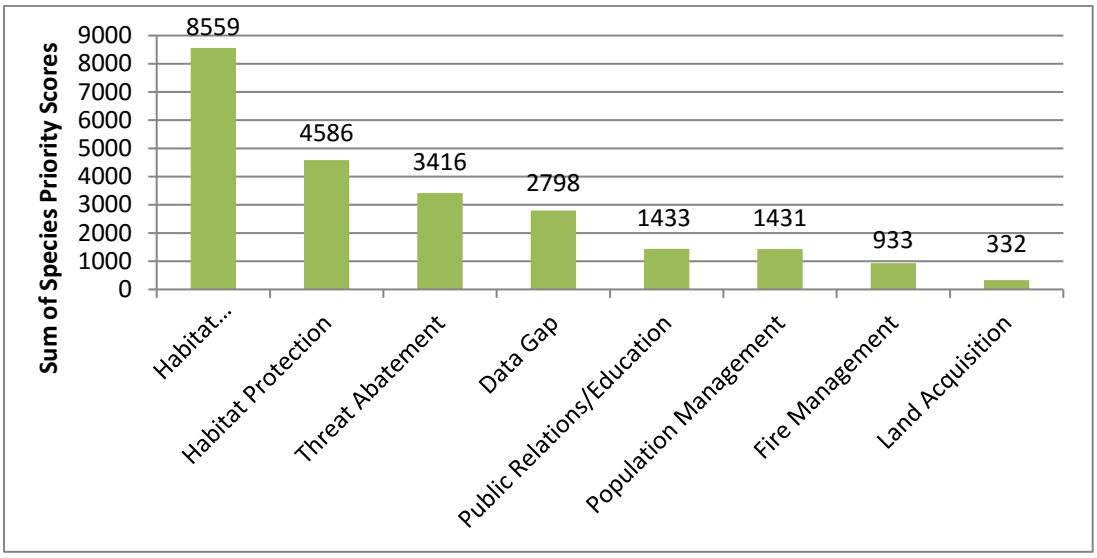


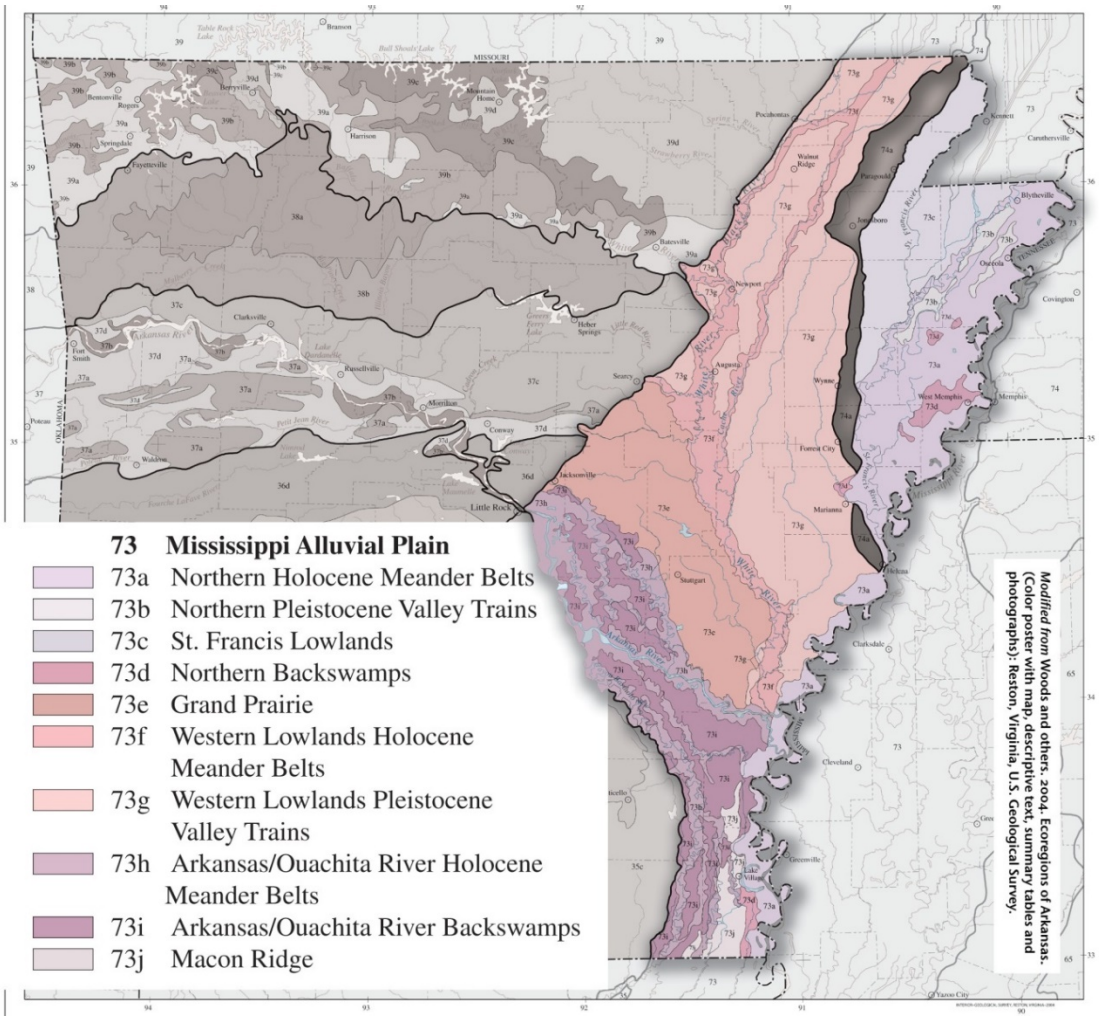
Figure 3.18. Conservation action categories recommended for the South Central Plains.

Mississippi Alluvial Plain (Ecoregion 73)

The Mississippi Alluvial Plain (73) extends along the Mississippi River from the confluence of the Ohio and Mississippi rivers southward to the Gulf of Mexico; temperatures and annual average precipitation increase toward the south. Ecoregion 73 is a broad, nearly level, agriculturally-dominated alluvial plain. It is veneered by Quaternary alluvium, loess, glacial outwash and lacustrine deposits. River terraces, swales and levees provide limited relief, but overall, the Mississippi Alluvial Plain (73) is flatter than neighboring ecoregions in Arkansas, including the South Central Plains (35).

Nearly flat, clayey, poorly-drained soils are widespread and characteristic. Streams and rivers have very low gradients and fine-grained substrates. Many reaches have ill-defined stream channels.

Figure 3.19. Mississippi Alluvial Plain Ecoregion.



Ecoregion 73 provides important habitat for fish and wildlife and includes the largest continuous system of wetlands in North America. It is also a major bird migration corridor used in fall and spring migrations.

Potential natural vegetation is largely southern floodplain forest and is unlike the oak–hickory and oak–hickory–pine forests that dominate uplands to the west in Ecoregions 35, 36, 37, 38 and 39; loblolly pine, so common in the South Central Plains (35), is not native to most forests in the Arkansas portion of Ecoregion 73.

The Mississippi Alluvial Plain (73) has been widely cleared and drained for cultiva- tion; this widespread loss or degradation of forest and wetland habitat has impacted wildlife and reduced bird populations.

Presently, most of the northern and central sections of Ecoregion 73, including Arkansas, are in cropland and receive heavy treatments of insecticides and herbicides; soybeans, cotton and rice are the major crops and aquaculture is also important. Agricultural runoff containing fertilizers, herbicides, pesticides and livestock waste have degraded surficial water quality.

Concentrations of total suspended solids, total dissolved solids, total phosphorus, ammonia nitrogen, sulfates, turbidity, biological oxygen demand, chlorophyll a and fecal coliform are high in the rivers, streams and ditches of Ecoregion 73; they are often much greater than elsewhere in Arkansas, increase with increasing watershed size and are greatest during the spring, high-flow season.

Fish communities in least altered streams typically have an insignificant proportion of sensitive species; sunfishes are dominant followed by minnows. Man-made flood control levees typically flank the Mississippi River and, in effect, separate the river and its adjoining habitat from the remainder of its natural hydrologic system; in so doing, they interfere with sediment transfer within Ecoregion 73 and have reduced available habitat for many species.

Between the levees that parallel the Mississippi River is a corridor known as the “batture lands”. Batture lands are hydrologically linked to the Mississippi River, flood-prone and contain remnant habitat for “big river” species (e.g., pallid sturgeon) as well as river-front plant communities; they are too narrow to map as a separate level IV ecoregion.

Earthquakes in the early nineteenth century offset river courses in Ecoregion 73. Small to medium size earthquakes still occur frequently; their shocks are magnified by the alluvial plain’s unconsolidated deposits, creating regional land management issues.

Northern Holocene Meander Belts

73a. The Northern Holocene Meander Belts ecoregion is a flat to nearly flat floodplain containing the meander belts of the present and past courses of the Mississippi River. Point bars, natural levees, swales and abandoned channels marked by meander scars and oxbow lakes are common and characteristic.

Ecoregion 73a tends to be slightly lower in elevation than adjacent ecoregions. Its abandoned channel network is more extensive than in the Southern Holocene Meander Belts (73k) of Louisiana. Ecoregion 73a is underlain by Holocene alluvium; it lacks the Pleistocene glacial outwash deposits of Ecoregion 73b. Soils on natural levees are relatively coarse-textured, well-drained and higher than those on levee back slopes and point bars; they grade to very heavy, poorly-drained clays in aban- doned channels and swales. Overall, soils are not as sandy as the Northern Pleistocene Valley Trains (73b) and are finer and have more organic matter than the Arkansas/Ouachita River Holocene Meander Belts (73h).

Natural vegetation varies with site characteristics. Younger sandy soils have fewer oaks and more sugarberry, elm, ash, pecan, cottonwood and sycamore than Ecoregion73d.

Widespread draining of wetlands and removal of bottomland forests for cropland has occurred. Soybeans, cotton, corn, sorghum, wheat and rice are the main crops. Catfish farms are increasingly common and contribute to the already large agricultural base.

Northern Pleistocene Valley Trains

73b. The Northern Pleistocene Valley Trains ecoregion is a flat to irregular alluvial plain composed of sandy to gravelly glacial outwash overlain by alluvium; sand sheets, widespread in the St. Francis Lowlands (73c), are absent. The Pleistocene outwash deposits of Ecoregion 73b are usually coarser and better drained than the alluvial deposits of Ecoregions 73a, 73d and 73f. They were transported to Arkansas by the Mississippi River and its tributaries and have been subsequently eroded, reduced in size and fragmented by laterally migrating channels or buried by thick sediments.

Ecoregion 73b has little local relief or stream incision. Elevations tend to be slightly higher than adjacent parts of Ecoregions 73a and 73d.

Cropland is extensive and has largely replaced the original forests; soybeans are the main crop and cotton is also produced. The few remaining forests are dominated by species typical of higher bottomlands such as Nuttall oak, willow oak, swamp chestnut oak, sugarberry and green ash. There are more lowland oaks in Ecoregion 73b than in Ecoregions 73a and 73d.

St. Francis Lowlands

73c. The St. Francis Lowlands ecoregion is flat to irregular and has many relict channels. Ecoregion 73c is mainly composed of late-Wisconsinan age glacial outwash deposits and, in contrast to Ecoregion 73b, is partly covered by undulating sand sheets.

“Sand blows” and “sunk lands” occur and have been attributed to the New Madrid earthquakes of 1811-12 (~ magnitude 8). Loess, which veneers older outwash deposits in Ecoregion 73g, is absent. Topography, lithology and hydrology vary over short distances and natural vegetation varies with site characteristics.

Cropland is extensive and has largely replaced the original forests; soybeans, corn, and cotton are the most common crops but wheat, sorghum and rice are also produced.

Although the streams of the St. Francis Lowlands (73c) have been extensively channelized, water quality tends to be better than in the less channelized areas of Ecoregion 73g because of a lack of loess veneer in Ecoregion 73c.

Northern Backswamps

73d. The Northern Backswamps ecoregion is made up of low-lying overflow areas on floodplains and includes poorly-drained flats and swales. Water often collects in its marshes, swamps, oxbow lakes, ponds and low gradient streams.

Soils developed from clayey alluvium including overbank and slack-water deposits; they commonly have a high shrink-swell potential and are locally rich in organic material. Water levels are seasonally variable.

Native vegetation in the wettest areas is generally dominated by bald cypress–water tupelo forest; slightly higher and better drained sites have overcup oak–water hickory forest and the highest, best-drained areas support Nuttall oak forest. Today, bottomland forest, cropland, farmed wetlands, pastureland and catfish farms occur.

Backswamps are important areas for capturing excess nutrients from local waters and for storing water during heavy rain events.

Grand Prairie

73e. The Grand Prairie ecoregion is a broad, loess-covered terrace formerly dominated by tall grass prairie and now primarily used as cropland. It is typically almost level. However, incised perennial and intermittent streams occur and a narrow belt of low hills is found in the east.

Prior to the 19th century, flatter areas with slowly to very slowly permeable soils (often containing fragipans) supported Arkansas’ largest prairie. They were generally bounded by open

woodland or savanna. In all, about 400,000 acres of prairie grasses and forbs occurred in Ecoregion 73e and were a sharp contrast to the bottomland forests that once dominated other parts of the Mississippi Alluvial Plain (73). Low hills were covered by upland deciduous forest containing white oak, black oak and southern red oak. Drier ridges were dominated by post oak. Narrow floodplains had bottomland hardwood forests.

Cropland has now largely replaced the native vegetation. In the process, some prairie species have been extirpated from the ecoregion (e.g., greater prairie chicken); others have been sharply reduced in population and restricted to a few prairie remnants.

Distinctively, rice is the main crop; soybeans, cotton, corn and wheat are also grown. Rice fields provide habitat and forage for large numbers and many species of waterfowl; duck and goose hunting occurs.

Western Lowlands Holocene Meander Belts

Western Lowlands Holocene Meander Belts

73f. The Western Lowlands Holocene Meander Belts ecoregion is a flat to nearly flat floodplain containing the meander belts of the present and past courses of the White, Black and Cache rivers. Its meander belts are narrower than the Northern Holocene Meander Belts (73a), but point bars, natural levees, swales and abandoned channels are common in both regions.

Soils on natural levees are relatively coarse-textured, well-drained and higher than those on levee back slopes and point bars; they grade to heavy, poorly-drained clays in abandoned channels and swales.

Natural vegetation varies with site characteristics. Today, Ecoregion 73f contains some of the most extensive remaining tracts of native bottomland hardwood forest in the Mississippi Alluvial Plain (73). Cropland also occurs.

Flood control levees are less developed and riverine processes are more natural and dynamic than in Ecoregion 73a. Backwater flooding in the White River occurs well upstream of its confluence with the higher Mississippi River; as a result, riparian and natural levee communities are less common and oak-dominated communities are more widespread than in Ecoregion 73a.

Wetlands in the Cache-lower White River systems have been designated as one of only nineteen “Wetlands of International Importance” in the United States by the Ramsar Convention on Wetlands.

Regulation of White River flow, in combination with the downcutting of the Mississippi River for navigation (and related wing levees and cutoffs), have altered flood regimes on the lower White River, thereby increasing stream bank instability and bottomland forest mortality in Ecoregion 73f.

Most streams and rivers in Ecoregion 73f are fed by the Ozark Highlands and Boston Mountains; sediment load is generally less than in the Mississippi River.

Western Lowlands Pleistocene Valley Trains

73g. The terraces of the Western Lowlands Pleistocene Valley Trains are largely composed of Pleistocene glacial outwash that was transported to Arkansas by the Mississippi River and deposited by braided streams. Physiography is widely muted by windblown silt deposits (loess), sand sheets, or sand dunes; loess and sand sheets are more widespread than in the Northern Pleistocene Valley Trains (73b) and St. Francis Lowlands (73c).

Many interdunal depressions called “sandponds” occur and are either in contact with the water table or have a perched aquifer. Elevations are higher than adjacent parts of the Northern Holocene Meander Belts (73a) and Western Lowlands Holocene Meander Belts (73f); consequently, uplands are rarely if ever flooded.

Native plant communities are different from more frequently inundated ecoregions; for example, post oak and loblolly pine are native to Ecoregion 73g but are absent from lower, overflow areas. Sandpond forest communities are generally dominated by overcup oak, water hickory, willow oak and pin oak; understory in a few sandponds may include pondberry (*Lindera melissifolia*), federally listed as endangered.

Today, cropland is extensive and the main crops are soybeans and cotton. Commer cial crawfish, baitfish and catfish farms are common. The Western Lowlands Pleistocene Valley Trains (73g) ecoregion is a wintering ground for waterfowl. Duck hunting is widespread.

Arkansas/Ouachita River Holocene Meander Belts

73h. The Arkansas/Ouachita River Holocene Meander Belts ecoregion is a flat to nearly flat floodplain containing the meander belts of the present and past courses of the lower Arkansas and Ouachita rivers. Point bars, natural levees, swales and abandoned channels, marked by meander scars and oxbow lakes, are common and characteristic. Soils on natural levees are relatively coarse-textured, well-drained and higher than those on levee back slopes and point bars; they grade to heavy, poorly- drained clays in abandoned channels and swales. Overall, soils have less organic matter than in the Northern Holocene Meander Belts (73a).

Arkansas/Ouachita River Holocene Meander Belts

The modern, active Arkansas River meander belt comprises only a small portion of Ecoregion

73h. The rest of Ecoregion 73h contains small streams flowing in abandoned courses of the Arkansas River. These small streams are usually underfit relative to the older channels, higher than the adjacent Arkansas/Ouachita River Backswamps (73i) and have small watersheds. Bayou Bartholomew inhabits the longest section of abandoned channels. It flows against the edge of and receives drainage from the South Central Plains (35); habitat diversity is sufficient for Bayou Bartholomew to be one of the most species-rich streams in North America. The pink mucket and the fat pocketbook mussels, both federally listed as endangered, have been collected from the Bayou.

Within an abandoned course, bald cypress and water tupelo often grow in the modern stream channel adjacent to a strip of wet bottomland hardwood forest dominated by overcup oak and water hickory. In the rest of Ecoregion 73h, cropland and pastureland are widespread; soybeans, rice and wheat are the main crops.

Arkansas/Ouachita River Backswamps

73i. The flats, swales and natural levees of the Arkansas/Ouachita River Backswamps ecoregion include the slackwater areas along the Arkansas and Ouachita rivers, where water often collects into marshes, swamps, oxbow lakes, ponds and sloughs. Ecoregion 73i, in contrast to the Northern Backswamps (73d), is widely veneered with natural levee deposits. Soils derived from these natural levee deposits are coarser and are not as poorly drained as the clayey soils of the Northern Backswamps (73d). As a result, willow oak and water oak are native instead of species adapted to wetter overflow conditions.

Drainage canals and ditches are common. This artificial drainage, together with the sandy veneer of natural levee deposits, help explain why Ecoregion 73i is more easily and widely farmed than the Northern Backswamps (73d). Rice, cotton and soybeans are important crops but forests and forested wetlands also occur.

Macon Ridge

73j. Macon Ridge is underlain almost entirely by Pleistocene glacial outwash deposits that were transported to Arkansas by the Mississippi River and deposited by braided streams. It is veneered by windblown silt deposits (i.e. loess) like Ecoregions 73e, 73g and 74a. Soils are influenced by loess and contrast with the alluvial soils of Ecoregions 73a and 73h.

Macon Ridge (73j) is a continuation of the Western Lowlands Pleistocene Valley Trains (73g) but is better drained and supports drier plant communities. Its eastern edge is 20 to 30 feet above the adjacent, lithologically and physiographically distinct, Northern Holocene Meander Belts (73a).

The western side of Macon Ridge (73j) is lower than the eastern side and is about the same elevation as the lithologically and physiographically distinct Arkansas/ Ouachita River Holocene Meander Belts (73h).

Native forest types range from those of better drained bottomlands dominated by willow oak, water oak and swamp chestnut oak to upland hardwood forests dominated by white oak, southern red oak and post oak. Prairies and loblolly pine- dominated areas may also have occurred on Macon Ridge (73j).

Today, Ecoregion 73j is a mosaic of pastureland, forest and cropland. Soybeans, cotton and oats are major crops (adapted from Woods and others 2004).

Mississippi Alluvial Plain Ecoregion: Species of Greatest Conservation Need (SGCN)

Of the 377 SGCN, 146 occur in the Mississippi Alluvial Plain ecoregion (Table 3.24).

Table 3.24. Species of greatest conservation need (SGCN) in the Mississippi Alluvial Plain ranked by priority score. A higher priority score indicates a greater need for actions to conserve the species.

Priority Score	Common Name	Scientific Name	Taxa Association
76	Scaleshell	*Leptodea leptodon*	Mussel
63	Northern Long-eared Bat	*Myotis septentrionalis*	Mammal
62	Indiana Bat	*Myotis sodalis*	Mammal
52	Alabama Shad	*Alosa alabamae*	Fish
52	Rabbitsfoot	*Quadrula cylindrica cylindrica*	Mussel
48	Pallid Sturgeon	*Scaphirhynchus albus*	Fish
46	Pink Mucket	*Lampsilis abrupta*	Mussel
46	Fat Pocketbook	*Potamilus capax*	Mussel
43	Piping Plover	*Charadrius melodus*	Bird
43	Western Fanshell	*Cyprogenia aberti*	Mussel
43	Sicklefin Chub	*Macrhybopsis meeki*	Fish
43	Red-cockaded Woodpecker	*Picoides borealis*	Bird
43	Illinois Chorus Frog	*Pseudacris illinoensis*	Amphibian
38	Crystal Darter	*Crystallaria asprella*	Fish
38	Stargazing Darter	*Percina uranidea*	Fish
38	Pyramid Pigtoe	*Pleurobema rubrum*	Mussel
34	Salamander Mussel	*Simpsonaias ambigua*	Mussel
33	Western Sand Darter	*Ammocrypta clara*	Fish
33	Henslow's Sparrow	*Ammodramus henslowii*	Bird

33	Sprague's Pipit	*Anthus spragueii*	Bird
33	Little Brown Bat	*Myotis lucifugus*	Mammal
33	Bluehead Shiner	*Pteronotropis hubbsi*	Fish
33	King Rail	*Rallus elegans*	Bird
33	Purple Lilliput	*Toxolasma lividum*	Mussel
32	Dukes' Skipper	*Euphyes dukesi*	Insect
32	Prairie Mole Cricket	*Gryllotalpa major*	Insect
31	Interior Least Tern	*Sternula antillarum athalassos*	Bird
29	Buff-breasted Sandpiper	*Calidris subruficollis*	Bird
29	Rafinesque's Big-Eared Bat	*Corynorhinus rafinesquii*	Mammal
29	Swallow-tailed Kite	*Elanoides forficatus*	Bird
29	Rusty Blackbird	*Euphagus carolinus*	Bird
29	Silver Redhorse	*Moxostoma anisurum*	Fish
29	Stonecat	*Noturus flavus*	Fish
29	Bewick's Wren	*Thryomanes bewickii*	Bird
27	Lake Sturgeon	*Acipenser fulvescens*	Fish
27	Lace-winged Roadside-Skipper	*Amblyscirtes aesculapius*	Insect
27	Alligator Gar	*Atractosteus spatula*	Fish
27	Plains Minnow	*Hybognathus placitus*	Fish
25	Tiger Beetle	*Cicindela lepida*	Insect
25	Giant Stag Beetle	*Lucanus elaphus*	Insect
25	Diana	*Speyeria diana*	Insect
24	American Eel	*Anguilla rostrata*	Fish
24	Ruddy Turnstone	*Arenaria interpres*	Bird
24	Smith's Longspur	*Calcarius pictus*	Bird
24	Common Nighthawk	*Chordeiles minor*	Bird
24	Migrant Loggerhead Shrike	*Lanius ludovicianus*	Bird
24	Southeastern Bat	*Myotis austroriparius*	Mammal
24	Yellow-crowned Night-Heron	*Nyctanassa violacea*	Bird
24	Black-bellied Plover	*Pluvialis squatarola*	Bird
24	Paddlefish	*Polyodon spathula*	Fish
24	American Woodcock	*Scolopax minor*	Bird
24	Cerulean Warbler	*Setophaga cerulea*	Bird
23	American Bittern	*Botaurus lentiginosus*	Bird
23	Blue Sucker	*Cycleptus elongatus*	Fish
23	Willow Flycatcher	*Empidonax traillii*	Bird
23	Crawfish Frog	*Lithobates areolatus*	Amphibian
23	Sabine Shiner	*Notropis sabinae*	Fish
23	Suckermouth Minnow	*Phenacobius mirabilis*	Fish
23	Flathead Chub	*Platygobio gracilis*	Fish
23	Yehl Skipper	*Poanes yehl*	Insect
23	Purple Gallinule	*Porphyrio martinicus*	Bird

23	Pink Heelsplitter	*Potamilus alatus*	Mussel
23	Ouachita Kidneyshell	*Ptychobranchus occidentalis*	Mussel
23	Central Mudminnow	*Umbra limi*	Fish
21	Le Conte's Sparrow	*Ammodramus leconteii*	Bird
21	Golden-banded Skipper	*Autochton cellus*	Insect
21	Ant-like Tiger Beetle	*Cicindela cursitans*	Insect
21	Woodland Tiger Beetle	*Cicindela unipunctata*	Insect
21	Sedge Wren	*Cistothorus platensis*	Bird
21	Red Milkweed Beetle	*Tetraopes quinquemaculatus*	Insect
19	Sharp-shinned Hawk	*Accipiter striatus*	Bird
19	Elktoe	*Alasmidonta marginata*	Mussel
19	Brown Bullhead	*Ameiurus nebulosus*	Fish
19	Grasshopper Sparrow	*Ammodramus savannarum*	Bird
19	American Black Duck	*Anas rubripes*	Bird
19	Anhinga	*Anhinga anhinga*	Bird
19	Eastern Whip-poor-will	*Antrostomus vociferus*	Bird
19	Sanderling	*Calidris alba*	Bird
19	Dunlin	*Calidris alpina*	Bird
19	Stilt Sandpiper	*Calidris himantopus*	Bird
19	Common Wormsnake	*Carphophis amoenus*	Reptile
19	Chimney Swift	*Chaetura pelagica*	Bird
19	Yellow-billed Cuckoo	*Coccyzus americanus*	Bird
19	Northern Bobwhite	*Colinus virginianus*	Bird
19	Chicken Turtle	*Deirochelys reticularia*	Reptile
19	Six-banded Longhorn Beetle	*Dryobius sexnotatus*	Insect
19	Tricolored Heron	*Egretta tricolor*	Bird
19	Dion Skipper	*Euphyes dion*	Insect
19	American Kestrel	*Falco sparverius*	Bird
19	Common Gallinule	*Gallinula galeata*	Bird
19	Purple Finch	*Haemorhous purpureus*	Bird
19	Goldeye	*Hiodon alosoides*	Fish
19	Mooneye	*Hiodon tergisus*	Fish
19	Wood Thrush	*Hylocichla mustelina*	Bird
19	Least Bittern	*Ixobrychus exilis*	Bird
19	American Brook Lamprey	*Lethenteron appendix*	Fish
19	Short-billed Dowitcher	*Limnodromus griseus*	Bird
19	Swainson's Warbler	*Limnothlypis swainsonii*	Bird
19	Pealip Redhorse	*Moxostoma pisolabrum*	Fish
19	Striped Mullet	*Mugil cephalus*	Fish
19	Channel Shiner	*Notropis wickliffi*	Fish
19	Black-crowned Night-Heron	*Nycticorax nycticorax*	Bird
19	Hickorynut	*Obovaria olivaria*	Mussel
19	Gilt Darter	*Percina evides*	Fish

19	Ohio Pigtoe	*Pleurobema cordatum*	Mussel
19	Gray Comma	*Polygonia progne*	Insect
19	Gulf Mapleleaf	*Quadrula nobilis*	Mussel
19	Graham's Crayfish Snake	*Regina grahamii*	Reptile
19	Eastern Harvest Mouse	*Reithrodontomys humulis*	Mammal
19	Oak Hairstreak	*Satyrium favonius ontario*	Insect
19	Eastern Spadefoot	*Scaphiopus holbrookii*	Amphibian
19	Southern Bog Lemming	*Synaptomys cooperi*	Mammal
19	Ornate Box Turtle	*Terrapene ornata*	Reptile
19	Lilliput	*Toxolasma parvum*	Mussel
19	Texas Lilliput	*Toxolasma texasiense*	Mussel
19	Tapered Pondhorn	*Uniomerus declivis*	Mussel
19	Pondhorn	*Uniomerus tetralasmus*	Mussel
19	Bell's Vireo	*Vireo bellii*	Bird
17	Highfin Carpsucker	*Carpiodes velifer*	Fish
17	Beach-dune Tiger Beetle	*Cicindela hirticollis*	Insect
17	Trumpeter Swan	*Cygnus buccinator*	Bird
17	Goldstripe Darter	*Etheostoma parvipinne*	Fish
17	Round Pigtoe	*Pleurobema sintoxia*	Mussel
17	Little Spectaclecase group	*Villosa sp. cf lienosa*	Mussel
16	American Badger	*Taxidea taxus*	Mammal
15	Mole Salamander	*Ambystoma talpoideum*	Amphibian
15	Gorgone Checkerspot	*Chlosyne gorgone*	Insect
15	Monarch	*Danaus plexippus*	Insect
15	Lake Chubsucker	*Erimyzon sucetta*	Fish
15	Swamp Darter	*Etheostoma fusiforme*	Fish
15	Dwarf Salamander	*Eurycea quadridigitata*	Amphibian
15	Bird-voiced Treefrog	*Hyla avivoca*	Amphibian
15	Glossy Swampsnake	*Liodytes rigida*	Reptile
15	Shoal Chub	*Macrhybopsis hyostoma*	Fish
15	Long-tailed Weasel	*Mustela frenata*	Mammal
15	Slender Glass Lizard	*Ophisaurus attenuatus*	Reptile
15	Saddleback Darter	*Percina vigil*	Fish
15	American Golden-Plover	*Pluvialis dominica*	Bird
15	Broad-winged Skipper	*Poanes viator*	Insect
15	Southern Mapleleaf	*Quadrula apiculata*	Mussel
15	Western Harvest Mouse	*Reithrodontomys megalotis*	Mammal
15	Fawnsfoot	*Truncilla donaciformis*	Mussel
15	Rainbow	*Villosa iris*	Mussel
13	Twelve-spotted Tiger Beetle	*Cicindela duodecimguttata*	Insect
11	Winter Stonefly	*Allocapnia malverna*	Insect
11	Bronze Copper	*Lycaena hyllus*	Insect

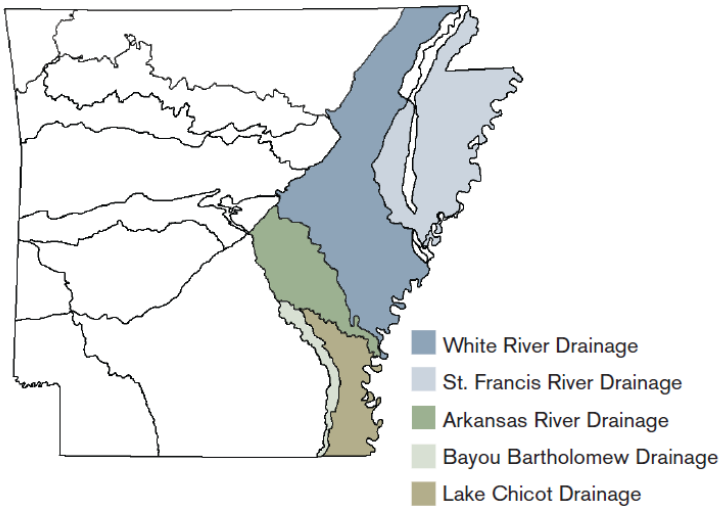
Habitats that occur in the Mississippi Alluvial Plain

Of the 37 terrestrial habitats in Arkansas, 14 occur in the Mississippi Alluvial Plain ecoregion (Table 3.25). Of 18 ecobasins in Arkansas, five occur in the Mississippi Alluvial Plain ecoregion (Figure 3.20). These associations are described in the Section 4. Terrestrial Habitats and Section 5. Aquatic Habitats.

Table 3.25. Terrestrial Habitats in the Mississippi Alluvial Plain.

Habitat Name
Crop Land
Cultivated Forest
Herbaceous Wetland
Lower Mississippi Alluvial Plain Grand Prairie
Lower Mississippi Flatwoods Woodland and Forest
Lower Mississippi River Bottomland Depression
Lower Mississippi River Dune, Pond, Woodland and Forest
Lower Mississippi River High Bottomland Forest
Lower Mississippi River Low Bottomland Forest
Lower Mississippi River Riparian Forest
Mud Flats
Pasture Land
Ponds, Lakes, and Water Holes
Urban/Suburban

Figure 3.20. Ecobasin Distribution in the Mississippi Alluvial Plain.



Problems faced by Species of Greatest Conservation Need (SGCN)

A summary of the problems faced by SGCN in the Mississippi Alluvial Plain is presented below. Each problem has a score which is a sum of all Species Priority Scores associated with species for which this problem was assigned. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species associated with problems listed here.

Table 3.26. Problems faced by SGCN in the Mississippi Alluvial Plain Ecoregion.

Problem faced	Score
Agricultural practices	2157
Dam	1783
Forestry activities	1536
Grazing/Browsing	1063
Channel alteration	993
Resource extraction	941
Channel maintenance	895
Urban development	646
Water diversion	643
Road construction	629
Confined animal operations	549
Fire suppression	450
Conversion of riparian forest	434
Parasites/pathogens	286
Exotic species	280
Recreation	257
Commercial/industrial development	237
Predation	198
Commercial harvest	115
Non-point source pollution	105
Unknown	86
Management of/for certain species	74
Municipal/Industrial point source	69
Crossbreeding	48
Interspecific competiton	48
Incidental take	27
Excessive groundwater withdrawal	21

Conservation Actions needed in the Mississippi Alluvial Plain

Below are categories of conservation actions recommended by the taxa association teams for SGCN in the Mississippi Alluvial Plain (Figure 3.21). The score associated with the conservation action category is the sum of all priority scores associated with species for which a conservation action has been assigned, weighted by the importance of the conservation action category to the species. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species would be affected by actions within this conservation action category.

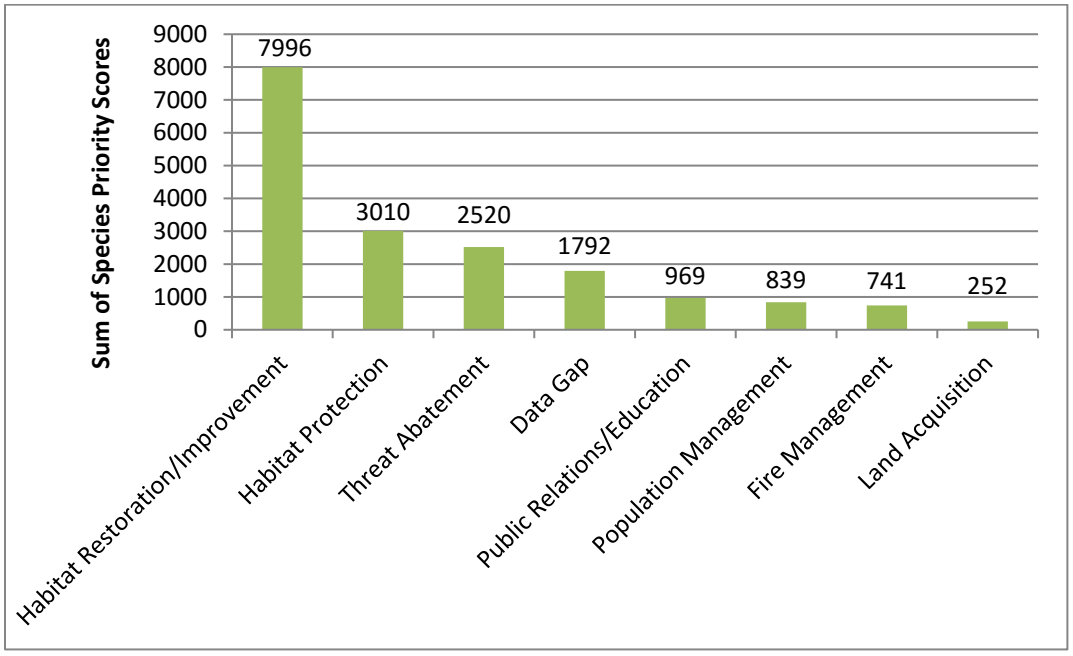


Figure 3.21. Conservation action categories recommended for the Mississippi Alluvial Plain.

Mississippi Valley Loess Plains (Ecoregion 74)

Ecoregion 74 stretches from the Ohio River in western Kentucky all the way to Louisiana. It is characteristically veneered with windblown silt deposits (loess) and underlain by erosion-prone, unconsolidated coastal plain sediments; loess is thicker than in the Southeastern Plains (65). Western areas, including Arkansas, have hills, ridges and bluffs, but further east in Mississippi and Tennessee, the topography becomes flatter. Overall, irregular plains are common.

Ecoregion 74 is lithologically and physiographically distinct from the Ouachita Mountains (36), Boston Mountains (38), Ozark Highlands (39), Interior Plateau (71) and Interior River Valleys and Hills (72).

Figure 3.22. Mississippi Valley Loess Plains Ecoregion.

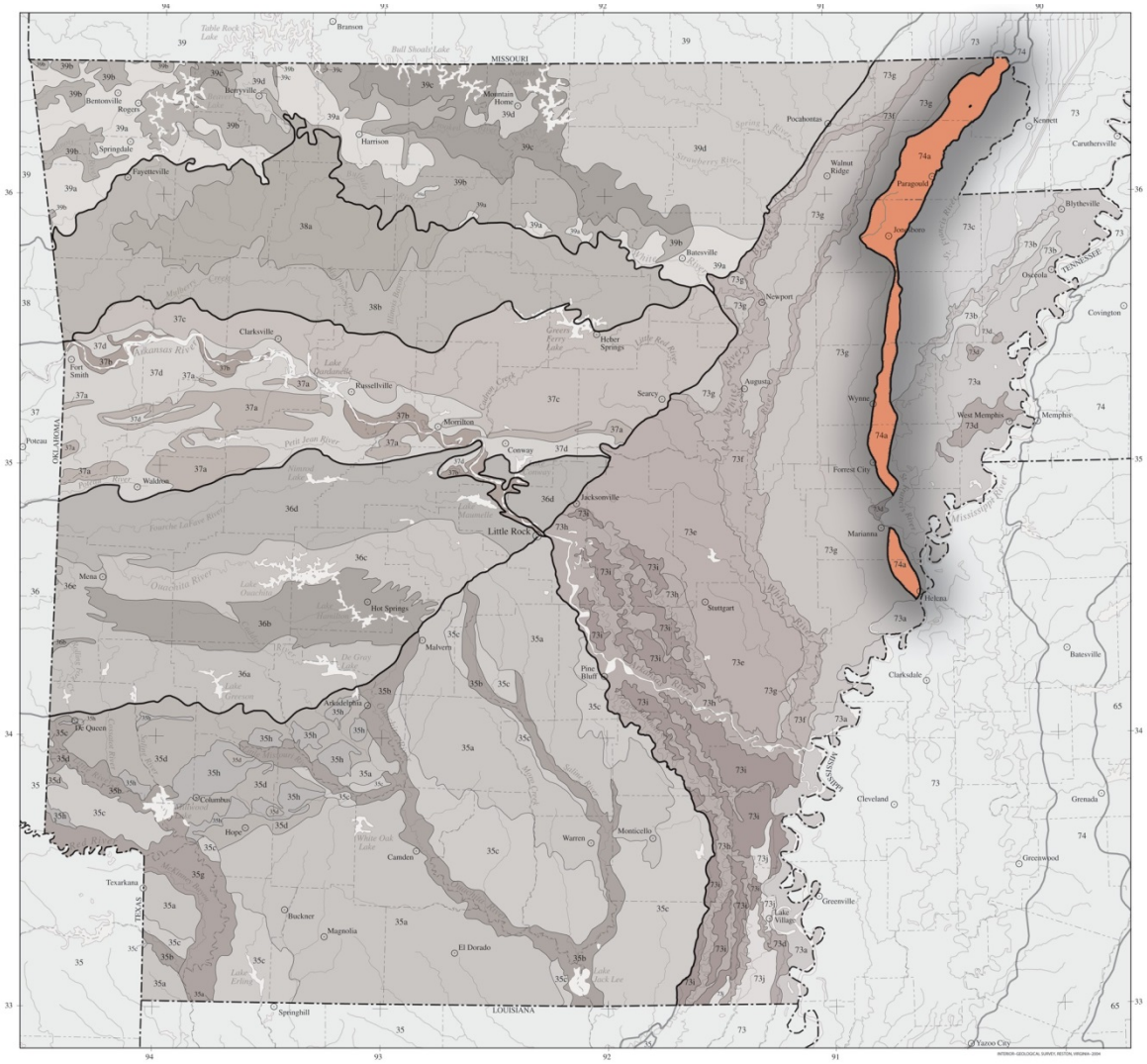


Photo by Tom Foti, AHNC

Mississippi Valley Loess Plains - Crowley's Ridge

Potential natural vegetation is primarily oak–hickory forest or oak–hickory–pine forest and is unlike the southern floodplain forests of the Mississippi Alluvial Plain (73). Streams tend to have gentler gradients and more silty substrates than in the Southeastern Plains (65).

Crowley's Ridge

74a. Crowley's Ridge, the only portion of the Bluff Hills ecoregion in Arkansas, is a disjunct series of loess-capped hills surrounded by the lower, flatter Mississippi Alluvial Plain (73). Crowley's Ridge, with elevations of up to 500 feet, is of sufficient height to have trapped wind-blown silt during the Pleistocene Epoch. It was formed by the aggregation of loess and the subsequent erosion by streams.

The loess is subject to vertical sloughing when wet. Spring-fed streams and seep areas occur on the lower slopes and in basal areas where Tertiary sands and gravels that were never removed by the Mississippi River are exposed.

Soils are generally well-drained; they are generally more loamy than those found in the surrounding Northern Pleistocene Valley Trains (73b) and St. Francis Lowlands (73c).

Wooded land and pastureland are common; only limited cropland is found in Ecoregion 74a. Post oak–blackjack oak forest, southern red oak–white oak forest and beech–maple forest occur. Undisturbed ravine vegetation can be rich in mesophytes, such as beech and sugar maple. Oaks still dominate most of these mesophytic communities. The forests of the Bluff Hills (74a) are usually classified as oak–beech. They are related to the beech–maple cove forests of the Appalachian Mountains; like the Appalachian cove forests, tulip poplar dominates early successional communities, at least in the southern ridge. In Arkansas, tulip poplar is native only to the Bluff Hills (74a). Shortleaf pine grows on the sandier soils of the northern ridge (adapted from Woods and others 2004).

Mississippi Valley Loess Plains: Species of Greatest Conservation Need (SGCN)

Of the 377 SGCN, 51 occur in the Mississippi Valley Loess Plains ecoregion (Table 3.27).

Table 3.27. Species of greatest conservation need (SGCN) in the Mississippi Valley Loess Plains ranked by priority score. A higher priority score indicates a greater need for actions to conserve the species.

Priority Score	Common Name	Scientific Name	Taxa Association
33	Henslow's Sparrow	*Ammodramus henslowii*	Bird
33	Little Brown Bat	*Myotis lucifugus*	Mammal
29	Rafinesque's Big-Eared Bat	*Corynorhinus rafinesquii*	Mammal
29	Rusty Blackbird	*Euphagus carolinus*	Bird
29	Bewick's Wren	*Thryomanes bewickii*	Bird
25	Giant Stag Beetle	*Lucanus elaphus*	Insect
24	Common Nighthawk	*Chordeiles minor*	Bird
24	Migrant Loggerhead Shrike	*Lanius ludovicianus*	Bird
24	Southeastern Bat	*Myotis austroriparius*	Mammal
24	Yellow-crowned Night-Heron	*Nyctanassa violacea*	Bird
24	American Woodcock	*Scolopax minor*	Bird
24	Cerulean Warbler	*Setophaga cerulea*	Bird
23	American Bittern	*Botaurus lentiginosus*	Bird
23	Spotted Dusky Salamander	*Desmognathus conanti*	Amphibian
23	Willow Flycatcher	*Empidonax traillii*	Bird
23	Crawfish Frog	*Lithobates areolatus*	Amphibian
21	Le Conte's Sparrow	*Ammodramus leconteii*	Bird
21	Sedge Wren	*Cistothorus platensis*	Bird
21	Eastern Spotted Skunk	*Spilogale putorius*	Mammal
19	Sharp-shinned Hawk	*Accipiter striatus*	Bird
19	Brown Bullhead	*Ameiurus nebulosus*	Fish
19	Grasshopper Sparrow	*Ammodramus savannarum*	Bird
19	Eastern Whip-poor-will	*Antrostomus vociferus*	Bird
19	Dunlin	*Calidris alpina*	Bird
19	Stilt Sandpiper	*Calidris himantopus*	Bird
19	Common Wormsnake	*Carphophis amoenus*	Reptile
19	Chimney Swift	*Chaetura pelagica*	Bird
19	Yellow-billed Cuckoo	*Coccyzus americanus*	Bird
19	Northern Bobwhite	*Colinus virginianus*	Bird
19	American Kestrel	*Falco sparverius*	Bird
19	Purple Finch	*Haemorhous purpureus*	Bird
19	Wood Thrush	*Hylocichla mustelina*	Bird

19	Least Bittern	*Ixobrychus exilis*	Bird
19	Short-billed Dowitcher	*Limnodromus griseus*	Bird
19	Swainson's Warbler	*Limnothlypis swainsonii*	Bird
19	Black-crowned Night-Heron	*Nycticorax nycticorax*	Bird
19	Eastern Harvest Mouse	*Reithrodontomys humulis*	Mammal
19	Eastern Spadefoot	*Scaphiopus holbrookii*	Amphibian
19	Southern Bog Lemming	*Synaptomys cooperi*	Mammal
19	Bell's Vireo	*Vireo bellii*	Bird
17	Sandy Stream Tiger Beetle	*Cicindela macra*	Insect
17	Trumpeter Swan	*Cygnus buccinator*	Bird
17	Goldstripe Darter	*Etheostoma parvipinne*	Fish
16	American Badger	*Taxidea taxus*	Mammal
15	Mole Salamander	*Ambystoma talpoideum*	Amphibian
15	Cow Path Tiger Beetle	*Cicindela purpurea*	Insect
15	Monarch	*Danaus plexippus*	Insect
15	Long-tailed Weasel	*Mustela frenata*	Mammal
15	American Golden-Plover	*Pluvialis dominica*	Bird
15	Western Harvest Mouse	*Reithrodontomys megalotis*	Mammal
11	Bronze Copper	*Lycaena hyllus*	Insect

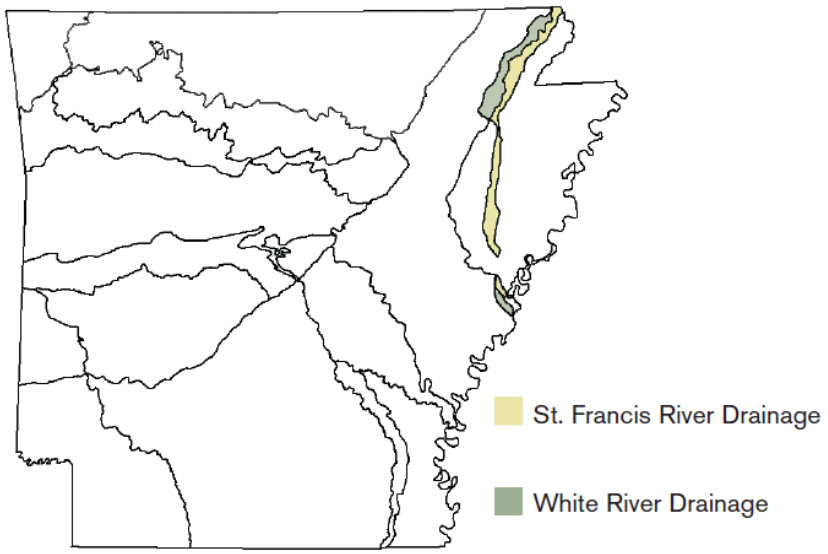
Habitats that occur in the Mississippi Valley Loess Plains

Of the 37 terrestrial habitats in Arkansas, 7 occur in the Mississippi Valley Loess Plains (Table 3.28). Of 18 ecobasins in Arkansas, three occur in the Mississippi Valley Loess Plains ecoregion (Figure 3.23). These associations are described in the Section 4. Terrestrial Habitatsand Section 5. Aquatic Habitats.

Table 3.28. Terrestrial Habitats in the Mississippi River Loess Plains.

Habitat Name
Crop Land
Cultivated Forest
Crowley’s Ridge Loess Slope Forest
Mud Flats
Pasture Land
Ponds, Lakes, and Water Holes
Urban/Suburban

Figure 3.23. Ecobasin distribution in the Mississippi River Loess Plains.



Problems faced by Species of Greatest Conservation Need (SGCN)

A summary of the problems faced by SGCN in the Mississippi Valley Loess Plains is presented below. Each problem has a score which is a sum of all Species Priority Scores associated with species for which this problem was assigned. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species associated with problems listed here.

Table 3.29. Problems faced by SGCN in the Mississippi River Valley Loess Plains.

Problem faced	Score
Agricultural practices	1049
Forestry activities	691
Urban development	334
Conversion of riparian forest	270
Fire suppression	257
Parasites/pathogens	161
Exotic species	109
Water diversion	104
Commercial/industrial development	103
Dam	97
Predation	97

Recreation	93
Resource extraction	84
Non-point source pollution	67
Grazing/Browsing	61
Confined animal operations	43
Road construction	43
Municipal/Industrial point source	38
Interspecific competiton	29
Excessive groundwater withdrawal	21
Channel alteration	19
Management of/for certain species	17

Conservation actions needed in the Mississippi Valley Loess Plains

Below are categories of conservation actions recommended by the taxa association teams for SGCN in the Mississippi Valley Loess (Figure 3.24). The score associated with the conservation action category is the sum of all priority scores associated with species for which a conservation action has been assigned, weighted by the importance of the conservation action category to the species. A higher score implies a higher quantity of SGCN and/or more greatly imperiled species would be affected by actions within this conservation action category.

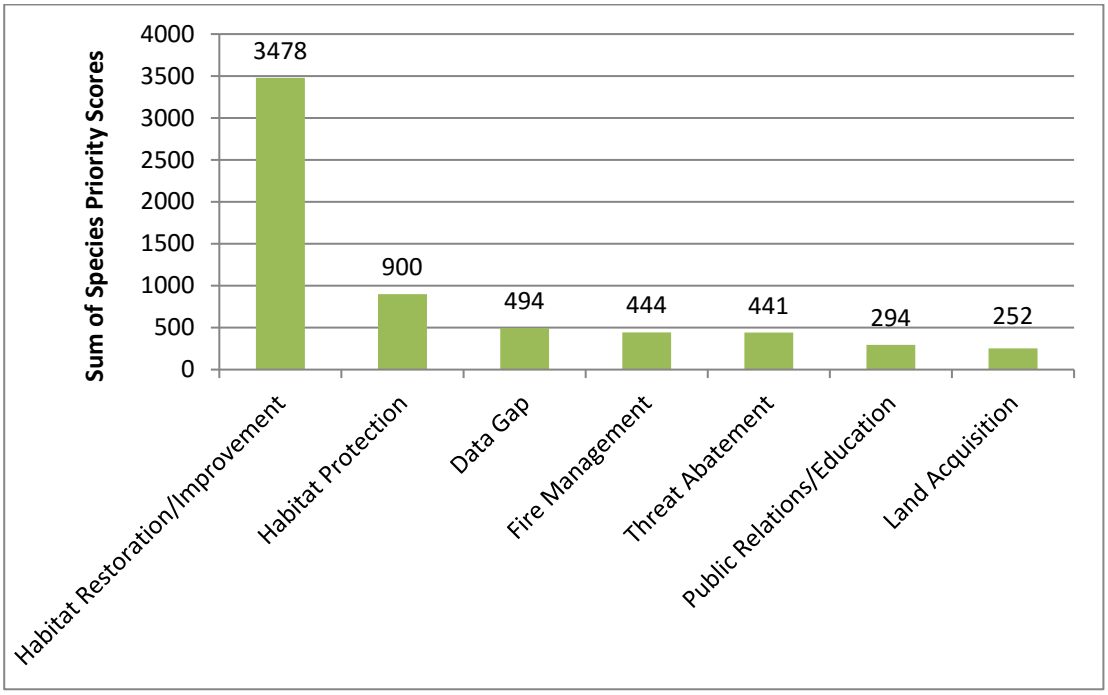


Figure 3.24. Conservation action categories recommended for the Mississippi Valley Loess Plains.