CHAPTER 2

KEY TERRESTRIAL HABITATS

The following section provides overviews of Alabama's key terrestrial habitats (Table 2.1; **Element 2**). For each habitat type, information regarding the condition, locality descriptions, threats (see also Chapter 3), and species of greatest conservation need (SGCN) are included (Tables 2.2 – 2.30; **Element 1**). Habitats are presented in order from supporting the highest number of SGCN to the lowest and include:

Table 2.1 Key Terrestrial Habitat of Alabama and Associated Number of Species in Greatest Conservation Need (SGCN).

TERRESTRIAL HABITAT	SGCN
Dry Hardwood and Mixed Pine Forest	156
Glades and Prairies	149
Mesic Hardwood Forest	143
Wet Pine Savanna and Flatwoods	134
Bogs and Seepage Communities	110
Riparian and Floodplain Forest	105
Dry Longleaf Pine Forest	102
Isolated Wetland and Ponds	90
Swamp	86
Anthropogenic	71
Intertidal Marshes, Flats, and Submerged Vegetation	56
Beach and Dune	45
Cliffs and Rockhouses	37
Maritime Forest and Coastal Scrub	35
Caves and Mines	22

Habitat maps were developed by the State Lands Division, Natural Heritage Section, using the NatureServe Ecosystems of the Conterminous U.S. and Adjacent Layers (https://geohub-natureserve.opendata.arcgis.com/maps/Natureserve::ecosystems-of-the-conterminous-us-and-adjacent-areas/explore?location=27.247570%2C-95.116614%2C4). This is a national ecological classification and map developed by NatureServe and the U.S. Geological Survey (USGS) to describe and map ecological systems (also called terrestrial ecological systems) across the lower 48 states. Map coloring represents Level III Ecoregions, with the Fall Line identified. Maroon shading in the habitat maps represents the current range of each habitat in Alabama.

DRY HARDWOOD AND MIXED PINE FOREST

Description and Condition

Dry hardwood and mixed pine forests are widespread across Alabama's uplands, particularly in the Appalachian foothills, Interior Plateau, and Coastal Plain (Figure 2.1). These forests occupy well-drained slopes and ridges, often with thin, nutrient-poor soils, where drought-tolerant oaks (*Quercus* spp.), hickories (*Carya* spp.), shortleaf pine (*Pinus echinata*), and loblolly pine (*Pinus taeda*) dominate. They typically feature a patchy understory of ericaceous shrubs, native grasses, and forbs, with the vegetative composition shaped historically by periodic fire. These forests provide habitat for a range of wildlife, including woodland songbirds, small mammals, and reptiles.

Representative high-quality sites include Talladega National Forest (Clay and Cleburne counties), J.D. Martin Skyline WMA, (Jackson County), Walls of Jericho (Jackson County), and Little River Canyon (DeKalb County).

The condition of dry hardwood and mixed pine forests in Alabama is variable but often degraded. Many stands have been altered by fire suppression, which promotes hardwood encroachment and reduces the open structure historically maintained by natural fire regimes. Conversion to loblolly plantations, unsustainable timber harvest, invasive species (such as cogongrass and privet), and fragmentation from development have further diminished habitat quality. While some high-quality tracts persist on public lands and managed forests, much of this habitat exists in fair to poor condition**,** with reduced species richness and altered structure. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.2). Continued management is essential for maintaining ecological function and enhancing suitability for SGCN.

This habitat supports a total of 156 SGCN: 3 amphibians, 15 birds, 3 crayfish, 17 mammals, 19 reptiles, and 99 vascular plants (Table 2.3).

Table 2.2 Dry Hardwood and Mixed Pine Forest Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Suburban expansion, vacation homes, and infrastructure fragment dry upland forests, increasing edge effects and fire suppression pressures.
2. Agriculture & Aquaculture	Conversion to pasture, row crops, and loblolly/slash pine plantations reduces structural and compositional heterogeneity of native mixed pine–hardwood systems.
4. Transportation & Service Corridors	Road building fragments upland forests, facilitates invasive spread, and increases mortality of reptiles, amphibians, and small mammals.
5. Biological Resource Use	Unsustainable logging, fuelwood harvest, and short-rotation silviculture degrade canopy composition and reduce availability of old-growth conditions.
7. Natural System Modifications	Fire exclusion promotes hardwood encroachment, altering stand dynamics, reducing pine regeneration, and degrading habitat for SGCN dependent on open structure.
8. Invasive & other Problematic Species, Genes, and Diseases	Invasive plants (e.g., cogongrass, kudzu, privet) and feral hogs displace native groundcover and disturb soils, impacting understory-dependent wildlife.
9. Pollution	Airborne pollutants and herbicide drift stress vegetation; sedimentation and chemical runoff from adjacent disturbed lands degrade nearby aquatic systems tied to these forests.
10. Geological & Biological Events	Shifts in precipitation, more intense droughts, and storm damage alter regeneration dynamics, while pests/diseases (southern pine beetle, oak decline) increase vulnerability.

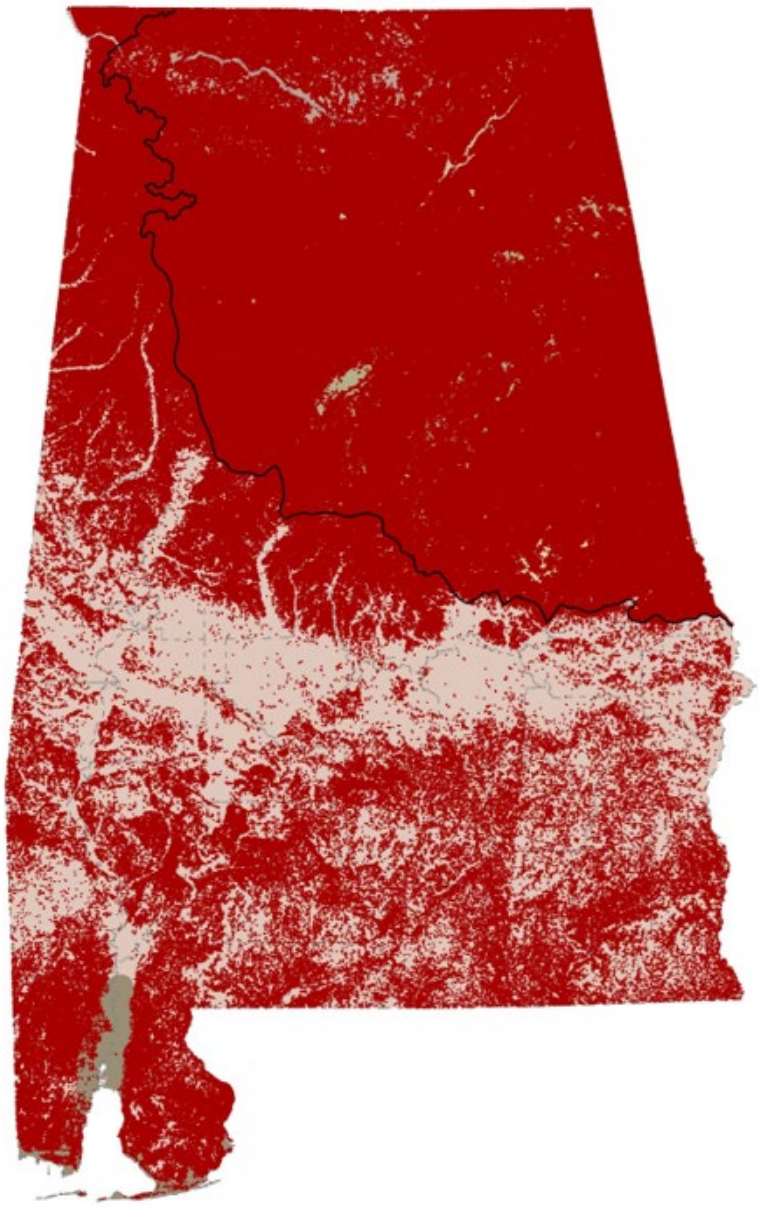

Figure 2.1 Dry Hardwood and Mixed Pine Forest Habitat Distribution Map.

Table 2.3 Dry Hardwood and Mixed Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 3		
Aneides aeneus	Green Salamander	P2
Ambystoma tigrinum	Eastern Tiger Salamander	P2
Plethodon serratus	Southern Red-backed Salamander	P2

Table 2.3 Dry Hardwood and Mixed Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Birds - 15		
Falco sparverius paulus	Southeastern American Kestrel	P1
Setophaga cerulea	Cerulean Warbler	P1
Aquila chrysaetos	Golden Eagle	P2
Chordeiles minor	Common Nighthawk	P2
Colinus virginianus	Northern Bobwhite	P2
Lanius ludovicianus	Loggerhead Shrike	P2
Peucaea aestivalis	Bachman's Sparrow	P2
Antrostomus carolinensis	Chuck-will's-widow	P3
Antrostomus vociferus	Eastern Whip-poor-will	P3
Chaetura pelagica	Chimney Swift	P3
Colaptes auratus	Northern Flicker	P3
Columbina passerina	Common Ground Dove	P3
Scolopax minor	American Woodcock	P3
Tyto furcata	American Barn Owl	P3
Vermivora cyanoptera	Blue-winged Warbler	P3
Mammals - 17		
Myotis lucifugus	Little Brown Myotis	P1
Myotis septentrionalis	Northern Myotis	P1
Myotis sodalis	Indiana Myotis	P1
Perimyotis subflavus	Tri-colored Bat	P1
Sylvilagus obscurus	Appalachian Cottontail	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Lasiurus cinereus	Hoary Bat	P2
Myotis austroriparius	Southeastern Myotis	P2
Myotis leibii	Eastern Small-footed Myotis	P2
Neotoma magister	Allegheny Woodrat	P2
Sorex hoyi	American Pygmy Shrew	P2
Spilogale putorius	Eastern Spotted Skunk	P2
Zapus hudsonius	Meadow Jumping Mouse	P2
Blarina brevicauda	Northern Short-tailed Shrew	P3
Lasionycteris noctivagans	Silver-haired Bat	P3
Neogale frenata	Long-tailed Weasel	P3
Ursus americanus	American Black Bear	P3
Reptiles - 19		
Drymarchon couperi	Eastern Indigo Snake	P1

Table 2.3 Dry Hardwood and Mixed Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Micrurus fulvius	Harlequin Coralsnake	P1
Pituophis melanoleucus lodingi	Black Pinesnake	P1
Crotalus adamanteus	Eastern Diamond-backed Rattlesnake	P2
Gopherus polyphemus	Gopher Tortoise	P2
Lampropeltis getula	Common Kingsnake	P2
Lampropeltis nigra	Eastern Black Kingsnake	P2
Lampropeltis rhombomaculata	Northern Mole Kingsnake	P2
Ophisaurus attenuatus longicaudus	Eastern Slender Glass Lizard	P2
Pituophis melanoleucus melanoleucus	Northern Pinesnake	P2
Pituophis melanoleucus mugitus	Florida Pinesnake	P2
Plestiodon anthracinus anthracinus	Northern Coal Skink	P2
Plestiodon anthracinus pluvialis	Southern Coal Skink	P2
Plestiodon egregius similis	Mole Skink	P2
Plestiodon inexpectatus	Southeastern Five- lined Skink	P2
Sistrurus miliarius miliarius	Carolina Pygmy Rattlesnake	P2
Heterodon platirhinos	Eastern Hog-nosed Snake	P3
Lampropeltis elapsoides	Scarlet Kingsnake	P3
Lampropeltis triangulum	Milksnake	P3
Crayfish - 3		
Lacunicambarus mobilensis	Lonesome Gravedigger	P1
Procambarus capillatus	Capillaceous Crayfish	P2
Creaserinus burrisi	Burrowing Bog Crayfish	P2
Vascular Plants - 99		
Coreopsis delphiniifolia	Larkspurleaf Tickseed	EX
Gaultheria procumbens	Wintergreen	EX
Thermopsis fraxinifolia	Ashleaf Golden Banner	EX
Agrimonia incisa	Incised Groovebur	P1
Berberis canadensis	American Barberry	P1
Carex austrolucorum	Southern Blue Ridge Sedge	P1
Carex timida	Timid Sedge	P1
Celastrus scandens	Climbing Bittersweet	P1
Claytosmunda claytoniana	Interrupted Fern	P1
Clematis morefieldii	Morefield's Leather Flower	P1
Clematis versicolor	Pale Leather Flower	P1
Clinopodium glabellum	Ozark Savory	P1
Crataegus alabamensis var. teres	Montgomery Hawthorn	P1

Table 2.3 Dry Hardwood and Mixed Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Crataegus ashei	Ashe's Hawthorn	P1
Crataegus austromontana	Valley Head Hawthorn	P1
Crataegus furtiva	Albany Hawthorn	P1
Eurybia macrophylla	Large Leaf aster	P1
Hypericum lloydii	Lloyd's St. John's Wort	P1
Juniperus communis var. depressa	Ground Juniper	P1
Lycopodium clavatum	Running Pine	P1
Magnolia fraseri	Fraser's Magnolia	P1
Matelea alabamensis	Alabama Anglepod	P1
Melica nitens	Three Flower Melic Grass	P1
Monotropsis odorata	Sweet Pinesap	P1
Phacelia strictiflora var. robbinsii	Prairie Scorpion Weed	P1
Phlox pulchra	Wherry's Phlox	P1
Pycnanthemum curvipes	Mountain Mint	P1
Quercus minima	Dwarf Live Oak	P1
Rhododendron cumberlandense	Cumberland Azalea	P1
Sceptridium jenmanii	Alabama Grapefern	P1
Silene regia	Royal Catchfly	P1
Stachys nelsonii	Nelson's Hedge-nettle	P1
Steironema lewisii	Lewis' Yellow Loosestrife	P1
Thermopsis mollis	Appalachian Golden Banner	P1
Viburnum rafinesqueanum	Downy Arrowwood	P1
Amorpha nitens	Indigo Bush	P2
Apios priceana	Price's Potato Bean	P2
Baptisia megacarpa	Apalachicola Wild Indigo	P2
Blephilia subnuda	Smooth Blephilia	P2
Brickellia cordifolia	Flyr's Brickell Bush	P2
Callirhoe alcaeoides	Clustered Poppy Mallow	P2
Carex mesochorea	Midland Sedge	P2
Castilleja coccinea	Scarlet Indian Paintbrush	P2
Comandra umbellata	Eastern Bastard Toadflax	P2
Coreopsis pulchra	Woodland Tickseed	P2
Crataegus aemula	Rome Hawthorn	P2
Crataegus alabamensis var. alabamensis	Alabama Hawthorn	P2
Crataegus alabamensis var. florens	Mississippi Hawthorn	P2
Crataegus aprica	Sunny Hawthorn	P2
Crataegus macrosperma	Eastern Hawthorn	P2
Crataegus mendosa	Albertville Hawthorn	P2
Crataegus pruinosa var. pruinosa	Frosted Hawthorn	P2
Crataegus quaesita var. quaesita	Florida Hawthorn	P2

Table 2.3 Dry Hardwood and Mixed Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Crataegus venusta	Red Mountain Hawthorn	P2
Croton alabamensis	Alabama Croton	P2
Cuscuta harperi	Harper's Dodder	P2
Eurybia spectabilis	Showy Aster	P2
Fothergilla major	Mountain Witch Alder	P2
Galium lanceolatum	Torrey's Wild Licorice	P2
Helianthus eggertii	Eggert's Sunflower	P2
Lygodium palmatum	Climbing Fern	P2
Melanthium hybridum	Slender Bunchflower	P2
Melanthium parviflorum	Small Flower False Hellebore	P2
Penstemon kralii	Kral's Beardtongue	P2
Polymnia laevigata	Tennessee Leafcup	P2
Quercus boyntonii	Boynton's Sand Post Oak	P2
Quercus georgiana	Georgia Oak	P2
Rubus allegheniensis	Allegheny Blackberry	P2
Rudbeckia heliopsidis	Sun Facing Coneflower	P2
Scutellaria alabamensis	Alabama Skullcap	P2
Tradescantia ernestiana	Ernest's Spiderwort	P2
Viburnum alabamense	Alabama Arrowwood	P2
Viburnum bracteatum	Limerock Arrowwood	P2
Zanthoxylum americanum	Northern Pricky Ash	P2
Clinopodium talladeganum	Talladega Wild Basil	P3
Corallorhiza odontorhiza	Autumn Coralroot	P3
Cotinus obovatus	American Smoketree	P3
Crataegus alabamensis var. ravenelii	Ravenel's Hawthorn	P3
Crataegus alleghaniensis	Allegheny Hawthorn	P3
Crataegus calpodendron	Pear Hawthorn	P3
Crataegus frugiferens	Fruitful Allegheny Hawthorn	P3
Crataegus pruinosa var. gattingeri	Gattinger's Frosted Hawthorn	P3
Crataegus quaesita var. floridana	Jacksonville Hawthorn	P3
Crataegus sargentii	Sargent's Hawthorn	P3
Crataegus sororia	Sister Hawthorn	P3
Desmodium ochroleucum	Cream Tick Trefoil	P3
Elymus churchii	Church's Wild Rye	P3
Helianthus smithii	Smith's Sunflower	P3
Isotria verticillata	Large Whorled Pogonia	P3
Muhlenbergia sobolifera	Cliff Muhly	P3
Nestronia umbellula	Nestronia	P3
Pyrularia pubera	Buffalo Nut	P3
Rhododendron minus	Carolina Rhododendron	P3

Table 2.3 Dry Hardwood and Mixed Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Rhynchospora tracyi	Tracy's Beakrush	P3
Sabatia capitata	Rose Gentian	P3
Silene caroliniana var. wherryi	Wherry's Catchfly	P3
Silphium brachiatum	Cumberland Rosinweed	P3
Solidago brachyphylla	Dixie Goldenrod	P3
Solidago buckleyi	Buckley's Goldenrod	P3

GLADES AND PRAIRIES

Description and Condition

Glades and prairies are rare, patchy habitats in Alabama that occur on shallow, often calcareous soils with high sun exposure and periodic drought stress (Figure 2.2). Limestone glades, most abundant in the Tennessee Valley and Ridge and Valley regions, are characterized by exposed bedrock, thin soils, and a unique flora that includes many endemic and disjunct plant species. Black Belt prairies and smaller prairie patches in the Coastal Plain are grass-dominated systems influenced by fire and grazing, supporting a diverse assemblage of grasses, forbs, and pollinators, as well as ground-nesting birds and small mammals. These open habitats provide essential niches for rare plants, grassland birds, and invertebrates that depend on early successional conditions.

Representative high-quality Blackland prairie sites include Jones Bluff Corps of Engineers Park (Autauga County), Old Bluffport Nature Preserve (Sumter County), and China Bluff Corps of Engineers Park (Sumter County). Coosa Valley prairie sites are on Pelham Range (Calhoun County). No permanently protected Jackson prairies are in Alabama.

The condition of Alabama's glades and prairies is highly variable but often degraded**.** Some high-quality remnants persist on conservation lands such as Wheeler National Wildlife Refuge, Tennessee Valley Authority properties, and Nature Conservancy preserves, where fire or targeted management maintains native vegetation structure. However, many sites have been lost or degraded due to agricultural conversion, fire suppression, invasive species encroachment (e.g., eastern redcedar, Chinese privet, fescue), and urban expansion**.** Fragmentation further limits their extent and connectivity. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.4). Today, glades and prairies are generally considered in fair to poor condition, with most intact examples restricted to small, protected tracts. Ongoing restoration through prescribed fire, invasive species removal, and reintroduction of native grasses and forbs is critical for maintaining species richness and ecosystem function in these imperiled habitats.

This habitat supports a total of 149 SGCN: 1 amphibian, 20 birds, 6 crayfish, 6 mammals, 7 reptiles, and 109 vascular plants (Table 2.5).

Table 2.4 Glades and Prairies Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Urban expansion and industrial development in the Tennessee Valley, Black Belt, and other prairie regions convert and fragment remaining habitat patches.
2. Agriculture & Aquaculture	Conversion to row crops, pasture, or pine plantations is a primary cause of glade and prairie loss, altering soils and removing native vegetation.
4. Transportation & Service Corridors	Roads, utility corridors, and pipelines fragment glade and prairie remnants, create edge effects, and facilitate spread of invasive species.
5. Biological Resource Use	Overgrazing, mowing, and unsustainable haying reduce native plant heterogeneity, compact soils, and alter habitat structure.
7. Natural System Modifications	Fire suppression leads to woody encroachment, especially eastern redcedar, diminishing the open, herbaceous character of glades and prairies.
8. Invasive & Other Problematic Species, Genes, & Diseases	Non-native grasses (fescue, Bermuda), Chinese privet, and other invasives displace native grasses and forbs, altering fire regimes and pollinator resources.
9. Pollution	Herbicide drift, nutrient runoff from agriculture, and soil disturbance degrade habitat quality for native plant and invertebrate communities.
10. Geological & Biological Events	Drought stress and shifting rainfall patterns affect shallow-soil glades and prairie grassland dynamics, while extreme weather events increase erosion risk.

Figure 2.2 Map of Glades and Prairies Habitat Distribution Map.

Table 2.5 Glades and Prairies SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Lithobates areolatus	Crawfish Frog	P1

Table 2.5 Glades and Prairies SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Birds - 20		
Centronyx henslowii	Henslow's Sparrow	P1
Falco sparverius paulus	Southeastern American Kestrel	P1
Laterallus jamaicensis jamaicensis	Eastern Black Rail	P1
Ammospiza nelsoni	Nelson's Sparrow	P2
Ammodramus savannarum	Grasshopper Sparrow	P2
Aquila chrysaetos	Golden Eagle	P2
Chordeiles minor	Common Nighthawk	P2
Colinus virginianus	Northern Bobwhite	P2
Coturnicops noveboracensis	Yellow Rail	P2
Lanius ludovicianus	Loggerhead Shrike	P2
Ammospiza leconteii	LeConte's Sparrow	P3
Circus hudsonius	Northern Harrier	P3
Columbina passerina	Common Ground Dove	P3
Falco sparverius	American Kestrel	P3
Passerina ciris	Painted Bunting	P3
Pooecetes gramineus	Vesper Sparrow	P3
Spiza americana	Dickcissel	P3
Spizella pusilla	Field Sparrow	P3
Sturnella magna	Eastern Meadowlark	P3
Tyto furcata	American Barn Owl	P3
Mammals - 6		
Perimyotis subflavus	Tri-colored Bat	P1
Zapus hudsonius	Meadow Jumping Mouse	P2
Microtus ochrogaster	Prairie Vole	P2
Spilogale putorius	Eastern Spotted Skunk	P2
Blarina brevicauda	Northern Short-tailed Shrew	P3
Neogale frenata	Long-tailed Weasel	P3
Reptiles - 7		
Lampropeltis nigra	Eastern Black Kingsnake	P2
Ophisaurus attenuatus longicaudus	Eastern Slender Glass Lizard	P2
Pituophis melanoleucus melanoleucus	Northern Pinesnake	P2
Heterodon platirhinos	Eastern Hognose Snake	P3
Lampropeltis calligaster	Yellow-bellied Kingsnake	P3
Lampropeltis calligaster calligaster	Prairie Kingsnake	P3
Lampropeltis triangulum	Milksnake	P3
Crayfish - 6		

Table 2.5 Glades and Prairies SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Creaserinus danielae	Speckled Burrowing Crayfish	P1
Lacunicambarus freudensteini	Banded Mudbug	P1
Procambarus barbiger	Jackson Prairie Crayfish	P1
Procambarus holifieldi	Celestial Crayfish	P1
Procambarus hagenianus hagenianus	Southeastern Prairie Crayfish	P2
Creaserinus byersi	Lavendar Burrowing Crayfish	P3
Vascular Plants - 109		
Eleocharis wolfii	Wolf's Spikerush	EX
Sabulina michauxii	Rock Sandwort	EX
Agalinis auriculata	Auriculate False Foxglove	P1
Agalinis gattingeri	Gattinger's False Foxglove	P1
Allium speculae	Little River Canyon Onion	P1
Arabis patens	Spreading Rockcress	P1
Asclepias purpurascens	Purple Milkweed	P1
Astrolepis integerrima	Southwestern Cloak Fern	P1
Berberis canadensis	American Barberry	P1
Callirhoe papaver	Woods Poppy Mallow	P1
Callirhoe triangulata	Clustered Poppy Mallow	P1
Castilleja kraliana	Cahaba Paintbrush	P1
Clinopodium glabellum	Ozark Savory	P1
Coreopsis grandiflora var. inclinata	Ketona Tickseed	P1
Crataegus ashei	Ashe's Hawthorn	P1
Crataegus meridionalis	Southern Downy Hawthorn	P1
Crataegus mollis	Downy Hawthorn	P1
Crataegus triflora	Three Flower Hawthorne	P1
Dalea cahaba	Cahaba Prairie Clover	P1
Dalea foliosa	Leafy Prairie Clover	P1
Eleocharis bifida	Glades Spikerush	P1
Erigeron dolomiticola	Cahaba Daisy Fleabane	P1
Eriogonum harperi	Harper's Umbrella Plant	P1
Gratiola amphiantha	Little Amphianthus	P1
Helianthus verticillatus	Whorled Sunflower	P1
Isoetes graniticola	Granite Loving Quillwort	P1
Leavenworthia crassa	Fleshy Fruit Gladecress	P1
Leavenworthia torulosa	Necklace Gladecress	P1
Liatris cylindracea	Slender Blazing Star	P1
Liatris oligocephala	Cahaba Torch	P1
Lithospermum decipiens	Alabama Marbleseed	P1
Melica nitens	Three Flower Melic Grass	P1
Orbexilum simplex	Single Stem Scurfpea	P1

Table 2.5 Glades and Prairies SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Panicum philadelphicum ssp. lithophilum	Flatrock Panic Grass	P1
Paronychia argyrocoma	Silvery Nailwort	P1
Paronychia virginica	Yellow Nailwort	P1
Paysonia densipila	Duck River Bladderpod	P1
Paysonia lyrata	Lyrate Bladderpod	P1
Phemeranthus parviflorus	Small Flowered Flame Flower	P1
Phyllanthopsis phyllanthoides	Maidenbush	P1
Pilularia americana	American Pillwort	P1
Pycnanthemum virginianum	Virginia Mountain Mint	P1
Rhynchospora capillacea	Horned Beakrush	P1
Rhynchospora stiletto	Stiletto Beaksedge	P1
Sabulina fontinalis	Seepage Starwort	P1
Schoenus nigricans	Blacksedge	P1
Sedum pusillum	Granite Rock Stonecrop	P1
Silene regia	Royal Catchfly	P1
Silphium glutinosum	Sticky Rosinweed	P1
Silphium perplexum	Old Cahaba Rosinweed	P1
Sisyrinchium calciphilum	Glade Blue Eyed Grass	P1
Solanum pumilum	Dwarf Horse Nettle	P1
Solidago porteri	Porter's Goldenrod	P1
Spigelia alabamensis	Alabama Pinkroot	P1
Spiranthes lucida	Shining Ladies' Tresses	P1
Steironema gramineum	Grassleaf Loosestrife	P1
Symphyotrichum oolentangiense	Sky Blue Aster	P1
Thelesperma filifolium	Stiff Greenthread	P1
Vitis mustangensis	Mustang Grape	P1
Xyris spathifolia	Ketona Yellow Eyed Grass	P1
Baptisia aberrans	Blue Wild Indigo	P2
Callirhoe alcaeoides	Clustered Poppy Mallow	P2
Carex austrina	Southern Sedge	P2
Carex eburnea	Ebony Sedge	P2
Castilleja coccinea	Scarlet Indian Paintbrush	P2
Comandra umbellata	Eastern Bastard Toadflax	P2
Coreopsis pulchra	Woodland Tickseed	P2
Croton alabamensis	Alabama Croton	P2
Cuscuta harperi	Harper's Dodder	P2
Delphinium carolinianum ssp. calciphilum	Glade Larkspur	P2
Hedeoma drummondii	Drummond's Pennyroyal	P2
Helianthus eggertii	Eggert's Sunflower	P2
Helianthus porteri	Confederate Daisy	P2

Table 2.5 Glades and Prairies SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Juncus interior	Inland Rush	P2
Leavenworthia alabamica	Alabama Gladecress	P2
Leavenworthia exigua var. lutea	Pasture Gladecress	P2
Leavenworthia uniflora	Michaux's Gladecress	P2
Lithospermum molle	False Gromwell	P2
Marshallia mohrii	Mohr's Barbara's Buttons	P2
Nemastylis geminiflora	Prairie Pleatleaf	P2
Pediomelum subacaule	Nashville Breadroot	P2
Phacelia dubia var. georgiana	Georgia Scorpion Weed	P2
Phacelia maculata	Flatrock Phacelia	P2
Phemeranthus calcaricus	Limestone Fame Flower	P2
Phemeranthus teretifolius	Appalachian Rock Pink	P2
Polygonella americana	Southern Jointweed	P2
Quercus boyntonii	Boynton's Sand Post Oak	P2
Rhynchospora saxicola	Stone Mountain Beakrush	P2
Rhynchospora thornei	Thorne's Beakrush	P2
Rudbeckia heliopsidis	Sun Facing Coneflower	P2
Salvia chapmanii	Chapman's Nettle Leaf Sage	P2
Symphyotrichum pratense	Prairie Aster	P2
Astragalus tennesseensis	Tennessee Milkvetch	P3
Dalea gattingeri	Gattinger's Prairie Clover	P3
Delphinium alabamicum	Alabama Larkspur	P3
Echinacea simulata	Prairie Purple Coneflower	P3
Eurybia surculosa	Creeping Aster	P3
Helianthus longifolius	Longleaf Sunflower	P3
Hypericum dolabriforme	Straggling St. John's Wort	P3
Isoetes butleri	Butler's Quillwort	P3
Isoetes piedmontana	Piedmont Quillwort	P3
Juncus georgianus	Georgia Rush	P3
Mirabilis albida	Pale Umbrella Wort	P3
Panicum philadelphicum	Philadelphia Panic Grass	P3
Quercus macrocarpa	Bur Oak	P3
Silphium mohrii	Mohr's Rosinweed	P3
Thalictrum debile	Southern Meadowrue	P3
Veronicastrum virginicum	Culver's Root	P3
Viola egglestonii	Eggleston's Violet	P3

MESIC HARDWOOD FOREST

Description and Condition

Mesic hardwood forests in Alabama occur primarily in the Appalachian foothills, the Ridge and Valley, and portions of the Interior Plateau, where rich soils, moderate slopes, and reliable moisture support diverse, closed-canopy communities (Figure 2.3). Dominant species include oaks (*Quercus* spp.), hickories (*Carya* spp.), American beech (*Fagus grandifolia*), tulip poplar (*Liriodendron tulipifera*), and maples (*Acer spp.*), with a well-developed understory of shrubs, spring ephemerals, and ferns. These mixed deciduous hardwood or occasionally hardwood-pine forests, with canopy closure typically exceeding 40%, occur on a variety of mesic sites virtually statewide. This habitat is characterized by cool, moist soils and diverse plants species. Most examples occur in somewhat protected landscape positions such as coves and lower positions on north-facing slopes where topography creates mesic moisture conditions. Others occur on slopes and ravines between dry uplands and stream bottoms. Due to the slopes and moist conditions, fire is much less frequent than in drier oak-pine forest types. American beech (*Fagus grandifolia*) is often prominent among a mix of magnolias, hickories, maples, oaks, and other mesophytic trees. This is distinguished from the Floodplain Forest habitat type by the absence of characteristic alluvial or bottomland species, along with its more upland position. Prior to canopy leaf-out, the early spring (March-April) herbaceous ground layer can be very rich, with abundant spring ephemeral wildflowers. Mesic forests generally exist naturally as old growth, with canopy dynamics dominated by gap phase regeneration. Small canopy gaps created by wind are likely the primary form of natural disturbance. Most of the prevailing species are shade tolerant, but not very fire tolerant.

Representative high-quality sites include Freedom Hills WMA (Colbert County), Bankhead National Forest (Lawrence and Winston counties), Shoal Creek Preserve (Lauderdale County), Monte Sano State Park (Madison County), J.D. Martin Skyline WMA, Walls of Jericho (Jackson County), Lake Guntersville State Park (Marshall County), Buck's Pocket State Park (Marshall, Jackson, and DeKalb counties), DeSoto State Park (DeKalb County), Talladega National Forest (all districts—Calhoun, Chilton, Clay, Cleburne, Bibb, Hale, Perry, Talladega, and Tuscaloosa counties), Coldwater Mountain Tract (Calhoun County), Cahaba River WMA Tract (Bibb County), Gothard-AWF Yates Lake WMA (Elmore County), Coon Creek Tract (Tallapoosa County), Pike County Pocosin (Pike County), Red Hills Complex (Monroe County), Haines Island Park (Monroe County), Jones Bluff Park (Autauga County), and Blakeley Addition Tracts (Baldwin County).

The condition of Alabama's mesic hardwood forests is mixed. Some large tracts remain relatively intact within protected areas such as Bankhead National Forest and state-owned lands, where mature forest structure and diverse understory communities persist. However, many mesic hardwood forests exist in fragmented patches, often impacted by unsustainable timber harvest, conversion to pine plantations or agriculture, invasive species encroachment (e.g., Chinese privet, kudzu), and altered hydrology**.** Fire exclusion in adjacent upland

systems can also shift species composition along ecotones. Overall, most mesic hardwood forests in Alabama are considered in fair condition, with high-quality remnants limited in extent. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.6). Continued threats from fragmentation, invasive species, and extreme weather patterns highlight the need for restoration forestry, invasive plant management, and landscape-scale connectivity to maintain these habitats and their associated wildlife.

This habitat supports a total of 143 SGCN: 5 amphibians, 13 birds, 20 mammals, 10 reptiles, 1 crayfish, and 94 vascular plants (Table 2.7).

Table 2.6 Glades and Prairies Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP Threat Category	**Threat Description**
1. Residential & Commercial Development	Urban expansion and housing development fragment mesic hardwood forests, especially in the Ridge and Valley, Piedmont, and Appalachian foothills.
2. Agriculture & Aquaculture	Conversion to pasture, row crops, or loblolly pine plantations reduces native forest structure and alters soil and hydrology.
4. Transportation & Service Corridors	Roads fragment intact tracts, increase edge effects, and facilitate spread of invasive species into mesic hardwood systems.
5. Biological Resource Use	Unsustainable timber harvests, including high-grading and short-rotation logging, simplify forest structure and reduce habitat suitability for SGCN.
7. Natural System Modifications	Fire exclusion in surrounding landscapes alters forest dynamics, while dam construction and stream channelization can impact associated riparian mesic forests.
8. Invasive & Other Problematic Species, Genes, & Diseases	Invasive plants (e.g., Chinese privet, Japanese honeysuckle, kudzu) and feral hogs degrade understory composition, compete with native flora, and disturb soils.
9. Pollution	Airborne pollutants, herbicide drift, and stormwater runoff degrade soil and water quality, impacting sensitive amphibians, mollusks, and understory plants.

Table 2.6 Glades and Prairies Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP Threat Category	Threat Description
10. Geological & Biological Events	Increased storm intensity, shifting precipitation, and rising temperatures alter moisture regimes and exacerbate pest/disease outbreaks (e.g., hemlock woolly adelgid, oak decline).

Figure 2.3 Map of Mesic Hardood Forest Habitat.

Table 2.7 Mesic Hardwood Forest SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 5		
Ambystoma texanum	Small-mouthed Salamander	P2
Ambystoma tigrinum	Eastern Tiger Salamander	P2
Aneides aeneus	Green Salamander	P2

Table 2.7 Mesic Hardwood Forest SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Phaeognathus hubrichti	Red Hills Salamander	P2
Pseudacris ornata	Ornate Chorus Frog	P3
Birds - 13		
Thryomanes bewickii	Bewick's Wren	EX
Falco sparverius paulus	Southeastern American Kestrel	P1
Setophaga cerulea	Cerulean Warbler	P1
Aquila chrysaetos	Golden Eagle	P2
Chordeiles minor	Common Nighthawk	P2
Euphagus carolinus	Rusty Blackbird	P2
Antrostomus carolinensis	Chuck-will's widow	P3
Antrostomus vociferus	Eastern Whip-poor-will	P3
Chaetura pelagica	Chimney Swift	P3
Colaptes auratus	Northern Flicker	P3
Elanoides forficatus	Swallow-tailed Kite	P3
Scolopax minor	American Woodcock	P3
Vermivora cyanoptera	Blue-winged Warbler	P3
Mammals - 20		
Myotis lucifugus	Little Brown Myotis	P1
Myotis septentrionalis	Northern Myotis	P1
Myotis sodalis	Indiana Myotis	P1
Perimyotis subflavus	Tri-colored Bat	P1
Sylvilagus obscurus	Appalachian Cottontail	P1
Ursus americanus floridanus	Florida Black Bear	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Lasiurus cinereus	Hoary Bat	P2
Myotis austroriparius	Southeastern Myotis	P2
Myotis leibii	Eastern Small-footed Myotis	P2
Neotoma magister	Allegheny Woodrat	P2
Sorex fumeus	Smoky Shrew	P2
Sorex hoyi	American Pygmy Shrew	P2
Spilogale putorius	Eastern Spotted Skunk	P2
Zapus hudsonius	Meadow Jumping Mouse	P2
Eptesicus fuscus	Big Brown Bat	P3
Lasionycteris noctivagans	Silver-haired Bat	P3
Neogale frenata	Long-tailed Weasel	P3
Neogale vison	American Mink	P3
Ursus americanus	American Black Bear	P3
Reptiles - 10		

Table 2.7 Mesic Hardwood Forest SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Drymarchon couperi	Eastern Indigo Snake	P1
Micrurus fulvius	Harlequin Coralsnake	P1
Crotalus adamanteus	Eastern Diamondback Rattlesnake	P2
Lampropeltis getula	Common Kingsnake	P2
Lampropeltis nigra	Eastern Black Kingsnake	P2
Pituophis melanoleucus melanoleucus	Northern Pinesnake	P2
Heterodon platirhinos	Eastern Hognose Snake	P3
Kinosternon baurii	Striped Mud Turtle	P3
Lampropeltis triangulum	Milksnake	P3
Terrapene carolina major	Gulf Coast Box Turtle	P3
Crayfish – 1		
Cambarus Pyronotus	Fireback Crayfish	P1
Vascular Plants - 94		
Helianthus glaucophyllus	Whiteleaf Sunflower	EX
Asclepias purpurascens	Purple Milkweed	P1
Carex acidicola	Acid Loving Sedge	P1
Carex baltzellii	Baltzell's Sedge	P1
Carex thornei	Thorne's Sedge	P1
Carex timida	Timid Sedge	P1
Celastrus scandens	Climbing Bittersweet	P1
Clethra acuminata	Mountain Pepperbush	P1
Collinsia verna	Spring Blue Eyed Mary	P1
Crataegus mollis	Downy Hawthorn	P1
Crataegus triflora	Three Flower Hawthorne	P1
Cypripedium candidum	Small White Lady's Slipper	P1
Cypripedium kentuckiense	Southern Lady's Slipper	P1
Dendrolycopodium obscurum	Tree Clubmoss	P1
Eurybia jonesiae	Jones's Aster	P1
Eurybia macrophylla	Large Leaf aster	P1
Gordonia lasianthus	Loblolly Bay	P1
Hexastylis finzelii	Finzel's Wild Ginger	P1
Hexastylis rollinsiae	Rollins' Wild Ginger	P1
Isotrema macrophyllum	Pipevine	P1
Juglans cinerea	Butternut	P1
Lysimachia fraseri	Fraser's Loosestrife	P1
Magnolia fraseri	Fraser's Magnolia	P1
Melanthium woodii	Wood's False Hellebore	P1
Micranthes careyana	Carey Saxifrage	P1

Table 2.7 Mesic Hardwood Forest SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Monotropsis odorata	Sweet Pinesap	P1
Parnassia grandifolia	Large Leaf Grass of Pasrnassus	P1
Polygala senega	Senega Snakeroot	P1
Rubus hispidus	Swamp Dewberry	P1
Sceptridium jenmanii	Alabama Grapefern	P1
Synandra hispidula	Guyandotte Beauty	P1
Trifolium reflexum	Buffalo Clover	P1
Trillium grandiflorum	Large Flower Trillium	P1
Trillium reliquum	Relict Trillium	P1
Waldsteinia lobata	Piedmont Barren Strawberry	P1
Actaea rubifolia	Appalachian Bugbane	P2
Agastache nepetoides	Yellow Giant Hyssop	P2
Allium tricoccum	Wild Leek	P2
Amorpha nitens	Indigo Bush	P2
Asclepias exaltata	Poke Milkweed	P2
Baptisia megacarpa	Apalachicola Wild Indigo	P2
Blephilia subnuda	Smooth Blephilia	P2
Brickellia cordifolia	Flyr's Brickell Bush	P2
Carex austrocaroliniana	Tarheel Sedge	P2
Carex brysonii	Bryson's Sedge	P2
Carex mesochorea	Midland Sedge	P2
Chelone lyonii	Pink Turtlehead	P2
Claytonia caroliniana	Carolina Spring Beauty	P2
Crataegus macrosperma	Eastern Hawthorn	P2
Crataegus mendosa	Albertville Hawthorn	P2
Erythronium albidum	White Trout Lily	P2
Galium lanceolatum	Torrey's Wild Licorice	P2
Heuchera longiflora	Long Flower Alumroot	P2
Hexastylis speciosa	Harper's Heartleaf	P2
Huperzia lucidula	Shining Clubmoss	P2
Huperzia porophila	Rock Clubmoss	P2
Hydrophyllum appendiculatum	Appendage Waterleaf	P2
Lilium canadense	Canada Lily	P2
Lilium michiganense	Michigan Lily	P2
Lilium superbum	Turk's Cap Lily	P2
Liparis liliifolia	Lily Leaf Twayblade	P2
Lygodium palmatum	Climbing Fern	P2
Matelea baldwyniana	Baldwin's Milkvine	P2
Neviusia alabamensis	Alabama Snow Wreath	P2
Perideridia americana	Eastern Yampah	P2
Pilea fontana	Springs Clearweed	P2

Table 2.7 Mesic Hardwood Forest SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Plantago cordata	Heartleaf Plantain	P2
Prosartes maculata	Spotted Mandarin	P2
Rhododendron colemanii	Red Hills Azalea	P2
Rhododendron prunifolium	Plumleaf Azalea	P2
Ribes cynosbati	Prickly Gooseberry	P2
Schisandra glabra	Bay Starvine	P2
Stewartia ovata	Mountain Camellia	P2
Stylophorum diphyllum	Celandine Poppy	P2
Trillium sessile	Toadshade	P2
Trillium sulcatum	Southern Red Trillium	P2
Triphora trianthophoros	Three Birds Orchid	P2
Valeriana pauciflora	Valerian	P2
Viola canadensis	Canada Violet	P2
Aplectrum hyemale	Puttyroot	P3
Aralia racemosa	American Spikenard	P3
Corallorhiza odontorhiza	Autumn Coralroot	P3
Croomia pauciflora	Croomia	P3
Diarrhena americana	American Beakgrain	P3
Monarda clinopodia	Basil Beebalm	P3
Oxalis grandis	Giant Woodsorrel	P3
Stellaria corei	Chickweed	P3
Stewartia malacodendron	Silky Camellia	P3
Thalictrum debile	Southern Meadowrue	P3
Thalictrum macrostylum	Piedmont Meadowrue	P3
Trillium recurvatum	Prairie Trillium	P3
Trillium rugelii	Southern Nodding Trillium	P3
Trillium vaseyi	Vasey's Trillium	P3
Uvularia floridana	Florida Bellwort	P3

WET PINE SAVANNA AND FLATWOODS

Description and Condition

Wet pine habitats occur primarily in the Coastal Plain, often associated with flat, poorly drained soils, seepage areas, and shallow depressions (Figure 2.4). These communities are typically dominated by longleaf pine (*Pinus palustris*) or slash pine (*Pinus elliottii*) with a diverse groundcover of grasses, sedges, and herbaceous plants adapted to seasonally high-water tables. Wet pine savannas and flatwoods are among the most biologically diverse plant communities in North America, supporting pitcher plants, orchids, and other rare flora, as well as SGCN such as the gopher tortoise, Eastern indigo snake, Henslow's sparrow, and numerous amphibians. Their structure and species richness are maintained by frequent fire, which prevents woody encroachment and sustains open, herbaceous understories.

Representative high-quality sites include the Mobile-Tensaw River delta (Mobile and Baldwin counties), Sipsey River Tract (Tuscaloosa County), Wheeler NWR (Morgan County), and Conecuh National Forest (Covington and Escambia counties).

The condition of Alabama's wet pine habitats is highly variable. High-quality remnants persist in places like Splinter Hill Bog**,** Grand Bay**,** and Conecuh National Forest**,** where prescribed fire and hydrologic integrity are actively maintained. However, most wet pine systems across the state have been degraded by fire suppression, ditching and drainage, conversion to loblolly pine plantations, invasive species (e.g., cogongrass, Chinese tallow), and nutrient runoff. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.8). As a result, many stands are in fair to poor condition, with reduced groundcover variety and altered hydrology.

This habitat supports a total of 134 SGCN: 4 amphibians, 15 birds, 3 crayfish, 14 mammals, 7 reptiles, and 91 vascular plants (Table 2.9).

Table 2.8 Wet Pine Savanna and Flatwoods Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Conversion of coastal flatwoods and savannas to residential, commercial, and industrial developments reduces habitat extent and increases fragmentation.
2. Agriculture & Aquaculture	Drainage and conversion to pasture, row crops, or pine plantations alter hydrology and replace species-rich native groundcover with simplified systems.
4. Transportation & Service Corridors	Roads, pipelines, and utility corridors fragment habitats, alter hydrology, and create invasion pathways for exotic species.
5. Biological Resource Use	Unsustainable logging and mechanical site preparation (bedding, roller chopping) degrade soil integrity, alter natural fire regimes, and reduce habitat quality.
7. Natural System Modifications	Fire suppression is the primary threat, leading to woody encroachment, loss of open structure, and declines in SGCN such as gopher tortoise, indigo snake, and pitcher plants.
8. Invasive & Other Problematic Species, Genes, & Diseases	Cogongrass, Chinese tallow, and feral hogs displace native vegetation, disturb soils, and alter fire behavior in wet pine ecosystems.
9. Pollution	Runoff from adjacent agriculture and development introduces nutrients, herbicides, and pesticides that stress sensitive bog and savanna flora.
10. Geological & Biological Events	More intense storms, sea-level rise, and altered rainfall patterns threaten coastal flatwoods and wet savannas, leading to flooding, saltwater intrusion, and shifts in hydroperiod.

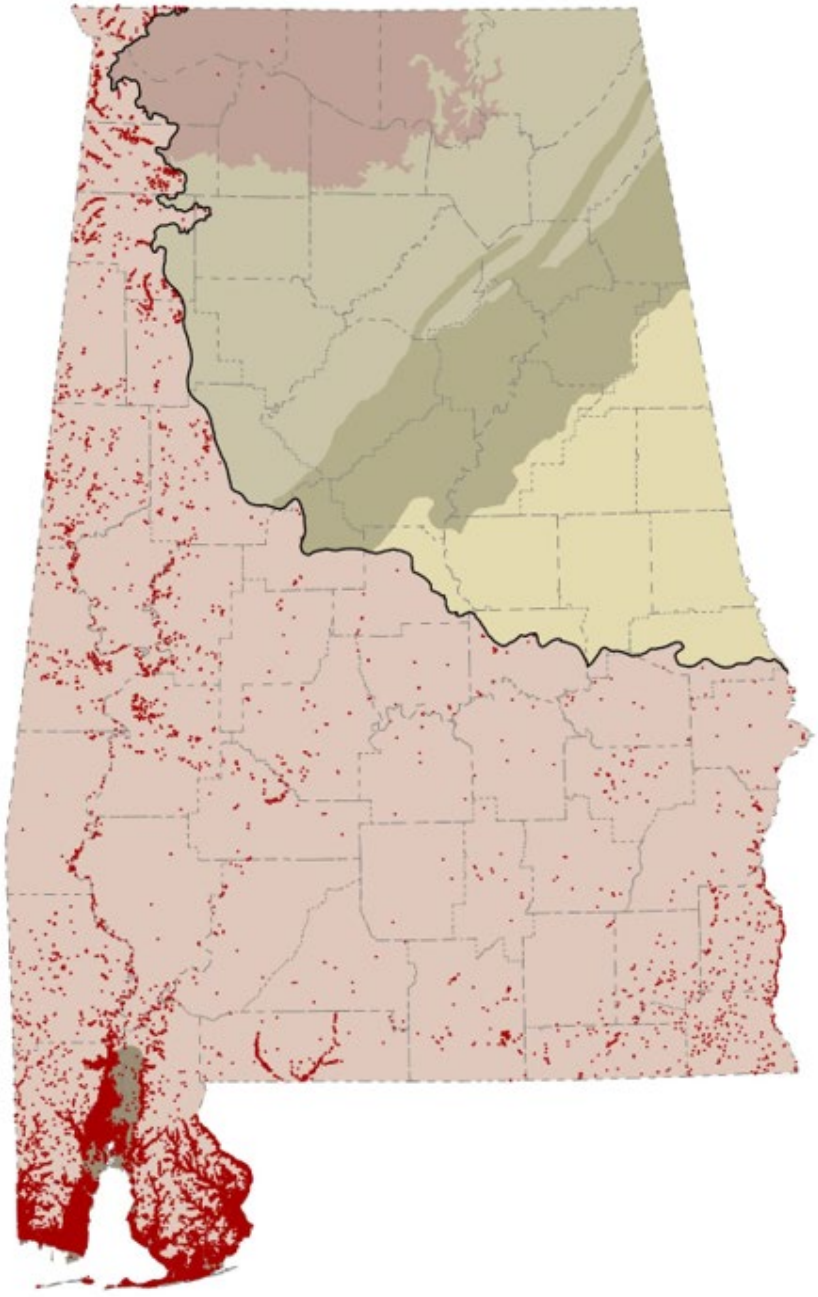

Figure 2.4 Wet Pine Savanna and Flatwoods Habitat Distribution Map.

Table 2.9 Wet Pine Savanna and Flatwoods SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 4		
Pseudacris ocularis	Little Grass Frog	P1
Pseudacris ornata	Ornate Chorus Frog	P3
Siren reticulata	Reticulated Siren	P2

Table 2.9 Wet Pine Savanna and Flatwoods SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Siren lacertina	Greater Siren	P3
Birds - 15		
Centronyx henslowii	Henslow's Sparrow	P1
Botaurus exilis	Least Bittern	P2
Colinus virginianus	Northern Bobwhite	P2
Euphagus carolinus	Rusty Blackbird	P2
Rallus elegans	King Rail	P2
Anas rubripes	American Black Duck	P3
Antrostomus carolinensis	Chuck-will's-widow	P3
Butorides virescens	Green Heron	P3
Chaetura pelagica	Chimney Swift	P3
Colaptes auratus	Northern Flicker	P3
Elanoides forficatus	Swallow-tailed Kite	P3
Egretta caerulea	Little Blue Heron	P3
Mycteria americana	Wood Stork	P3
Nycticorax nycticorax	Black-crowned Night Heron	P3
Protonotaria citrea	Prothonotary Warbler	P3
Mammals - 14		
Myotis lucifugus	Little Brown Myotis	P1
Myotis septentrionalis	Northern Myotis	P1
Perimyotis subflavus	Tri-colored Bat	P1
Ursus americanus floridanus	Florida Black Bear	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Lasiurus cinereus	Hoary Bat	P2
Lasiurus intermedius	Northern Yellow Bat	P2
Myotis austroriparius	Southeastern Myotis	P2
Myotis leibii	Eastern Small-footed Myotis	P2
Sorex hoyi	American Pygmy Shrew	P2
Spilogale putorius	Eastern Spotted Skunk	P2
Sylvilagus palustris	Marsh Rabbit	P2
Zapus hudsonius	Meadow Jumping Mouse	P2
Neogale frenata	Long-tailed Weasel	P3
Reptiles - 7		
Drymarchon couperi	Eastern Indigo Snake	P1
Ophisaurus mimicus	Mimic Glass Lizard	P1
Pituophis melanoleucus lodingi	Black Pinesnake	P1
Crotalus adamanteus	Eastern Diamondback Rattle-snake	P2

Table 2.9 Wet Pine Savanna and Flatwoods SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Lampropeltis getula	Common Kingsnake	P2
Lampropeltis nigra	Eastern Black Kingsnake	P2
Pituophis melanoleucus mugitus	Florida Pinesnake	P2
Crayfish - 3		
Creaserinus danielae	Speckled Burrowing Crayfish	P1
Creaserinus burrisi	Burrowing Bog Crayfish	P3
Procambarus hubbelli	Jackknife Crayfish	P3
Vascular Plants - 91		
Balduina atropurpurea	Purpledisk Honeycombhead	EX
Phoebanthus tenuifolius	Pineland False Sunflower	EX
Spiranthes brevilabris	Short Lipped Ladies' Tresses	EX
Agalinis georgiana	Georgia False Foxglove	P1
Andropogon arctatus	Pinewoods Bluestem	P1
Aristida simpliciflora	Southern Three Awn	P1
Arnica acaulis	Leopardsbane	P1
Asclepias connivens	Large Flower Milkweed	P1
Asclepias viridula	Southern Milkweed	P1
Calopogon multiflorus	Many Flower Grass Pink	P1
Carex fissa var. aristata	Hammock's Sedge	P1
Cladium mariscoides	Twig Rush	P1
Coelorachis tuberculosa	Florida Jointgrass	P1
Coreopsis nudata	Georgia Tickseed	P1
Euphorbia inundata	Florida Pineland Spurge	P1
Eurybia eryngiifolia	Coyote Thistle Aster	P1
Gordonia lasianthus	Loblolly Bay	P1
Habenaria quinqueseta	Michaux's Orchid	P1
Helianthus floridanus	Florida Sunflower	P1
Hypericum microsepalum	Flatwoods St. John's Wort	P1
Lachnocaulon engleri	Engler's Bogbutton	P1
Linum harperi	Harper's Grooved Flax	P1
Lobelia boykinii	Boykin's Lobelia	P1
Orbexilum simplex	Single Stem Scurfpea	P1
Orthochilus ecristatus	Crestless Eulophia	P1
Pinguicula planifolia	Chapman's Butterwort	P1
Pinguicula pumila	Small Butterwort	P1
Pinus serotina	Pond Pine	P1
Platanthera conspicua	Large White Fringed Orchid	P1
Platanthera integra	Yellow Fringeless Orchid	P1
Platanthera nivea	Snowy Orchis	P1

Table 2.9 Wet Pine Savanna and Flatwoods SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Pleea tenuifolia	Rush Featherling	P1
Pterocaulon virgatum	Wand Blackroot	P1
Pycnanthemum nudum	Coastal Plan Mountain Mint	P1
Rhynchospora fernaldii	Fernald's Beakrush	P1
Rhynchospora pinetorum	Small's Beakrush	P1
Rudbeckia nitida	Shiny Coneflower	P1
Ruellia noctiflora	Night Flowering Wild Petunia	P1
Sabatia grandiflora	Large Flowered Pink	P1
Sabatia quadrangular	Four Angled Pink	P1
Sarracenia alabamensis ssp. wherryi	Wherry's Sweet Pitcher Plant	P1
Sarracenia rubra ssp. gulfensis	Gulf Coast Red Pitcher Plant	P1
Schwalbea americana	American Chaffseed	P1
Solidago leavenworthii	Leavenworth's Goldenrod	P1
Spiranthes floridana	Florida Ladies' Tresses	P1
Sporobolus curtissii	Pineland Dropseed	P1
Sporobolus floridanus	Florida Dropseed	P1
Symphyotrichum chapmanii	Savannah Aster	P1
Trilisa paniculata	Hairy Chaffhead	P1
Utricularia resupinata	Northeastern Bladderwort	P1
Xyris flabelliformis	Savanna Yellow Eyed Grass	P1
Agalinis aphylla	Leafless False Foxglove	P2
Agalinis filicaulis	Thin Stem False Foxglove	P2
Amphicarpum muehlenbergianum	Blue Maidencane	P2
Andropogon capillipes	Chalky Bluestem	P2
Aristida spiciformis	Pine Barren Three Awn	P2
Asclepias cinerea	Carolina Milkweed	P2
Canna flaccida	Bandana of the Everglades	P2
Carex dasycarpa	Velvet Sedge	P2
Cirsium lecontei	LeConte's Thistle	P2
Coelorachis tessellata	Lattion Jointgrass	P2
Dichanthelium nudicaule	Naked Stem Witch Grass	P2
Drosera tracyi	Tracy's Sundew	P2
Dyschoriste oblongifolia	Oblong Leaf Drychoriste	P2
Iva microcephala	Small Head Marsh Elder	P2
Kalmia hirsute	Hairy Laurel	P2
Lachnocaulon digynum	Pineland Bogbutton	P2
Polygala crenata	Crenate Milkwort	P2
Polygala hookeri	Hooker Milkwort	P2
Rhynchospora thornei	Thorne's Beakrush	P2
Rudbeckia triloba var. pinnatiloba	Pinnate Leaf Coneflower	P2
Sabatia brevifolia	Short Leaved Pink	P2

Table 2.9 Wet Pine Savanna and Flatwoods SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Sarracenia leucophylla	Whitetop Pitcher Plant	P2
Sarracenia rosea	Rose Pitcher Plant	P2
Xyris louisianica	Louisiana Yellow Eyed Grass	P2
Xyris serotina	Acid Swamp Yellow Eyed Grass	P2
Zephyranthes simpsonii	Red Margin Zephyr Lily	P2
Agalinis linifolia	Flax Leaf False Foxglove	P3
Agalinis oligophylla	Ridge Stem False Foxglove	P3
Asclepias rubra	Red Milkweed	P3
Eupatorium anomalum	Florida Thoroughwort	P3
Juncus nodatus	Stout Rush	P3
Lepuropetalon spathulatum	Little People	P3
Pityopsis oligantha	Coastal Plain Golden Aster	P3
Rhynchospora microcephala	Small Head Beakrush	P3
Spiranthes longilabris	Giant Spiral Ladies' Tresses	P3
Stenanthium texanum	Crow Poison	P3
Stylisma aquatica	Water Southern Morning Glory	P3
Symphyotrichum simmondsii	Simmond's Aster	P3
Xyris scabrifolia	Harper's Yellow Eyed Grass	P3
Xyris stricta	Pineland Yellow Eyed Grass	P3

BOGS AND SEEPAGE COMMUNITIES

Description and Condition

Bogs and seepage communities in Alabama are rare, patchy wetlands that occur where groundwater emerges at the surface on slopes, depressions, or along sandy soils of the Coastal Plain (Figure 2.5). These habitats are typically nutrient-poor, acidic, and saturated for much of the year, creating unique conditions that support specialized plant communities dominated by sedges, grasses, and carnivorous plants such as pitcher plants (*Sarracenia* spp.), sundews (*Drosera* spp.), and bladderworts (*Utricularia* spp.). Many of these bogs and seeps are embedded within longleaf pine ecosystems, where frequent fire historically maintained open, herbaceous ground layers. They provide critical habitat for numerous Species of Greatest Conservation Need (SGCN), including rare amphibians, orchids, and invertebrates restricted to these highly localized ecosystems.

Representative high-quality sites include Conecuh National Forest (Covington County), Roberta Case Pine Hills Preserve (Autauga County), and Grand Bay Savanna Nature Preserve (Mobile County).

The condition of Alabama's bogs and seepage communities is variable but generally considered fair to poor across much of their range. High-quality remnants, such as Splinter Hill Bog Preserve and Grand Bay Savanna, retain exceptional species richness due to active management with prescribed fire and hydrologic protection. However, many bogs have been degraded by fire suppression, hydrologic alterations (drainage, ditching, impoundments), agricultural and forestry conversion, and invasive species such as Chinese tallow and cogongrass. Runoff carrying nutrients, sediment, and herbicides further alters water chemistry and threatens sensitive flora and fauna. Because bogs and seepage wetlands are extremely limited in extent and highly sensitive to disturbance, continued conservation actions including prescribed fire, hydrologic restoration, invasive species control, and protection of surrounding uplands are essential to maintain their ecological integrity. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.10).

This habitat supports a total of 110 SGCN: 5 amphibians, 11 birds, 6 mammals, 3 reptiles, 3 crayfish, and 82 vascular plants (Table 2.11).

Table 2.10 Bogs and Seepage Community Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Drainage, filling, and habitat conversion for housing, industrial sites, or utilities eliminate bogs and alter groundwater flow that sustains seepage habitats.
2. Agriculture & Aquaculture	Conversion to pasture, crops, or pine plantations alters hydrology and replaces diverse bog groundcover with simplified vegetation. Bedding, ditching, and mechanical site prep are especially damaging.
4. Transportation & Service Corridors	Road construction, pipelines, and rights-of-way disturb hydrology, fragment bogs, and facilitate invasive species spread.
5. Biological Resource Use	Overcollection of carnivorous plants (e.g., pitcher plants, sundews) and orchids reduces native populations and disrupts ecological balance.
7. Natural System Modifications	Fire suppression leads to woody encroachment and loss of the open, herbaceous structure essential for SGCN; ditching and impoundments disrupt natural seepage and hydroperiods.
8. Invasive & Other Problematic Species, Genes, & Diseases	Cogongrass, Chinese privet, Chinese tallow, and feral hogs degrade bog vegetation, displace sensitive flora, and alter fire regimes.
9. Pollution	Runoff containing nutrients, pesticides, and sediment from nearby forestry and agriculture alters water chemistry and stresses rare bog-dependent plants and amphibians.
10. Geological & Biological Events	Droughts, altered precipitation, and storm events reduce groundwater recharge, shift hydroperiods, and threaten persistence of highly localized bog communities.

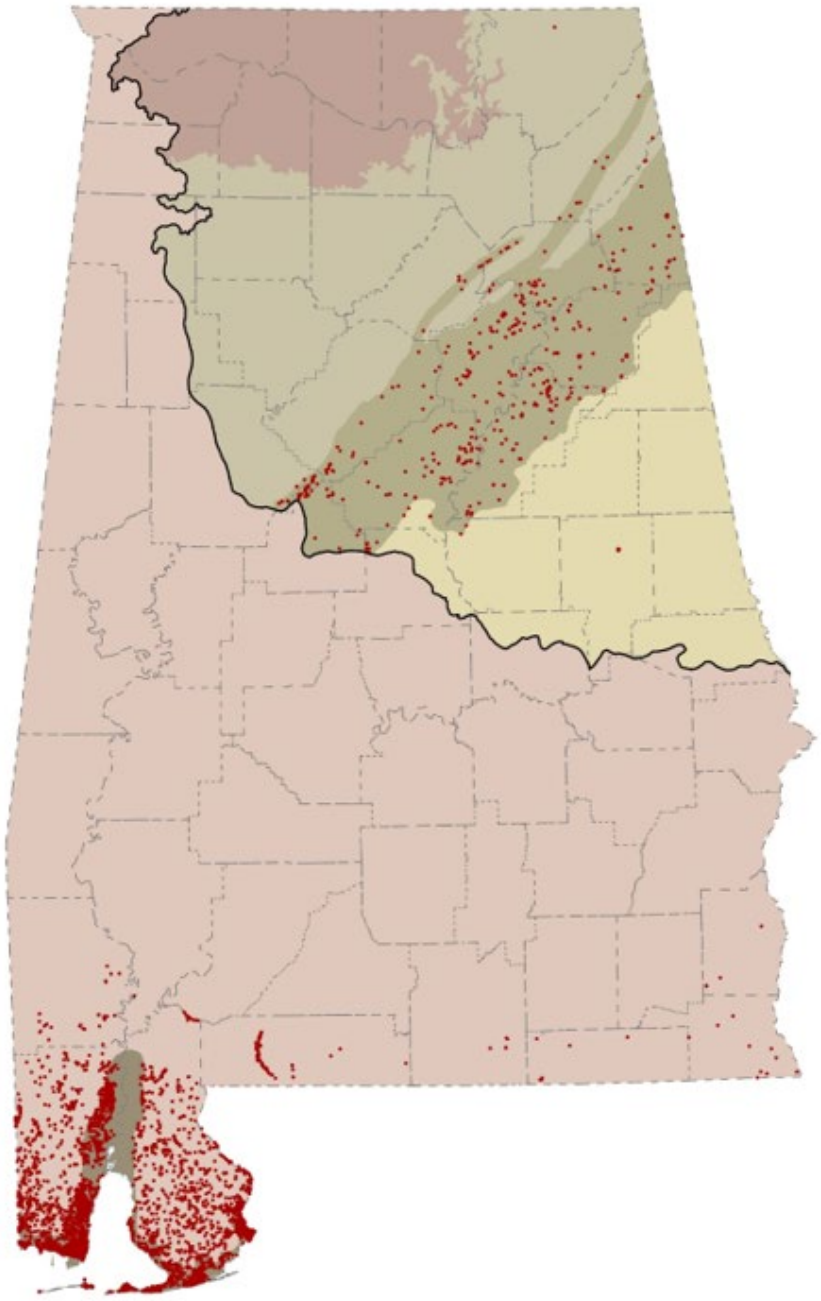

Figure 2.5 Bogs and Seepage Communities Habitat Distribution Map.

Table 2.11 Bog and Seepage Communities SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 5		
Dryophytes andersonii	Pine Barrens Treefrog	P1

Table 2.11 Bog and Seepage Communities SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphiuma pholeter	One-toed Amphiuma	P2
Desmognathus aeneus	Seepage Salamander	P2
Eurycea quadridigitata	Dwarf Salamander	P3
Hemidactylium scutatum	Four-toed Salamander	P3
Birds - 11		
Centronyx henslowii	Henslow's Sparrow	P1
Laterallus jamaicensis jamaicensis	Eastern Black Rail	P1
Ammospiza nelsoni	Nelson's Sparrow	P2
Botaurus exilis	Least Bittern	P2
Coturnicops noveboracensis	Yellow Rail	P2
Euphagus carolinus	Rusty Blackbird	P2
Lanius ludovicianus	Loggerhead Shrike	P2
Ammospiza leconteii	LeConte's Sparrow	P3
Antrostomus carolinensis	Chuck-will's-widow	P3
Chaetura pelagica	Chimney Swift	P3
Mycteria americana	Wood Stork	P3
Mammals - 6		
Myotis septentrionalis	Northern Myotis	P1
Lasiurus intermedius	Northern Yellow Bat	P2
Sylvilagus palustris	Marsh Rabbit	P2
Zapus hudsonius	Meadow Jumping Mouse	P2
Mustela frenata	Long-tailed Weasel	P3
Neogale vison	American Mink	P3
Reptiles - 3		
Drymarchon couperi	Eastern Indigo Snake	P1
Ophisaurus mimicus	Mimic Glass Lizard	P1
Crotalus adamanteus	Eastern Diamondback Rattlesnake	P2
Crayfish - 3		
Creaserinus burrisi	Burrowing Bog Crayfish	P3
Creaserinus byersi	Lavendar Burrowing Crayfish	P3
Procambarus hubbelli	Jackknife Crayfish	P3
Vascular Plants - 82		
Balduina atropurpurea	Purpledisk Honeycombhead	EX
Liparis loeselii	Loesel's Twayblade	EX
Sabulina paludicola	Godfrey's Sandwort	EX
Aconitum uncinatum	Blue Monkshood	P1

Table 2.11 Bog and Seepage Communities SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Asclepias connivens	Large Flower Milkweed	P1
Asclepias viridula	Southern Milkweed	P1
Carex austrodeflexa	Southern Sedge	P1
Carex exilis	Coastal Sedge	P1
Carex oklahomensis	Oklahoma Sedge	P1
Carex vestita	Velvet Sedge	P1
Chrysosplenium americanum	American Golden Saxifrage	P1
Cirsium muticum	Swamp Thistle	P1
Cladium mariscoides	Twig Rush	P1
Cleistesiopsis bifaria	Small Spreading Pogonia	P1
Coelorachis tuberculosa	Florida Jointgrass	P1
Coreopsis nudata	Georgia Tickseed	P1
Drosera rotundifolia	Roundleaf Sundew	P1
Epilobium coloratum	Purple Leaf Willow Herb	P1
Evolvulus sericeus	Creeping Morning Glory	P1
Fimbristylis brevivaginata	Glade Fimbrystylis	P1
Fothergilla milleri	Dwarf Witch Alder	P1
Iris prismatica	Slender Blue Iris	P1
Isoetes louisianensis	Louisiana Quillwort	P1
Juncus dudleyi	Dudley's Rush	P1
Lilium iridollae	Panhandle Lily	P1
Lindera subcoriacea	Bog Spicebush	P1
Linum macrocarpum	Flax	P1
Macranthera flammea	Flame Flower	P1
Parnassia grandifolia	Large Leaf Grass of Pasrnassus	P1
Pinguicula planifolia	Chapman's Butterwort	P1
Pinus serotina	Pond Pine	P1
Platanthera conspicua	Large White Fringed Orchid	P1
Platanthera nivea	Snowy Orchis	P1
Pycnanthemum nudum	Coastal Plain Mountain Mint	P1
Rhynchospora alba	White Beakrush	P1
Rubus hispidus	Swamp Dewberry	P1
Rudbeckia palustris	Seep Orange Coneflower	P1
Sabulina fontinalis	Seepage Starwort	P1
Salix floridana	Florida Willow	P1
Sarracenia alabamensis ssp. alabamensis	Alabama Canebrake Pitcher Plant	P1
Sarracenia alabamensis ssp. wherryi	Wherry's Sweet Pitcher Plant	P1
Sarracenia oreophila	Green Pitcher Plant	P1
Sarracenia rubra ssp. gulfensis	Gulf Coast Red Pitcher Plant	P1
Spiraea tomentosa	Hardhack	P1
Spiranthes floridana	Florida Ladies' Tresses	P1

Table 2.11 Bog and Seepage Communities SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Verbena hastata	Blue Vervain	P1
Xyris brevifolia	Shortleaf Yellow Eyed Grass	P1
Xyris chapmanii	Chapman's Yellow Eyed Grass	P1
Xyris isoetifolia	Quillwort Yellow Eyed Grass	P1
Calopogon oklahomensis	Oklahoma Grass Pink	P2
Carex austrocaroliniana	Tarheel Sedge	P2
Cirsium lecontei	LeConte's Thistle	P2
Coelorachis tessellata	Lattion Jointgrass	P2
Dichanthelium nudicaule	Naked Stem Witch Grass	P2
Drosera tracyi	Tracy's Sundew	P2
Hexastylis speciosa	Harper's Heartleaf	P2
Juncus gymnocarpus	Naked Fruit Rush	P2
Lachnocaulon digynum	Pineland Bogbutton	P2
Lilium canadense	Canada Lily	P2
Lilium superbum	Turk's Cap Lily	P2
Platanthera integrilabia	White Fringeless Orchid	P2
Platanthera lacera	Green Fringed Orchid	P2
Platanthera peramoena	Purple Fringeless Orchid	P2
Rhynchospora macra	Southern White Beakrush	P2
Rudbeckia auriculata	Eared Coneflower	P2
Sarracenia leucophylla	Whitetop Pitcher Plant	P2
Sarracenia rosea	Rose Pitcher Plant	P2
Sporobolus teretifolius	Wireleaf Dropseed	P2
Symphyotrichum elliottii	Elliott's Aster	P2
Xyris tennesseensis	Tennessee Yellow Eyed Grass	P2
Asclepias rubra	Red Milkweed	P3
Bidens cernua	Nodding Beggarticks	P3
Danthonia epilis	Bog Wild Oatgrass	P3
Eriocaulon lineare	Narrow Pipewort	P3
Eriocaulon texense	Texas Pipewort	P3
Geum vernum	Spring Avens	P3
Isoetes appalachiana	Appalachian Quillwort	P3
Juncus nodatus	Stout Rush	P3
Lepuropetalon spathulatum	Little People	P3
Pinguicula primuliflora	Small Butterwort	P3
Rhynchospora stenophylla	Chapman Beakrush	P3
Xyris scabrifolia	Harper's Yellow Eyed Grass	P3

RIPARIAN AND FLOODPLAIN FOREST

Description and Condition

This diverse, statewide habitat category includes a range of situations where periodic flooding and flood-related environmental factors (wetness, scouring, deposition of material, and input of nutrients) affect vegetational composition and dynamics. Scour-influenced systems occur on high-gradient streams in gorges of the Southwestern Appalachians and Ridge and Valley, where shrubs, perennial grasses, and forbs dominate (Figure 2.6). Elsewhere, forests of larger floodplains and bottomlands often include depositional landforms such as levees, sloughs, ridges, terraces, and abandoned channel segments. Floodplain forests above the Fall Line are generally quite distinct from those of the Southeastern Plains, because of steeper river gradients and harder rocks. Baldcypress and tupelo gum are common components below the Fall Line, but not above. Vegetation along the larger streams and rivers generally includes forests dominated by bottomland hardwood species and other trees tolerant of flooding.

Representative high-quality sites include Mobile-Tensaw River Delta (Mobile and Baldwin counties), Perdido River WMA (Baldwin County), Uchee Creek (Russell County), Eufaula National Wildlife Refuge (Barbour County), Blue Springs State Park (Barbour County), David K. Nelson WMA (Sumter, Greene, and Hale counties), Sipsey River Tract (Tuscaloosa County), J.D. Martin Skyline WMA, Walls of Jericho (Jackson County), Little River WMA/Little River Canyon National Preserve (DeKalb County); and Wheeler NWR (Morgan County).

Much of this habitat has been lost to impoundments. Power generation and regulation of water flow create unnatural flood regimes, affecting large areas downstream from dams. Extensive erosion of uplands, caused by poor agricultural practices dating back to colonial times, transported large amounts of sediment into floodplains. Large floodplains often have substantial areas in cultivation. Many exotic plant species have invaded floodplains, perhaps more than in any other habitat type in Alabama. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.12).

This habitat supports a total of 105 SGCN: 6 amphibians, 13 birds, 18 mammals, 9 reptiles, 7 crayfish and 52 vascular plants (Table 2.13).

Table 2.12 Riparian and Floodplain Forest Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Riverfront housing, industrial sites, and urban expansion reduce floodplain connectivity and convert forests to developed land.
2. Agriculture & Aquaculture	Clearing of floodplains for row crops, pasture, and silviculture reduces native forest cover and increases erosion and sedimentation.
4. Transportation & Service Corridors	Roads, bridges, and pipelines fragment floodplain forests, disrupt hydrology, and provide corridors for invasive species spread.
5. Biological Resource Use	Unsustainable timber harvest alters forest structure, removes mature hardwoods, and reduces habitat for cavity-nesting birds, bats, and other SGCN.
7. Natural System Modifications	Dams, levees, and channelization disrupt natural flooding cycles, fragment habitat, and reduce recruitment of bottomland tree species.
8. Invasive & Other Problematic Species, Genes, & Diseases	Invasive plants such as Chinese privet, Japanese climbing fern, and cogongrass dominate understories, while feral hogs disturb soils and hydrology.
9. Pollution	Nutrient and chemical runoff from agriculture, forestry, and urban sources degrades water quality, impacting aquatic and riparian SGCN.
10. Geological & Biological Events	Increased storm intensity and altered flood regimes stress forest regeneration, alter species composition, and exacerbate tree mortality.

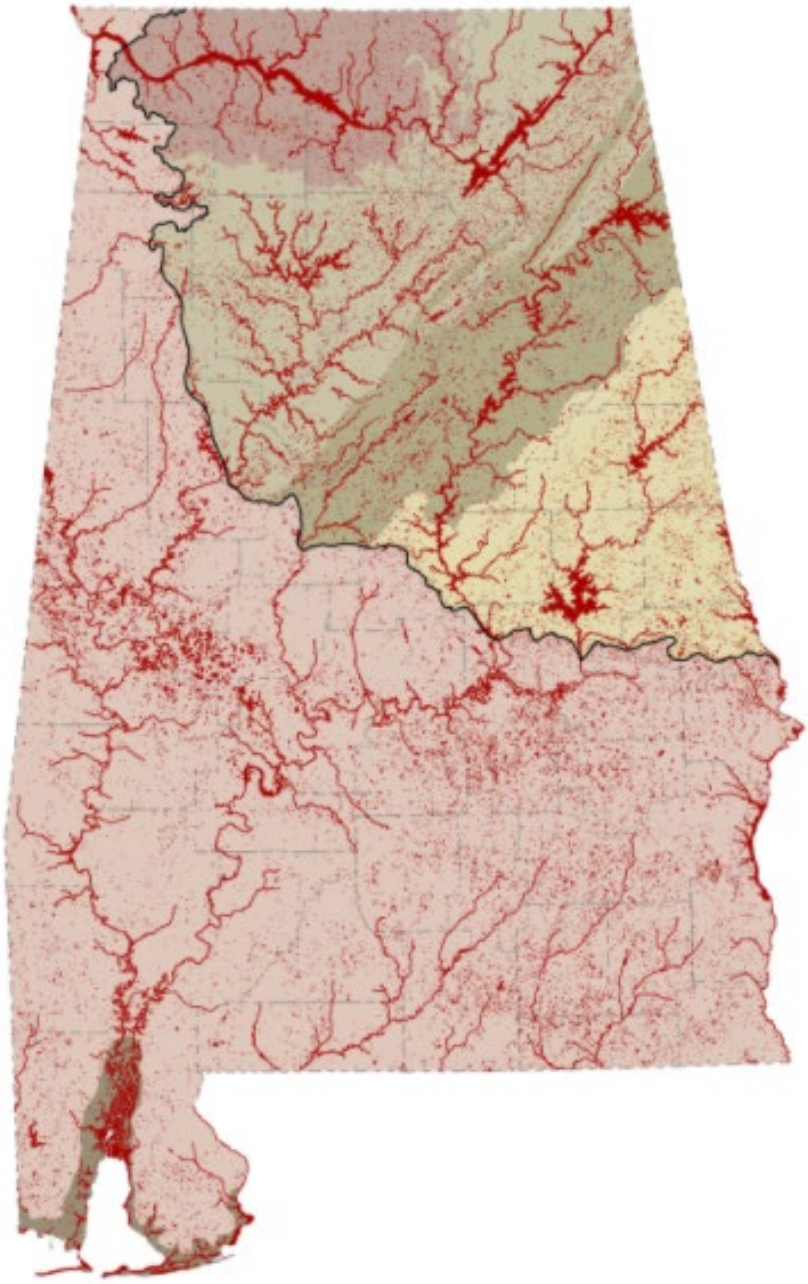

Figure 2.6 Riparian and Floodplain Forest Habitat Distribution Map.

Table 2.13 Riparian and Floodplain Forest SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 6		
Desmognathus auriculatus	Southern Dusky Salamander	EX
Lithobates heckscheri	River Frog	P1
Ambystoma texanum	Small-mouthed Salamander	P2

Table 2.13 Riparian and Floodplain Forest SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Ambystoma tigrinum	Eastern Tiger Salamander	P2
Amphiuma pholeter	One-toed Amphiuma	P2
Hemidactylium scutatum	Four-toed Salamander	P3
Birds - 13		
Setophaga cerulea	Cerulean Warbler	P1
Aquila chrysaetos	Golden Eagle	P2
Euphagus carolinus	Rusty Blackbird	P2
Anas rubripes	American Black Duck	P3
Antrostomus carolinensis	Chuck-will's-widow	P3
Chaetura pelagica	Chimney Swift	P3
Colaptes auratus	Northern Flicker	P3
Elanoides forficatus	Swallow-tailed Kite	P3
Egretta caerulea	Little Blue Heron	P3
Mycteria americana	Wood Stork	P3
Nycticorax nycticorax	Black-crowned Night Heron	P3
Protonotaria citrea	Prothonotary Warbler	P3
Scolopax minor	American Woodcock	P3
Mammals - 18		
Myotis grisescens	Gray Myotis	P1
Myotis lucifugus	Little Brown Myotis	P1
Myotis septentrionalis	Northern Myotis	P1
Myotis sodalis	Indiana Myotis	P1
Perimyotis subflavus	Tri-colored Bat	P1
Ursus americanus floridanus	Florida Black Bear	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Lasiurus cinereus	Hoary Bat	P2
Myotis austroriparius	Southeastern Myotis	P2
Myotis leibii	Eastern Small-footed Myotis	P2
Spilogale putorius	Eastern Spotted Skunk	P2
Sylvilagus palustris	Marsh Rabbit	P2
Zapus hudsonius	Meadow Jumping Mouse	P2
Lasionycteris noctivagans	Silver-haired Bat	P3
Mustela frenata	Long-tailed Weasel	P3
Neogale vison	American Mink	P3
Ondatra zibethicus	Common Muskrat	P3
Ursus americanus	American Black Bear	P3
Reptiles - 9		
Drymarchon couperi	Eastern Indigo Snake	P1

Table 2.13 Riparian and Floodplain Forest SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Pseudemys alabamensis	Alabama Red-bellied Cooter	P1
Crotalus adamanteus	Eastern Diamondback Rattlesnake	P2
Lampropeltis getula	Common Kingsnake	P2
Lampropeltis nigra	Eastern Black Kingsnake	P2
Nerodia floridana	Florida Green Watersnake	P2
Plestiodon inexpectatus	Southeastern Five- lined Skink	P2
Macrochelys temminckii	Alligator Snapping Turtle	P2
Nerodia cyclopion	Mississippi Green Watersnake	P2
Crayfish – 7		
Lacunicambarus mobilensis	Lonesome Gravedigger	P1
Procambarus holifieldi	Celestrial Crayfish	P1
Cambarus gentry	Linear Cobalt Crayfish	P2
Hobbseus prominens	Prominence Riverlet Crayfish	P2
Procambarus capillatus	Capillaceous Crayfish	P2
Cambarellus shufeldtii	Cajun Dwarf Crayfish	P3
Lacunicambarus miltus	Rusty Grave Digger	P3
Vascular Plants - 52		
Arabis georgiana	Georgia Rockcress	P1
Carex godfreyi	Godfrey's Sedge	P1
Carex thornei	Thorne's Sedge	P1
Celastrus scandens	Climbing Bittersweet	P1
Chasmanthium nitidum	Shiny Spikegrass	P1
Clematis socialis	Alabama Leather Flower	P1
Collinsia verna	Spring Blue Eyed Mary	P1
Didiplis diandra	Water Purselane	P1
Harperella nodosa	Harperella	P1
Juncus dudleyi	Dudley's Rush	P1
Lathyrus palustris	Vetchling Peavine	P1
Lilium iridollae	Panhandle Lily	P1
Lysimachia fraseri	Fraser's Loosestrife	P1
Phyllanthopsis phyllanthoides	Maidenbush	P1
Physostegia leptophylla	Tidal Marsh Obedient Plant	P1
Quercus oglethorpensis	Oglethorpe's Oak	P1
Quercus similis	Bottomland Post Oak	P1
Sideroxylon thornei	Georgia Bully	P1
Solidago arenicola	Locust Fork Goldenrod	P1
Stachys alabamica	Alabama Hedge-nettle	P1
Thermopsis villosa	Hairy False Lupine	P1
Trifolium reflexum	Buffalo Clover	P1

Table 2.13 Riparian and Floodplain Forest SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Verbesina walteri	Carolina Crownbeard	P1
Viburnum ashei	Ashe's Arrowwood	P1
Viburnum obovatum	Small Leaf Viburnum	P1
Boykinia aconitifolia	Brook Saxifrage	P2
Calamovilfa arcuata	Cumberland Sandgrass	P2
Carex impressinervia	Impressed Nerve Sedge	P2
Equisetum arvense	Field Horsetail	P2
Hottonia inflata	Featherfoil	P2
Ilex amelanchier	Serviceberry Holly	P2
Juncus gymnocarpus	Naked Fruit Rush	P2
Luziola bahiensis	Brazilian Luziola	P2
Pilea fontana	Springs Clearweed	P2
Plantago cordata	Heartleaf Plantain	P2
Ptilimnium costatum	Ribbed Mock Bishopweed	P2
Ranunculus flabellaris	Yellow Water Crowfoot	P2
Rhynchospora decurrens	Swamp Forest Beakrush	P2
Sideroxylon reclinatum	Buckthorn	P2
Triphora trianthophoros	Three Birds Orchid	P2
Zephyranthes simpsonii	Red Margin Zephyr Lily	P2
Boltonia apalachicolensis	Apalachicola Doll's Daisy	P3
Crataegus opaca	Riverflat Hawthorn	P3
Hypericum nudiflorum	Pretty St. John's Wort	P3
Jamesianthus alabamensis	Jamesianthus	P3
Mikania cordifolia	Florida Keys Hempweed	P3
Psilotum nudum	Whiskfern	P3
Quercus macrocarpa	Bur Oak	P3
Rhododendron austrinum	Orange Azalea	P3
Rhynchospora crinipes	Mosquito Beakrush	P3
Trillium pusillum var. ozarkanum	Ozark Wakerobin	P3
Veronicastrum virginicum	Culver's Root	P3

DRY LONGLEAF PINE FOREST

Description and Condition

Longleaf pine, Alabama's official state tree, was once Alabama's most abundant tree (Harper 1928). Once covering more than 90 million acres across the southeastern United States, longleaf pine (*Pinus palustris*) forests have been reduced to less than 5 percent of their original range (Outcalt 1996), and Alabama reflects this dramatic decline (Figure 2.7). These forests represent some of the world's most biologically diverse ecosystems and are home to nearly 600 plant and animal species (NRCS 2023). Alabama contains approximately 908,000 acres of longleaf pine forest in total, with around 18%, or approximately 163,400 acres, located within its four National Forests (USFS 1996).

Representative sites include Conecuh National Forest (Covington and Escambia counties), Perdido River Longleaf Hills Tract (Baldwin County), Fort Rucker (Dale and Henry counties), Fred T. Stimpson Wildlife Sanctuary (Clarke County), Geneva State Forest (Geneva County), Mountain Longleaf NWR (Calhoun County), Weogufka State Forest (Coosa County), Coosa Wildlife Management Area (Coosa County), and Talladega National Forest (all districts—Calhoun, Chilton, Clay, Cleburne, Bibb, Hale, Perry, Talladega, and Tuscaloosa Counties).

Historically dominant across much of the Coastal Plain and parts of the Ridge and Valley and Piedmont, longleaf pine ecosystems supported some of the state's highest levels of species richness, including numerous SGCN such as the gopher tortoise, red-cockaded woodpecker, and eastern indigo snake. Remnant stands in Alabama are in fair to poor condition, often fragmented, degraded by fire suppression, conversion to loblolly and slash pine plantations, or lost to agriculture and development. Many longleaf tracts lack the open canopy structure and diverse groundcover of wiregrass and forbs that characterize healthy conditions. Despite these challenges, restoration efforts are ongoing through prescribed fire, longleaf replanting, and conservation partnerships that are steadily increasing acreage under active management. The condition of Alabama's longleaf pine is improving where management is sustained, but continued investment is needed to restore this fire-dependent ecosystem at meaningful scales to recover its ecological integrity and associated wildlife. It is important to maintain the native, functioning plant and animal community structure in these fire-maintained habitats through management goals based on desired burn effects (Hermann et al. 2015). Without the appropriate fire regime, canopy closure will increase along with shrub dominance, and grasses, forbs, and other finer-fuel components will decline, further altering the fire regime dynamics. Prescribed fire needs to increase dramatically in these systems, along with documentation that the fire regime is effective in reducing midstory and increasing groundcover. In systems where advanced hardwood competition exists, selective herbicide application should also be considered to effectively release fine fuels and restore basic functionality of the longleaf ecosystem. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.14). Loss of longleaf pine forest

and the fragmented and degraded nature of many remaining tracts have resulted in the decline of many terrestrial vertebrates that are considered "longleaf specialists," found either primarily or exclusively in longleaf-dominated habitats.

This habitat supports a total of 102 SGCN: 4 amphibians, 16 birds, 11 mammals, 17 reptiles, and 54 vascular plants (Table 2.15).

Table 2.14 Dry Longleaf Pine Forest Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Urbanization, suburban expansion, and infrastructure projects fragment longleaf habitat, isolate populations, and increase edge effects.
2. Agriculture & Aquaculture	Conversion of longleaf forests to intensive loblolly/slash pine plantations or agricultural row crops reduces habitat quality and species richness.
4. Transportation & Service Corridors	Roads and utility corridors fragment longleaf habitat, increase edge effects, and cause direct mortality for species like gopher tortoises and snakes.
5. Biological Resource Use	Unsustainable timber harvests and short-rotation silviculture simplify forest structure, diminishing longleaf ecosystem integrity.
7. Natural System Modifications	Fire suppression alters forest dynamics, leading to hardwood encroachment, loss of herbaceous groundcover, and reduced suitability for SGCN.
8. Invasive & Other Problematic Species, Genes, & Diseases	Cogongrass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinense*), and feral hogs (*Sus scrofa*), among others, degrade native understories and compete with native flora and fauna.
10. Geological & Biological Events	Increased droughts, stronger hurricanes, and altered precipitation regimes stress longleaf systems and exacerbate pest/disease outbreaks.

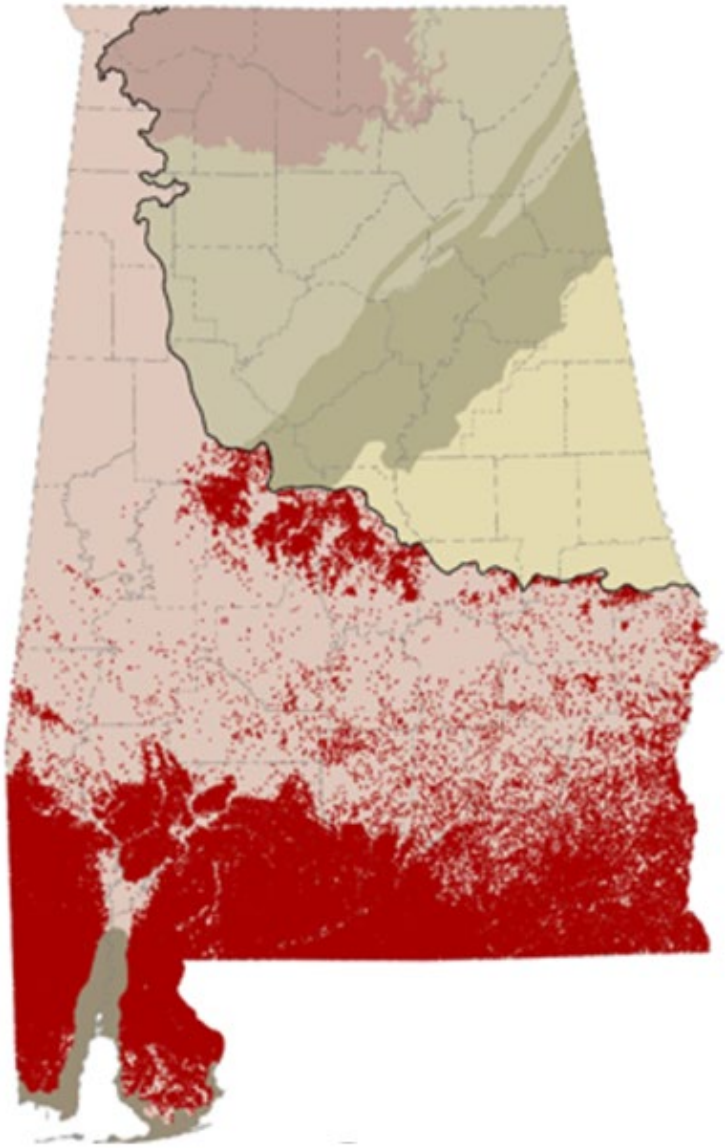

Figure 2.7 Dry Longleaf Pine Forest Habitat Distribution Map.

Table 2.15 Dry Longleaf Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 4		
Ambystoma bishopi	Reticulated Flatwoods Salamander	EX
Lithobates sevosus	Dusky Gopher Frog	EX
Lithobates capito	Gopher Frog	P1
Ambystoma tigrinum	Eastern Tiger Salamander	P2

Table 2.15 Dry Longleaf Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Birds - 16		
Falco sparverius paulus	Southeastern American Kestrel	P1
Centronyx henslowii	Henslow's Sparrow	P1
Aquila chrysaetos	Golden Eagle	P2
Chordeiles minor	Common Nighthawk	P2
Colinus virginianus	Northern Bobwhite	P2
Dryobates borealis	Red-cockaded Woodpecker	P2
Lanius ludovicianus	Loggerhead Shrike	P2
Vermivora bachmanii	Bachman's Sparrow	P2
Ammospiza leconteii	LeConte's Sparrow	P3
Antrostomus carolinensis	Chuck-will's-widow	P3
Antrostomus vociferus	Eastern Whip-poor-will	P3
Chaetura pelagica	Chimney Swift	P3
Colaptes auratus	Northern Flicker	P3
Columbina passerina	Common Ground Dove	P3
Mycteria americana	Wood Stork	P3
Spizella pusilla	Field Sparrow	P3
Mammals - 11		
Myotis septentrionalis	Nothern Myotis	P1
Myotis sodalis	Indiana Myotis	P1
Perimyotis subflavus	Tri-colored Bat	P1
Ursus americanus floridanus	Florida Black Bear	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Geomys pinetis	Southeastern Pocket Gopher	P2
Lasiurus cinereus	Hoary Bat	P2
Lasiurus intermedius	Northern Yellow Bat	P2
Myotis austroriparius	Southeastern Myotis	P2
Spilogale putorius	Eastern Spotted Skunk	P2
Neogale frenata	Long-tailed Weasel	P3
Reptiles - 17		
Heterodon simus	Southern Hognose Snake	EX
Drymarchon couperi	Eastern Indigo Snake	P1
Micrurus fulvius	Harlequin Coralsnake	P1
Ophisaurus mimicus	Mimic Glass Lizard	P1
Pituophis melanoleucus lodingi	Black Pinesnake	P1
Crotalus adamanteus	Eastern Diamondback Rattlesnake	P2
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Gopherus polyphemus	Gopher Tortoise	P2

Table 2.15 Dry Longleaf Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Lampropeltis getula	Common Kingsnake	P2
Lampropeltis nigra	Eastern Black Kingsnake	P2
Pituophis melanoleucus melanoleucus	Northern Pinesnake	P2
Pituophis melanoleucus mugitus	Florida Pinesnake	P2
Plestiodon anthracinus pluvialis	Southern Coal Skink	P2
Plestiodon inexpectatus	Southeastern Five-lined Skink	P2
Sistrurus miliarius miliarius	Carolina Pygmy Rattlesnake	P2
Heterodon platirhinos	Eastern Hognose Snake	P3
Lampropeltis elapsoides	Scarlet Kingsnake	P3
Vascular Plants - 54		
Phoebanthus tenuifolius	Pineland False Sunflower	EX
Polygonella fimbriata	Sandhill Jointweed	EX
Agrimonia incisa	Incised Groovebur	P1
Aristida mohrii	Mohr's Three Awn	P1
Arnica acaulis	Leopardsbane	P1
Astragalus obcordatus	Florida Milkvetch	P1
Baptisia hirsuta	Hairy Wild Indigo	P1
Callirhoe papaver	Woods Poppy Mallow	P1
Callirhoe triangulata	Clustered Poppy Mallow	P1
Cirsium nuttallii	Nuttall's Thistle	P1
Crataegus furtiva	Albany Hawthorn	P1
Cuthbertia rosea	Piedmont Roseling	P1
Eustachys floridana	Two Spike Finger Grass	P1
Galactia floridana	Florida Milk Pea	P1
Linum harperi	Harper's Grooved Flax	P1
Lygodesmia aphylla	Rose Rush	P1
Oenothera curtissii	Curtiss' Evening Primrose	P1
Orbexilum lupinellus	Lupine Scurfpea	P1
Orthochilus ecristatus	Crestless Eulophia	P1
Paronychia americana	American Nailwort	P1
Paronychia herniarioides	Coastal Plain Nailwort	P1
Pityopsis pinifolia	Sandhill Golden Aster	P1
Polanisia tenuifolia	Slenderleaf Clammyweed	P1
Polygala leptostachys	Georgia Milkwort	P1
Sabatia quadrangula	Four Angled Pink	P1
Schwalbea americana	American Chaffseed	P1
Spigelia gentianoides	Gentian Pinkroot	P1
Stylisma pickeringii	Pickering's Morning Glory	P1
Symphyotrichum oolentangiense	Sky Blue Aster	P1

Table 2.15 Dry Longleaf Pine Forest SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Warea sessilifolia	Sessile Leaf Warea	P1
Xerophyllum asphodeloides	Turkeybeard	P1
Agalinis divaricata	Pineland False Foxglove	P2
Andropogon capillipes	Chalky Bluestem	P2
Astragalus villosus	Hoary Milkvetch	P2
Calliphysalis carpenteri	Carpenter's Groundcherry	P2
Chamaecrista horizontalis	Florida Senna	P2
Crataegus munda	Batesburg Hawthorn	P2
Crocanthemum arenicola	Coastal Sand Frostweed	P2
Desmodium floridanum	Florida Tick Trefoil	P2
Dyschoriste oblongifolia	Oblong Leaf Drychoriste	P2
Liatris chapmanii	Chapman's Gayfeather	P2
Paronychia rugelii	Rugel's Nailwort	P2
Penstemon multiflorus	Many Flower Beardtongue	P2
Physalis arenicola	Cypress Head Ground Cherry	P2
Polygonella americana	Southern Jointweed	P2
Rudbeckia mollis	Soft Hair Coneflower	P2
Scutellaria glabriuscula	Glabrous Skullcap	P2
Agalinis oligophylla	Ridge Stem False Foxglove	P3
Crataegus alabamensis var. ravenelii	Ravenel's Hawthorn	P3
Crataegus lacrimata	Pensacola Hawthorn	P3
Crataegus quaesita var. egens	Sand Barren Hawthorn	P3
Crataegus visenda	Bristol Hawthorn	P3
Galactia mollis	Soft Milk Pea	P3
Mirabilis albida	Pale Umbrella Wort	P3

ISOLATED WETLAND AND PONDS

Description and Condition

Wetlands surrounded by upland and not drained by streams may be found almost anywhere in Alabama, with somewhat higher densities in the Interior Plateau and Southeastern Plains regions (Figure 2.8). These are "embedded" habitats in that they may be surrounded by other habitats discussed in this document, such as Dry Longleaf Pine Forest, Mesic Forest, Maritime Forest and Coastal Scrub, and Agricultural and Disturbed. These highly variable habitats form in depressions where precipitation collects (e.g., sinkholes, Citronelle ponds), on former floodplains no longer inundated by seasonal river flows (e.g., oxbow lakes), in swales between coastal dunes (e.g., interdunal ponds), and in other seasonally wet sites. Water depth may vary greatly on a seasonal basis and may be a meter deep or more in the winter. Many become dry in the summer and do not support fish, making them particularly valuable to certain pond breeding amphibians. Depending on hydrology and soils, isolated wetlands may vary from open water ponds to herb-, shrub-, or tree-dominated wetlands.

Representative high-quality sites include Conecuh National Forest (Covington County), Bon Secour NWR (Baldwin County), Wehle Tract (Bullock County), Coldwater Mountain Tract (Calhoun County), Talladega National Forest (Shoal Creek District-Cleburne County), Monte Sano State Park (Madison County), Certain Tract (Madison County), and J.D. Martin Skyline WMA (Jackson County).

Isolated wetlands are vital habitats for numerous wildlife species, including endangered and threatened birds, reptiles, amphibians, invertebrates, and plants (Moler and Franz 1987, Phillips 2002). Many thousands of isolated wetlands exist in Alabama, but they have not been inventoried, so the actual number is unknown. The loss or degradation of these wetlands negatively impacts native fauna, flora, soils, and water quality. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.16).

This habitat supports a total of 90 SGCN: 5 amphibians,15 birds, 5 mammals, 5 reptiles, 10 crayfish, 6 fish, and 44 vascular plants (Table 2.17).

Table 2.16 Isolated Wetland and Pond Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Urban expansion, suburban sprawl, and infrastructure projects drain, fill, or fragment isolated wetlands, especially in rapidly growing areas of Alabama's Coastal Plain.
2. Agriculture & Aquaculture	Wetlands are often ditched, drained, or converted for pasture, row crops, or pine plantations, reducing hydrologic integrity and native vegetation.
4. Transportation & Service Corridors	Roads fragment wetland landscapes, disrupt natural drainage, and increase direct mortality of amphibians migrating between wetlands and upland habitats.
7. Natural System Modifications	Altered hydrology from ditching, impoundments, or groundwater withdrawals changes natural hydroperiods critical for amphibian breeding and plant community composition.
8. Invasive & Other Problematic Species, Genes, & Diseases	Invasive plants such as Chinese tallow (*Triadica sebifera*), Chinese privet (*Ligustrum sinense*), and feral hogs (*Sus scrofa*) degrade vegetation, disturb soils, and outcompete native wetland flora.
9. Pollution	Runoff carrying pesticides, herbicides, fertilizers, and sediment from surrounding uplands impairs water quality and alters sensitive wetland communities.
10. Geological & Biological Events	Shifts in rainfall patterns, drought frequency, and storm intensity alter hydroperiods, stressing amphibians and plants dependent on seasonal wetland cycles.

Figure 2.8 Isolated Wetland and Ponds Habitat Distribution Map.

Table 2.17 Isolated Wetland and Ponds SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 5		
Ambystoma bishopi	Reticulated Flatwoods Salamander	EX
Desmognathus auriculatus	Southern Dusky Salamander	EX
Lithobates capito	Gopher Frog	P1
Pseudacris ocularis	Little Grass Frog	P1

Table 2.17 Isolated Wetland and Ponds SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Ambystoma texanum	Small-mouthed Salamander	P2
Birds - 15		
Rynchops niger	Black Skimmer	P1
Laterallus jamaicensis jamaicensis	Eastern Black Rail	P1
Anas fulvigula	Mottled Duck	P2
Botaurus exilis	Least Bittern	P2
Coturnicops noveboracensis	Yellow Rail	P2
Euphagus carolinus	Rusty Blackbird	P2
Rallus elegans	King Rail	P2
Anas rubripes	American Black Duck	P3
Botaurus lexilis	American Bittern	P3
Butorides virescens	Green Heron	P3
Egretta caerulea	Little Blue Heron	P3
Mycteria americana	Wood Stork	P3
Nycticorax nycticorax	Black-crowned Night Heron	P3
Porphyrio martinicus	Purple Gallinule	P3
Chaetura pelagica	Chimney Swift	P3
Mammals - 5		
Myotis septentrionalis	Northern Myotis	P1
Sylvilagus palustris	Marsh Rabbit	P2
Zapus hudsonius	Meadow Jumping Mouse	P2
Neogale frenata	Long-tailed Weasel	P3
Neogale vison	American Mink	P3
Reptiles - 5		
Drymarchon couperi	Eastern Indigo Snake	P1
Farancia erytrogramma	Rainbow Snake	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Lampropeltis getula	Common Kingsnake	P2
Liodytes pygaea pygaea	Northern Florida Swampsnake	P2
Crayfish - 10		
Lacunucambarus mobilensis	Lonesome Gravedigger	P1
Procambarus escambiensis	Escambia Crayfish	P1
Hobbseus prominens	Prominence Riverlet Crayfish	P2
Procambarus capillatus	Capillaceous Crayfish	P2
Procambarus viaeviridis	Vernal Crayfish	P2
Cambarellus shufeldtii	Cajun Dwarf Crayfish	P3
Procambarus hubbelli	Jackknife Crayfish	P3

Table 2.17 Isolated Wetland and Ponds SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Procambarus hybus	Okaloosa Crayfish	P3
Procambarus shermani	Gulf Crayfish	P3
Procambarus zonangulus	Southern White River Crayfish	P3
Fish - 6		
Acantharchus pomotis	Mud Sunfish	P1
Lucania goodei	Bluefin Killifish	P1
Notropis melanostomus	Blackmouth Shiner	P1
Fundulus cingulatus	Banded Topminnow	P3
Fundulus confluentus	Marsh Killifish	P3
Fundulus dispar	Starhead Topminnow	P3
Vascular Plants - 44		
Carex barrattii	Barratt's Sedge	P1
Coelorachis tuberculosa	Florida Jointgrass	P1
Coreopsis nudata	Georgia Tickseed	P1
Croton elliottii	Elliott's Croton	P1
Didiplis diandra	Water Purselane	P1
Fuirena longa	Chapman's Umbrella Sedge	P1
Helianthus floridanus	Florida Sunflower	P1
Lachnocaulon engleri	Engler's Bogbutton	P1
Lindera melissifolia	Pondberry	P1
Lobelia boykinii	Boykin's Lobelia	P1
Mitreola angustifolia	Narrowleaf Hornpod	P1
Pilularia americana	American Pillwort	P1
Rhexia aristosa	Awned Meadowbeauty	P1
Rhexia parviflora	White Meadowbeauty	P1
Rhexia salicifolia	Panhandle Meadowbeauty	P1
Rhynchospora brachychaeta	West Indian Beakrush	P1
Rhynchospora harperi	Harper's Beakrush	P1
Rhynchospora pleiantha	Brown's Beakrush	P1
Sabatia grandiflora	Large Flowered Pink	P1
Stillingia aquatica	Water Toothleaf	P1
Utricularia olivacea	Dwarf Bladderwort	P1
Utricularia resupinata	Northeastern Bladderwort	P1
Amphicarpum muehlenbergianum	Blue Maidencane	P2
Amsonia rigida	Stiff Bluestar	P2
Andropogon perangustatus	Narrowleaf Bluestem	P2
Fimbristylis perpusilla	Harper's Fimbristylis	P2
Hottonia inflata	Featherfoil	P2
Ilex amelanchier	Serviceberry Holly	P2

Table 2.17 Isolated Wetland and Ponds SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Iva microcephala	Small Head Marsh Elder	P2
Ludwigia arcuata	Pond Seedbox	P2
Persicaria hirsuta	Hairy Smartweed	P2
Pieris phillyreifolia	Climbing Fetterbush	P2
Sagittaria isoetiformis	Slender Arrowhead	P2
Utricularia floridana	Florida Bladderwort	P2
Xyris longisepala	Kral's Yellow Eyed Grass	P2
Agalinis linifolia	Flax Leaf False Foxglove	P3
Eleocharis melanocarpa	Black Fruit Spikerush	P3
Eleocharis robbinsii	Robbins' Spikerush	P3
Eriocaulon lineare	Narrow Pipewort	P3
Helanthium tenellum	Mud Babies	P3
Ludwigia spathulata	Spathulate Seedbox	P3
Stylisma aquatica	Water Southern Morning Glory	P3
Symphyotrichum kralii	Kral's Aster	P3
Xyris stricta	Pineland Yellow Eyed Grass	P3

SWAMP

Description and Condition

Dry swamps represent transitional wetland systems that occur in low-lying areas with poorly drained soils but experience seasonal drying, particularly during late summer and drought years (Figure 2.9). These habitats are often dominated by red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), and other moisture-tolerant hardwoods, with scattered bald cypress (*Taxodium distichum*) or tupelo (*Nyssa* spp.) in wetter zones. The understory is typically dense, with shrubs, vines, and herbaceous plants adapted to fluctuating hydroperiods. Dry swamps provide important habitat for amphibians, reptiles, songbirds, and small mammals, and they serve as ecological buffers by storing floodwaters, filtering runoff, and maintaining local hydrology.

Representative high-quality sites include the Mobile-Tensaw River delta (Mobile and Baldwin counties), Sipsey River Tract (Tuscaloosa County), Wheeler NWR (Morgan County), and Conecuh National Forest (Covington and Escambia counties).

The condition of dry swamps in Alabama is mixed. High-quality stands persist in some bottomland and floodplain complexes, especially on conservation lands, but many have been degraded by logging, ditching and drainage, fire suppression, agricultural conversion, and invasive species such as Chinese privet and feral hogs. Runoff from surrounding development and agriculture introduces excess nutrients and sediments, further altering swamp vegetation and hydrology. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.18). Overall, Alabama's dry swamps are generally considered in fair condition, with intact examples scattered but limited in extent. Restoration efforts, including hydrologic rehabilitation, invasive species control, and protection of surrounding uplands, are needed to maintain their ecological functions and support associated SGCN.

This habitat supports a total of 86 SGCN: 4 amphibians, 15 birds, 15 mammals, 7 reptiles, 14 crayfish, 4 fish, and 27 vascular plants (Table 2.19).

Table 2.18 Swamp Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Urban expansion, industrial siting, and infrastructure encroach on swamps, leading to filling, drainage, and fragmentation of wetland systems.
2. Agriculture & Aquaculture	Conversion to pasture, row crops, or pine plantations results in drainage, hydrologic alteration, and loss of native swamp vegetation.
4. Transportation & Service Corridors	Road building, culverts, and pipelines fragment swamp habitats, alter drainage, and increase direct mortality for amphibians and reptiles.
5. Biological Resource Use	Unsustainable logging of cypress, tupelo, and other swamp hardwoods reduces structural complexity, canopy cover, and wildlife habitat quality.
7. Natural System Modifications	Dams, levees, ditching, and water diversions alter hydroperiods, fragment habitat, and disrupt natural floodplain connectivity.
8. Invasive & Other Problematic Species, Genes, and Diseases	Invasive plants (Chinese tallow, privet, alligator weed) and feral hogs disturb hydrology, displace native vegetation, and degrade swamp integrity.
9. Pollution	Runoff carrying nutrients, pesticides, industrial effluents, and sediment degrades water quality, stresses amphibians, mussels, and fish, and alters swamp plant communities.
10. Geological & Biological Events	Increased drought, altered rainfall, and storm surge in coastal swamps stress hydrology, cause tree mortality, and exacerbate invasive species expansion.

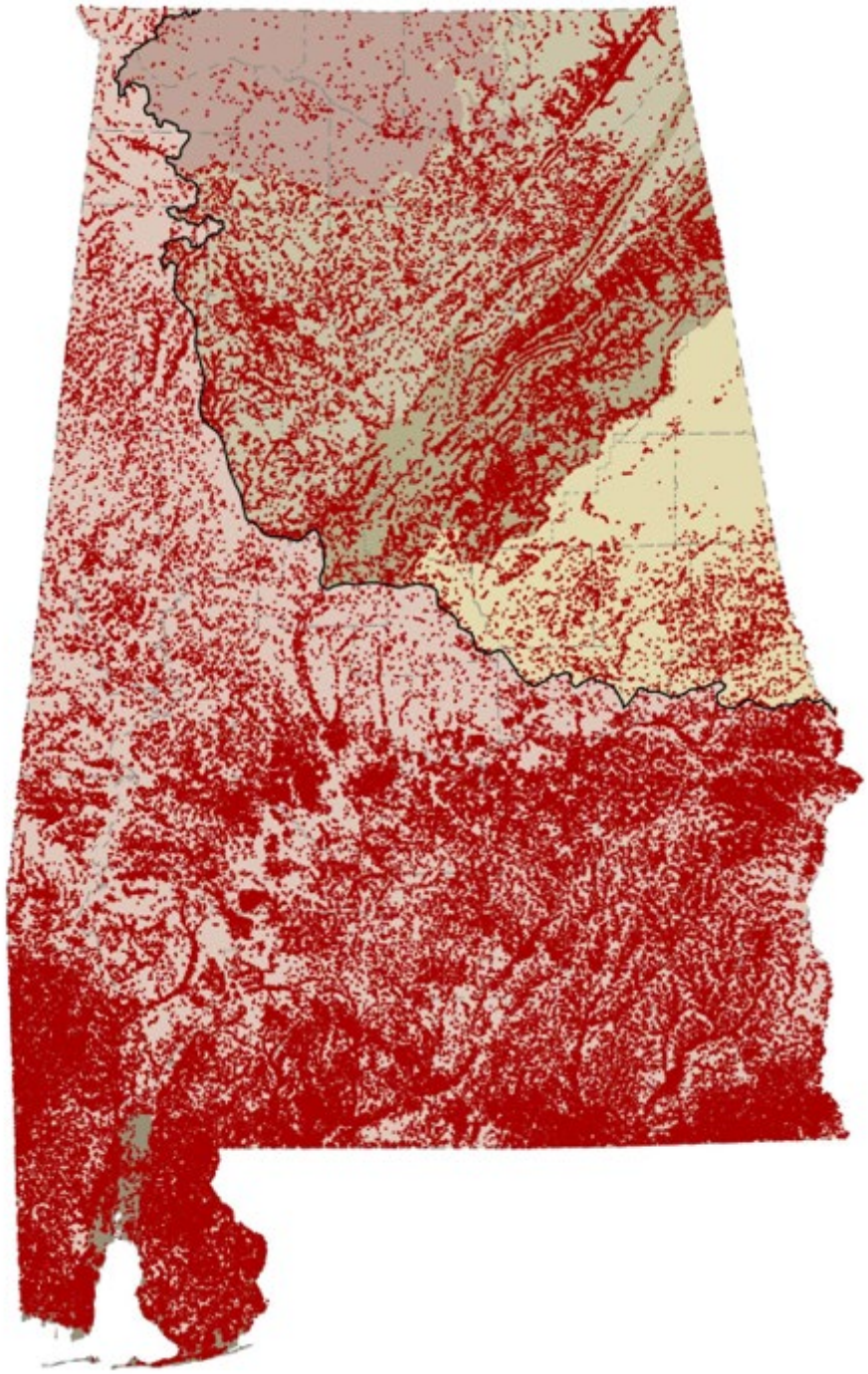

Figure 2.9 Swamp Habitat Distribution Map.

Table 2.19 Swamp SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 4		
Lithobates heckscheri	River Frog	P1
Ambystoma tigrinum	Eastern Tiger Salamander	P2
Siren reticulata	Reticulated Siren	P2
Siren lacertina	Greater Siren	P3
Birds - 15		
Centronyx henslowii	Henslow's Sparrow	P1
Botaurus exilis	Least Bittern	P2
Colinus virginianus	Northern Bobwhite	P2
Euphagus carolinus	Rusty Blackbird	P2
Rallus elegans	King Rail	P2
Anas rubripes	American Black Duck	P3
Antrostomus carolinensis	Chuck-will's-widow	P3
Butorides virescens	Green Heron	P3
Chaetura pelagica	Chimney Swift	P3
Colaptes auratus	Northern Flicker	P3
Egretta caerulea	Little Blue Heron	P3
Elanoides forficatus	Swallow-tailed Kite	P3
Mycteria americana	Wood Stork	P3
Nycticorax nycticorax	Black-crowned Night Heron	P3
Protonotaria citrea	Prothonotary Warbler	P3
Mammals - 15		
Myotis lucifugus	Little Brown Myotis	P1
Myotis septentrionalis	Northern Myotis	P1
Perimyotis subflavus	Tri-colored Bat	P1
Ursus americanus floridanus	Florida Black Bear	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Lasiurus cinereus	Hoary Bat	P2
Lasiurus intermedius	Northern Yellow Bat	P2
Myotis austroriparius	Southeastern Myotis	P2
Myotis leibii	Eastern Small-footed Myotis	P2
Sorex hoyi	American Pygmy Shrew	P2
Sylvilagus palustris	Marsh Rabbit	P2
Zapus hudsonius	Meadow Jumping Mouse	P2
Neogale frenata	Long-tailed Weasel	P3
Neogale vison	American Mink	P3
Ondatra zibethicus	Common Muskrat	P3
Reptiles - 7		

Table 2.19 Swamp SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Drymarchon couperi	Eastern Indigo Snake	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Liodytes pygaea pygaea	Northern Florida Swampsnake	P2
Nerodia floridana	Florida Green Watersnake	P2
Plestiodon anthracinus anthracinus	Northern Coal Skink	P2
Macrochelys temminckii	Alligator Snapping Turtle	P3
Nerodia cyclopion	Mississippi Green Watersnake	P3
Crayfish - 14		
Creaserinus danielae	Speckled Burrowing Crayfish	P1
Procambarus escambiensis	Escambia Crayfish	P1
Cambarellus diminutus	Least Crayfish	P2
Cambarellus rotatus	Twisted Dwarf Crayfish	P2
Hobbseus prominens	Prominence Riverlet Crayfish	P2
Procambarus capillatus	Capillaceous Crayfish	P2
Procambarus evermanni	Panhandle Crayfish	P2
Procambarus hayi	Straightedge Crayfish	P2
Procambarus lecontei	Mobile Crayfish	P2
Procambarus viaevirdis	Vernal Crayfish	P2
Cambarellus shufeldtii	Cajun Dwarf Crayfish	P3
Creaserinus burrisi	Burrowing Bog Crayfish	P3
Procambarus hubbelli	Jackknife Crayfish	P3
Procambarus zonangulus	Southern White River Crawfish	P3
Fish-4		
Hybognathus hayi	Cypress Minnow	P3
Campostoma pauciradii	Bluefin Stoneroller	P3
Leptolucania ommata	Pygmy Killifish	P3
Fundulus dispar	Starhead Topminnow	P3
Vascular Plants - 27		
Aconitum uncinatum	Blue Monkshood	P1
Ampelaster carolinianus	Carolina Aster	P1
Arnoglossum diversifolium	Variable Leaf Indian Plantain	P1
Carex godfreyi	Godfrey's Sedge	P1
Carex thornei	Thorne's Sedge	P1
Chasmanthium nitidum	Shiny Spikegrass	P1
Cirsium muticum	Swamp Thistle	P1
Juncus paludosus	Swamp Rush	P1
Lathyrus palustris	Vetchling Peavine	P1
Physostegia leptophylla	Tidal Marsh Obedient Plant	P1

Table 2.19 Swamp SGCN Rank

SCIENTIFIC NAME	COMMON NAME	RANK
Viburnum ashei	Ashe's Arrowwood	P1
Viburnum obovatum	Small Leaf Viburnum	P1
Hibiscus coccineus	Brilliant Hibiscus	P2
Hottonia inflata	Featherfoil	P2
Pieris phillyreifolia	Climbing Fetterbush	P2
Platanthera lacera	Green Fringed Orchid	P2
Ptilimnium costatum	Ribbed Mock Bishopweed	P2
Ranunculus flabellaris	Yellow Water Crowfoot	P2
Rhynchospora decurrens	Swamp Forest Beakrush	P2
Symphyotrichum elliottii	Elliott's Aster	P2
Thalia dealbata	Powdery Thalia	P2
Carex decomposita	Cypress Knee Sedge	P3
Crataegus opaca	Riverflat Hawthorn	P3
Geum vernum	Spring Avens	P3
Hypericum nudiflorum	Pretty St. John's Wort	P3
Psilotum nudum	Whiskfern	P3
Trillium pusillum var. ozarkanum	Ozark Wakerobin	P3

ANTHROPOGENIC

Description and Condition

Anthropogenic habitats in Alabama are landscapes created or heavily modified by human activity, including agricultural fields, pastures, pine plantations, utility corridors, road rights-of-way, suburban lawns, parks, and urban greenspaces (Figure 2.10). Although these environments are not natural ecosystems, they can provide surrogate habitats for certain adaptable wildlife species. Generalist birds such as Northern mockingbirds and killdeer, reptiles like the Eastern fence lizard, and mammals such as gray squirrels and bats frequently utilize these areas. In some cases, anthropogenic habitats offer temporary or transitional resources for SGCN, particularly pollinators and early successional species that exploit open conditions.

The condition of Alabama's anthropogenic habitats is highly variable, depending on land use intensity and management. Some areas, such as well-managed agricultural fields with buffer strips or utility corridors maintained with native vegetation, can support moderate wildlife value. However, most anthropogenic habitats are considered low-quality or degraded, as they are typically dominated by invasive plants, simplified vegetation structure, heavy disturbance, and pollution from pesticides, fertilizers, and urban runoff. Fragmentation caused by roads and development further reduces their ecological value. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.20). While not a conservation target in themselves, anthropogenic habitats influence the matrix in which natural habitats occur and can either exacerbate or mitigate broader threats depending on how they are managed.

This habitat supports a total of 71 SGCN: 20 birds,12 mammals, 2 reptiles, 25 crayfish and 12 vascular plants (Table 2.21).

Table 2.20 Anthropogenic Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Expansion of urban and suburban areas creates new anthropogenic habitats (lawns, golf courses, parks, vacant lots) while increasing fragmentation and edge effects.
2. Agriculture & Aquaculture	Pastures, row crops, and pine plantations provide surrogate habitats for some species but reduce native habitat integrity and introduce disturbance regimes.
4. Transportation & Service Corridors	Roadsides, railways, and utility corridors create anthropogenic habitats but also fragment landscapes and increase mortality for reptiles, amphibians, and mammals.
6. Human Intrusions & Disturbance	Recreational areas, off-road vehicle use, and industrial sites contribute to disturbance, compaction, and reduced habitat quality for opportunistic species.
7. Natural System Modifications	Hydrologic alteration, mowing, and fire suppression in managed landscapes influence species composition and reduce suitability for native flora and fauna.
8. Invasive & Other Problematic Species, Genes, & Diseases	Anthropogenic habitats often serve as entry points for invasive plants (e.g., Chinese privet, cogongrass) and animals (feral hogs, European starlings), which spread into natural systems.
9. Pollution	Runoff, pesticides, herbicides, fertilizers, and light/noise pollution degrade habitat quality for both opportunistic species and adjacent native communities.
10. Geological & Biological Events	Extreme weather events can amplify disturbance in already altered habitats, shifting species composition further toward generalist and invasive species.

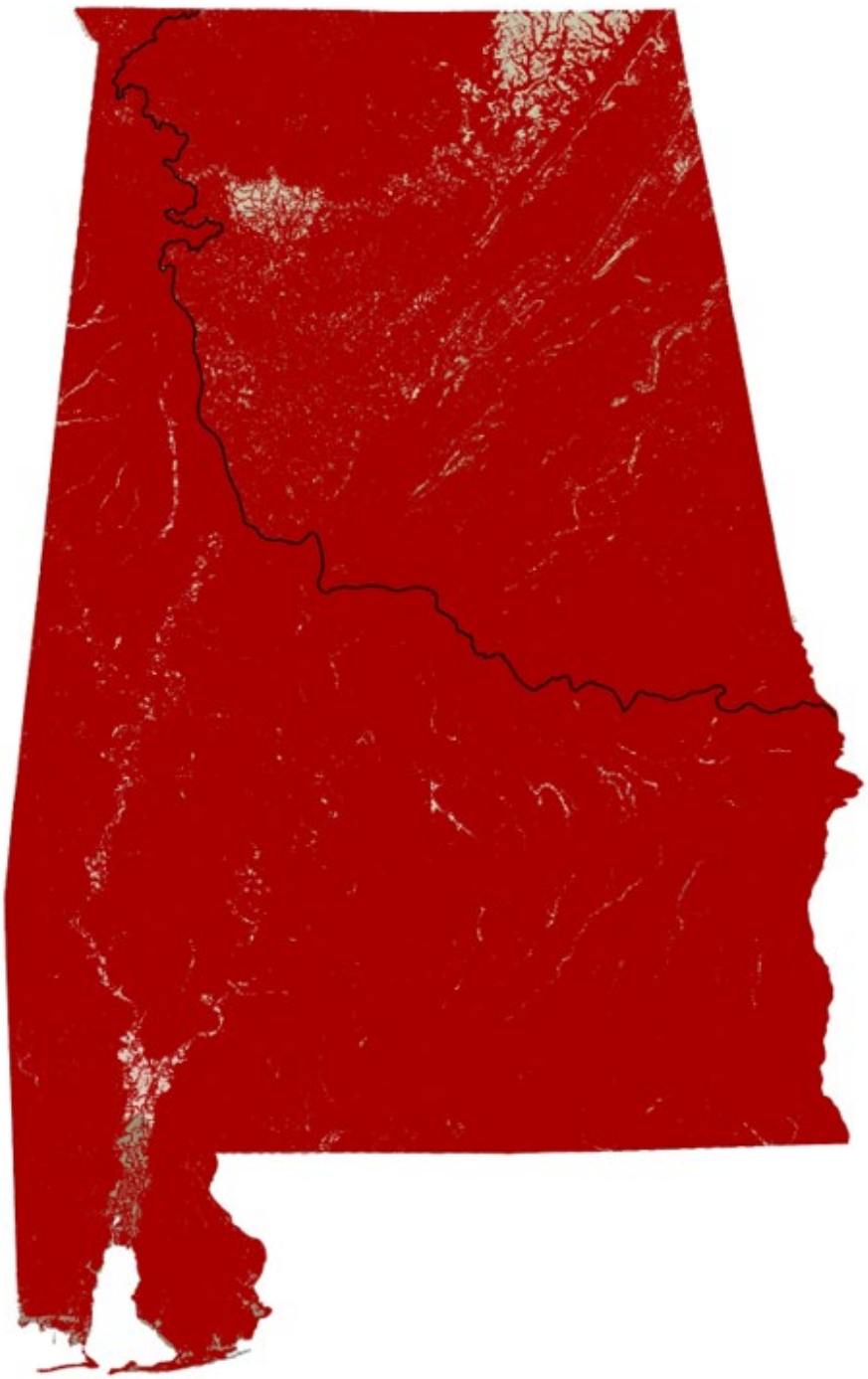

Figure 2.10 Anthropogenic Habitat Distribution Map.

Table 2.21 Anthropogenic SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Birds - 20		
Centronyx henslowii	Henslow's Sparrow	P1
Falco sparverius paulus	Southeastern American Kestrel	P1
Laterallus jamaicensis jamaicensis	Eastern Black Rail	P1
Chordeiles minor	Common Nighthawk	P2
Colinus virginianus	Northern Bobwhite	P2
Euphagus carolinus	Rusty Blackbird	P2
Lanius ludovicianus	Loggerhead Shrike	P2
Sternula antillarum	Least Tern	P2
Antrostomus carolinensis	Chuck-will's-widow	P3
Chaetura pelagica	Chimney Swift	P3
Colaptes auratus	Northern Flicker	P3
Columbina passerina	Common Ground Dove	P3
Elanoides forficatus	Swallow-tailed Kite	P3
Passerina ciris	Painted Bunting	P3
Progne subis	Purple Martin	P3
Scolopax minor	American Woodcock	P3
Spiza americana	Dickcissel	P3
Sturnella magna	Eastern Meadowlark	P3
Tyto furcata	American Barn Owl	P3
Vermivora cyanoptera	Blue-winged Warbler	P3
Mammals - 12		
Myotis lucifugus	Little Brown Myotis	P1
Myotis septentrionalis	Northern Myotis	P1
Perimyotis subflavus	Tri-colored Bat	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Geomys pinetis	Southeastern Pocket Gopher	P2
Lasiurus cinereus	Hoary Bat	P2
Lasiurus intermedius	Northern Yellow Bat	P2
Myotis austroriparius	Southeastern Myotis	P2
Myotis leibii	Eastern Small-footed Myotis	P2
Neotoma magister	Allegheny Woodrat	P2
Spilogale putorius	Eastern Spotted Skunk	P2
Mustela frenata	Long-tailed Weasel	P3
Reptiles - 2		
Lampropeltis getula	Common Kingsnake	P2
Lampropeltis elapsoides	Scarlet Kingsnake	P3

Table 2.21 Anthropogenic SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Crayfish - 25		
Cambarus pyronotus	Fireback Crayfish	P1
Creaserinus danielae	Speckled Burrowing Crayfish	P1
Lacunicambarus freudensteini	Banded Mudbug	P1
Lacunicambarus mobilensis	Lonesome Gravedigger	P1
Procambarus escambiensis	Escambia Crayfish	P1
Cambarellus diminutus	Least Crayfish	P2
Hobbseus prominens	Prominence Riverlet Crayfish	P2
Procambarus capillatus	Capillaceous Crayfish	P2
Procambarus evermanni	Panhandle Crayfish	P2
Procambarus lecontei	Mobile Crayfish	P2
Procambarus planirostris	Flatnose Crayfish	P2
Procambarus viaevirdis	Vernal Crayfish	P2
Cambarellus shufeldtii	Cajun Dwarf Crayfish	P3
Creaserinus burrisi	Burrowing Bog Crayfish	P3
Creaserinus byersi	Lavender Burrowing Crayfish	P3
Lacunicambarus miltus	Rusty Grave Digger	P3
Procambarus hubbelli	Jackknife Crayfish	P3
Procambarus hybus	Smoothnose Crayfish	P3
Procambarus lewisi	Spur Crayfish	P3
Procambarus marthae	Crisscross Crayfish	P3
Procambarus okaloosae	Okaloosa Crayfish	P3
Procambarus paeninsulanus	Peninsula Crayfish	P3
Procambarus shermani	Gulf Crayfish	P3
Procambarus verrucosus	Grainy Crayfish	P3
Procambarus zonangulus	Southern White River Crayfish	P3
Vascular Plants - 12		
Carex oklahomensis	Oklahoma Sedge	P1
Cirsium nuttallii	Nuttall's Thistle	P1
Lycopodium clavatum	Running Pine	P1
Oenothera curtissii	Curtiss' Evening Primrose	P1
Rudbeckia nitida	Shiny Coneflower	P1
Sceptridium jenmanii	Alabama Grapefern	P1
Equisetum arvense	Field Horsetail	P2
Eurybia spectabilis	Showy Aster	P2
Rudbeckia auriculata	Eared Coneflower	P2
Crataegus sororia	Sister Hawthorn	P3
Geum vernum	Spring Avens	P3
Lilaeopsis carolinensis	Carolina Lilaeopsis	P3

INTERTIDAL MARSHES, FLATS, AND SUBMERGED VEGETATION

Description and Condition

Intertidal marshes and flats occur along Alabama's Gulf Coast and estuarine systems, including Mobile Bay, the Mississippi Sound, and coastal river deltas (Figure 2.11). These habitats are shaped by tidal cycles and salinity gradients, supporting extensive stands of smooth cordgrass (*Spartina alterniflora*), black needlerush (*Juncus roemerianus*), and other halophytic vegetation in marsh zones, while unvegetated tidal flats provide foraging areas for migratory shorebirds, wading birds, and fish. Intertidal marshes act as nurseries for shrimp, blue crab, and estuarine fishes, while also providing critical ecosystem services such as shoreline stabilization, water filtration, and storm surge buffering. This habitat is restricted to Alabama's coastal counties of Baldwin and Mobile.

The condition of Alabama's intertidal marshes and flats is variable but declining in many areas. Large, relatively intact tracts persist within the Mobile–Tensaw Delta and Grand Bay Savanna, but significant acreage has been lost or degraded by coastal development, dredging and channelization, altered freshwater inflows, invasive species (e.g., common reed *Phragmites australis*), and pollution from urban and agricultural runoff. Extreme weather events, sea-level rise, and more intense hurricanes exacerbate erosion and saltwater intrusion, further stressing these dynamic systems. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.22). While restoration projects such as living shorelines, marsh creation, and hydrologic reconnection have improved conditions locally, Alabama's intertidal marshes and flats are generally considered in fair condition, with long-term resilience depending on proactive management, land protection, and weather adaptation strategies.

This habitat supports a total of 56 SGCN: 30 birds, 3 mammals, 5 reptiles, and 18 plants (Table 2.23).

Table 2.22 Intertidal Marshes, Flats, and Submerged Vegetation Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Coastal housing, industrial facilities, ports, and marinas fill or fragment marshes and flats, reducing habitat extent and connectivity.
2. Agriculture & Aquaculture	Conversion of adjacent uplands for agriculture increases runoff and sedimentation, degrading marsh vegetation and estuarine water quality.
3. Energy Production & Mining	Oil and gas infrastructure, dredging, and pipeline installation disturb marsh soils, increase erosion, and risk contamination from spills.
4. Transportation & Service Corridors	Causeways, bridges, and shipping channels fragment tidal systems and alter hydrology, increasing erosion and invasive spread.
5. Biological Resource Use	Overharvest of fisheries (blue crab, shrimp) and bycatch pressure alter food webs and reduce ecosystem resilience.
6. Human Intrusions & Disturbance	Recreational boating, shoreline trampling, and disturbance of tidal flats reduce habitat quality for migratory birds and shellfish.
7. Natural System Modifications	Channelization, levees, and dredging disrupt natural tidal exchange and sediment supply, leading to erosion and marsh loss.
8. Invasive & Other Problematic Species, Genes, & Diseases	Common reed (*Phragmites australis*) and other invasives displace native marsh vegetation, altering hydrology and habitat structure.
9. Pollution	Nutrient and chemical runoff from agriculture and urban sources, along with oil spills and marine debris, degrade water quality and marsh integrity.
10. Geological & Biological Events	Sea-level rise, saltwater intrusion, subsidence, and stronger hurricanes accelerate erosion, submerge tidal flats, and stress marsh vegetation.

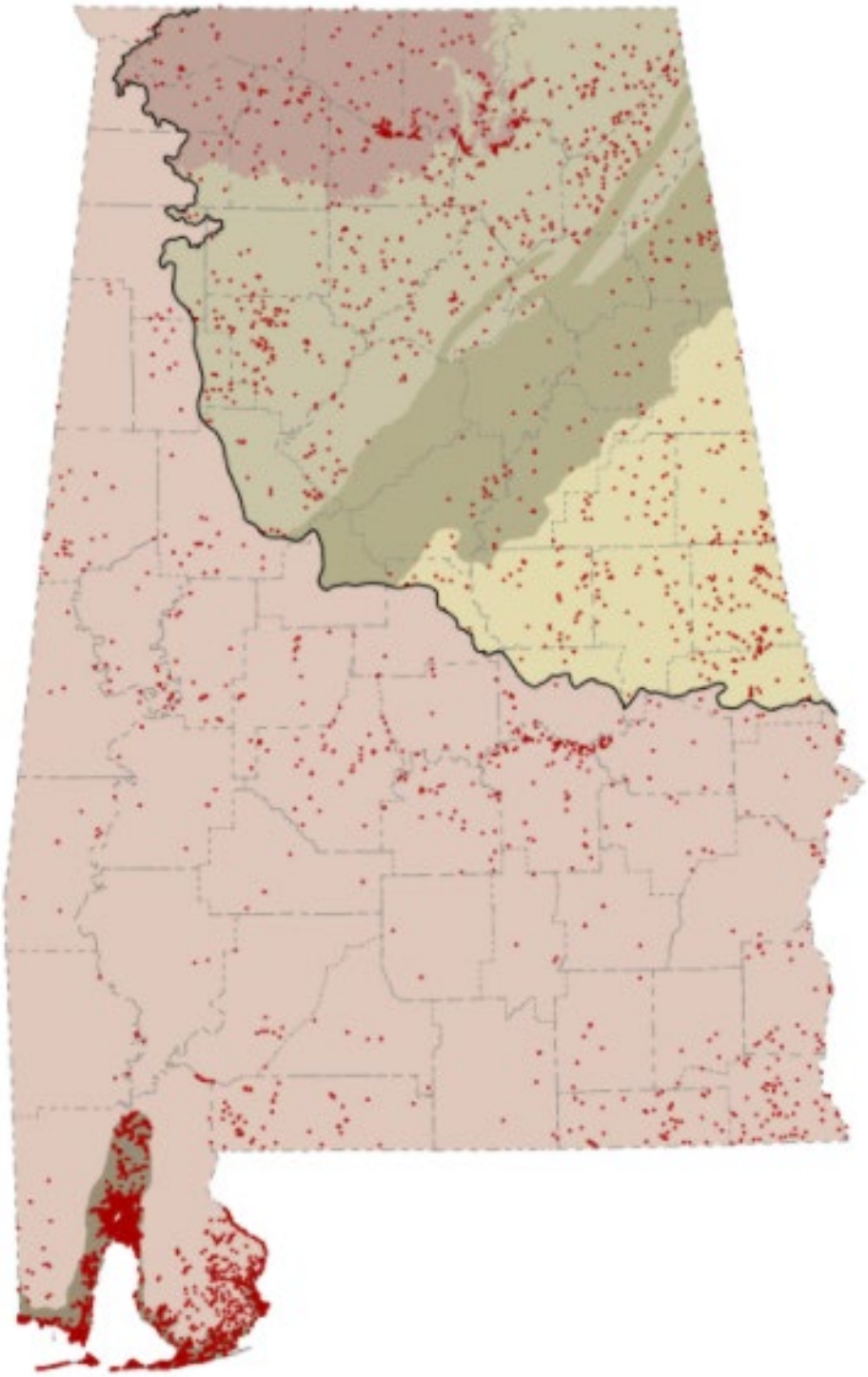

Figure 2.11 Intertidal Marshes and Flats Habitat Distribution Map.

Table 2.23 Intertidal Marshes, Flat, and Submerged Vegetation SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Birds - 30		
Anarhynchus nivosus	Snowy Plover	P1
Anarhynchus wilsonia	Wilson's Plover	P1
Calidris canutus rufa	Red Knot	P1
Charadrius melodus	Piping Plover	P1
Egretta rufescens	Reddish Egret	P1
Haematopus palliatus	American Oystercatcher	P1
Laterallus jamaicensis jamaicensis	Eastern Black Rail	P1
Rynchops niger	Black Skimmer	P1
Ammospiza maritima fisheri	Louisiana Seaside Sparrow	P2
Ammospiza maritima	Seaside Sparrow	P2
Ammospiza nelsoni	Nelson's Sparrow	P2
Anas fulvigula	Mottled Duck	P2
Botaurus exilis	Least Bittern	P2
Chordeiles minor	Common Nighthawk	P2
Coturnicops noveboracensis	Yellow Rail	P2
Gelochelidon nilotica	Gull-billed Tern	P2
Rallus elegans	King Rail	P2
Sterna hirundo	Common Tern	P2
Sternula antillarum	Least Tern	P2
Tringa semipalmata semipalmata	Eastern Willet	P2
Botaurus lentiginosus	American Bittern	P3
Butorides virescens	Green Heron	P3
Cistothorus palustris marianae	Marian's Marsh Wren	P3
Elanoides forficatus	Swallow-tailed Kite	P3
Egretta caerulea	Little Blue Heron	P3
Egretta tricolor	Tricolored Heron	P3
Hydroprogne caspia	Caspian Tern	P3
Nycticorax nycticorax	Black-crowned Night Heron	P3
Porphyrio martinicus	Purple Gallinule	P3
Rallus crepitans	Clapper Rail	P3
Mammals - 3		
Trichechus manatus	West Indian Manatee	P1
Lasiurus intermedius	Northern Yellow Bat	P2
Sylvilagus palustris	Marsh Rabbit	P2
Reptiles - 5		
Lepidochelys kempii	Kemp's Ridley Sea Turtle	P1
Malaclemys terrapin pileata	Mississippi Diamond-backed Terrapin	P1

Table 2.23 Intertidal Marshes, Flat, and Submerged Vegetation SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Pseudemys alabamensis	Alabama Red-bellied Cooter	P1
Nerodia clarkii clarkii	Gulf Saltmarsh Watersnake	P2
Nerodia floridana	Florida Green Watersnake	P2
Vascular Plants - 18		
Sabulina paludicola	Godfrey's Sandwort	EX
Ampelaster carolinianus	Carolina Aster	P1
Bolboschoenus fluviatilis	River Bulrush	P1
Cladium mariscoides	Twig Rush	P1
Lycium carolinianum	Christmas Berry	P1
Physostegia leptophylla	Tidal Marsh Obedient Plant	P1
**Ranunculus longirostris*	Eastern White Water Crowfoot	P1
Stillingia aquatica	Water Toothleaf	P1
Eleocharis rostellata	Beaked Spikerush	P2
Hibiscus coccineus	Brilliant Hibiscus	P2
Ludwigia arcuata[1]	Pond Seedbox	P2
Nuphar ulvacea[2]	Sea Lettuce Pondlily	P2
Nymphaea Mexicana[3]	Banana Water Lily	P2
Schoenoplectus deltarum	Delta Bulrush	P2
Schoenoplectus subterminalis[4]	Water Bulrush	P2
Thalia dealbata	Powdery Thalia	P2
Kosteletzkya pentacarpos	Southern Seashore Mallow	P3
Lilaeopsis carolinensis	Carolina Lilaeopsis	P3

[1] Submerged in streams and spring ponds
[2] Marshes and submerged in water of natural Coastal Plain Ponds
[3] Emergent in slow moving Blackwater streams
[4] Emergent along margins of Blackwater creeks

BEACH AND DUNE

Description and Condition

Maritime beach and dune habitats occur along Alabama's Gulf Coast, particularly on Dauphin Island, Fort Morgan Peninsula, and Gulf State Park (Figure 2.12). These dynamic systems are shaped by wind, waves, and storms, creating sandy beaches, foredunes stabilized by sea oats (*Uniola paniculata*), and interior dune ridges supporting diverse grasses, forbs, and shrubs. Beaches and dunes provide essential nesting habitat for sea turtles, least terns, Wilson's plovers, and other shorebirds, while also supporting dune-dependent plants and invertebrates. In addition to their ecological value, they serve as natural buffers that protect inland areas from storm surge and erosion.

Representative high-quality sites include portions of Bon Secour NWR, Gulf State Park, Dauphin Island Bird Sanctuary, and Pelican Island (Baldwin and Mobile counties).

The condition of Alabama's beach and dune habitats is highly vulnerable. Remaining high-quality tracts are largely confined to protected areas such as Bon Secour National Wildlife Refuge, Dauphin Island Audubon Sanctuary, and portions of Gulf State Park. Across much of the coastline, however, habitat has been heavily impacted by development, shoreline armoring, beach nourishment, trampling, and recreational disturbance**.** Invasive plants such as beach vitex compete with native dune vegetation, while light pollution disrupts sea turtle nesting. Extreme weather events, sea-level rise, and increasingly intense hurricanes exacerbate erosion and habitat loss. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.23). Overall, Alabama's maritime beach and dune habitats are in fair to poor condition, with localized high-quality examples persisting under active protection and management. Continued conservation of undeveloped shoreline, invasive species control, and storm-resilience planning are critical to maintain their ecological integrity and wildlife value.

This habitat supports a total of 45 SGCN: 23 birds, 3 mammals, 7 reptiles, and 12 vascular plants (Table 2.24).

Table 2.23 Beach and Dune Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Coastal development, vacation housing, and resort infrastructure eliminate and fragment dune systems, reducing habitat for nesting shorebirds and sea turtles.
2. Agriculture & Aquaculture	Conversion of coastal lands for pasture or turf alters dune stabilization processes and reduces native dune vegetation.
4. Transportation & Service Corridors	Roads, boardwalks, and causeways fragment dune systems, alter sand movement, and facilitate invasive species spread.
5. Biological Resource Use	Sand mining and recreational shell collection destabilize dune systems and reduce ecological integrity.
6. Human Intrusions & Disturbance	Beach traffic, off-road vehicles, and heavy recreational use trample dune vegetation, disturb nesting birds and turtles, and increase erosion.
7. Natural System Modifications	Beach nourishment, shoreline armoring, and dredging disrupt natural sand movement and alter dune formation processes.
8. Invasive & Other Problematic Species, Genes, & Diseases	Invasive plants (e.g., beach vitex, cogongrass) outcompete native dune stabilizers like sea oats, while feral hogs disturb dune vegetation.
9. Pollution	Oil spills, marine debris, and light pollution from coastal development affect nesting sea turtles, shorebirds, and dune vegetation.
10. Geological & Biological Events	Sea-level rise, saltwater intrusion, and increasingly intense hurricanes and storm surge erode dunes and inundate beach habitats.

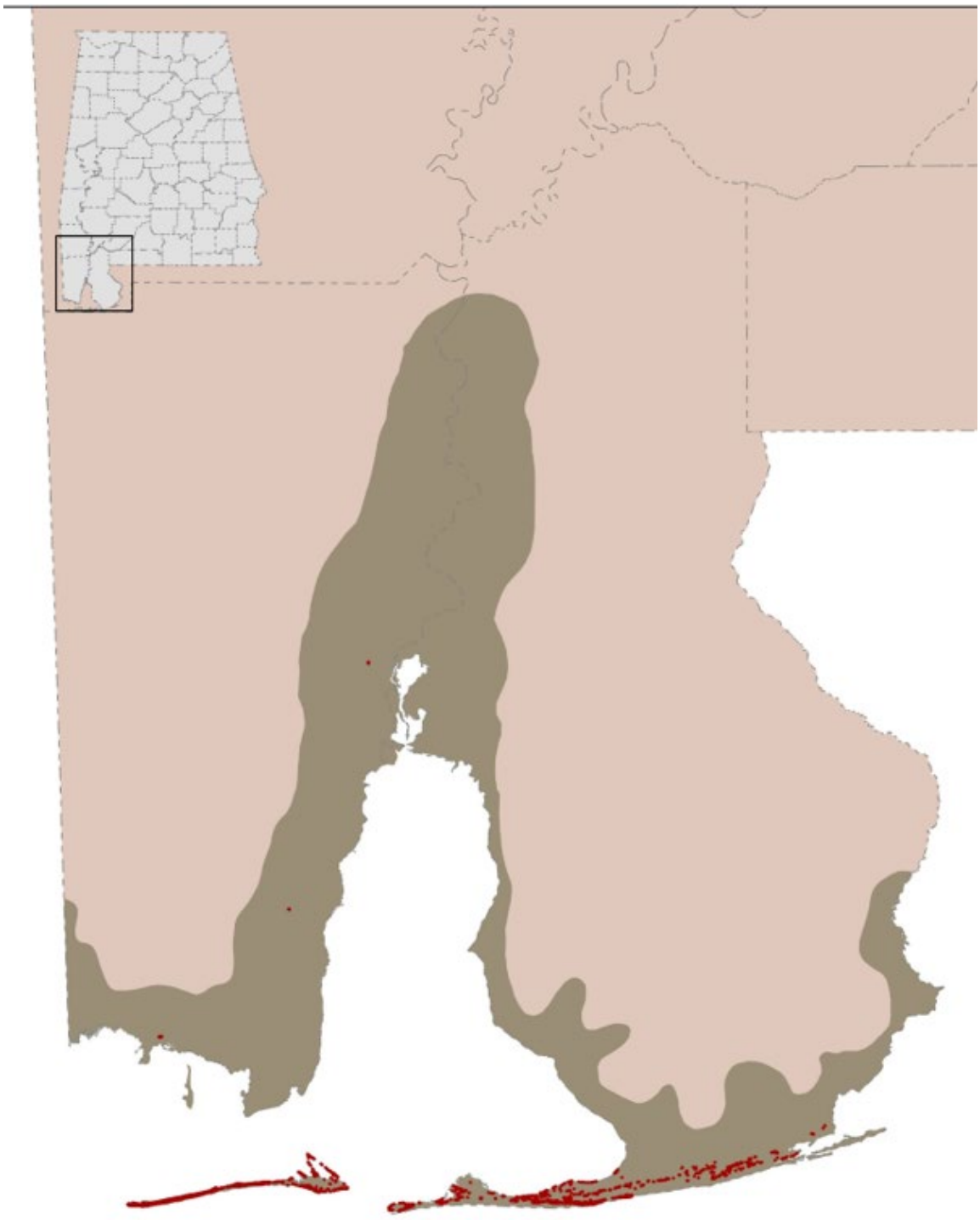

Figure 2.12 Beach and Dune Habitat Distribution Map.

Table 2.24 Beach and Dune SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Birds - 23		
Anarhynchus nivosus	Snowy Plover	P1
Anarhynchus wilsonia	Wilson's Plover	P1
Calidris canutus rufa	Red Knot	P1
Charadrius melodus	Piping Plover	P1
Charadrius nivosus nivosus	Southeastern Snowy Plover	P1
Egretta rufescens	Reddish Egret	P1
Falco sparverius paulus	Southeastern American Kestrel	P1
Haematopus palliatus	American Oystercatcher	P1
Laterallus jamaicensis jamaicensis	Eastern Black Rail	P1
Rynchops niger	Black Skimmer	P1
Ammospiza maritima fisheri	Louisiana Seaside Sparrow	P2
Ammospiza maritima	Seaside Sparrow	P2
Ammospiza nelsoni	Nelson's Sparrow	P2
Chordeiles minor	Common Nighthawk	P2
Gelochelidon nilotica	Gull-billed Tern	P2
Sterna hirundo	Common Tern	P2
Sternula antillarum	Least Tern	P2
Chaetura pelagica	Chimney Swift	P2
Columbina passerina	Common Ground Dove	P2
Egretta caerulea	Little Blue Heron	P2
Egretta tricolor	Tricolored Heron	P2
Hydroprogne caspia	Caspian Tern	P2
Thalasseus sandvicensis	Sandwich Tern	P3
Mammals - 3		
Peromyscus polionotus ammobates	Alabama Beach Mouse	P1
Peromyscus polionotus trissyllepsis	Perdido Key Beach Mouse	P1
Sylvilagus palustris	Marsh Rabbit	P2
Reptiles - 7		
Caretta caretta	Loggerhead Sea Turtle	P1
Chelonia mydas	Green Sea Turtle	P1
Dermochelys coriacea	Leatherback Sea Turtle	P1
Lepidochelys kempii	Kemp's Ridley Sea Turtle	P1
Malaclemys terrapin pileata	Mississippi Diamondback Terrapin	P1
Crotalus adamanteus	Eastern Diamondback Rattlesnake	P2
Gopherus polyphemus	Gopher Tortoise	P2
Vascular Plants - 12		
Polygonum glaucum	Seabeach Knotweed	EX

Table 2.24 Beach and Dune SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Bulbostylis warei	Ware's Hairsedge	P1
Chrysopsis godfreyi	Godfrey's Golden Aster	P1
Lycium carolinianum	Christmas Berry	P1
Polygala balduinii	White Milkwort	P1
Polygonella macrophylla	Large Leaf Jointweed	P1
Quercus minima	Dwarf Live Oak	P1
Solanum pseudogracile	Dune Nightshade	P1
Crocanthemum arenicola	Coastal Sand Frostweed	P2
Oenothera heterophylla ssp. orientalis	Alabama Evening Primrose	P2
Schizachyrium maritimum	Gulf Bluestem	P2
Physalis angustifolia	Coastal Ground Cherry	P3

CLIFFS AND ROCKHOUSES

Description and Condition

Cliffs and rockhouses are scattered habitats across Alabama, most common in the Appalachian Plateau, Valley and Ridge, and Interior Plateau where resistant sandstone, limestone, and shale formations create sheer faces, overhangs, and ledges (Figure 2.13). These habitats provide specialized niches with unique microclimates—often cool, moist, and shaded—that support rare ferns, mosses, liverworts, and endemic plants such as the federally endangered *Pleurocoelus redivivus* (Kral's waterleaf). Rockhouses and sheltered cliffs also provide roosting sites for bats, nesting habitat for birds such as cliff swallows and peregrine falcons, and refuges for salamanders and invertebrates. Because of their isolation and specialized conditions, many Species of Greatest Conservation Need (SGCN) depend on these habitats.

Representative high-quality sites include Bankhead National Forest (Winston and Lawrence counties), Monte Sano State Park (Madison County), Little River Canyon National Preserve (Dekalb and Cherokee counties), and Walls of Jericho (Jackson County). No SGCN are restricted to this habitat, and relatively few use it, but it is of primary importance to those listed SGCN.

The condition of Alabama's cliffs and rockhouses is generally fair but locally degraded**.** High-quality examples persist in protected landscapes such as Bankhead National Forest, Little River Canyon National Preserve, and state natural areas, where natural hydrology and vegetation remain intact. However, many sites are threatened by quarrying, timber harvest on adjacent uplands, recreational disturbance, invasive plant encroachment (e.g., privet, Japanese honeysuckle), and altered hydrology from surrounding land use. Some cliff habitats are further stressed by extreme weather patterns, which may alter the cool, moist conditions critical to their flora and fauna. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.25). While relatively resilient to disturbance due to inaccessibility, many rockhouse and cliff systems remain vulnerable at their edges, and overall condition is best described as fair, with localized good-quality occurrences. Active protection, invasive species control, and careful management of adjacent uplands are essential to conserve these rare and specialized habitats.

This habitat supports a total of 37 SGCN: 1 amphibian, 1 bird, 9 mammals, 2 reptiles, and 24 vascular plants (Table 2.26).

Table 2.25 Cliffs and Rockhouses Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Coastal development, including resorts, housing, and infrastructure, eliminates or fragments dune systems and reduces nesting areas for sea turtles and shorebirds.
2. Agriculture & Aquaculture	Conversion of coastal areas to pasture, turf, or silviculture alters dune stabilization processes and replaces native vegetation.
4. Transportation & Service Corridors	Roads, causeways, and boardwalks fragment dune habitats, alter sand dynamics, and facilitate invasive species spread.
5. Biological Resource Use	Sand mining and shell collection destabilize beaches and dunes, reducing ecological integrity and impacting nesting habitat.
6. Human Intrusions & Disturbance	Off-road vehicle use, heavy recreation, and pedestrian traffic trample dune vegetation, increase erosion, and disturb nesting birds and turtles.
7. Natural System Modifications	Beach nourishment, dredging, and shoreline armoring alter natural sand movement, interfere with dune formation, and impact habitat quality.
8. Invasive & Other Problematic Species, Genes, & Diseases	Invasive plants such as beach vitex and cogongrass displace native dune stabilizers like sea oats, while feral hogs disturb soils and vegetation.
9. Pollution	Oil spills, plastics, marine debris, and light pollution disrupt wildlife, particularly nesting sea turtles and migratory shorebirds.
10. Geological & Biological Events	Sea-level rise, storm surge, and more intense hurricanes accelerate erosion and inundation of beach and dune systems.

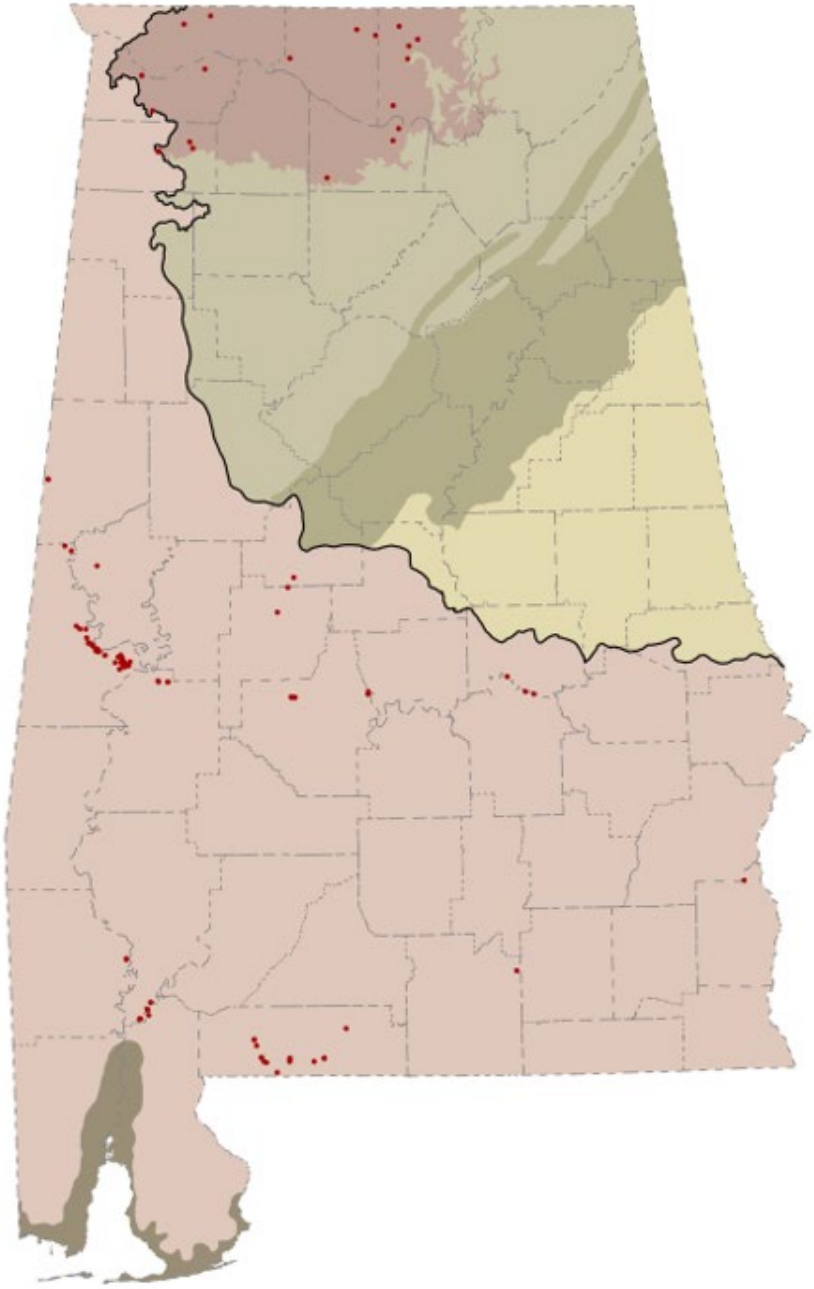

Figure 2.13 Cliffs and Rockhouses Habitat Distribution Map.

Table 2.26 Cliffs and Rockhouses SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Aneides aeneus	Green Salamander	P2
Birds - 1		
Aquila chrysaetos	Golden Eagle	P2
Mammals - 9		
Myotis septentrionalis	Northern Myotis	P1
Perimyotis subflavus	Tri-colored Bat	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Myotis leibii	Eastern Small-footed Myotis	P2
Neotoma magister	Allegheny Woodrat	P2
Sorex hoyi	American Pygmy Shrew	P2
Spilogale putorius	Eastern Spotted Skunk	P2
Blarina brevicauda	Northern Short-tailed Shrew	P3
Neogale frenata	Long-tailed Weasel	P3
Reptiles - 2		
Plestiodon anthracinus pluvialis	Southern Coal Skink	P2
Lampropeltis triangulum	Milksnake	P3
Vascular Plants - 24		
Asplenium abscissum	Cutleaf Spleenwort	P1
Asplenium monanthes	Single Sorus Spleenwort	P1
Asplenium scolopendrium var. americanum	American Hart's Tongue Fern	P1
Asplenium tutwilerae	Scott's Spleenwort	P1
Aureolaria patula	Spreading False Foxglove	P1
Clematis morefieldii	Morefield's Leather Flower	P1
Clematis versicolor	Pale Leather Flower	P1
Clinopodium glabellum	Ozark Savory	P1
Draba ramosissima	Rocktwist	P1
Hymenophyllum tayloriae	Taylor's Filmy Fern	P1
Leptogramma burksiorum	Alabama Streak Sorus Fern	P1
Micranthes careyana	Carey Saxifrage	P1
Primula frenchii	French's Shooting Star	P1
Rhus typhina	Staghorn Sumac	P1
Asplenium ruta-muraria	Wall Rue Spleenwort	P2
Carex eburnea	Ebony Sedge	P2
Didymoglossum petersii	Dwarf Bristle Fern	P2
Huperzia porophila	Rock Clubmoss	P2
Neviusia alabamensis	Alabama Snow Wreath	P2

Table 2.26 Cliffs and Rockhouses SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Sedum nevii	Nevius' Stonecrop	P2
Silene rotundifolia	Roundleaf Catchfly	P2
Thalictrum mirabile	Little Mountain Meadowrue	P2
Asplenium bradleyi	Bradley's Spleenwort	P3
Astragalus canadensis	Canadian Milkvetch	P3

MARITIME FOREST AND COASTAL SCRUB

Description and Condition

Maritime forests and scrub occur along Alabama's Gulf Coast, including barrier islands, back dunes, and coastal uplands, where salt spray, sandy soils, and periodic storms shape vegetation communities (Figure 2.14). Maritime forests are typically dominated by live oak (*Quercus virginiana*), southern magnolia (*Magnolia grandiflora*), pines (*Pinus* spp.), and evergreen shrubs, while scrub habitats feature dense thickets of yaupon holly (*Ilex vomitoria*), wax myrtle (*Morella cerifera*), and sand live oak (*Quercus geminata*). These systems provide critical habitat for migratory songbirds, nesting raptors, small mammals, reptiles, and numerous invertebrates, and serve as protective buffers that stabilize dunes and shield inland areas from storm impacts.

In Alabama, this habitat is primarily found south of the Intracoastal Waterway from Perdido Bay to Fort Morgan in Baldwin County, and along Mobile Bay and on Dauphin Island in Mobile County.

The condition of Alabama's maritime forests and scrub is mixed but generally declining. Intact remnants persist in places such as Dauphin Island, Bon Secour National Wildlife Refuge, and the Grand Bay Savanna, but most habitat has been fragmented or degraded by coastal development, invasive species, altered fire regimes, and storm damage**.** Sea-level rise and increasingly intense hurricanes further threaten these already limited ecosystems. Where management actions such as prescribed fire, invasive plant control, and land protection are in place, habitat conditions are in fair to good condition; however, across much of the coast, these habitats remain in fair to poor condition due to development pressures and limited connectivity. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.27). Long-term resilience will depend on proactive conservation planning, restoration, and integration of weather adaptation strategies.

This habitat supports a total of 35 SGCN: 1 amphibian, 13 birds, 8 mammals, 7 reptiles, and 6 vascular plants (Table 2.28).

Table 2.27 Maritime Forest and Coastal Scrub Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Coastal development for housing, tourism, and industry fragments and eliminates maritime forests and scrub, especially on barrier islands and along the Gulf shoreline.
2. Agriculture & Aquaculture	Clearing for pasture, turf, or pine plantations reduces native maritime vegetation and alters soil stability on fragile coastal landscapes.
4. Transportation & Service Corridors	Roads, causeways, and utility corridors fragment coastal scrub and forests, alter hydrology, and provide pathways for invasives.
5. Biological Resource Use	Timber harvest, sand mining, and collection of native plants destabilize ecosystems and reduce canopy structure critical for wildlife.
6. Human Intrusions & Disturbance	Recreational pressures from beach use, off-road vehicles, and hiking disturb wildlife, compact soils, and trample sensitive vegetation.
7. Natural System Modifications	Shoreline stabilization, dredging, and altered fire regimes disrupt natural disturbance processes that maintain maritime forest–scrub mosaics.
8. Invasive & Other Problematic Species, Genes, & Diseases	Chinese tallow, cogongrass, and feral hogs outcompete native vegetation, disturb soils, and alter community composition.
9. Pollution	Oil spills, stormwater runoff, and chemical contaminants degrade habitat quality and stress coastal flora and fauna.
10. Geological & Biological Events	Sea-level rise, saltwater intrusion, and increasingly intense hurricanes cause erosion, flooding, and canopy loss in maritime habitats.

Location

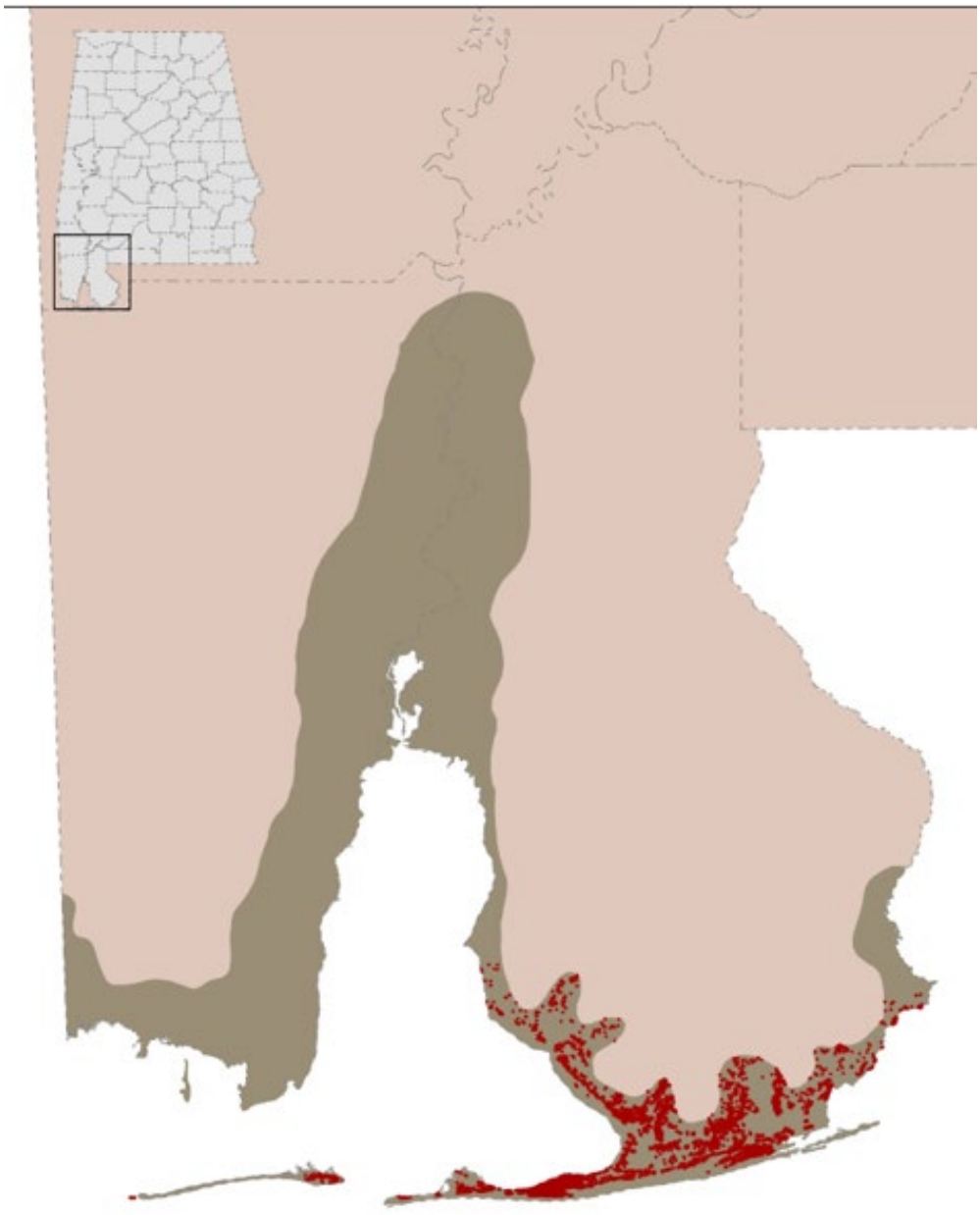

Figure 2.14 Maritime Forest and Coastal Scrub Habitat Distribution Map.

Table 2.28 Maritime Forest and Coastal Scrub SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Lithobates capito	Gopher Frog	P1
Birds - 13		
Egretta rufescens	Reddish Egret	P1
Falco sparverius paulus	Southeastern American Kestrel	P1
Laterallus jamaicensis jamaicensis	Eastern Black Rail	P1
Ammospiza maritima fisheri	Louisiana Seaside Sparrow	P2
Ammospiza maritima	Seaside Sparrow	P2
Ammospiza nelsoni	Nelson's Sparrow	P2
Chordeiles minor	Common Nighthawk	P2
Coturnicops noveboracensis	Yellow Rail	P2
Lanius ludovicianus	Loggerhead Shrike	P2
Butorides virescens	Green Heron	P2
Chaetura pelagica	Chimney Swift	P2
Colaptes auratus	Northern Flicker	P2
Elanoides forficatus	Swallow-tailed Kite	P3
Mammals - 8		
Peromyscus polionotus ammobates	Alabama Beach Mouse	P1
Peromyscus polionotus trissyllepsis	Perdido Key Beach Mouse	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Lasiurus intermedius	Northern Yellow Bat	P2
Myotis austroriparius	Southeastern Myotis	P2
Spilogale putorius	Eastern Spotted Skunk	P2
Neogale frenata	Long-tailed Weasel	P3
Sylvilagus palustris	Marsh Rabbit	P3
Reptiles - 7		
Drymarchon couperi	Eastern Indigo Snake	P1
Malaclemys terrapin pileata	Mississippi Diamondback Terrapin	P1
Ophisaurus mimicus	Mimic Glass Lizard	P1
Crotalus adamanteus	Eastern Diamondback Rattlesnake	P2
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Gopherus polyphemus	Gopher Tortoise	P2
Plestiodon inexpectatus	Southeastern Five-lined Skink	P2
Vascular Plants - 6		
Chrysopsis godfreyi	Godfrey's Golden Aster	P1
Solanum pseudogracile	Dune Nightshade	P1
Carex dasycarpa	Velvet Sedge	P2

Table 2.28 Maritime Forest and Coastal Scrub SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Sageretia minutiflora	Small Flower Buckthorn	P2
Eupatorium anomalum	Florida Thoroughwort	P3
Physalis angustifolia	Coastal Ground Cherry	P3

CAVES AND MINES

Description and Condition

Alabama contains one of the highest densities of caves in the United States, particularly across the limestone-rich regions of the Appalachian Plateau, Valley and Ridge, and Interior Low Plateau (Figure 2.15). These subterranean habitats include both natural caves and abandoned mines, which provide critical roosting, hibernation, and nursery sites for bats such as the federally endangered gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), and northern long-eared bat (*Myotis septentrionalis*). In addition to bats, caves and springs support a remarkable variety of obligate cave fauna, including blind cavefish, cave crayfishes, salamanders, and aquatic invertebrates adapted to stable, dark, and nutrient-limited environments. Abandoned mines, while artificial, can serve as important surrogate roosting and hibernation habitat where natural caves are limited.

Representative high-quality cave sites include Sauta Cave NWR (Jackson County), Key Cave NWR (Lauderdale County), and Newsome Sinks (Morgan County).

The condition of Alabama's caves and mines varies widely. Many high-priority bat caves are gated or otherwise protected through federal, state, and conservation partnerships, maintaining suitable conditions for hibernation and reproduction. However, numerous sites remain vulnerable to human disturbance, vandalism, quarrying, groundwater contamination, invasive pathogens such as white-nose syndrome, and hydrologic alterations that disrupt subterranean ecosystems. While some cave systems remain in good condition**,** large portions are in fair to poor condition due to direct human impacts and broader watershed degradation. The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.29). Sustained protection of cave entrances and recharge areas, management of abandoned mines, invasive disease monitoring, and water quality safeguards are essential.

This habitat supports a total of 22 SGCN: 1 amphibian, 9 crayfish, 11 mammals, and 1 vascular plant (Table 2.30).

Table 2.29 Cave and Mine Habitat Threats Categorized by The International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN-CMP THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Quarrying, groundwater extraction, and construction projects near cave recharge zones alter hydrology and degrade subterranean habitats.
3. Energy Production & Mining	Limestone quarrying, coal mining, and historic mine closures disturb cave systems, collapse entrances, and destroy critical bat roosts and aquatic cave fauna habitat.
4. Transportation & Service Corridors	Road construction and blasting near karst systems destabilize cave structures and disrupt hydrologic inputs.
6. Human Intrusions & Disturbance	Unregulated recreation, vandalism, and cave exploration disturb hibernating bats (e.g., gray bats, Indiana bats), compact sediments, and damage fragile cave formations.
7. Natural System Modifications	Altered groundwater flow, damming, and surface water diversion disrupt hydrology critical to cave and aquifer-dependent species.
8. Invasive & Other Problematic Species, Genes, & Diseases	White-nose syndrome (fungal pathogen *Pseudogymnoascus destructans*) devastates bat populations; invasive crayfish or fish introductions threaten native cave-adapted fauna.
9. Pollution	Contaminants from agriculture, septic leakage, and industrial runoff infiltrate groundwater, degrading water quality and threatening obligate cave species (stygobionts, troglobionts).
10. Geological & Biological Events	Shifts in temperature and humidity threaten the delicate microclimates of caves; flooding from severe weather can inundate roosts and aquatic cave systems.

Figure 2.15 Caves and Mines habitat map.

Table 2.30 Caves and Mines SGCN Rank.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Gyrinophilus palleucus	Tennessee Cave Salamander	P2
Mammals - 11		
Myotis grisescens	Gray Myotis	P1

Myotis lucifugus	Little Brown Myotis	P1
Myotis septentrionalis	Northern Myotis	P1
Myotis sodalis	Indiana Myotis	P1
Perimyotis subflavus	Tri-colored Bat	P1
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	P2
Myotis austroriparius	Southeastern Myotis	P2
Myotis leibii	Eastern Small-footed Myotis	P2
Neotoma magister	Allegheny Woodrat	P2
Mustela frenata	Long-tailed Weasel	P3
Ursus americanus	American Black Bear	P3

Crayfish - 9		
Cambarus jonesi	Alabama Cave Crayfish	P1
Cambarus laconensis	Lacon Exit Cave Crayfish	P1
Cambarus pecki	Phantom Cave Crayfish	P1
Cambarus veitchorum	White Spring Cave Crayfish	P1
Orconectes sheltae	Shelta Cave Crayfish	P1
Cambarus speleocoopi	Sweet Home Alabama Cave Crayfish	P2
Cambarus tenebrosus	Cavespring Crayfish	P3
Cambarus hamulatus	Prickly Cave Crayfish	P3
Orconectes australis	Southern Cave Crayfish	P3

Vascular Plants - 1		
Asplenium scolopendrium var. americanum	American Hart's Tongue Fern	P1

KEY AQUATIC HABITATS

The following section provides overviews of Alabama's key aquatic habitats (Table 2.31; **Element 2**). For each habitat type, information regarding the habitat condition, locality descriptions, threats (see also Chapter 3), and species in greatest conservation need (SGCN) are included (Tables 2.31 – 2.61; **Element 1**). Habitats are presented in order from supporting the highest number of SGCN to the lowest and include:

Table 2.31 Key Aquatic Habitat of Alabama and Associated Number of Species in Greatest Conservation Need (SGCN).

AQUATIC HABITAT BASIN	**SGCN**
Tennessee River basin	196
Coosa River basin	73
Cahaba River basin	66
Tombigbee River basin	63
Alabama River basin	61
Mobile River basin	59
Black Warrior River basin	59
Chattahoochee River basin	52
Conecuh River basin	39
Choctawhatchee River basin	36
Tallapoosa River basin	28
Escatawpa River basin	27
Yellow River basin	23
Perdido River basin	18
Blackwater River basin	6

Habitat maps were developed by the State Lands Division, Natural Heritage Section. Each basin Figure includes major highways, waterways, Strategic Habitat Units (SHRUs identified by the Alabama Rivers and Streams Network (ARSN)), urban areas, Alabama counties, and state and/or federal conservation owned lands.

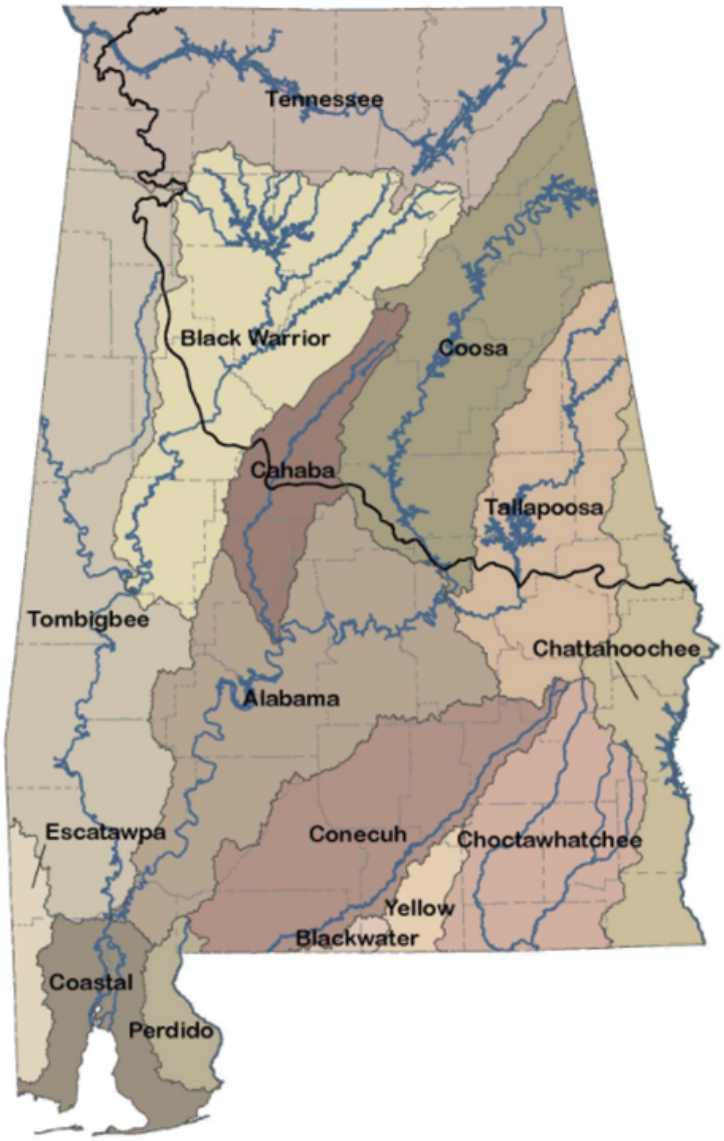

Figure 2.16 Alabama's major river basins.

TENNESSEE RIVER BASIN

Description and Condition

The Tennessee River basin (Figure 2.17) drains the northern portion of Alabama, covering more than 6,000 square miles across the Appalachian Plateau, Ridge and Valley, and Interior Low Plateau. Once recognized as the most biologically diverse river system in North America, the Tennessee historically supported more than 100 mussel species, 180 fishes, and numerous crayfishes, many of which are endemic. The basin's habitats include large river channels, shoals, backwater embayments, floodplain wetlands, upland tributary streams, and extensive riparian forests.

The condition of the Tennessee River basin in Alabama is heavily impacted but with pockets of quality habitat**.** All of the mainstem is dammed with four major impoundments: Wilson (25,930 acres), Wheeler (68,300 acres), Guntersville (69,100 acres), and Pickwick (41,515 acres. Four dams are in the Bear Creek sub-basin: Bear (670 acres), Little Bear (1,560 acres), Upper Bear (1,850 acres), and Cedar Creek (4,200 acres). The National Inventory of Dams (USACOE 2014) recognizes 85 dams throughout the basin in Alabama. An undetermined number of low water crossings and culverts also impede or prevent migration, resulting in fragmented populations, restricted gene flow, and extirpations.

Tributary streams in forested headwaters remain in fair to good condition, supporting relatively intact aquatic assemblages, but are increasingly stressed by urbanization (Huntsville, Decatur, Florence, Madison). Agriculture and industrial activities contribute sediment, nutrients, and chemical contaminants. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.32). While much of the mainstem is in poor condition, tributary and headwater systems retain significant ecological value and represent focal areas for conservation. Continued restoration of riparian buffers, improved dam operations, invasive species control, and water quality management are needed to maintain the basin's ecological integrity.

This habitat supports a total of 196 SGCN: 2 amphibians, 3 reptiles, 26 crayfishes, 51 fishes, 70 mussels, 43 snails (Table 2.33).

Habitat Threats

Table 2.32 Tennessee River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Urban expansion in Huntsville, Florence, Decatur, and other cities increases stormwater runoff, wastewater discharges, and floodplain encroachment.
2. Agriculture & Aquaculture	Poultry operations, pastureland, row crops, and silviculture contribute sedimentation, nutrient enrichment, and pesticide runoff into tributaries and embayments.
3. Energy Production & Mining	Widespread hydropower dams (e.g., Wheeler, Wilson, Guntersville, Pickwick) fragment habitats, alter flow and temperature regimes, and inundate shoal habitats critical to many aquatic SGCN. Coal mining and quarrying further impact water quality.
4. Transportation & Service Corridors	Major highways, bridges, pipelines, and barge navigation infrastructure fragment riparian habitats, increase sedimentation, and facilitate invasive species spread.
5. Biological Resource Use	Historical overharvest of mussels and changes in host fish communities have reduced reproductive success for imperiled mussels and fishes.
6. Human Intrusions & Disturbance	Recreational boating, shoreline development, and dredging disturb aquatic species, accelerate erosion, and degrade shallow-water and shoal habitats.
7. Natural System Modifications	Channelization, impoundments, and navigation locks disrupt sediment transport, fragment fish populations, and reduce aquatic species richness.
8. Invasive & Problematic Species, Genes and Diseases, Genes and Diseases	Invasives such as Asian carp, zebra mussels, Hydrilla, and privet alter food webs, outcompete native species, and threaten endemic mussel and fish populations.
9. Pollution	Industrial discharges, municipal wastewater, and nonpoint-source runoff contribute heavy metals, PCBs, nutrients, pathogens, and sedimentation.

Table 2.32 Tennessee River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
	Several reaches are listed on Alabama's 303(d) impaired waters list.
10. Geological & Biological Events	More frequent droughts and intense storm events exacerbate flow variability, erosion, reservoir drawdowns, and stress aquatic systems already altered by dams.

Location

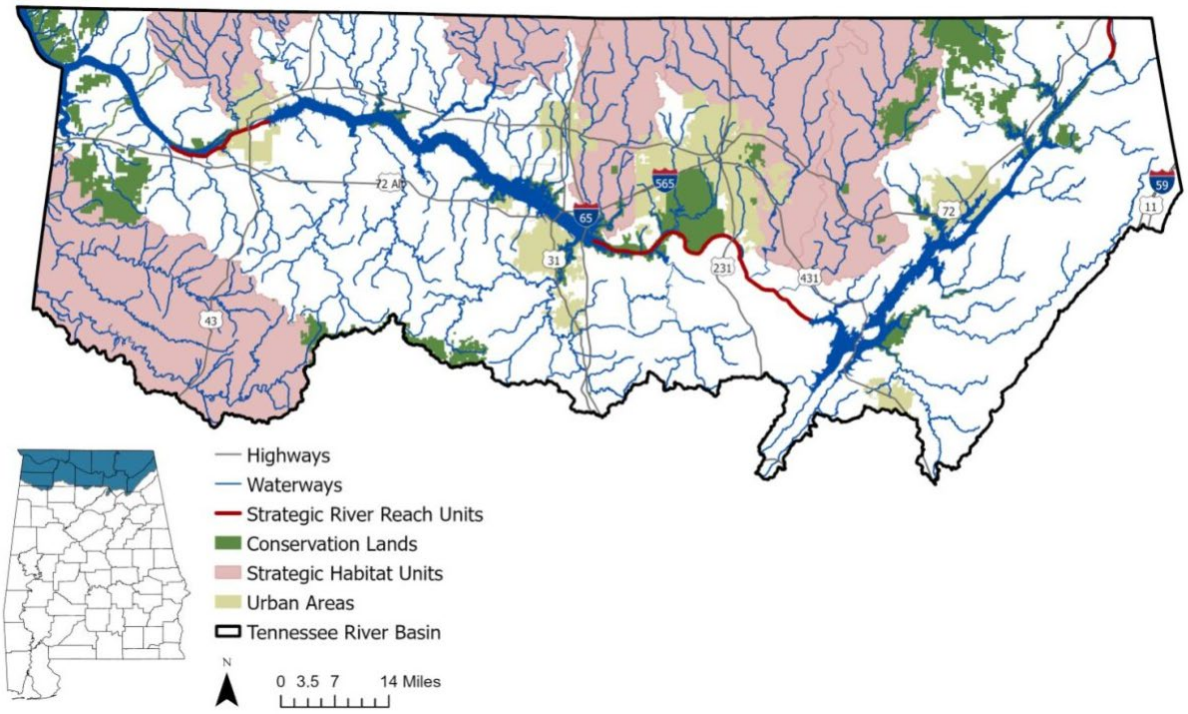

Figure 2.17 Tennessee River basin.

Table 2.33 Tennessee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibian - 2		
Cryptobranchus alleganiensis	Eastern Hellbender	P1

Table 2.33 Tennessee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Necturus maculosus	Mudpuppy	P2
Reptiles - 3		
Apalone mutica mutica	Midland Smooth Softshell	P3
Chrysemys dorsalis	Southern Painted Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfish - 26		
Barbicambarus simmonsi	Tennessee Bottlebrush Crayfish	P1
Cambarus cracens	Slenderclaw Crayfish	P1
Cambarus distans	Boxclaw Crayfish	P1
Cambarus diupalma	Mountain Fork Crayfish	P1
Cambarus jonesi	Alabama Cave Crayfish	P1
Cambarus laconensis	Lacon Exit Cave Crayfish	P1
Cambarus pecki	Phantom Cave Crayfish	P1
Cambarus veitchorum	White Spring Cave Crayfish	P1
Orconectes sheltae	Shelta Cave Crayfish	P1
Cambarus andersoni	Florence Crayfish	P2
Cambarus gentyi	Linear Cobalt Crayfish	P2
Cambarus lentiginosus	Speckled Crayfish	P2
Cambarus parvoculus	Mountain Midget Crayfish	P2
Cambarus rusticiformis	Depression Crayfish	P2
Cambarus speleocoopi	Sweet Home Alabama Cave Crayfish	P2
Faxonius cooperi	Flint River Crayfish	P2
Faxonius durelli	Saddle Crayfish	P2
Procambarus hayi	Straightedge Crayfish	P2
Procambarus viaevirdis	Vernal Crayfish	P2
Cambarus bartonii cavatus	Appalachian Brook Crayfish	P3
Cambarus hamulatus	Prickly Cave Crayfish	P3
Cambarus longirostris	Longnose Crayfish	P3
Cambarus tenebrosus	Cavespring Crayfish	P3
Cambarus unestami	Blackbarred Crayfish	P3
Faxonius placidus	Bigclaw Crayfish	P3
Orconectes australis	Southern Cave Crayfish	P3
Fishes - 51		
Fundulus albolineatus	Whiteline Topminnow	X
Moxostoma lacerum	Harelip Sucker	X
Allohistium cinereum	Ashy Darter	EX

Table 2.33 Tennessee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Hiodon alosides	Goldeye	EX
Lepisosteus platostomus	Shortnose Gar	EX
Notropis ariommus	Popeye Shiner	EX
Noturus crypticus	Chucky Madtom	EX
Scaphirhynchus platorynchus	Shovelnose Sturgeon	EX
Acipenser fulvesens	Lake Sturgeon	EXCAU
Erimonax monachus	Spotfin Chub	EXCAU
Elassoma alabamae	Spring Pygmy Sunfish	P1
Etheostoma boschungi	Slackwater Darter	P1
Etheostoma corona	Crown Darter	P1
Etheostoma neopterum	Lollypop Darter	P1
Etheostoma cyanoprosopum	Blueface Darter	P1
Macrhybopsis hyostoma	Shoal Chub	P1
Moxostoma carinatum	Palezone Shiner	P1
Nothonotus camurus	Bluebreast Darter	P1
Nothonotus wapiti	Boulder Darter	P1
Paranotropis buchanani	Ghost Shiner	P1
Percina burtoni	Blotchside Logperch	P1
Percina phoxocephala	Slenderhead Darter	P1
Phenacobius mirabilis	Suckermouth Minnow	P1
Speoplatyrhinus poulsoni	Alabama Cavefish	P1
Etheostoma tuscumbia	Tuscumbia Darter	P2
Etheostoma zonistium	Bandfin Darter	P2
Erimystax dissimilis	Streamline Chub	P2
Noturus eleutherus	Mountain Madtom	P2
Noturus sp. cf. flavus	Highlands Madtom	P2
Noturus miurus	Brindled Madtom	P2
Percina evides	Gilt Darter	P2
Percina tanasi	Snail Darter	P2
Phenacobius uranops	Stargazing Minnow	P2
Alosa chrysochloris	Skipjack Herring	P3
Cycleptus elongatus	Blue Sucker	P3
Cyprinella whipplei	Steelcolor Shiner	P3
Enneacanthus obesus	Banded Sunfish	P3
Erimystax insignis	Blotched Chub	P3
Etheostoma crossopterm	Fringed Darter	P3
Hybognathus hayi	Cypress Minnow	P3
Ichthyoyzon greeleyi	Mountain Brook Lamprey	P3
Ictiobus cyprinellus	Bigmouth Buffalo	P3

Table 2.33 Tennessee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Ictiobus niger	Black Buffalo	P3
Lethenteron appendix	American Brook Lamprey	P3
Lythrurus fumeus	Ribbon Shiner	P3
Moxostoma macrolepidotum	Shorthead Redhorse	P3
Notropis micropteryx	Highland Shiner	P3
Notropis photogenis	Silver Shiner	P3
Paranotropis sp. cf. spectrunculus	Sawfin Shiner	P3
Typhlichthys subterraneus	Southern Cavefish	P3
Typhlichthys sp. cf. subterraneus	“Tennessee Cavefish”	P3
Mussels - 70		
Epioblasma arcaeformis	Sugarspoon	X
Epioblasma biemarginata	Angled Riffleshell	X
Epioblasma cincinnatiensis	Ohio Riffleshell	X
Epioblasma flexuosa	Leafshell	X
Epioblasma florentina	Yellow Blossom	X
Epioblasma haysiana	Acornshell	X
Epioblasma lenior	Narrow Catspaw	X
Epioblasma lewisii	Forkshell	X
Epioblasma personata	Round Combshell	X
Epioblasma propinqua	Tennessee Riffleshell	X
Epioblasma stewardsonii	Cumberland Leafshell	X
Epioblasma torulosa	Tubercled Blossom	X
Epioblasma turgidula	Turgid Blossom	X
Pleurobema curtum	Black Clubshell	X
Pleurobema marshalli	Flat Pigtoe	X
Theliderma stapes	Stirrupshell	X
Alasmidonta marginata	Elktoe	EX
Dromus dromas	Dromedary Pearlymussel	EX
Epioblasma aureola	Golden Riffleshell	EX
Epioblasma obliquata	Catspaw	EX
Obovaria olivaria	Hickorynut	EX
Obovaria restusa	Ring Pink	EX
Ortmanniana pectorosa	Pheasantshell	EX
Pegias fabula	Littlewing Pearlymussel	EX
Plethobascus cooperianus	Orangefoot Pimpleback	EX
Pleurobema clava	Clubshell	EX
Potamilus leptodon	Scaleshell	EX
Ptychobranchus subtentus	Fluted Kidneyshell	EX

Table 2.33 Tennessee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Theliderma intermedia	Cumberland Monkeyface	EX
Theliderma sparsa	Appalachian Monkeyface	EX
Paetulunio fabalis	Rayed Bean	EX
Epioblasma capsaeformis	Oystermussel	EXCAU
Lemiox rimosus	Birdwing Pearlymussel	EXCAU
Venustaconcha trabalis	Cumberland Bean	EXCAU
Alasmidonta viridis	Slippershell Mussel	P1
Cumberlandia monodonta	Spectaclecase	P1
Cyprogenia stegaria	Fanshell	P1
Epioblasma brevidens	Cumberlandian Combshell	P1
Epioblasma triquetra	Snuffbox	P1
Eurynia dilatata	Spike	P1
Fusconaia cor	Shiny Pigtoe	P1
Fusconaia cuneolus	Finerayed Pigtoe	P1
Fusconaia subrotunda	Longsolid	P1
Hemistena lata	Cracking Pearlymussel	P1
Lampsilis virescens	Alabama Lampmussel	P1
Lasmigona holstonia	Tennessee Heelsplitter	P1
Ligumia recta	Black Sandshell	P1
Medionidus conradicus	Cumberland Moccasinshell	P1
Obovaria subrotunda	Round Hickorynut	P1
Ortmanniana abrupta	Pink Mucket	P1
Ortmanniana ligamentina	Mucket	P1
Plethobasus cicatricosus	White Wartyback	P1
Plethobasus cyphyus	Sheepnose	P1
Pleurobema cordatum	Ohio Pigtoe	P1
Pleurobema oviforme	Tennessee Clubshell	P1
Pleurobema plenum	Rough Rigtoe	P1
Pleurobema sintoxia	Round Pigtoe	P1
Pleuronaia barnesiana	Tennessee Pigtoe	P1
Pleuronaia dolabelloides	Slabside Pearlymussel	P1
Ptychobranchus fasciolaris	Kidneyshell	P1
Strophitus undulatus	Creeper	P1
Theliderma metanevra	Monkeyface	P1
Toxolasma cylindrellus	Pale Lilliput	P1
Cambarunio taeniatus	Painted Creekshell	P2
Theliderma cylindrica	Rabbitsfoot	P2
Arcidens confragosus	Rock Pocketbook	P3
Cambarunio iris	Rainbow	P3

Table 2.33 Tennessee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Elliptio crassidens	Elephantear	P3
Lampsilis fasciola	Wavyrayed Lampmussel	P3
Lasmigona costata	Flutedshell	P3
Snails - 43		
Leptoxis minor	Knob Mudalia	X
Marstonia olivacea	*Marstonia olivacea*	X
Pomatiopsis hinkleyi	Alabama Walker	X
Io fluvialis	Spiny Riversnail	EX
Lithasia curta	Knobby Rocksnail	EX
Probythinella emarginata	Delta Hydrobe	EX
Rhodacmea hinkleyi	Knobby Ancylid	EX
Valvata bicarinata	Two-ridge Valvata	EX
Athearnia anthonyi	Anthony's Riversnail	P1
Campeloma decampi	Slender Campeloma	P1
Elimia nassula	Round-ribbed Elimia	P1
Lithasia salebrosa	Muddy Rocksnail	P1
Marstonia pachyta	Armored Marstonia	P1
Pleurocera corpulenta	Corpulent Hornsnail	P1
Elimia acuta	Acute Elimia	P2
Elimia perstriata	Engraved Elimia	P2
Lithasia armigera	Armored Rocksnail	P2
Lithasia lima	Warty Rocksnail	P2
Marstonia angulobasis	*Marstonia angulobasis*	P2
Marstonia scalariformis	Moss Pyrg	P2
Amnicola limosus	Mud Amnicola	P3
Birgella subglobosa	Globe Siltsnail	P3
Dilatata brogniartiana	Disc Sprite	P3
Lioplax sulculosa	Furrowed Lioplax	P3
Lyogyrus granum	Squat Duskysnail	P3
Planorbula armigera	Thicklip Ramshorn	P3
Pleurocera attenuata	Attenuate Hornsnail	P3
Pleurocera brumbyi	Spiral Hornsnail	P3
Pleurocera postelli	Broken Hornsnail	P3
Pleurocera trochiformis	Sulcate Hornsnail	P3
Pleurocera walkeri	Telescope Hornsnail	P3
Rhodacmea elatior	Domed Ancylid	P3
Somatogyrus aureus	Golden Pebblesnail	P3
Somatogyrus biangulatus	Angular Pebblesnail	P3

Table 2.33 Tennessee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Somatogyrus currierianus	Tennessee Pebblesnail	P3
Somatogyrus excavatus	Ovate Pebblesnail	P3
Somatogyrus georgianus	Cherokee Pebblesnail	P3
Somatogyrus humerosus	Atlas Pebblesnail	P3
Somatogyrus quadratus	Quadrate Pebblesnail	P3
Somatogyrus sargenti	*Somatogyrus sargenti*	P3
Somatogyrus strengi	Rolling Pebblesnail	P3
Somatogyrus substriatus	Choctaw Pebblesnail	P3
Somatogyrus tennesseensis	Opaque Pebblesnail	P3

COOSA RIVER BASIN

Description and Condition

The Coosa River basin (Figure 2.18) drains much of northeastern Alabama, flowing from the Appalachian foothills through the Ridge and Valley and into the Coastal Plain before joining the Tallapoosa to form the Alabama River. Historically, the Coosa supported one of the most diverse assemblages of freshwater mussels, snails, and fishes in North America, with many species found nowhere else (Gangloff et al., 2006). Habitats range from upland streams and spring-fed tributaries to large river shoals, floodplain wetlands, and oxbow lakes.

The condition of the Coosa River basin is highly impacted, with localized areas of ecological integrity. Extensive damming for hydropower and navigation has fragmented the river, inundated shoals, altered natural flow regimes, and caused the loss or extirpation of many aquatic species. Six major dams are on the mainstem in Alabama: Weiss (30,200 acres), Neely Henry (11,235 acres), Logan Martin (15,260 acres), Lay (12,000 acres), Mitchell (5,850 acres), and Jordan (6,800 acres). The National Inventory of Dams (USACOE 2014) recognizes 840 dams throughout the basin in Alabama. An undetermined number of low water crossings and culverts also impede or prevent migration, resulting in fragmented populations, restricted gene flow, and extirpations. Urban development around Gadsden, Anniston, and the Birmingham metropolitan area contributes stormwater runoff, wastewater inputs, and riparian habitat loss (City of Anniston, nd). Agriculture, forestry, and mining further degrade water quality through sedimentation, nutrient enrichment, and chemical contamination. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.34). While tributary streams in forested areas still maintain fair condition with intact riparian buffers and high water quality, much of the mainstem Coosa is considered in poor condition**.** Conservation efforts focus on protecting remaining high quality tributaries, restoring shoal habitats, improving dam operations, and reducing nonpoint-source pollution to support SGCN.

This habitat supports a total of 73 SGCN: 1 amphibian, 4 reptiles, 4 crayfishes, 13 fishes, 18 mussels, and 33 snails (Table 2.35).

Habitat Threats

Table 2.34 Coosa River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Urban growth around Gadsden, Anniston, and the Birmingham metro increases impervious surfaces, stormwater runoff, and wastewater discharges, impacting water quality and riparian zones.

Table 2.34 Coosa River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
2. Agriculture & Aquaculture	Poultry operations, pastureland, and row-crop agriculture contribute sedimentation, nutrient enrichment, and pesticide runoff into tributaries and floodplain wetlands.
3. Energy Production & Mining	Historic and active coal mining, plus hydropower operations, cause acid mine drainage, heavy metal contamination, and hydrologic alterations.
4. Transportation & Service Corridors	Road crossings, culverts, and pipelines fragment tributaries, increase sedimentation, and restrict fish and mussel movement.
5. Biological Resource Use	Historic overharvest of mussels and disruption of host fish populations reduce reproductive success for several federally listed mussels and fishes.
6. Human Intrusions & Disturbance	Recreational boating and shoreline development disturb aquatic species, accelerate bank erosion, and damage sensitive shoal habitats.
7. Natural System Modifications	Extensive damming for hydropower (e.g., Weiss, Logan Martin, Lay, Mitchell, Jordan) has fragmented the Coosa, altered flow regimes, inundated shoals, and caused massive loss of aquatic species richness.
8. Invasive & Problematic Species, Genes and Diseases	Aquatic invasives such as Hydrilla, Asian clams, and Asian carp compete with native fauna, while invasive plants like privet and cogongrass degrade riparian systems.
9. Pollution	Nonpoint-source runoff from agriculture and urbanization, municipal wastewater, and industrial discharges impair water quality and increase nutrient and pathogen loads.
10. Geological & Biological Events	Increasing droughts, altered rainfall, and more intense storm events exacerbate erosion, stress aquatic systems, and interact with existing hydrologic regulation.

Location

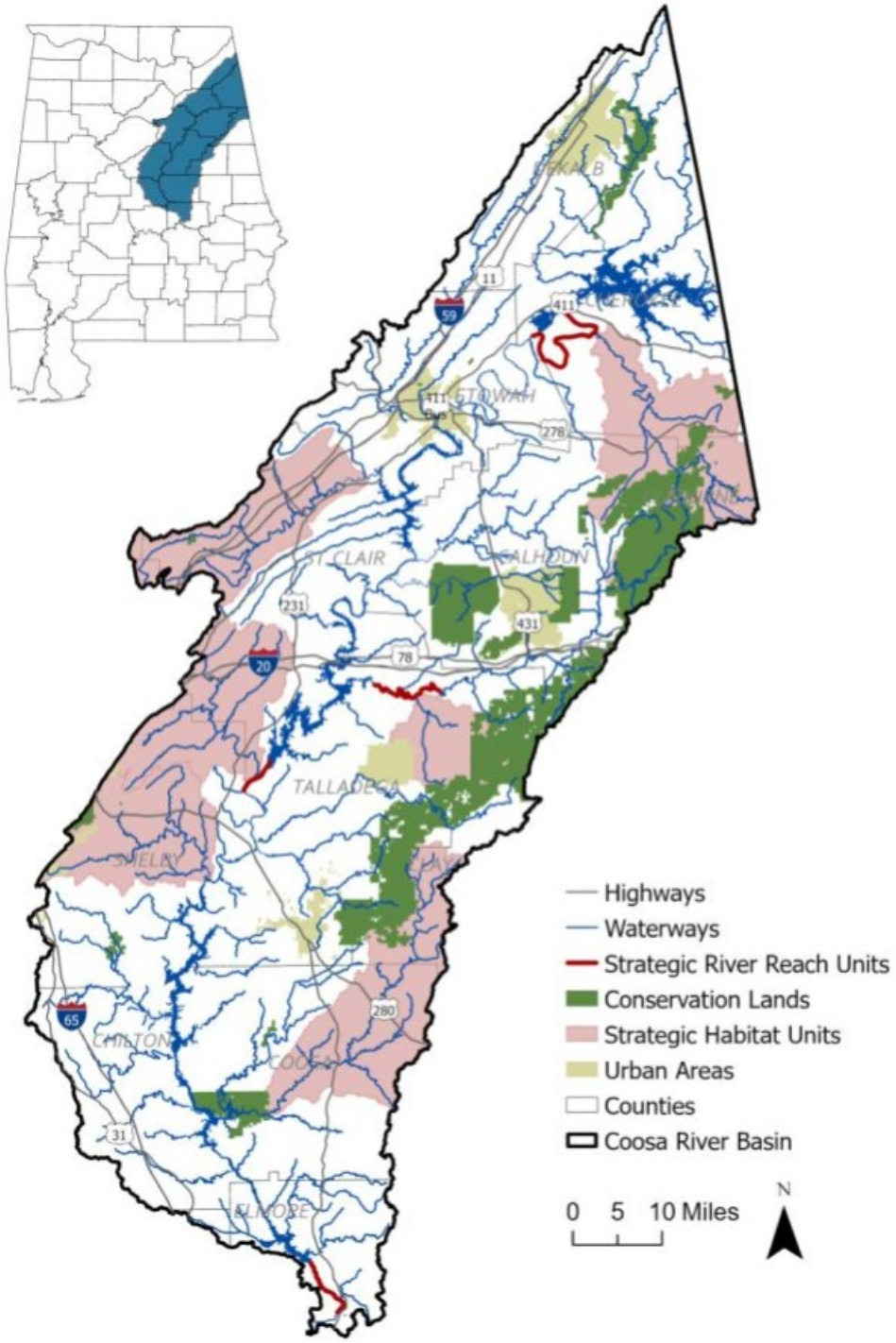

Figure 2.18 Coosa River basin.

Table 2.35 Coosa River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibian - 1		
Necturus beyeri	Western Waterdog	P3
Reptiles - 4		
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Graptemys pulchra	Alabama Figure Turtle	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfishes - 4		
Cambarus manningi	Greensaddle Crayfish	P2
Faxonius spinosus	Coosa River Spiny Crayfish	P2
Cambarus longirostris	Longnose Crayfish	P3
Cambarus unestami	Blackbarred Crayfish	P3
Fishes -13		
Acipenser fulvescens	Lake Sturgeon	EXCAU
Cottus paulus	Pygmy Sculpin	P1
Cyprinella caerulea	Blue Shiner	P1
Etheostoma brevirostrum	Holiday Darter	P1
Etheostoma trisella	Trispot Darter	P1
Sander sp. cf. vitreus	"Southern Walleye"	P1
Etheostoma ditrema	Coldwater Darter	P2
Percina brevicauda	Coal Darter	P2
Hiodon tergisus	Mooneye	P2
Macrhybopsis etnieri	Coosa Chub	P3
Miniellus uranoscopus	Skygazer Shiner	P3
Moxostoma carinatum	River Redhorse	P3
Percina lenticula	Freckled Darter	P3
Mussels - 18		
Epioblasma metastriata	Upland Combshell	X
Alasmidonta mccordi	Coosa Elktoe	X
Epioblasma othcaloogensis	Southern Acornshell	X
Pleurobema fibuloides	Kusha Pigtoe	X
Pleurobema hartmanianum	Cherokee Pigtoe	EX
Pleurobema stabile	Coosa Pigtoe	EX
Medionidus parvulus	Coosa Moccasinshell	EXCAU

Table 2.35 Coosa River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Elliptio arca	Alabama Spike	P1
Elliptio arctata	Delicate Spike	P1
Lasmigona etowaensis	Etowah Heelsplitter	P1
Ligumia recta	Black Sandshell	P1
Medionidus acutissimus	Alabama Moccasinshell	P1
Pleurobema athearni	Canoe Creek Clubshell	P1
Pleurobema georgianum	Southern Pigtoe	P1
Pleurobema hanleyianum	Georgia Pigtoe	P1
Ptychobranchus foremanianus	Rayed Kidneyshell	P1
Toxolasma corvunculus	Southern Purple Lilliput	P1
Cambarunio nebulosus	Alabama Rainbow	P2
Hamiota altilis	Finelined Pocketbook	P2
Leaunio umbrans	Coosa Creekshell	P2
Pleurobema decisum	Southern Clubshell	P2
Pseudodonoideus connasaugaensis	Alabama Creekmussel	P2
Amblema elliottii	Coosa Fiveridge	P3
Lasmigona alabamensis	Alabama Heelsplitter	P3
Snails - 33		
Gyrotoma excisa	Excised Slitshell	X
Gyrotoma lewisii	Striate Slitshell	X
Gyrotoma pagoda	Pagoda Slitshell	X
Gyrotoma pumila	Ribbed Slitshell	X
Gyrotoma pyramidata	Pyramid Slitshell	X
Gyrotoma walkeri	Round Slitshell	X
Leptoxis clipeata	Agate Rocksnail	X
Leptoxis formosa		X
Leptoxis ligata	Rotund Rocksnail	X
Leptoxis lirata	Lirate Rocksnail	X
Leptoxis occultata	Bigmouth Rocksnail	X
Leptoxis showalterii	Coosa Rocksnail	X
Leptoxis torrefacta	Squat Rocksnail	X
Leptoxis vittata	Striped Rocksnail	X
Neoplanorbis carinatus	Carinate Flat-top Snail	X
Neoplanorbis smithi	Angled Flat-top Snail	X
Neoplanorbis tantillus	Little Flat-top Snail	X
Neoplanorbis umbilicatus	Umbilicate Flat-top Snail	X
Leptoxis foremani	Inturrupted Rocksnail	EX
Rhodacmea hinkleyi	Knobby Ancylid	EX

Table 2.35 Coosa River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Leptoxis coosaensis	Painted Rocksnail	P1
Lioplax cyclostomatiformis	Cylindrical Lioplax	P1
Rhodacmea filosa	Wicker Ancylid	P1
Marstonia hershleri	Coosa Pyrg	P3
Pleurocera foremanii	Rough Hornsnail	P3
Pleurocera showalteri	Upland Hornsnail	P3
Pleurocera vestita	Brook Hornsnail	P3
Somatogyrus constrictus	Knotty Pebblesnail	P3
Somatogyrus coosaensis	Coosa Pebblesnail	P3
Somatogyrus crassus	Stocky Pebblesnail	P3
Somatogyrus decipiens	Hidden Pebblesnail	P3
Somatogyrus hendersoni	Fluted Pebblesnail	P3
Somatogyrus hinkleyi	Granite Pebblesnail	P3

CAHABA RIVER BASIN

Description and Condition

The Cahaba River basin (Figure 2.19) is one of Alabama's most biologically rich watersheds (Cahaba River Society, nd), draining approximately 1,870 square miles across the Ridge and Valley, Appalachian Plateau, and Coastal Plain before joining the Alabama River. The Cahaba is the longest free flowing river remaining in Alabama, supporting more than 130 fish species and over 40 mussel species, many of which are SGCN. Habitats range from cool, upland tributaries and rocky shoals to lowland floodplain swamps and wetlands. The basin also sustains riparian forests, rare plants, and provides critical ecosystem services such as drinking water for the Birmingham metropolitan area.

The condition of the Cahaba River basin is mixed. The upper and middle reaches retain some of the most intact aquatic communities in the Southeast, with high water quality. However, the basin faces stress from urban expansion in the Birmingham area, wastewater discharges, stormwater runoff, sedimentation, agricultural impacts, and invasive species (USFWS, 2015). Habitat fragmentation from small impoundments and altered flow regimes further affect aquatic populations. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.36). Despite these threats, significant portions of the river remain in good to fair condition, with ongoing conservation partnerships, land acquisitions, and restoration projects focused on protecting and improving impaired tributaries. The Cahaba continues to represent one of Alabama's flagship conservation priorities.

This habitat supports a total of 66 SGCN: 7 reptiles, 3 crayfishes, 17 fishes, 23 mussels, and 19 snails (Table 2.37).

Habitat Threats

Table 2.36 Cahaba River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Rapid urban growth from Birmingham and surrounding suburbs increases stormwater runoff, wastewater discharges, impervious surfaces, and floodplain encroachment.
2. Agriculture & Aquaculture	Pasture, row-crop farming, and pine silviculture contribute sediment, nutrients, and pesticides that impair water quality and aquatic habitats.

Table 2.36 Cahaba River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
3. Energy Production & Mining	Historic coal mining and ongoing sand and gravel extraction contribute acid mine drainage, heavy metals, and physical habitat disturbance.
5. Biological Resource Use	Historical overharvest of freshwater mussels and alteration of host fish populations reduce reproductive success of rare mussel species.
6. Human Intrusions & Disturbance	Recreational use, including boating, fishing, and streambank access, causes localized erosion, trampling of riparian vegetation, and disturbance to mussel beds.
7. Natural System Modifications	Small impoundments, road crossings, and altered flow regimes fragment habitats, reduce connectivity, and change sediment and nutrient transport.
8. Invasive & Problematic Species, Genes and Diseases	Invasive plants (Chinese privet, cogongrass) dominate riparian zones; aquatic invasives (Hydrilla, Asian carp)

Location

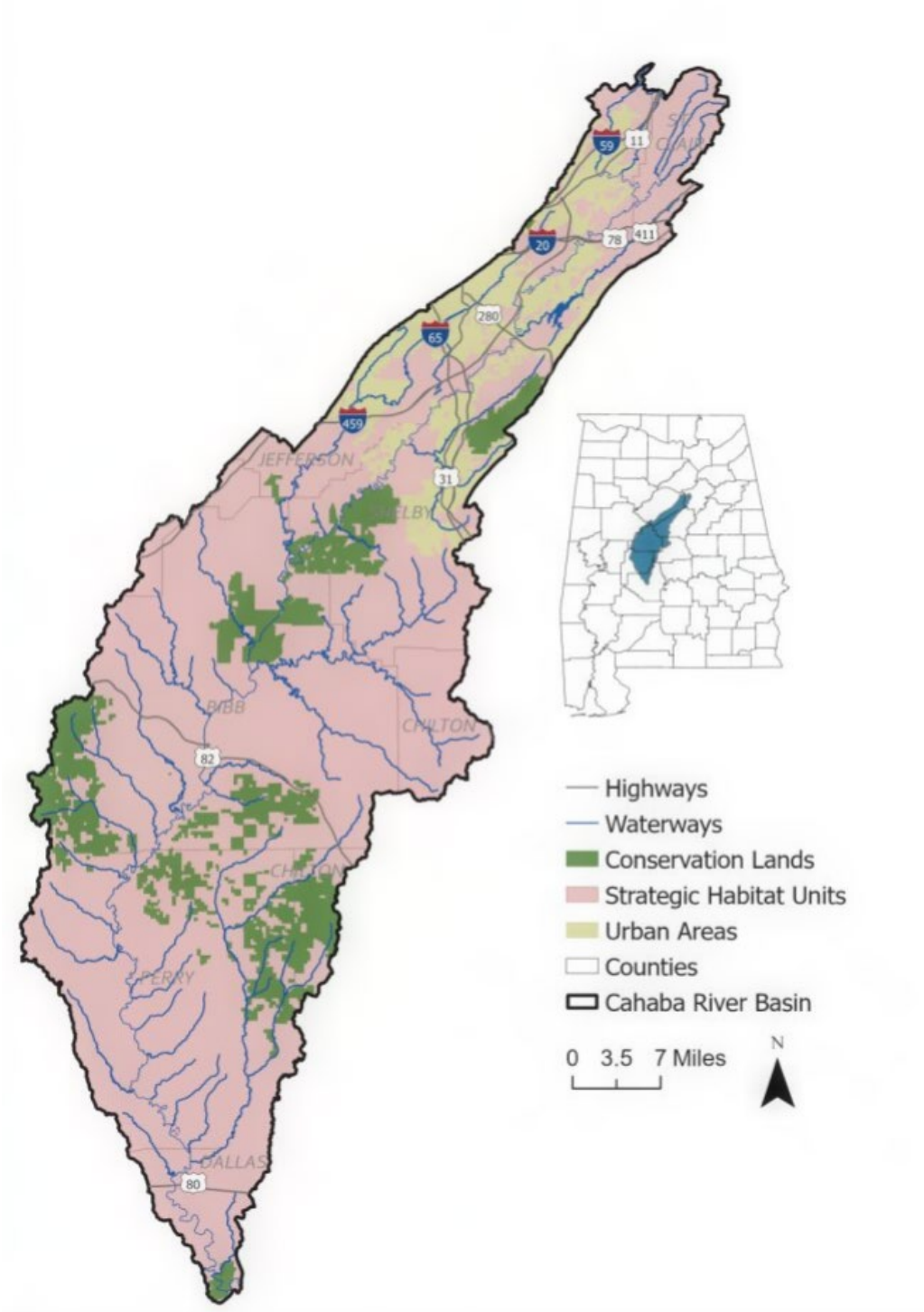

Figure 2.19 Cahaba River basin.

Table 2.37 Cahaba River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Reptiles - 7		
Farancia erytrogramma	Rainbow Snake	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Apalone mutica calvata	Gulf Coast Smooth Softshell	P3
Chrysemys dorsalis	Southern Painted Turtle	P3
Graptemys pulchra	Alabama Figure Turtle	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfishes - 3		
Hobbseus prominens	Prominence Riverlet Crayfish	P2
Procambarus hybus	Smoothnose Crayfish	P3
Procambarus marthae	Crisscross Crayfish	P3
Fishes - 17		
Acipenser desotoi	Gulf Sturgeon	P1
Alosa alabamae	Alabama Shad	P1
Cyprinella caerulea	Blue Shiner	P1
Noturus munitus	Frecklebelly Madtom	P1
Paranotropis cahabae	Cahaba Shiner	P1
Pteronotropis welaka	Bluenose Shiner	P1
Scaphirhynchus suttkusi	Alabama Sturgeon	P1
Hiodon tergisus	Mooneye	P2
Percina aurolineata	Goldline Darter	P2
Percina brevicauda	Coal Darter	P2
Alosa chrysochloris	Skipjack Herring	P3
Crystallaria asprella	Crystal Darter	P3
Micropterus cahabae	Cahaba Bass	P3
Miniellus uranoscopus	Skygazer Shiner	P3
Hybognathus hayi	Cypress Minnow	P3
Moxostoma carinatum	River Redhorse	P3
Percina lenticula	Freckled Darter	P3
Mussels - 23		
Epioblasma metastriata	Upland Combshell	X
Medionidus parvulus	Coosa Moccasinshell	EXCAU
Epioblasma penita	Southern Combshell	EXCAU
Elliptio arca	Alabama Spike	P1

Table 2.37 Cahaba River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Elliptio arctata	Delicate Spike	P1
Lasmigona etowaensis	Etowah Heelsplitter	P1
Ligumia recta	Black Sandshell	P1
Pleurobema perovatum	Ovate Clubshell	P1
Pleurobema rubellum	Warrior Pigtoe	P1
Ptychobranchus foremanianus	Rayed Kidneyshell	P1
Toxolasma corvunculus	Southern Purple Lilliput	P1
Cambarunio nebulosus	Alabama Rainbow	P2
Hamiota altilis	Finelined Pocketbook	P2
Hamiota perovalis	Orangenacre Mucket	P2
Pleurobema decisum	Southern Clubshell	P2
Pseudodonoideus connasaugaensis	Alabama Creekmussel	P2
Theliderma johnsoni	Southern Monkeyface	P2
Obovaria arkansasensis	Southern Hickorynut	P2
Amblema elliottii	Coosa Fiveridge	P3
Elliptio crassidens	Elephantear	P3
Lasmigona alabamensis	Alabama Heelsplitter	P3
Pseudodonoideus subvexus	Southern Creekmussel	P3
Quadrula nobilis	Gulf Figureleleaf	P3
Snails - 19		
Elimia pupoidea	Bot Elimia	X
Valvata bicarinata	Two-ridge Valvata	EX
Elimia annettae	Lilyshoals Elimia	P1
Elimia bellacrenata	Princess Elimia	P1
Elimia cochliaris	Cockle Elimia	P1
Fontigens nickliniana	Watercress Snail	P1
Leptoxis compacta	Oblong Rocksnail	P1
Leptoxis picta	Spotted Rocksnail	P1
Lepyrium showalteri	Flat Pebblesnail	P1
Lioplax cyclostomaformis	Cylindrical Lioplax	P1
Rhodacmea cahawbensis	Cahaba Ancylid	P1
Clappia cahabensis	Cahaba Pebblesnail	P2
Elimia ampla	Ample Elimia	P2
Leptoxis ampla	Round Rocksnail	P2
Elimia olivula	Caper Elimia	P2
Elimia showalterii	Compact Elimia	P3
Marstonia sp.	Cahaba Marstonia	P3

Table 2.37 Cahaba River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Somatogyrus coosaensis	Coosa Pebblesnail	P3
Somatogyrus georgianus	Cherokee Pebblesnail	P3

TOMBIGBEE RIVER BASIN

Description and Condition

The Tombigbee River basin (Figure 2.20) drains much of west central Alabama before joining the Alabama River to form the Mobile River. The basin includes a wide variety of habitats from large river channels, shoals, oxbow lakes, bottomland hardwood forests, and extensive floodplain wetlands. Historically, the Tombigbee supported one of the richest freshwater faunas in the world, with an exceptional number of mussels, snails, and fishes, many of them endemic to the basin. It remains a critical system for SGCN, despite heavy alteration by navigation and flood control projects.

The condition of the Tombigbee River basin is highly impacted, with localized areas of ecological integrity**.** Construction of the Tennessee–Tombigbee Waterway and other navigation dams inundated shoal habitats, altered natural flow regimes, and fragmented aquatic populations, leading to major species and habitat losses. Three major dams are on the mainstem: Jones Bluff (12,500 acres), Millers Ferry (17,200 acres), and Claiborne (5,930 acres). The National Inventory of Dams (USACOE 2014) recognizes 365 dams throughout the Alabama River basin. An undetermined number of low water crossings and culverts also impede or prevent migration, resulting in fragmented populations, restricted gene flow, and extirpations. Agriculture and silviculture in the basin contribute sediment, nutrient enrichment, and pesticide runoff, while urban centers such as Demopolis and Columbus add wastewater and stormwater discharges. Historic and active mining activities have degraded water quality in parts of the basin. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.38). While many mainstem habitats are considered in poor condition, tributaries in forested and less developed portions of the basin retain fair condition and support important aquatic communities. Conservation efforts focused on riparian restoration, invasive species control, mine reclamation, and improved water quality management is critical.

This habitat supports a total of 63 SGCN: 6 reptiles, 16 crayfishes, 18 fishes, 18 mussels, and 5 snails (Table 2.39).

Habitat Threats

Table 2.38 Tombigbee basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Di-rect Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Growth of towns such as Demopolis and Columbus, along with industrial development, increases stormwater runoff, wastewater discharges, and floodplain encroachment.
2. Agriculture & Aquaculture	Extensive row crops, pasture, and silviculture in the basin contribute sedimentation, nutrient loading, and pesticide runoff into tributaries and floodplain wetlands.
3. Energy Production & Mining	Historic coal mining and active sand and gravel extraction disturb streambeds, increase turbidity, and degrade aquatic habitat quality.
4. Transportation & Service Corridors	Barge navigation, pipelines, road crossings, and culverts fragment habitats, increase sedimentation, and spread invasive species.
5. Biological Resource Use	Historical mussel harvesting and host fish alteration have reduced reproduction and heterogeneity of mussel populations; fishing pressure impacts native fish communities.
6. Human Intrusions & Disturbance	Recreational boating, barge traffic, and shoreline clearing disturb sensitive habitats, compact soils, and increase erosion.
7. Natural System Modifications	Navigation locks and dams fragment the Tombigbee, alter flow regimes, and inundate shoal habitats, significantly reducing aquatic species richness.

Table 2.38 Tombigbee basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Di-rect Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
8. Invasive & Problematic Species, Genes and Diseases	Invasives such as Asian carp, Hydrilla, and zebra mussels disrupt native food webs; privet and cogongrass dominate riparian zones.
9. Pollution	Agricultural runoff, municipal and industrial wastewater, and nonpoint-source pollution introduce nutrients, pathogens, and sediments that impair water quality.
10. Geological & Biological Events	More frequent droughts, altered rainfall, and intense storms exacerbate erosion, flow variability, and water quality degradation.

Location

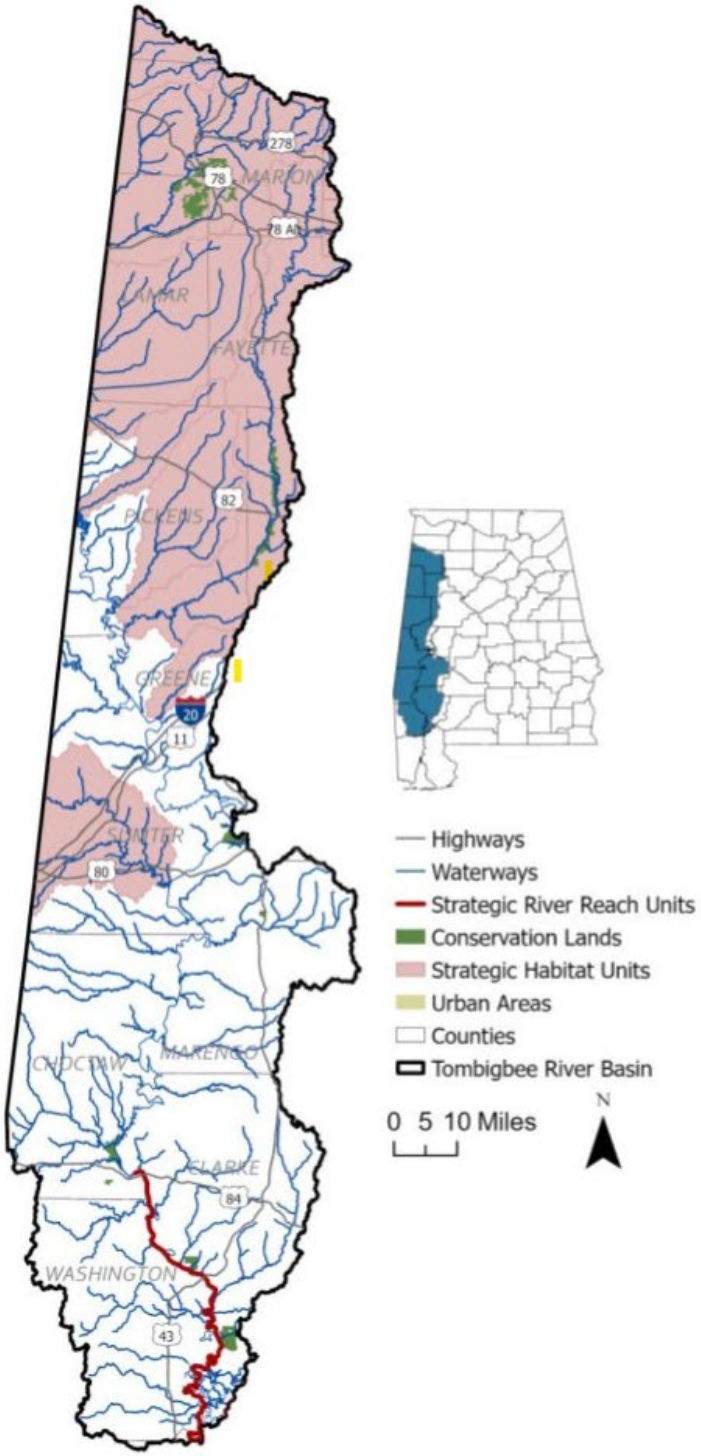

Figure 2.20 Tombigbee River basin.

Table 2.39 Tombigbee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibian - 1		
Necturus beyeri	Western Waterdog	P3
Reptiles - 6		
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Apalone mutica calvata	Gulf Coast Smooth Softshell	P3
Chrysemys dorsalis	Southern Painted Turtle	P3
Graptemys pulchra	Alabama Figure Turtle	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfish - 16		
Procambarus barbiger	Jackson Prairie Crayfish	P1
Cambarellus rotatus	Twisted Dwarf Crayfish	P2
Faxonius jonesi	Sucarnoochee River Crayfish	P2
Hobbseus prominens	Prominence Riverlet Crayfish	P2
Procambarus clemmeri	Cockscomb Crayfish	P2
Procambarus hagenianus hagenianus	Southeastern Prairie Crayfish	P2
Procambarus hayi	Straightedge Crayfish	P2
Procambarus lagniappe	Lagniappe Crayfish	P2
Procambarus lecontei	Mobile Crayfish	P2
Procambarus planirostris	Flatnose Crayfish	P2
Procambarus viaevirdis	Vernal Crayfish	P2
Creaserinus burrisi	Burrowing Bog Crayfish	P3
Procambarus bivittatus	Ribbon Crayfish	P3
Procambarus hybus	Smoothnose Crayfish	P3
Procambarus marthae	Crisscross Crayfish	P3
Procambarus shermani	Gulf Crayfish	P3
Fish - 18		
Ammocrypta vivax	Scaly Sand Darter	EX
Acipenser fulvescens	Lake Sturgeon	EXCAU
Acantharchus pomotis	Mud Sunfish	P1
Acipenser desotoi	Gulf Sturgeon	P1
Pteronotropis welaka	Bluenose Shiner	P1
Sander sp. cf. vitreus	"Southern Walleye"	P1
Noturus munitus	Frecklebelly Madtom	P1

Table 2.39 Tombigbee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Hiodon tergisus	Mooneye	P2
Crystallaria asprella	Crystal Darter	P3
Alosa chrysochloris	Skipjack Herring	P3
Atractosteus spatula	Alligator Gar	P3
Cycleptus meridionalis	Southeastern Blue Sucker	P3
Enneacanthus gloriosus	Bluespotted Sunfish	P3
Fundulus dispar	Starhead Topminnow	P3
Hybognathus hayi	Cypress Minnow	P3
Ictiobus cyprinellus	Bigmouth Buffalo	P3
Moxostoma carinatum	River Redhorse	P3
Percina lenticula	Freckled Darter	P3
Mussels - 18		
Pleurobema curtum	Black Clubshell	X
Pleurobema marshalli	Flat Pigtoe	X
Pleurobema verum	True Pigtoe	X
Theliderma stapes	Stirrupshell	X
Epioblasma penita	Southern Combshell	EXCAU
Elliptio arca	Alabama Spike	P1
Elliptio arctata	Delicate Spike	P1
Medionidus acutissimus	Alabama Moccasinshell	P1
Obovaria arkansasensis	Southern Hickorynut	P1
Obovaria unicolor	Alabama Hickorynut	P1
Pleurobema beadleianum	Mississippi Pigtoe	P1
Pleurobema perovatum	Ovate Clubshell	P1
Toxolasma corvunculus	Southern Purple Lilliput	P1
Hamiota perovalis	Orangenacre Mucket	P2
Pleurobema decisum	Southern Clubshell	P2
Potamilus inflatus	Inflated Heelsplitter	P2
Arcidens confragosus	Rock Pocketbook	P3
Elliptio crassidens	Elephantear	P3
Lasmigona alabamensis	Alabama Heelsplitter	P3
Pseudodonoideus subvexus	Southern Creekmussel	P3
Quadrula nobilis	Gulf Figureleleaf	P3
Snails - 5		
Valvata bicarinata	Two-ridge Valvata	EX
Pseudotryonia grahamae	Salt Spring Hydrobe	1
Elimia cylindracea	Cylinder Elimia	3
Pleurocera vestita	Brook Hornsnail	3
Somatogyrus substriatus	Choctaw Pebblesnail	3

ALABAMA RIVER BASIN

Description and Condition

The Alabama River basin (Figure 2.21), located in central and south-central Alabama, drains much of the state's interior through the Coosa and Tallapoosa rivers, which converge at Wetumpka to form the Alabama River. It supports a wide array of habitats, including free-flowing river channels, oxbow lakes, backwater swamps, bottomland hardwood forests, and associated wetlands. The Alabama River basin is globally significant for aquatic richness, providing habitat for an exceptional array of freshwater mussels, snails, and fishes.

The condition of the Alabama River basin is mixed, with high quality habitats persisting but widespread alteration evident**.** Major reservoirs on the Coosa and Tallapoosa have fragmented river systems, altered flow regimes, and reduced habitat connectivity for migratory fish and mussels. The National Inventory of Dams (USACOE 2014) recognizes 309 dams throughout the basin. An undetermined number of low water crossings and culverts also impede migration, resulting in fragmented populations.

Agricultural runoff, sedimentation, and nutrient loading contribute to water quality impairment, while urban growth around Montgomery and other cities adds further stress through stormwater and wastewater discharges. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.40). Overall, the basin can be considered in fair condition, with localized high-quality areas but increasing vulnerability from land use change, pollution, and hydrologic alteration.

This basin supports a total of 61 SGCNs: 1 amphibian, 6 reptiles, 9 crayfish, 20 fishes, 16 mussels, and 9 snails (Table 2.41).

Habitat Threats

Table 2.40 Alabama River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Expansion of Montgomery and other urban areas contributes to stormwater runoff, wastewater discharges, and floodplain encroachment, degrading aquatic and riparian habitats.
2. Agriculture & Aquaculture	Intensive row-crop agriculture and timber production in the basin contribute sedimentation, nutrient loading (nitrogen, phosphorus), and pesticide runoff to streams and rivers.

Table 2.40 Alabama River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
3. Energy Production & Mining	Legacy coal mining, sand and gravel extraction, and potential hydropower operations disturb riparian zones, contribute to siltation, and alter stream chemistry.
4. Transportation & Service Corridors	Navigation channels, road crossings, and bridge construction fragment aquatic species
5. Biological Resource Use	Overharvest of fishes, alteration of mussel host fish populations, and removal of woody debris reduce aquatic species richness and habitat structure.
6. Human Intrusions & Disturbance	Recreational boating, fishing pressure, and shoreline development disturb aquatic and riparian species, especially nesting birds and mussel beds.
7. Natural System Modifications	Dams and impoundments on the Coosa and Tallapoosa rivers fragment habitats, disrupt natural flow regimes, block fish passage, and degrade mussel reproduction.
8. Invasive & Problematic Species, Genes and Diseases	Invasive aquatic species (e.g., Asian carp, Hydrilla) and terrestrial plants (e.g., privet, cogongrass) outcompete native species and disrupt food webs.
9. Pollution	Nonpoint-source runoff, municipal and industrial wastewater, and legacy pollutants (e.g., heavy metals, PCBs) impair water quality and stress aquatic species.
10. Geological & Biological Events	Increased storm intensity, drought frequency, and shifting precipitation patterns alter streamflow, exacerbate erosion, and stress aquatic communities.

Location

Figure 2.21 Alabama River basin.

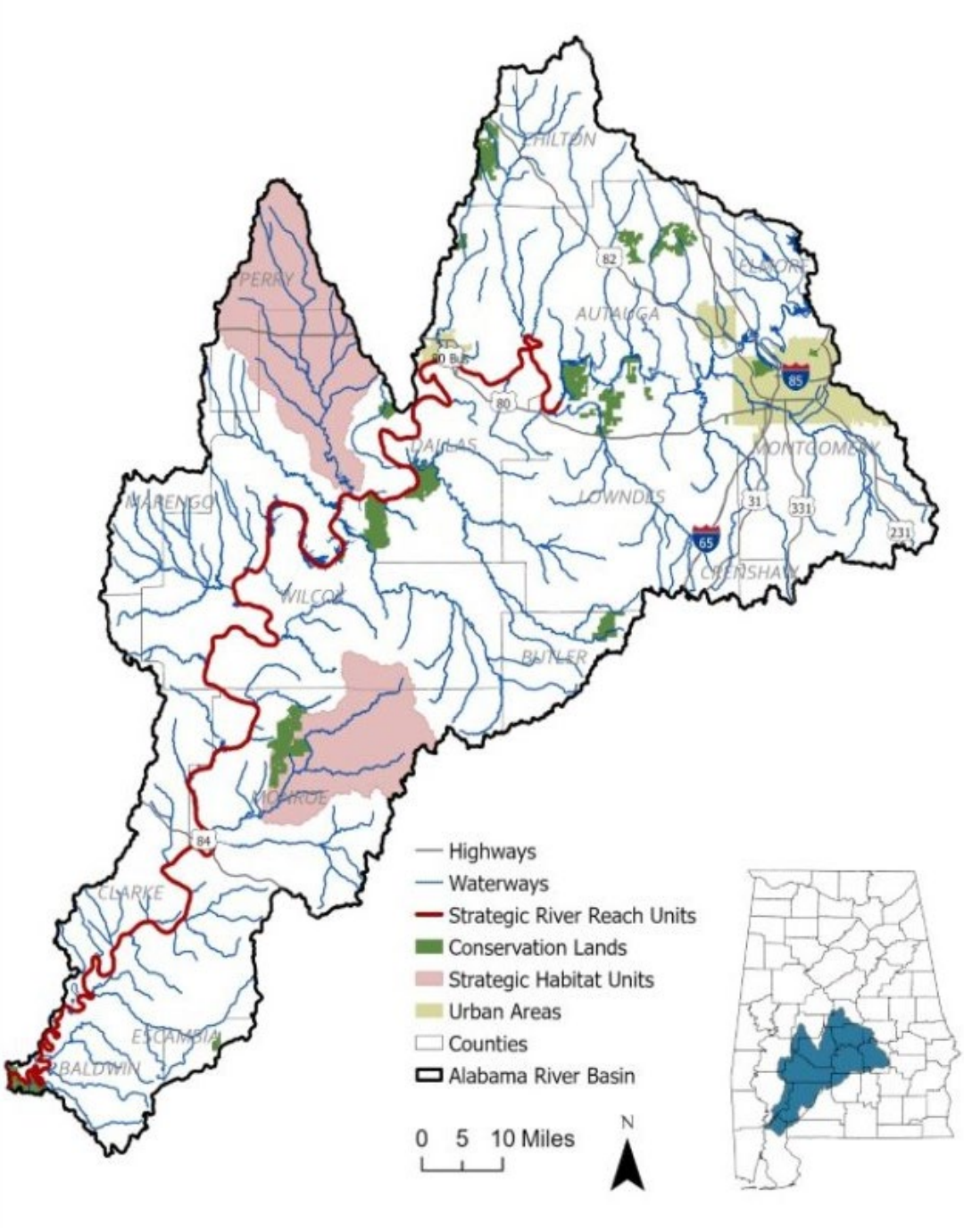

Table 2.41 Alabama River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibian - 1		
Necturus beyeri	Western Waterdog	P3
Reptiles - 6		
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Apalone mutica calvata	Gulf Coast Smooth Softshell	P3
Chrysemys dorsalis	Southern Painted Turtle	P3
Graptemys pulchra	Alabama Figure Turtle	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfishes - 9		
Procambarus holifieldi	Celestial Crayfish	P1
Hobbseus prominens	Prominence Riverlet Crayfish	P2
Procambarus clemmeri	Cockscomb Crayfish	P2
Procambarus hagenianus hagenianus	Southeastern Prairie Crayfish	P2
Procambarus bivittatus	Ribbon Crayfish	P3
Procambarus hybus	Smoothnose Crayfish	P3
Procambarus lewisi	Spur Crayfish	P3
Procambarus marthae	Crisscross Crayfish	P3
Procambarus shermani	Gulf Crayfish	P3
Fish- 20		
Acipenser desotoi	Gulf Sturgeon	P1
Alburnops chalybaeus	Ironcolor Shiner	P1
Alosa alabamae	Alabama Shad	P1
Pteronotropis welaka	Bluenose Shiner	P1
Sander sp. cf. vitreus	"Southern Walleye"	P1
Noturus munitus	Frecklebelly Madtom	P1
Scaphirhynchus suttkusi	Alabama Sturgeon	P1
Elassoma evergladei	Everglades Pygmy Sunfish	P2
Hiodon tergisus	Mooneye	P2
Crystallaria asprella	Crystal Darter	P3
Alburnops petersoni	Coastal Shiner	P3
Alosa chrysochloris	Skipjack Herring	P3
Atractosteus spatula	Alligator Gar	P3
Cycleptus meridionalis	Southeastern Blue Sucker	P3
Fundulus dispar	Starhead Topminnow	P3
Hybognathus hayi	Cypress Minnow	P3
Miniellus uranoscopus	Skygazer Shiner	P3

Table 2.41 Alabama River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Moxostoma carinatum	River Redhorse	P3
Percina lenticula	Freckled Darter	P3
Pteronotropis signipinnis	Flagfin Shiner	P3
Mussels - 16		
Pleurobema verum	True Pigtoe	X
Elliptio arctata	Delicate Spike	P1
Obovaria arkansasensis	Southern Hickorynut	P1
Pleurobema perovatum	Ovate Clubshell	P1
Pleurobema taitianum	Heavy Pigtoe	P1
Ptychobranchus foremanianus	Rayed Kidneyshell	P1
Toxolasma corvunculus	Southern Purple Lilliput	P1
Hamiota perovalis	Orangenacre Mucket	P2
Pleurobema decisum	Southern Clubshell	P2
Pseudodonoideus connasaugaensis	Alabama Creekmussel	P2
Theliderma johnsoni	Southern Monkeyface	P2
Arcidens confragosus	Rock Pocketbook	P3
Elliptio crassidens	Elephantear	P3
Lasmigona alabamensis	Alabama Heelsplitter	P3
Pseudodonoideus subvexus	Southern Creekmussel	P3
Quadrula nobilis	Gulf Figureleleaf	P3
Snails - 9		
Elimia pupoidea	Bot Elimia	X
Elimia lachryma	Teardrop Elimia	P1
Leptoxis picta	Spotted Rocksnail	P1
Elimia olivula	Caper Elimia	P2
Tulotoma magnifica	Tulotoma	P2
Cincinnatia integra	Midland Siltsnail	P3
Elimia alabamensis	Mud Elimia	P3
Pleurocera vestita	Brook Hornsnail	P3
Somatogyrus georgianus	Cherokee Pebblesnail	P3

MOBILE RIVER BASIN

Description and Condition

The Mobile River basin (Figure 2.22) is one of the most biologically significant freshwater systems in North America, encompassing the confluence of the Alabama and Tombigbee rivers and flowing south into Mobile Bay. The basin drains much of central and northern Alabama, supporting a mosaic of aquatic and terrestrial habitats, including large river channels, shoals, oxbow lakes, backwater swamps, bottomland hardwood forests, and the expansive Mobile–Tensaw Delta. This region is a global aquatic hotspot, historically supporting more than 180 species of freshwater fishes and over 60 mussel species. The delta and associated wetlands also provide critical stopover and breeding habitat for migratory birds, amphibians, reptiles, and mammals.

The basin's condition is declining in many areas. Portions of the Mobile–Tensaw Delta remain in good condition, retaining high species richness and ecological function, especially where hydrology is intact, and development pressures are limited. However, widespread alteration is evident across the basin. The 2014 ADEM 303(d) list identifies 271 miles of streams that either do not support or only partially support their designated uses. Causes of stream impairment include atmospheric deposition of mercury, pathogens, organic enrichment, and nutrients. All of Mobile Bay and Bon Secour Bay are impaired due to pathogens and organic enrichment from urban runoff and storm sewers. Offshore, 201 square miles of the Gulf of Mexico are impaired due to atmospheric deposition of mercury. Upstream impoundments on the Alabama and Tombigbee rivers have fragmented habitats and altered flow regimes, leading to the extirpation of numerous mussel and fish species. Agriculture, silviculture, and urban development contributes sediment, nutrients, and contaminants, impairing water quality throughout the watershed. Industrial discharges, port activity, and dredging further degrade aquatic systems near Mobile Bay. The National Inventory of Dams (USACOE 2014) recognizes 81 dams throughout the basin. Extreme weather events add additional stressors, especially in the delta and coastal reaches. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.42). Overall, the basin is considered in fair condition, with globally important species richness persisting but facing substantial ongoing threats.

This habitat supports a total of 59 SGCN: 1 mammal, 11 reptiles, 11 crayfishes, 16 fishes, 17 mussels, and 3 snails (Table 2.43).

Habitat Threats

Table 2.42 Mobile River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Expansion of Mobile and Baldwin counties increases urban runoff, floodplain encroachment, and shoreline development along the bay and delta.
2. Agriculture & Aquaculture	Intensive row crops, poultry, and silviculture contribute sediment, nutrient loading, and pesticides that impair tributaries and delta wetlands.
3. Energy Production & Mining	Coal, oil, gas, and sand extraction, along with navigation-related dredging, disturb river channels, release pollutants, and degrade aquatic habitats.
4. Transportation & Service Corridors	Navigation channels, pipelines, and road crossings fragment aquatic habitats, increase sedimentation, and provide pathways for invasive species spread.
5. Biological Resource Use	Historical overharvest of mussels and changes to host fish populations have reduced reproductive success of aquatic SGCN; commercial and recreational fishing pressure continues to affect native species.
6. Human Intrusions & Disturbance	Heavy boat traffic, port activity, and recreational use disturb shoreline habitats, increase erosion, and affect sensitive aquatic and colonial nesting species.
7. Natural System Modifications	Extensive damming in the upper basin fragments habitats, while dredging, channelization, and levees alter natural flow, sediment transport, and delta dynamics.
8. Invasive & Problematic Species, Genes and Diseases	Aquatic invasives (Asian carp, Hydrilla, apple snails) and riparian invasives (Chinese privet, cogongrass) displace native species and disrupt food webs.
9. Pollution	Industrial discharges, municipal wastewater, oil spills, and nonpoint-source runoff (nutrients, pathogens, sediments) degrade water quality in rivers, wetlands, and Mobile Bay.

Table 2.42 Mobile River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
10. Geological & Biological Events	Sea-level rise, hurricanes, and storm surge threaten coastal and deltaic habitats, exacer-bate erosion, and cause saltwater intrusion into freshwater systems.

Location

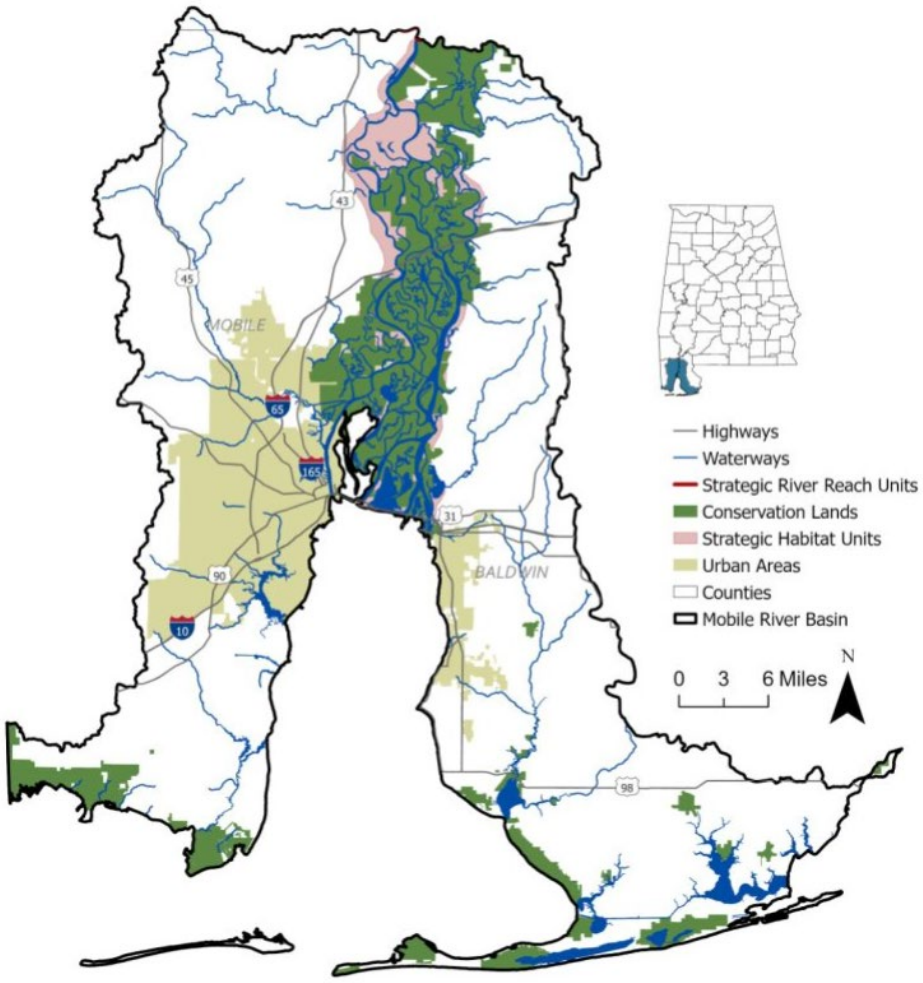

Figure 2.22 Mobile River basin.

Table 2.43 Mobile River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Mammal - 1		
Trichechus manatus	West Indian Manatee	P1
Reptiles - 11		
Farancia erytrogramma	Rainbow Snake	P1
Malaclemys terrapin pileata	Mississippi Diamond- backed Terrapin	P1
Pseudemys alabamensis	Alabama Red-bellied Turtle	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Nerodia floridana	Florida Green Watersnake	P2
Apalone mutica calvata	Gulf Coast Smooth Softshell	P3
Chrysemys dorsalis	Southern Painted Turtle	P3
Graptemys pulchra	Alabama Figure Turtle	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Nerodia cyclopion	Mississippi Green Watersnake	P3
Crayfishes - 11		
Creaserinus danielae	Speckled Burrowing Crayfish	P1
Lacunicambarus freudensteini	Banded Mudbug	P1
Lacunicambarus mobilensis	Lonesome Gravedigger	P1
Procambarus escambiensis	Escambia Crayfish	P1
Cambarellus diminutus	Least Crayfish	P2
Procambarus evermanni	Panhandle Crayfish	P2
Procambarus lecontei	Mobile Crayfish	P2
Creaserinus burrisi	Burrowing Bog Crayfish	P3
Creaserinus byersi	Lavendar Burrowing Crayfish	P3
Lacunicambarus miltus	Rusty Grave Digger	P3
Procambarus shermani	Gulf Crayfish	P3
Fishes - 16		
Acipenser desotoi	Gulf Sturgeon	P1
Alosa alabamae	Alabama Shad	P1
Miniellus melanostomus	Blackmouth Shiner	P1
Pteronotropis welaka	Bluenose Shiner	P1
Scaphirhynchus suttkusi	Alabama Sturgeon	P1
Elassoma evergladei	Everglades Pygmy Sunfish	P2
Alburnops petersoni	Coastal Shiner	P3
Alosa chrysochloris	Skipjack Herring	P3
Atractosteus spatula	Alligator Gar	P3
Cycleptus meridionalis	Southeastern Blue Sucker	P3
Enneacanthus gloriosus	Bluespotted Sunfish	P3

Table 2.43 Mobile River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Fundulus cingulatus	Banded Topminnow	P3
Fundulus confluentus	Marsh Killifish	P3
Fundulus jenkinsi	Saltmarsh Topminnow	P3
Fundulus pulvereus	Bayou Killifish	P3
Pteronotropis signipinnis	Flagfin Shiner	P3
Mussels - 17		
Epioblasma penita	Southern Combshell	EXCAU
Elliptio arca	Alabama Spike	P1
Elliptio arctata	Delicate Spike	P1
Ligumia recta	Black Sandshell	P1
Medionidus acutissimus	Alabama Moccasinshell	P1
Obovaria unicolor	Alabama Hickorynut	P1
Pleurobema perovatum	Ovate Clubshell	P1
Toxolasma corvunculus	Southern Purple Lilliput	P1
Potamilus inflatus	Inflated Heelsplitter	P2
Theliderma johnsoni	Southern Monkeyface	P2
Amblema elliottii	Coosa Fiveridge	P3
Arcidens confragosus	Rock Pocketbook	P3
Elliptio crassidens	Elephantear	P3
Lasmigona alabamensis	Alabama Heelsplitter	P3
Pseudodonoideus subvexus	Southern Creekmussel	P3
Quadrula nobilis	Gulf Figureleleaf	P3
Utterbackiana hartfieldorum	Cypress Floater	P3
Snails - 3		
Galba cubensis	Carib Fossaria	P3
Littoridinops monroensis	Cockscomb Hydrobe	P3
Littoridinops palustris	Bantam Hydrobe	P3

BLACK WARRIOR RIVER BASIN

Description and Condition

The Black Warrior River basin (Figure 2.23) drains much of central and north central Alabama, covering approximately 6,300 square miles across the Appalachian Plateau, Ridge and Valley, and Coastal Plain. The basin's major tributaries include the Locust Fork, Mulberry Fork, Sipsey Fork, and Valley Creek, which converge near Tuscaloosa before flowing

southwest into the Tombigbee River. This basin supports a wide range of aquatic habitats, from cold, clear upland streams in the Bankhead National Forest to lowland rivers, floodplain swamps, and backwater lakes.

The condition of the Black Warrior River basin is mixed**.** Portions of the upper basin within the Bankhead National Forest and Sipsey Wilderness remain in good condition**,** with relatively intact riparian buffers and high-quality streams. However, other areas are significantly impacted by legacy coal mining, active surface mining, industrial discharges, agriculture, and expanding urban development around Birmingham and Tuscaloosa (ADEM, 2024; Black Warrior Riverkeeper, 2020)**.** These pressures contribute to sedimentation, nutrient loading, and water quality impairments that affect aquatic communities. Several species of mussels and fishes have declined or been extirpated from the basin. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.44). Despite these challenges, ongoing conservation and restoration efforts including watershed partnerships, improved mining reclamation, riparian restoration, and stricter pollution controls are improving conditions in localized reaches. Overall, the basin can be considered in fair condition, with pockets of high-quality habitat but significant stress from land use, pollution, and continued development.

Four impoundments are on the mainstem in Alabama: Aliceville (8,300 acres), Gainesville (6,400 acres), Demopolis (10,000 acres), and Coffeeville (8,800 acres). Three additional impoundments and five locks are upstream in Mississippi. The National Inventory of Dams (USACOE 2014) recognizes 792 dams throughout the basin in Alabama. An undetermined number of low water crossings and culverts also impede or prevent migration, resulting in fragmented populations, restricted gene flow, and extirpations.

This basin supports a total of 59 SGCNs: 2 amphibians, 1 reptile, 7 crayfish, 27 fish, 13 mussels, and 9 snails (Table 2.45).

Habitat Threats

Table 2.44 Black Warrior River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Urban growth around Birmingham, Tuscaloosa, and smaller cities increases stormwater runoff, wastewater discharges, and floodplain encroachment.
2. Agriculture & Aquaculture	Row-crop farming, poultry operations, and forestry contribute sediment, nutrients, and pesticides that impair streams and tributaries.

Table 2.44 Black Warrior River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
3. Energy Production & Mining	Legacy coal mining and ongoing surface mining operations cause acid mine drainage, heavy metal contamination, and stream channel degradation.
4. Transportation & Service Corridors	Roads, culverts, and pipelines fragment aquatic systems, increase sedimentation, and disrupt small tributary habitats.
5. Biological Resource Use	Past overharvest of mussels and changes to host fish populations reduce reproductive success of native mussel species.
6. Human Intrusions & Disturbance	Recreational boating, off-road vehicles, and shoreline disturbance degrade riparian zones and sensitive mussel beds.
7. Natural System Modifications	Dams and channel modifications fragment habitats, alter flow regimes, and reduce habitat connectivity for fish and mussels.
8. Invasive & Problematic Species, Genes and Diseases	Invasive plants (privet, kudzu) and aquatic invasives (Asian carp, Hydrilla) compete with native flora and fauna, altering ecosystems.
9. Pollution	Nonpoint-source runoff from agriculture and mining, combined with municipal and industrial discharges, impair water quality and oxygen levels.
10. Geological & Biological Events	Increasing storm intensity, droughts, and variable rainfall affect flow regimes, exacerbate erosion, and stress aquatic habitats.

Location

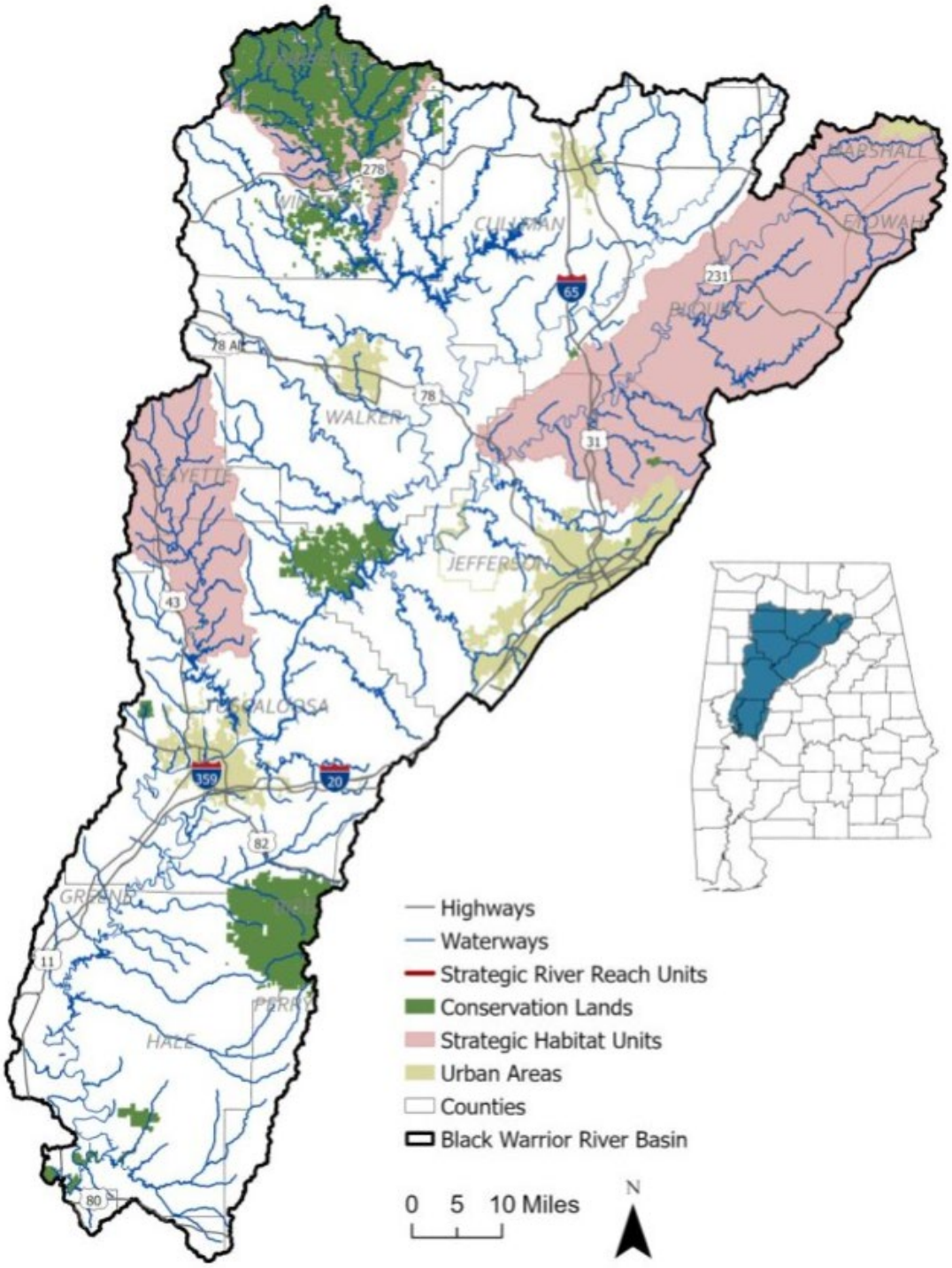

Figure 2.23 Black Warrior River basin.

Table 2.45 Black Warrior River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 2		

Table 2.45 Black Warrior River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Necturus alabamensis	Black Warrior Waterdog	P1
Necturus beyeri	Western Waterdog	P3
Reptile - 6		
Sternotherus depressus	Flattened Musk Turtle	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Chrysemys dorsalis	Southern Painted Turtle	P3
Graptemys pulchra	Alabama Figure Turtle	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfishes - 7		
Cambarus clairitae	Zebra Crayfish	P1
Cambarellus rotatus	Twisted Dwarf Crayfish	P2
Hobbseus prominens	Prominence Riverlet Crayfish	P2
Procambarus viaevirdis	Vernal Crayfish	P2
Cambarus tenebrosus	Cavespring Crayfish	P2
Procambarus hybus	Smoothnose Crayfish	P2
Cambarus hamulatus	Prickly Cave Crayfish	P3
Fishes- 27		
Alosa alabamae	Alabama Shad	P1
Pteronotropis welaka	Bluenose Shiner	P1
Sander sp. cf. vitreus	"Southern Walleye"	P1
Noturus munitus	Frecklebelly Madtom	P1
Etheostoma birminghamense	Birmingham Darter	P1
Etheostoma brevirostrum	Holiday Darter	P1
Etheostoma chermocki	Vermilion Darter	P1
Etheostoma cyanoprosopum	Blueface Darter	P1
Etheostoma nuchale	Watercress Darter	P1
Etheostoma gurleyense	Gurley Darter	P1
Etheostoma kimberlae	Locust Fork Darter	P1
Etheostoma michellae	Sipsey Fork Darter	P1
Etheostoma phytophilum	Rush Darter	P1
Micropterus warriorensis	Warrior Bass	P1
Paranotropis cahabae	Cahaba Shiner	P1
Percina sipsi	Bankhead Darter	P1
Hiodon tergisus	Mooneye	P2

Table 2.45 Black Warrior River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Etheostoma bellator	Warrior Darter	P2
Percina brevicauda	Coal Darter	P2
Alosa chrysochloris	Skipjack Herring	P3
Nothonotus douglasi	Tuskaloosa Darter	P3
Cyprinella whipplei	Steelcolor Shiner	P3
Fundulus dispar	Starhead Topminnow	P3
Hybognathus hayi	Cypress Minnow	P3
Moxostoma carinatum	River Redhorse	P3
Percina lenticula	Freckled Darter	P3
Typhlichthys subterraneus	Southern Cavefish	P3
Mussels - 13		
Elliptio arca	Alabama Spike	P1
Elliptio arctata	Delicate Spike	P1
Medionidus acutissimus	Alabama Moccasinshell	P1
Pleurobema rubellum	Warrior Pigtoe	P1
Ptychobranchus greenii	Triangular Kidneyshell	P1
Hamiota pervalis	Orangenacre Mucket	P2
Cambarunio nebulosus	Alabama Rainbow	P2
Potamilus inflatus	Inflated Heelsplitter	P2
Arcidens confragosus	Rock Pocketbook	P3
Elliptio crassidens	Elephantear	P3
Lasmigona alabamensis	Alabama Heelsplitter	P3
Pseudodontoideus subvexus	Southern Creekmussel	P3
Quadrula nobilis	Gulf Figureleleaf	P3
Snails - 9		
Elimia pupoidea	Bot Elimia	X
Elimia melanoides	Black Mudualia	P1
Fontigens nickliniana	Watercress Snail	P1
Leptoxis plicata	Plicate Rocksnail	P1
Rhodacmea filosa	Wicker Ancylid	P1
Cincinnatia integra	Midland Siltsnail	P3
Elimia comma	Hispid Elimia	P3
Pleurocera vestita	Brook Hornsnail	P3
Somatogyrus pumilus	Compact Pebblesnail	P3

CHATTAHOOCHEE RIVER BASIN

Description and Condition

The Chattahoochee River basin (Figure 2.24) forms part of Alabama's eastern border with Georgia before flowing south into Florida, where it joins the Flint River to create the Apalachicola River. In Alabama, the basin includes major tributaries such as Uphapee Creek and Hatchechubbee Creek, with habitats ranging from upland Piedmont streams to large mainstem river channels, backwater sloughs, and floodplain forests. Floodplain wetlands, bottomland hardwood forests, and riparian corridors also provide habitat for a variety of amphibians, reptiles, birds, and mammals.

The condition of the Chattahoochee River Basin in Alabama is highly altered but with localized areas of integrity. Large hydropower dams on the mainstem (e.g., Walter F. George and George W. Andrews reservoirs) have fragmented habitats, inundated shoals, and disrupted natural flow regimes, significantly reducing aquatic species richness. Tributary streams remain vulnerable to sedimentation, nutrient runoff from agriculture and poultry operations, forestry practices, and urban expansion near Phenix City and Eufaula**.** The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.46). Despite these pressures, certain tributaries and riparian corridors remain in fair condition**,** and restoration opportunities exist to improve water quality, reconnect habitats, and conserve remaining SGCN populations

This basin supports a total of 52 SGCNs: 1 amphibian, 7 reptiles, 6 crayfish, 16 fishes, 17 mussels, and 5 snails (Table 2.47).

Habitat Threats

Table 2.46 Chattahoochee River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Expansion of Phenix City, Eufaula, and other urban centers increases stormwater runoff, wastewater discharge, and floodplain encroachment along the lower Chattahoochee.
2. Agriculture & Aquaculture	Intensive row-crop farming, poultry operations, and silviculture contribute sediment, nutrients, and pesticides that degrade streams and backwater habitats.

Table 2.46 Chattahoochee River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
3. Energy Production & Mining	Large hydropower dams (Walter F. George, George W. Andrews) fragment the river, alter natural flows, and affect fish passage and sediment transport.
4. Transportation & Service Corridors	Roads, culverts, and navigation-related infrastructure fragment tributaries, increase sedimentation, and block connectivity for fish and amphibians.
5. Biological Resource Use	Historical mussel harvesting, alteration of host fish communities, and ongoing fishing pressure have reduced aquatic species richness and ecosystem resilience.
6. Human Intrusions & Disturbance	Recreational boating, fishing, and shoreline development cause erosion, disturb riparian zones, and increase pressure on sensitive aquatic species.
7. Natural System Modifications	Flow regulation from major dams alters hydroperiods, temperature regimes, and sediment delivery, leading to loss of natural riverine habitat complexity.
8. Invasive & Problematic Species, Genes and Diseases	Aquatic invasives such as Hydrilla and Asian carp alter food webs and compete with native fishes and mussels; invasive plants like privet encroach on riparian areas.
9. Pollution	Agricultural runoff, poultry litter, and municipal/industrial discharges contribute nutrient enrichment, sedimentation, and oxygen depletion.
10. Geological & Biological Events	Increased drought frequency, storm intensity, and variable rainfall exacerbate flow alterations and stress aquatic systems already regulated by dams.

Location

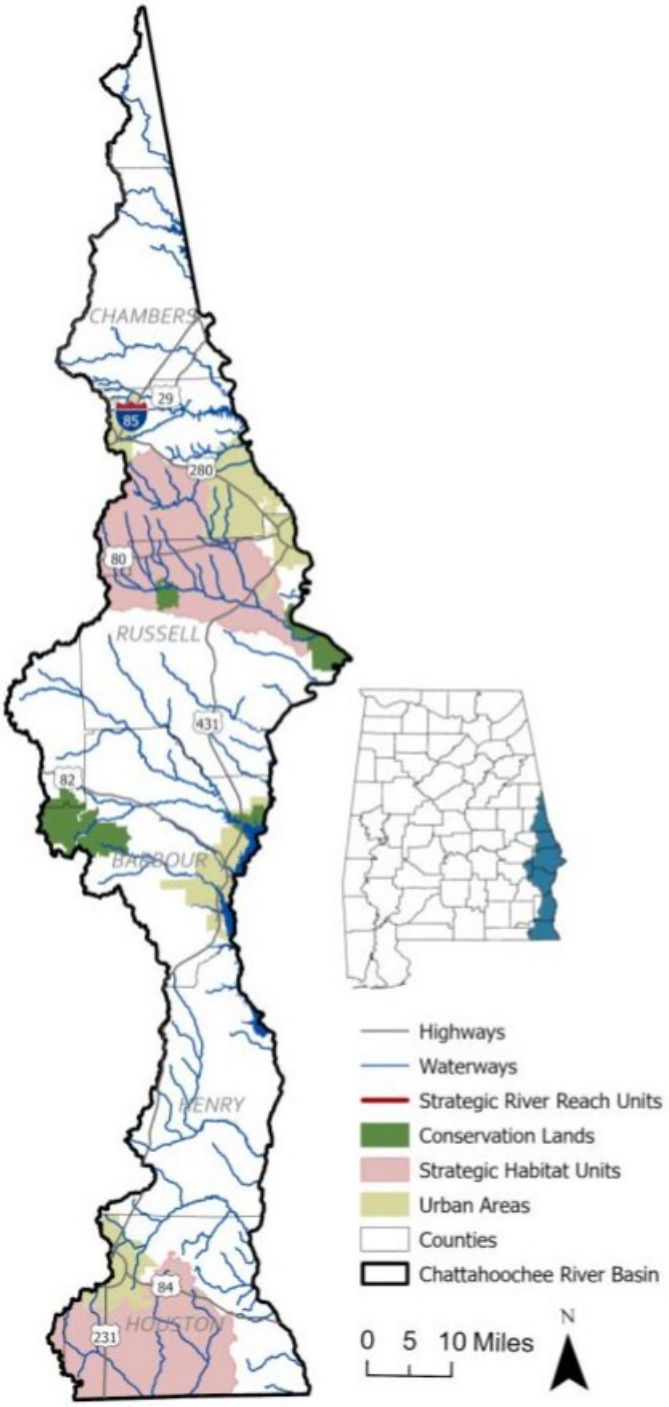

Figure 2.24 Chattahoochee River basin.

Table 2.47 Chattahoochee basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Necturus moleri	Apalachicola Waterdog	P3
Reptiles - 7		
Franacia erytrogramma	Rainbow Snake	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Graptemys barbouri	Barbour's Figure Turtle	P2
Chrysemys dorsalis	Southern Painted Turtle	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Sternotherus minor	Loggerhead Musk Turtle	P3
Crayfishes - 6		
Cambarus howardi	Chattahoochee Crayfish	P1
Cambarus pyronotus	Fireback Crayfish	P1
Procambarus hubbelli	Jackknife Crayfish	P3
Procambarus lewisi	Spur Crayfish	P3
Procambarus paeninsulanus	Peninsula Crayfish	P3
Procambarus verrucosus	Grainy Crayfish	P3
Fishes - 16		
Acipenser desotoi	Gulf Sturgeon	P1
Alburnops hypsilepis	Highscale Shiner	P1
Alosa alabamae	Alabama Shad	P1
Pteronotropis welaka	Bluenose Shiner	P1
Cyprinella callitaenia	Bluestripe Shiner	P1
Lucania goodei	Bluefin Killifish	P1
Micropterus cataractae	Shoal Bass	P1
Percina crypta	Halloween Darter	P1
Pteronotropis cummingsae	Dusky Shiner	P1
Pteronotropis euryzonus	Broadstripe Shiner	P1
Micropterus chattahoochae	Chattahoochee Bass	P2
Pteronotropis grandipinnis	Apalachee Shiner	P2
Campostoma pauciradii	Bluefin Stoneroller	P3
Alosa chrysochloris	Skipjack Herring	P3
Alburnops petersoni	Coastal Shiner	P3
Pteronotropis merlini	Orangetail Shiner	P3

Table 2.47 Chattahoochee basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Mussels - 17		
Lampsilis binominata	Lined Pocketbook	X
Reginaia apalachicola	Apalachicola Ebonyshell	X
Elliptio fraterna	Brother Spike	EX
Elliptio nigella	Winged Spike	EX
Lasmigona subviridis	Green Floater	EX
Alasmidonta triangulata	Southern Elktoe	P1
Elliptio chipolaensis	Chipola Slabshell	P1
Elliptio purpurella	Inflated Spike	P1
Elliptoideus sloatianus	Purple Bankclimber	P1
Hamiota subangulata	Shinyrayed Pocketbook	P1
Medionidus penicillatus	Gulf Moccasinshell	P1
Pleurobema pyriforme	Oval Pigtoe	P1
Pustulosa infucata	Sculptured Pigtoe	P1
Utterbackia peggyae	Florida Floater	P1
Villosa villosa	Downy Rainbow	P2
Utterbackiana heardi	Apalachicola Floater	P3
Toxolasma paulum	Iridescent Lilliput	P3
Snails - 5		
Elimia catenoides	Lirate Elimia	X
Elimia ucheensis	Creek Elimia	P1
Elimia boykiniana	Flaxen Elimia	P2
Elimia albanyensis	Black-crest Elimia	P3
Rhapinema dacryon	Teardrop Snail	P3

CONECUH RIVER BASIN

Description and Condition

The Conecuh River basin (Figure 2.25) originates in southern Alabama near Union Springs and flows southwest into Florida, where it becomes the Escambia River before emptying into Pensacola Bay. In Alabama, the basin includes a network of sandy-bottomed Coastal Plain streams, floodplain hardwood forests, cypress tupelo swamps, and riparian wetlands. Upland pine forests, seepage wetlands, and riparian corridors provide additional habitat for amphibians, reptiles, and migratory birds that depend on the basin's connectivity.

The condition of the basin is fair, with high-quality habitats persisting in forested and less developed reaches, but extensive alteration elsewhere. Agriculture, especially poultry operations and row-crop production, contributes sedimentation, nutrient loading, and bacterial contamination to tributaries. Pine silviculture and logging practices, along with sand and gravel mining, further affect water quality and destabilize channels. Urban development around towns such as Andalusia and Evergreen adds stormwater runoff and wastewater discharges. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.48). Despite these pressures, significant stretches of the Conecuh retain ecological value, and conservation efforts such as riparian buffer restoration, improved agricultural best management practices, and invasive species control can enhance long-term resilience for SGCN.

This basin supports a total of 39 SGCNs: 1 amphibian, 8 reptiles 5 crayfish, 11 fishes, 11 mussels, and 3 snails (Table 2.49).

Habitat Threats

Table 2.48 Conecuh River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Expansion around Andalusia, Evergreen, and other towns leads to increased stormwater runoff, wastewater inputs, and floodplain encroachment.
2. Agriculture & Aquaculture	Poultry operations, row-crop agriculture, and silviculture contribute sediment, nutrient enrichment, and pesticide runoff into tributary streams and wetlands.

Table 2.48 Conecuh River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
3. Energy Production & Mining	Sand and gravel extraction destabilizes streambeds, increases turbidity, and alters aquatic habitat quality.
4. Transportation & Service Corridors	Road crossings, culverts, and pipelines fragment small streams, increase sedimentation, and create barriers to fish and amphibian movement.
5. Biological Resource Use	Historical mussel harvesting and alteration of host fish populations reduce reproductive success for several aquatic SGCN.
6. Human Intrusions & Disturbance	Recreational boating, fishing pressure, and ATV use along riparian zones disturb aquatic species, erode banks, and degrade floodplain vegetation.
7. Natural System Modifications	Dams and impoundments fragment riverine habitat, alter natural flow regimes, and reduce connectivity for migratory fish and mussels.
8. Invasive & Problematic Species, Genes and Diseases	Non-native species such as Hydrilla, Asian carp, and invasive crayfishes compete with native fauna, while Chinese privet and cogongrass degrade riparian areas.
9. Pollution	Nutrient and bacterial contamination from animal waste, septic failures, and municipal discharges impair water quality throughout the basin.
10. Geological & Biological Events	Altered rainfall patterns, drought frequency, and more intense storms increase erosion, reduce summer flows, and stress aquatic communities.

Location

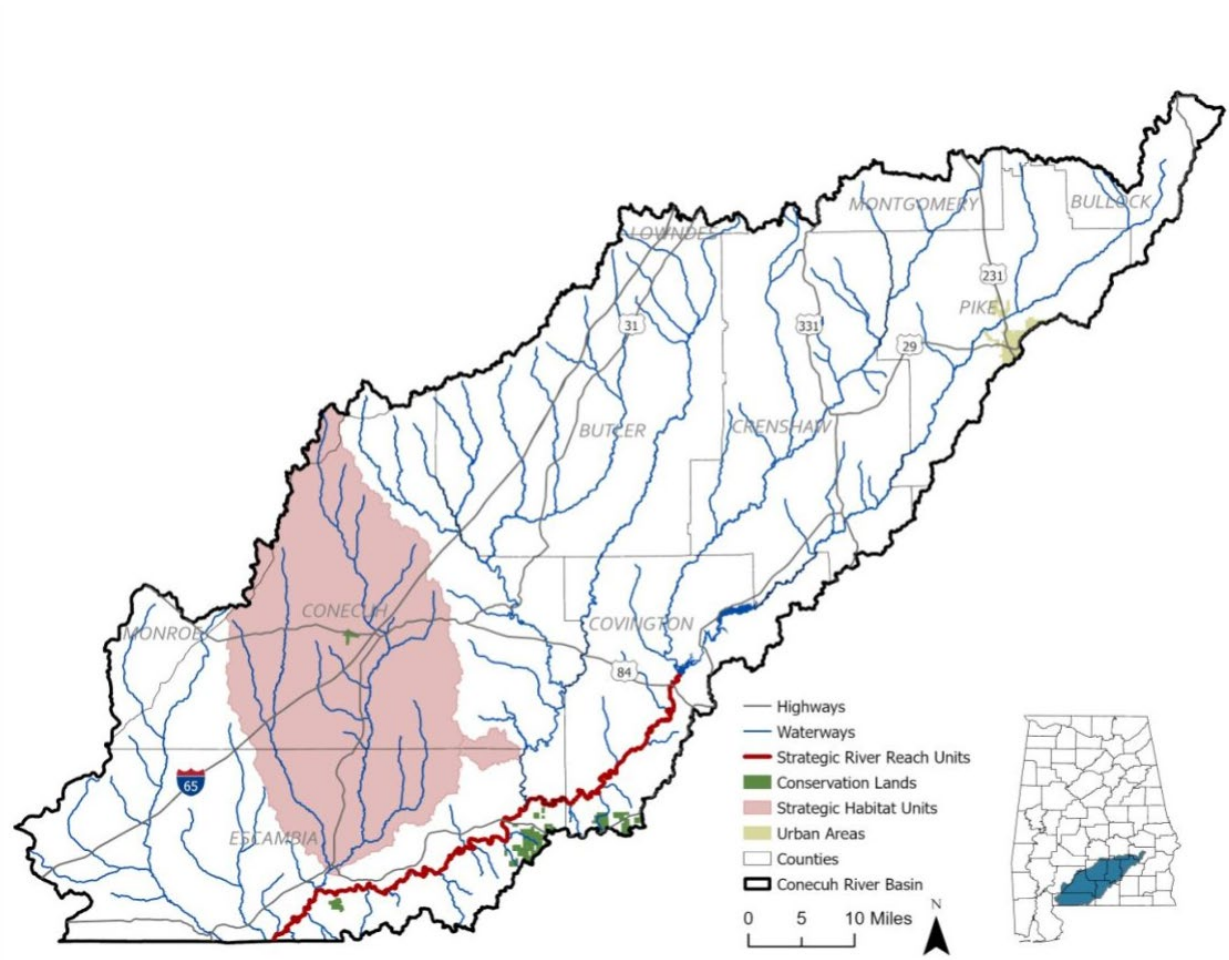

Figure 2B.10. Conecuh River basin.

Table 2.49 Conecuh River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Necturus mounti	Escambia Waterdog	P3
Reptiles - 8		
Farancia erytrogramma	Rainbow Snake	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Liodytes pygaea pygaea	Northern Florida Swampsnake	P2
Graptemys ernsti	Escambia Figure Turtle	P2
Apalone mutica calvata	Gulf Coast Smooth Softshell	P3
Chrysemys dorsalis	Southern Painted Turtle	P3

Table 2.49 Conecuh River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfishes - 5		
Procambarus escambiensis	Escambia Crayfish	P1
Procambarus capillatus	Capillaceous Crayfish	P2
Procambarus lewisi	Spur Crayfish	P3
Creaserinus byersi	Lavender Burrowing Crayfish	P3
Procambarus okaloosae	Okaloosa Crayfish	P3
Fishes - 11		
Acipenser desotoi	Gulf Sturgeon	P1
Alburnops chalybaeus	Ironcolor Shiner	P1
Alosa alabamae	Alabama Shad	P1
Alburnops petersoni	Coastal Shiner	P3
Alosa chrysochloris	Skipjack Herring	P3
Atractosteus spatula	Alligator Gar	P3
Hybognathus hayi	Cypress Minnow	P3
Macrhybopsis pallida	Pallid Chub	P3
Moxostoma carinatum	River Redhorse	P3
Percina austroperca	Southern Logperch	P3
Pteronotropis signipinnis	Flagfin Shiner	P3
Mussels - 11		
Margaritifera marrianae	Alabama Pearlshell	P1
Ptychobranchus jonesi	Southern Kidneyshell	P1
Reginaia rotulata	Round Ebonyshell	P1
Utterbackia peggyae	Florida Floater	P1
Fusconaia escambia	Narrow Pigtoe	P2
Hamiota australis	Southern Sandshell	P2
Pleurobema strodeanum	Fuzzy Pigtoe	P2
Villosa villosa	Downy Rainbow	P2
Elliptio crassidens	Elephantear	P3
Strophitus williamsi	Flatwoods Creekshell	P3
Utterbackiana hartfieldorum	Cypress Floater	P3
Snails - 3		
Elimia exusta	Fire Elimia	P2
Pomacea paludosa	Florida Applesnail	P3

Table 2.49 Conecuh River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Somatogyrus walkerianus	Gulf Coast Pebblesnail	P3

CHOCTAWHATCHEE RIVER BASIN

Description and Condition

The Choctawhatchee River basin (Figure 2.26) drains portions of southeastern Alabama before flowing south into Florida and ultimately into Choctawhatchee Bay. The basin encompasses sandy-bottomed Coastal Plain streams, tannin-stained blackwater channels, cypress–tupelo swamps, and extensive floodplain hardwood forests. It supports a diverse assemblage of aquatic species, including several mussels, crayfishes, and fishes, along with amphibians and reptiles that rely on the basin's wetlands and floodplains. Riparian corridors, seepage wetlands, and oxbow lakes enhance the basin's species richness and provide key ecological services such as nutrient cycling and water filtration.

The condition of the basin is generally fair, with relatively intact reaches in less developed portions of the basin but significant localized degradation. Elba Dam is on the Pea River. The National Inventory of Dams (USACOE 2014) recognizes 291 dams throughout the basin. Agriculture, poultry operations, and pine silviculture contribute to sedimentation, nutrient enrichment, and pesticide runoff. Sand and gravel mining has destabilized some tributary channels, while urban development around Dothan and smaller towns increases stormwater inputs and floodplain encroachment. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.50). Despite these challenges, stretches of high-quality habitat persist, particularly where riparian buffers remain intact. Ongoing watershed partnerships, habitat restoration, and improved land-use practices will be critical to maintain the ecological integrity of the Choctawhatchee.

This basin supports a total of 36 SGCNs: 1 amphibian, 6 reptiles 5 crayfishes, 11 fishes, 9 mussels, and 4 snails (Table 2.51).

Habitat Threats

Table 2.50 Choctawhatchee River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Expansion around Dothan and smaller towns leads to increased stormwater runoff, wastewater discharges, and floodplain encroachment.

Table 2.50 Choctawhatchee River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
2. Agriculture & Aquaculture	Intensive row-crop farming, poultry production, and silviculture contribute sedimentation, nutrient enrichment, and pesticide runoff that impair tributary streams.
3. Energy Production & Mining	Sand and gravel mining along tributaries destabilizes stream channels, increases turbidity, and degrades aquatic habitats.
4. Transportation & Service Corridors	Roads, culverts, and utility crossings fragment tributary streams, increase sedimentation, and limit connectivity for aquatic species.
5. Biological Resource Use	Alteration of fish communities and past overharvest of mussels have reduced reproductive success and aquatic species richness.
6. Human Intrusions & Disturbance	Recreational boating, fishing, and ATV activity in riparian areas disturb sensitive habitats, compact soils, and accelerate erosion.
7. Natural System Modifications	Small dams, impoundments, and channel modifications fragment aquatic habitats, disrupt fish passage, and alter natural flow regimes.
8. Invasive & Problematic Species, Genes and Diseases	Non-native species such as Hydrilla and Asian carp threaten aquatic systems, while invasive plants degrade riparian buffers.
9. Pollution	Agricultural runoff, animal waste, and septic failures introduce nutrients, pathogens, and sediments into streams, impairing water quality.
10. Geological & Biological Events	Increasingly variable rainfall, droughts, and stronger storms exacerbate erosion, flooding, and habitat instability in lowland floodplain systems.

Location

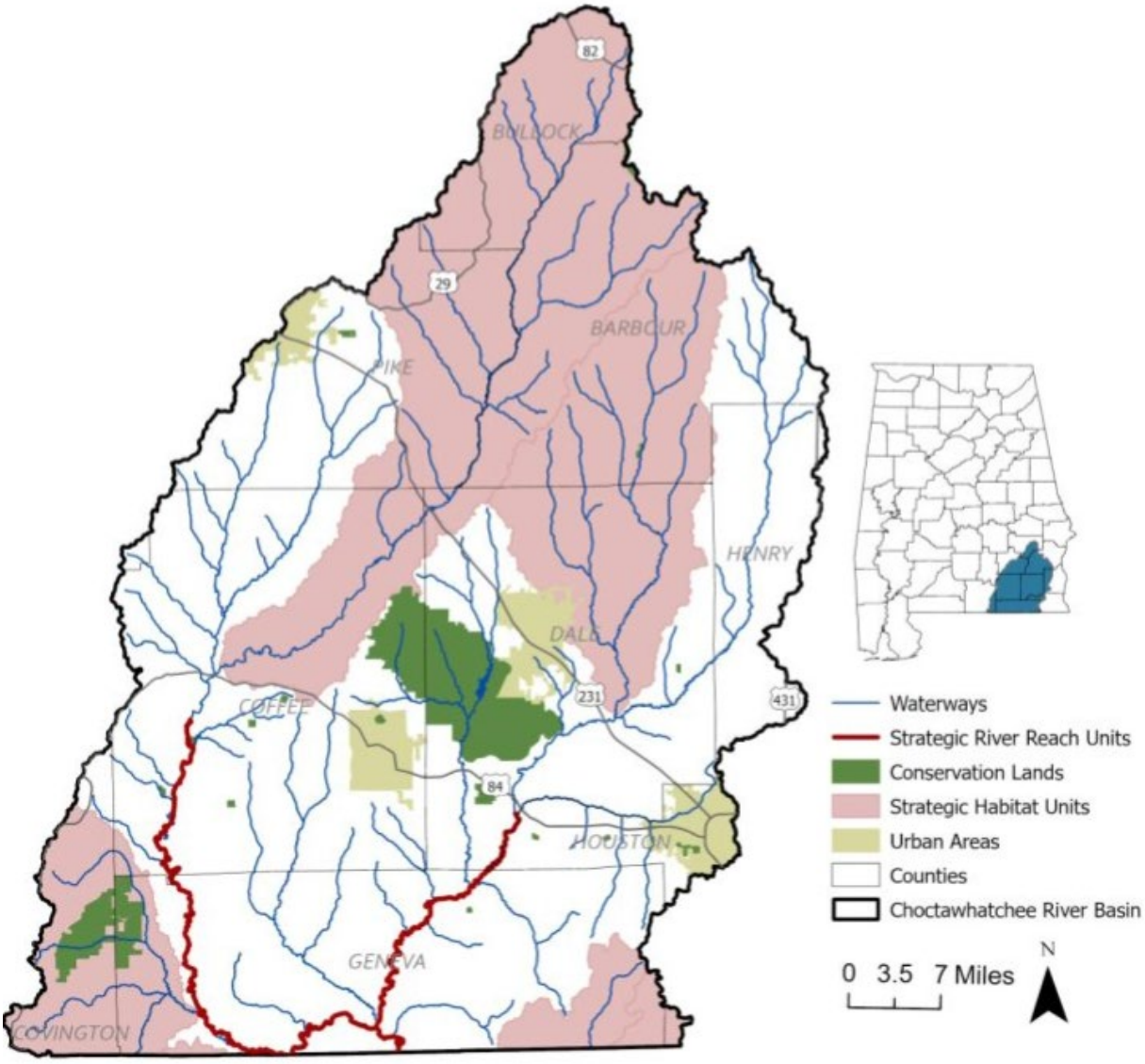

Figure 2.26 Choctawhatchee River basin.

Table 2.51 Choctawhatchee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Necturus moleri	Apalachicola Waterdog	P3
Reptiles - 6		
Farancia erytrogramma	Rainbow Snake	P1
Graptemys barbouri	Barbour's Figure Turtle	P2
Graptemys ernsti	Escambia Figure Turtle	P2

Table 2.51 Choctawhatchee River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Apalone mutica calvata	Gulf Coast Smooth Softshell	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfishes - 5		
Lacunicambarus miltus	Rusty Grave Digger	P3
Procambarus bivittatus	Ribbon Crayfish	P3
Procambarus hubbelli	Jackknife Crayfish	P3
Procambarus paeninsulanus	Peninsula Crayfish	P3
Procambarus verrucosus	Grainy Crayfish	P3
Fishes - 11		
Acipenser desotoi	Gulf Sturgeon	P1
Alburnops chalybaeus	Ironcolor Shiner	P1
Alosa alabamae	Alabama Shad	P1
Pteronotropis welaka	Bluenose Shiner	P1
Pteronotropis grandipinnis	Apalachee Shiner	P2
Alburnops petersoni	Coastal Shiner	P3
Alosa chrysochloris	Skipjack Herring	P3
Ameiurus serracanthus	Spotted Bullhead	P3
Macrhybopsis pallida	Pallid Chub	P3
Percina austroperca	Southern Logperch	P3
Pteronotropis merlini	Orangetail Shiner	P3
Mussels - 9		
Obovaria haddletoni	Haddleton Lampmussel	X
Ptychobranchus jonesi	Southern Kidneyshell	P1
Utterbackia peggyae	Florida Floater	P1
Hamiota australis	Southern Sandshell	P2
Fusconaia burkei	Tapered Pigtoe	P2
Pleurobema strodeanum	Fuzzy Pigtoe	P2
Villosa villosa	Downy Rainbow	P2
Elliptio mcmichaeli	Fluted Elephantear	P3
Strophitus williamsi	Flatwoods Creekshell	P3
Snails - 4		
Obovaria choctawensis	Choctaw Bean	P1
Elimia clenchi	Slackwater Elimia	P3

Table 2.51 Choctawhatchee River basin SGCN.		
SCIENTIFIC NAME	**COMMON NAME**	**RANK**
Elimia glarea	Gravel Elimia	P3
Notogillia wetherbyi	Alligator Siltsnail	P3
Rhapinema dacryon	Teardrop Snail	P3

TALLAPOOSA RIVER BASIN

Description and Condition

The Tallapoosa River basin (Figure 2.27) drains portions of east-central Alabama before joining the Coosa River at Wetumpka to form the Alabama River. The basin includes upland Piedmont streams, rocky shoals, large river channels, floodplain wetlands, and riparian forests. Historically, the Tallapoosa supported one of the most diverse aquatic faunas in the Southeast, with many endemic mussels and fishes, several of which are federally listed or considered SGCN. Shoal habitats in particular were critical for unique aquatic communities and remain conservation priorities.

The condition of the basin is heavily altered, though with localized high-quality reaches. Construction of multiple hydropower dams, Harris (10,661 acres), Martin (39,000 acres), Yates (1,980 acres), and Thurlow (585 acres) has fragmented the river, inundated shoal habitats, and altered flow and temperature regimes, resulting in major losses of aquatic species richness. The National Inventory of Dams (USACOE 2014) recognizes 714 dams throughout the basin. Tributaries in forested and less developed areas remain in fair condition, supporting relatively intact aquatic and riparian communities, but many streams are degraded by sedimentation, nutrient enrichment, and runoff from agriculture, poultry operations, silviculture, and urban growth around Auburn–Opelika and Alexander City. The 2014 ADEM 303(d) list identifies 150 miles of streams in the Tallapoosa basin that either do not support or only partially support their designated uses, primarily due to siltation related to sand and gravel mining and agriculture. Portions of Yates Lake, Thurlow Reservoir, and Lake Martin are impaired due to atmospheric deposition of mercury and organic enrichment. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.52). While much of the mainstem is considered in poor condition due to impoundments, ongoing conservation actions including shoal habitat restoration, flow management improvements, riparian buffer protection, and invasive species control, offer opportunities to sustain the basin.

This basin supports a total of 28 SGCNs: 1 amphibian, 5 reptiles 3 crayfishes, 9 fishes, 9 mussels, and 1 snail (Table 2.53).

Habitat Threats

Table 2.52 Tallapoosa River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Expansion around Alexander City, Auburn–Opelika, and other urban centers increases impervious surfaces, stormwater runoff, and wastewater discharges into tributaries.
2. Agriculture & Aquaculture	Poultry production, row-crop agriculture, and silviculture contribute sedimentation, nutrient enrichment, and pesticide runoff into upland and lowland streams.
3. Energy Production & Mining	Extensive hydropower dams (e.g., Martin, Yates, Thurlow, Harris) fragment habitats, alter flows, change temperature regimes, and inundate shoal habitats critical to many aquatic species.
4. Transportation & Service Corridors	Road crossings, culverts, and pipelines fragment streams, increase sedimentation, and restrict connectivity for fish and amphibians.
5. Biological Resource Use	Historical mussel harvest and alteration of host fish communities have reduced reproduction and distribution of several mussel and fish SGCN.
6. Human Intrusions & Disturbance	Recreational boating and shoreline development around reservoirs cause erosion, disturb riparian vegetation, and degrade shallow-water habitats.
7. Natural System Modifications	Impoundments and channel modifications disrupt sediment and nutrient transport, fragment migratory pathways, and reduce aquatic species richness.
8. Invasive & Problematic Species, Genes and Diseases	Aquatic invasives such as Hydrilla, Asian clams, and Asian carp compete with native species; privet and cogongrass degrade riparian buffers.
9. Pollution	Agricultural runoff, municipal and industrial wastewater, and urban stormwater impair water quality, contributing to nutrient and pathogen loading.
10. Geological & Biological Events	Increasing drought frequency, altered rainfall, and intense storms exacerbate flow variability, erosion, and water quality degradation.

Location

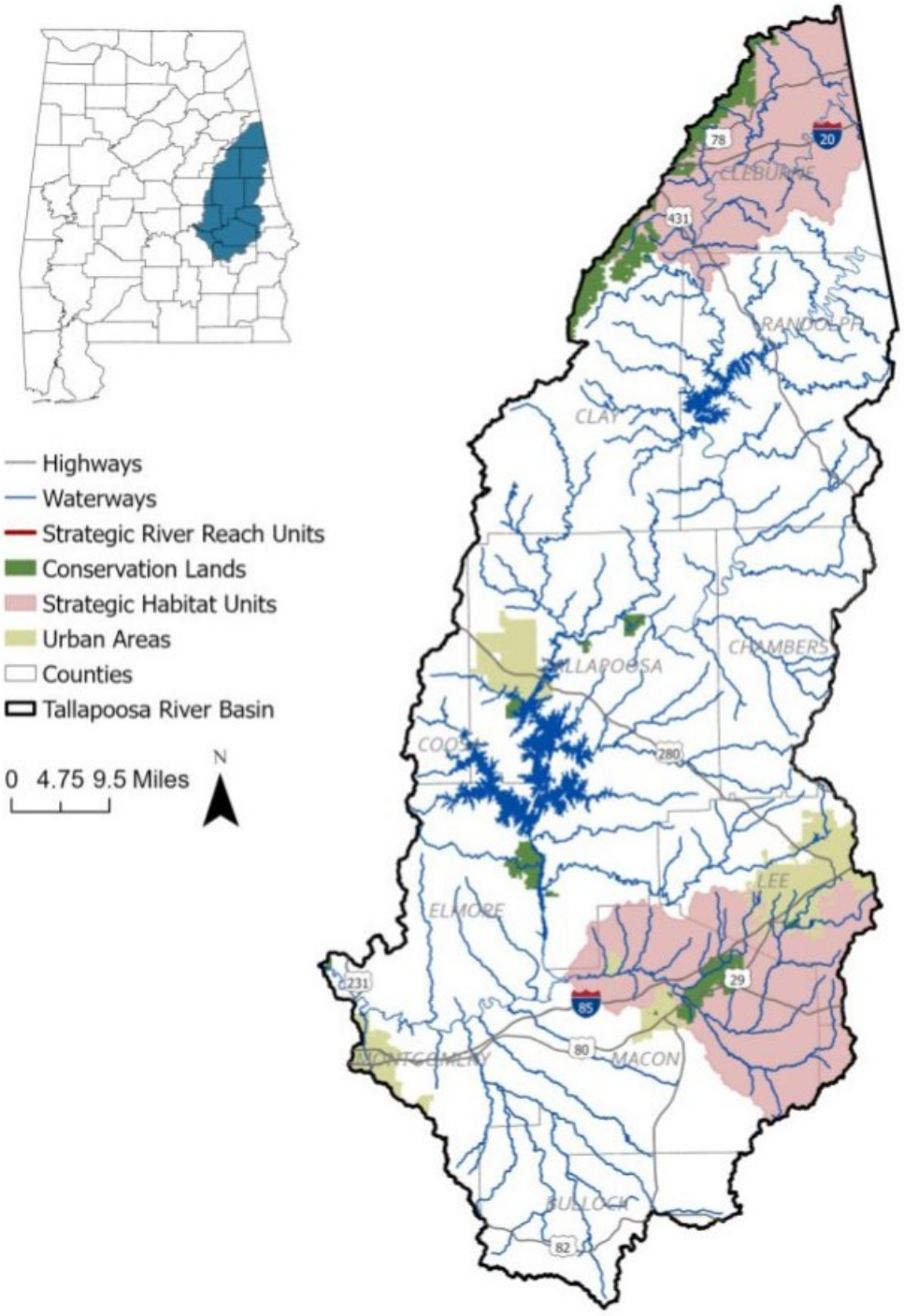

Figure 2.27 Tallapoosa River basin.

Table 2.53 Tallapoosa River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Necturus beyeri	Western Waterdog	P3
Reptiles - 5		
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Apalone mutica calvata	Gulf Coast Smooth Softshell	P3
Graptemys pulchra	Alabama Figure Turtle	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfishes- 3		
Cambarus englishi	Tallapoosa Crayfish	P3
Procambarus lewisi	Spur Crayfish	P3
Procambarus verrucosus	Grainy Crayfish	P3
Fishes - 9		
Hiodon tergisus	Mooneye	P2
Ameiurus serracanthus	Spotted Bullhead	P3
Crystallaria asprella	Crystal Darter	P3
Fundulus bifax	Stippled Studfish	P3
Hybognathus hayi	Cypress Minnow	P3
Macrhybopsis etnieri	Coosa Chub	P3
Miniellus uranoscopus	Skygazer Shiner	P3
Moxostoma carinatum	River Redhorse	P3
Percina lenticula	Freckled Darter	P3
Mussels - 9		
Elliptio arca	Alabama Spike	P1
Elliptio arctata	Delicate Spike	P1
Pleurobema perovatum	Ovate Clubshell	P1
Pustulosa archeri	Tallapoosa Orb	P1
Toxolasma corvunculus	Southern Purple Lilliput	P1
Hamiota altilis	Finelined Pocketbook	P2
Pleurobema decisum	Southern Clubshell	P2
Pseudodonoideus connasaugaensis	Alabama Creekmussel	P2
Pseudodonoideus subvexus	Southern Creekmussel	P3

Table 2.53 Tallapoosa River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Elliptio crassidens	Elephantear	P3
Lasmigona alabamensis	Alabama Heelsplitter	P3
Snail - 1		
Somatogyrus pilsbryanus	*Somatogyrus pilsbryanus*	P3

ESCATAWPA RIVER BASIN

Description and Condition

The Escatawpa River basin (Figure 2.28) occupies a small portion of southwestern Alabama before flowing into Mississippi and ultimately into the Pascagoula River system. It is characterized by low gradient Coastal Plain streams, blackwater channels, seepage wetlands, cypress tupelo swamps, and extensive bottomland hardwood forests. Sandy substrates, tannin-stained waters, and intact riparian zones support a unique aquatic community. The basin's wetlands and floodplains provide habitat for amphibians, reptiles, and migratory birds.

The condition of the basin is generally fair, with intact habitats persisting in less developed areas but increasing pressure from human activities. Agriculture and pine silviculture contribute sedimentation, nutrient enrichment, and pesticide runoff into tributaries. The 2014 ADEM 303(d) list identifies 80 miles of streams (Escatawpa River, Boggy Branch, and Collins Creek) in the Escatawpa basin that either do not support or only partially support their designated uses primarily due to the presence of pollutants (mercury, lead, iron, and arsenic). In addition, much of Mississippi Sound, Portersville Bay, and Grand Bay are impaired due to pathogens of municipal and industrial origin. Sand and gravel mining destabilizes channels and increases turbidity. Urban development near Mobile and smaller communities adds stormwater inputs and floodplain encroachment. Big Creek Lake, also known as Converse Reservoir, is the largest impoundment at 3,600 acres. The National Inventory of Dams (USACOE 2014) recognizes 54 dams throughout the basin. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.54). Despite these pressures, portions of the Escatawpa remain relatively high quality, particularly where forested buffers are intact and hydrology is unaltered. Conservation actions such as riparian restoration, improved forestry and agricultural best management practices, invasive species control, and protection of wetlands are essential.

This basin supports a total of 27 SGCNs: 7 reptiles, 12 crayfishes, 7 fishes, and 1 mussel (Table 2.55).

Habitat Threats

Table 2.54 Escatawpa River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Expansion near Mobile and suburban growth into coastal watersheds increas-es impervious cover, stormwater runoff, and riparian disturbance.
2. Agriculture & Aquaculture	Silviculture, poultry operations, and row-crop fields contribute sediment, nutrient enrichment, and chemical runoff to tributary streams.
3. Energy Production & Mining	Sand and gravel extraction destabilizes streambeds, increases turbidity, and re-duces aquatic habitat quality.
4. Transportation & Service Corridors	Roads, culverts, and pipelines fragment tributaries, increase sedimentation, and serve as corridors for invasive species spread.
5. Biological Resource Use	Localized overfishing and removal of in-stream woody debris reduce habitat structure and alter food webs.
6. Human Intrusions & Disturbance	Recreational boating, ATV activity, and shoreline clearing cause bank erosion, disturb riparian vegetation, and fragment floodplain habitats.
7. Natural System Modifications	Small impoundments, channel modifications, and drainage projects alter flow regimes, fragment habitats, and reduce connectivity for aquatic species.
8. Invasive & Problematic Species, Genes and Diseases	Invasives such as Hydrilla, Asian carp, and non-native crayfishes compete with native fauna; Chinese privet and Cogongrass invade riparian areas.
9. Pollution	Nonpoint-source runoff from agriculture and septic failures contributes nutrients, pathogens, and sediment; industrial dis-charges and urban stormwater also im-pair water quality.
10. Geological & Biological Events	Increased storm intensity, hurricanes, and altered rainfall patterns exacerbate flooding, erosion, and saltwater intrusion into lowland habitats.

Location

Figure 2.28 Escatawpa River basin.

Table 2.55 Escatawpa River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Reptiles -7		
Farancia erytrogramma	Rainbow Snake	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Sternotherus carinatus	Razor-backed Musk Turtle	P3
Chrysemys dorsalis	Southern Painted Turtle	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Terrapene carolina major	Gulf Coast Box Turtle	P3
Crayfishes - 12		
Creaserinus danielae	Speckled Burrowing Crayfish	P1
Lacunicambarus freudensteini	Banded Mudbug	P1
Lacunicambarus mobilensis	Lonesome Gravedigger	P1
Cambarellus diminutus	Least Crayfish	P2
Procambarus clemmeri	Cockscomb Crayfish	P2
Procambarus evermanni	Panhandle Crayfish	P2
Procambarus lecontei	Mobile Crayfish	P2
Procambarus planirostris	Flatnose Crayfish	P2
Cambarellus shufeldtii	Cajun Dwarf Crayfish	P3
Creaserinus burrisi	Burrowing Bog Crayfish	P3
Procambarus shermani	Gulf Crayfish	P3
Procambarus zonangulus	Southern White River Crawfish	P3
Fishes - 7		
Ammocrypta vivax	Scaly Sand Darter	EX
Alburnops chalybaeus	Ironcolor Shiner	P1
Alosa alabamae	Alabama Shad	P1
Alosa chrysochloris	Skipjack Herring	P3
Enneacanthus gloriosus	Bluespotted Sunfish	P3
Etheostoma lynceum	Brighteye Darter	P3
Pteronotropis signipinnis	Flagfin Shiner	P3
Mussels - 1		
Pleurobema beadleianum	Mississippi Pigtoe	P1

YELLOW RIVER BASIN

Description and Condition

The Yellow River basin (Figure 2.29) is located in southern Alabama, draining portions of Covington County before flowing south into Florida and ultimately into the Choctawhatchee River system. The basin is characterized by sandy-bottomed Coastal Plain streams, black-water channels, oxbow lakes, and extensive floodplain wetlands. Cypress tupelo swamps, bottomland hardwood forests, and riparian buffers provide habitat for a diverse suite of aquatic and terrestrial species. Upland pine forests, seepage wetlands, and associated floodplain habitats also support amphibians, reptiles, and migratory birds, making the basin an important ecological corridor.

The condition of the basin is generally fair, with relatively intact habitats persisting in forested and less developed reaches but increasing stress from human activities. The Conecuh basin has a history of water quality impacts from agricultural, industrial, and municipal sources. However, water quality has improved substantially over the past 40 years. ADEM 303(d) list identifies portions of the Conecuh River mainstem along with major tributaries (Sepulga River, Murder Creek, Burnt Corn Creek, Little Escambia Creek, Big Escambia Creek) that either do not support or only partially support their designated uses due to atmospheric deposition of mercury. Other impairment is due to siltation and organic enrichment from agricultural sources. Agriculture and poultry production contribute sediment, nutrients, and pathogens to tributaries, while pine silviculture and logging alter water quality and hydrology. Sand and gravel mining destabilizes stream channels impact aquatic and riparian integrity. There are two dams on the mainstem: Gantt (2,747 acres) and Point A (700 acres). The National Inventory of Dams (USACOE 2014) recognizes 294 dams throughout the basin. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.56). Despite these challenges, portions of the basin remain in good condition, particularly where riparian buffers and wetlands are intact. Conservation priorities include protecting high-quality tributaries, restoring riparian zones, implementing best management practices, and controlling invasive species to sustain species richness and ecosystem functions.

This basin support 23 SGCN: 1 amphibian, 7 reptiles 2 crayfishes, 6 fishes, 5 mussels, and 2 snails (Table 2.57).

Habitat Threats

Table 2.56 Yellow River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Expansion of towns and rural development in Covington and surrounding counties increases stormwater runoff, wastewater discharges, and loss of riparian buffers.
2. Agriculture & Aquaculture	Poultry operations, pastures, row-crop farming, and pine silviculture contribute sedimentation, nutrient loading, and pesticide runoff into tributaries and floodplain wetlands.
3. Energy Production & Mining	Sand and gravel extraction disturbs stream channels, increases turbidity, and reduces habitat quality for aquatic SGCN.
4. Transportation & Service Corridors	Roads, bridges, and culverts fragment small streams, increase sediment delivery, and restrict movement of aquatic organisms.
5. Biological Resource Use	Altered fish populations and past overharvest of mussels reduce reproductive success and ecosystem balance in streams.
6. Human Intrusions & Disturbance	Recreational boating, ATV use, and bank clearing along riparian areas disturb sensitive habitats, increase erosion, and compact soils.
7. Natural System Modifications	Small impoundments, drainage modifications, and road culverts fragment habitats, alter flow regimes, and reduce connectivity for fish, mussels, and amphibians.
8. Invasive & Problematic Species, Genes and Diseases	Hydrilla, Asian carp, and non-native crayfishes threaten aquatic species richness; privet and cogongrass displace native riparian vegetation.
9. Pollution	Agricultural runoff, septic leakage, and stormwater contribute nutrients, bacteria, and sediments that impair water quality.
10. Geological & Biological Events	Increased storm intensity, flooding, and droughts alter hydrology, exacerbate erosion, and stress aquatic species in the basin.

Location

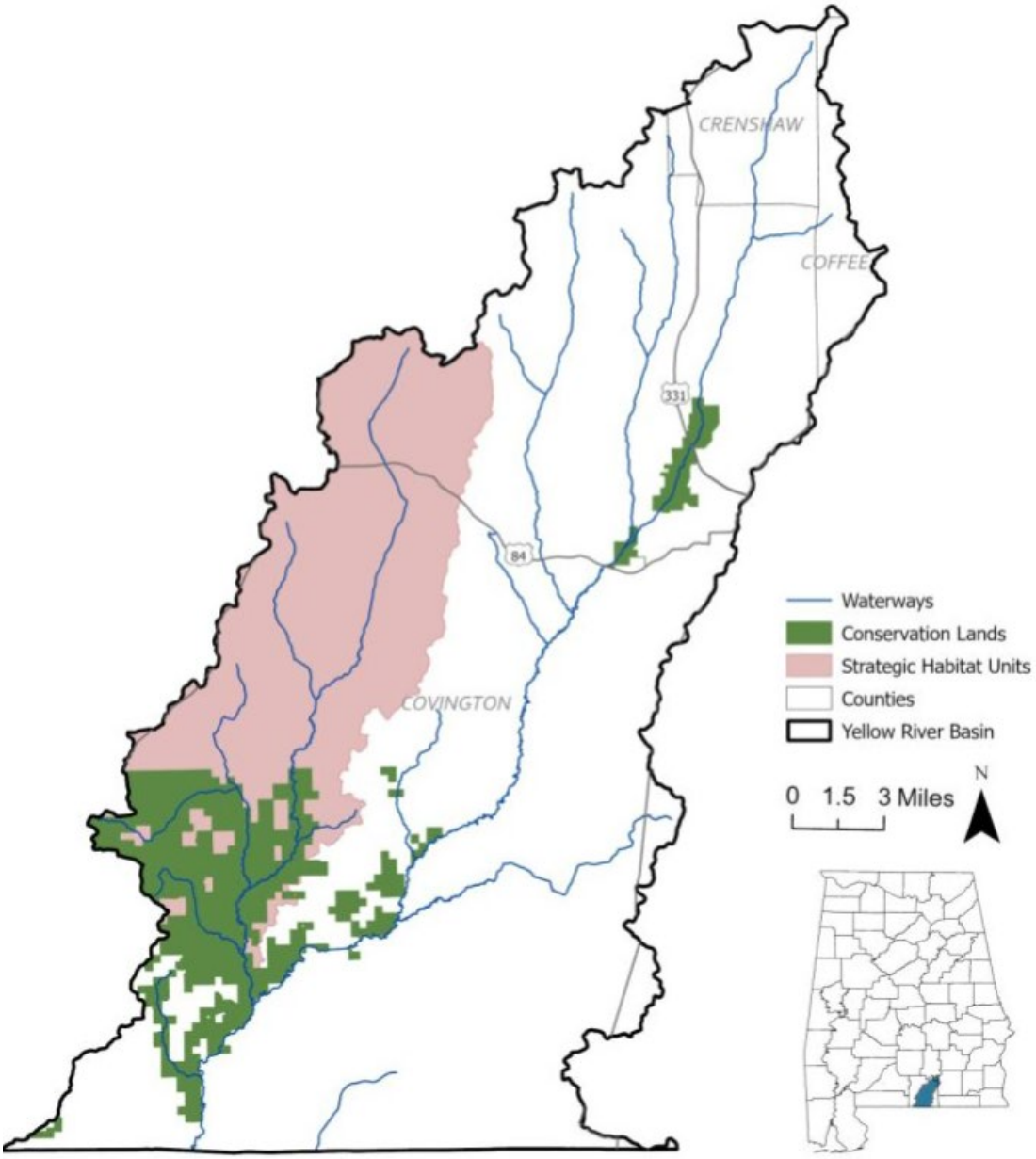

Figure 2.29 Yellow River basin.

Table 2.57 Yellow River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Necturus mounti	Escambia Waterdog	P3
Reptiles - 7		
Farancia erytrogramma	Rainbow Snake	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Graptemys ernsti	Escambia Figure Turtle	P2
Liodytes pygaea pygaea	Northern Florida Swampsnake	P2
Apalone mutica calvata	Gulf Coast Smooth Softshell	P3
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfishes - 2		
Procambesarus hubbelli	Jackknife Crayfish	P3
Procambarus okaloosae	Okaloosa Crayfish	P3
Fishes - 6		
Acipenser desotoi	Gulf Sturgeon	P1
Pteronotropis welaka	Bluenose Shiner	P1
Fundulus cingulatus	Banded Topminnow	P3
Macrhybopsis pallida	Pallid Chub	P3
Pteronotropis merlini	Orangetail Shiner	P3
Pteronotropis signipinnis	Flagfin Shiner	P3
Mussels - 5		
Ptychobranchus jonesi	Southern Kidneyshell	P1
Pleurobema strodeanum	Fuzzy Pigtoe	P1
Utterbackia peggyae	Florida Floater	P1
Fusconaia escambia	Narrow Pigtoe	P2
Elliptio mcmichaeli	Fluted Elephantear	P3
Snails - 2		
Elimia buffyae	Iris Elimia	P3
Elimia bullula	Yellowleaf Elimia	P3

PERDIDO RIVER BASIN

Description and Condition

The Perdido River basin (Figure 2.30) forms part of the Alabama–Florida border before emptying into Perdido Bay and the Gulf. In Alabama, the basin drains portions of Baldwin and Escambia counties, encompassing sandy-bottomed Coastal Plain streams, blackwater river channels, oxbow lakes, and floodplain wetlands dominated by cypress, tupelo, and bottomland hardwoods. Riparian corridors and adjacent uplands support diverse habitats that sustain amphibians, reptiles, birds, and mammals, while the aquatic system provides habitat for numerous freshwater mussels, fishes, and crayfishes. The basin also contributes to the health of estuarine and coastal ecosystems downstream, linking inland habitats to the Gulf Coast.

The condition of the basin is fair**,** with relatively intact habitats in forested floodplain reaches but significant stress from human activities. Rapid coastal development in Baldwin County has increased stormwater runoff, wastewater discharges, and floodplain encroachment. The 2014 ADEM 303(d) list identifies 22 miles of the Perdido River and 41 miles of the Styx River, a Perdido River tributary, as impaired due to mercury contamination from atmospheric deposition. No dams are on the mainstem. The National Inventory of Dams (USACOE 2014) recognizes 42 dams throughout the basin. Agriculture and poultry operations contribute sediment, nutrients, and pathogens to tributaries, while pine silviculture and logging affect water quality and hydrology. Extreme weather events further stress the lower basin and estuarine habitats. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.58). Despite these challenges, portions of the basin remain ecologically valuable, particularly where wetlands and riparian buffers are intact, and ongoing conservation actions can improve resilience and sustain species richness.

This basin supports 18 SGCN: 1 amphibian, 5 reptiles, 6 crayfishes, and 6 fishes (Table 2.59).

Habitat Threats

Table 2.58 Perdido River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Rapid growth along the Gulf Coast, including Baldwin County, increases impervious surfaces, stormwater runoff, and floodplain encroachment that stress aquatic and riparian habitats.
2. Agriculture & Aquaculture	Poultry operations, row crops, and pine silviculture contribute sedimentation, nutrient enrichment, and pesticide runoff to streams and wetlands.

Table 2.58 Perdido River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
3. Energy Production & Mining	Sand and gravel extraction in riparian zones destabilizes stream channels, increases turbidity, and reduces aquatic habitat quality.
4. Transportation & Service Corridors	Road crossings, culverts, and utility corridors fragment tributaries, increase sediment loads, and restrict aquatic species movement.
5. Biological Resource Use	Alteration of fish communities and past mussel harvest reduce reproductive success of aquatic Species of Greatest Conservation Need (SGCN).
6. Human Intrusions & Disturbance	Recreational boating, fishing, and ATV activity in riparian areas disturb sensitive habitats, increase erosion, and compact floodplain soils.
7. Natural System Modifications	Small impoundments, drainage projects, and channel modifications disrupt natural flows, fragment fish and mussel populations, and reduce floodplain connectivity.
8. Invasive & Problematic Species, Genes and Diseases	Invasives such as Hydrilla and Asian carp threaten aquatic systems, while riparian invasives like Cogongrass and Chinese privet displace native vegetation.
9. Pollution	Agricultural runoff, animal waste, septic failures, and urban stormwater contribute nutrients, pathogens, and sediments that impair water quality.
10. Geological & Biological Events	Sea-level rise, saltwater intrusion, hurricanes, and altered rainfall patterns exacerbate erosion, flooding, and stress on aquatic habitats.

Location

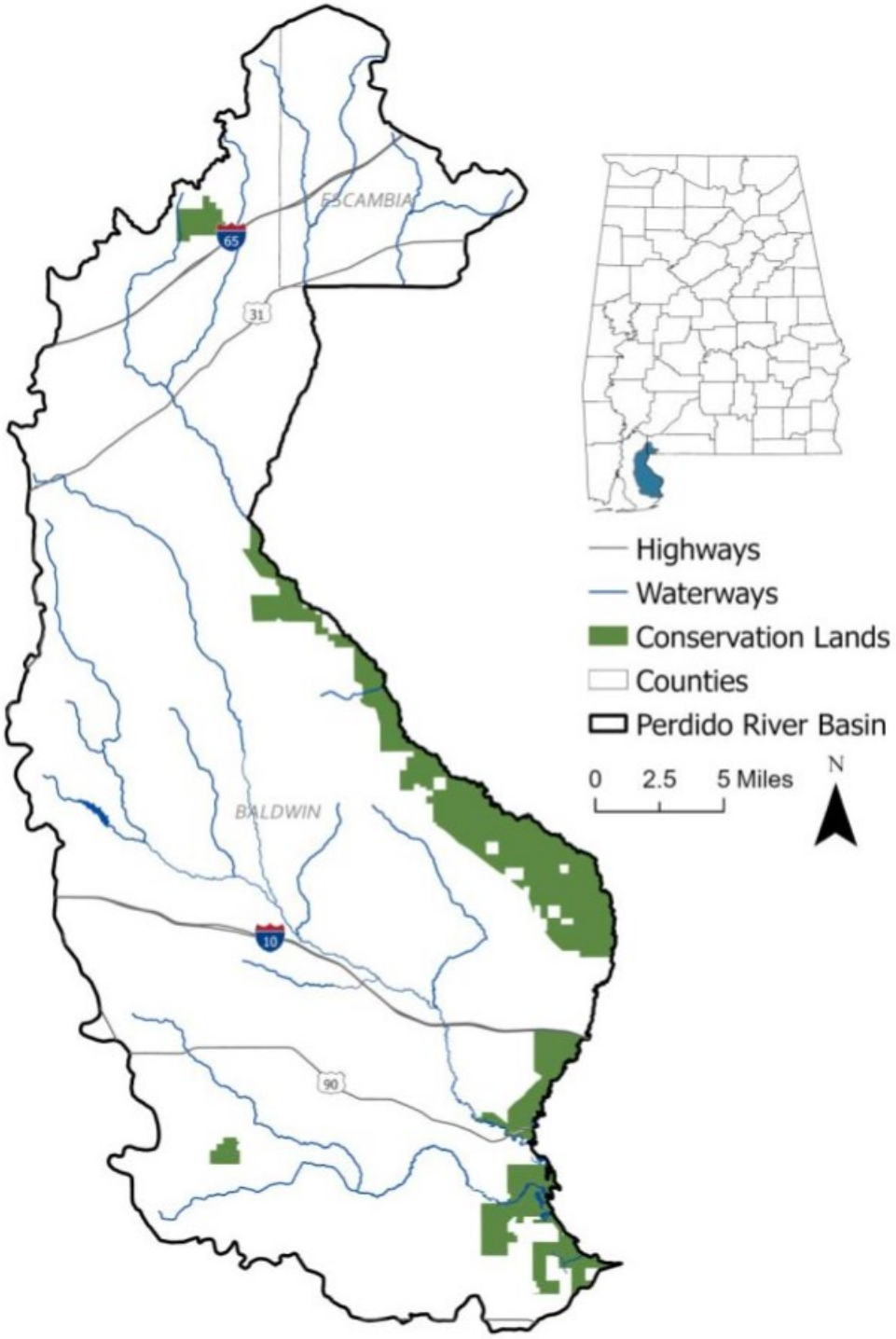

Figure 2.30 Perdido River basin.

Table 2.59 Perdido River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Amphibians - 1		
Necturus mounti	Escambia Waterdog	P3
Reptiles - 5		
Farancia erytrogramma	Rainbow Snake	P1
Deirochelys reticularia reticularia	Eastern Chicken Turtle	P2
Nerodia floridana	Florida Green Watersnake	P2
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfishes - 6		
Procambarus escambiensis	Escambia Crayfish	P1
Creaserinus burrisi	Burrowing Bog Crayfish	P3
Fallicambarus byersi	Lavender Burrowing Crayfish	P3
Lacunicambarus miltus	Rusty Grave Digger	P3
Procambarus okaloosae	Okaloosa Crayfish	P3
Procambarus shermani	Gulf Crayfish	P3
Fishes - 6		
Acipenser desotoi	Gulf Sturgeon	P1
Elassoma evergladei	Everglades Pygmy Sunfish	P2
Alburnops petersoni	Coastal Shiner	P3
Enneacanthus obesus	Banded Sunfish	P3
Leptolucania ommata	Pygmy Killifish	P3
Pteronotropis signipinnis	Flagfin Shiner	P3

BLACKWATER RIVER BASIN

Description and Condition

The Blackwater River basin (Figure 2.31) lies in the southwestern part of Alabama near the Florida border, draining through low-gradient Coastal Plain terrain into the Yellow and Perdido river systems. The basin includes a mix of sandy-bottomed streams, blackwater channels, floodplain forests, and cypress tupelo swamps. Riparian forests, wetlands, and connected upland habitats provide essential corridors for wildlife and help maintain the hydrology and water quality of the basin. Although only 148 square miles of the basin's 860 square miles are within Alabama, it provides an important corridor between the Conecuh National Forest and the adjacent 297 square mile Blackwater River State Forest in Florida.

No Strategic Habitat Units are designated in the basin. Protection afforded this basin by Conecuh National Forest and Blackwater River State Forest result in nearly 50 miles of the river corridor in Alabama and Florida being remote and undeveloped. The Blackwater River is considered one of Florida's most pristine waterways and has been designated an Outstanding Florida Water. Public use facilities include the 31-mile Blackwater River Canoe Trail and Blackwater River State Park. The pristine nature of the Blackwater River and associated recreational facilities make it one of the most popular canoeing streams in Florida. No streams in the Alabama portion of the basin are included in the 2014 ADEM 303(d) list of impaired waters.

The condition of the basin is generally fair, with high quality habitats persisting in less developed reaches but widespread alteration evident elsewhere. Agricultural activities, silviculture, and urban expansion have contributed to sedimentation, nutrient enrichment, and fragmentation of riparian zones. Sand and gravel mining has destabilized some tributary channels, while invasive species threaten both aquatic and riparian communities. The International Union for Conservation (IUCN) Conservation Measure Partnership (CMP) has identified several direct threats to this habitat (Table 2.60). Despite these stressors, portions of the basin retain relatively intact, especially in areas buffered by wetlands and forests. Conservation actions including riparian buffer restoration, water quality protection, and invasive species control are essential to maintain the basin's ecological integrity.

This basin supports 6 SGCN: 4 reptiles, 1 crayfish and 1 fishes (Table 2.61).

Table 2.60 Blackwater River basin habitat threats categorized by the International Union for Conservation of Natures Red List (IUCN) Conservation Measure Partnership (CMP) IUCN-CMP Unified Classification of Direct Threats.

IUCN THREAT CATEGORY	THREAT DESCRIPTION
1. Residential & Commercial Development	Rapid growth along the Gulf Coast, increases impervious surfaces, stormwater runoff, and floodplain encroachment that stress aquatic and riparian habitats.
2. Agriculture & Aquaculture	Poultry operations, row crops, and pine silviculture contribute sedimentation, nutrient enrichment, and pesticide runoff to streams and wetlands.
3. Energy Production & Mining	Sand and gravel extraction in riparian zones destabilizes stream channels, increases turbidity, and reduces aquatic habitat quality.
4. Transportation & Service Corridors	Road crossings, culverts, and utility corridors fragment tributaries, increase sediment loads, and restrict aquatic species movement.
5. Biological Resource Use	Alteration of fish communities and past mussel harvest reduce reproductive success of aquatic Species of Greatest Conservation Need (SGCN).
6. Human Intrusions & Disturbance	Recreational boating, fishing, and ATV activity in riparian areas disturb sensitive habitats, increase erosion, and compact floodplain soils.
7. Natural System Modifications	Small impoundments, drainage projects, and channel modifications disrupt natural flows, fragment fish and mussel populations, and reduce floodplain connectivity.
8. Invasive & Problematic Species, Genes and Diseases	Invasives such as Hydrilla and Asian carp threaten aquatic systems, while riparian invasives like Cogongrass and Chinese privet displace native vegetation.
9. Pollution	Agricultural runoff, animal waste, septic failures, and urban stormwater contribute nutrients, pathogens, and sediments that impair water quality.
10. Geological & Biological Events	Sea-level rise, saltwater intrusion, hurricanes, and altered rainfall patterns exacerbate erosion, flooding, and stress on aquatic habitats.

Location

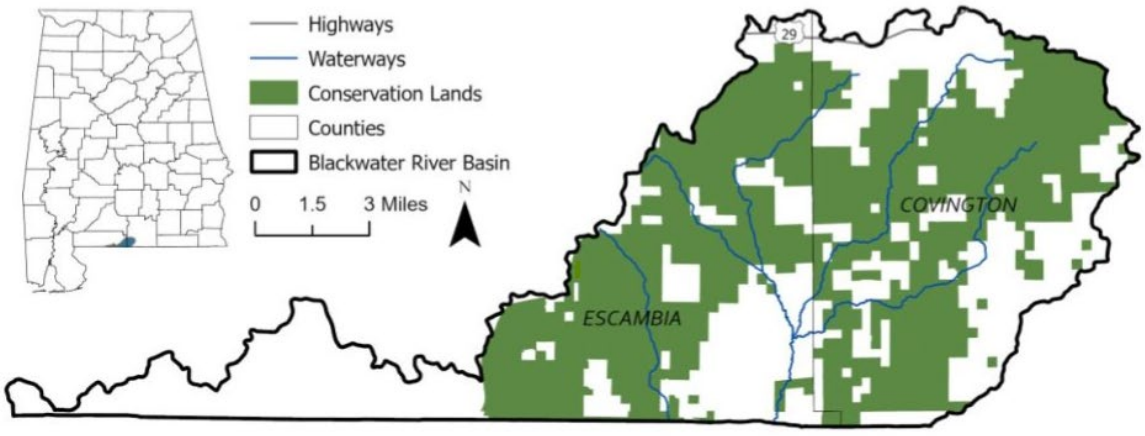

Figure 2.31 Blackwater River basin.

Table 2.61 Backwater River basin SGCN.

SCIENTIFIC NAME	COMMON NAME	RANK
Reptiles - 4		
Farancia erytrogramma	Rainbow Snake	P1
Liodytes pygaea pygaea	Northern Florida Swampsnake	P2
Kinosternon baurii	Striped Mud Turtle	P3
Macrochelys temminckii	Alligator Snapping Turtle	P3
Crayfish - 1		
Procambarus okaloosae	Okaloosa Crayfish	P1
Fishes - 1		
Pteronotropis signipinnis	Flagfin Shiner	P3