Southeast Conservation Blueprint Summary

for Alabama

Created 01/19/2024

Table of Contents

About the Southeast Blueprint	3
Southeast Blueprint Priorities	4
Hubs and Corridors	6
Indicator Summary	8
Threats	60
Ownership and Partners	64
Credits	69

The Southeast Conservation Adaptation Strategy



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About the Southeast Blueprint

The Southeast Conservation Blueprint is the primary product of the <u>Southeast Conservation Adaptation</u> <u>Strategy</u> (SECAS). It is a living, spatial plan to achieve the SECAS vision of a connected network of lands and waters across the Southeast and Caribbean. The Blueprint is regularly updated to incorporate new data, partner input, and information about on-the-ground conditions.

The Blueprint identifies priority areas based on a suite of natural and cultural resource indicators representing terrestrial, freshwater, and marine ecosystems. A connectivity analysis identifies corridors that link coastal and inland areas and span climate gradients.

For more information:

- Visit the <u>Blueprint webpage</u>
- Review the <u>Blueprint 2023 Development Process</u>
- View and download the Blueprint data and make maps on the Blueprint page of the SECAS Atlas

We're here to help!

- Do you have a question about the Blueprint?
- Would you like help using the Blueprint to support a proposal or inform a decision?
- Do you have a suggestion on how to improve the Blueprint? The Blueprint and its inputs are regularly revised based on input from people like you.
- Do you have feedback on how to improve the Simple Viewer interface?

If you need help or have questions, <u>contact Southeast Blueprint staff</u> by reaching out to a member of the user support team.

We're here to support you. We really mean it. It's what we do!

Southeast Blueprint Priorities





Priorities for a connected network of lands and waters

- Highest priority
- High priority
- Medium priority
- Priority connections

Priority Categories

For a connected network of lands and waters

In total, Blueprint priorities and priority connections cover roughly 50% of the Southeast Blueprint geography.

Highest priority

Areas where conservation action would make the biggest impact, based on a suite of natural and cultural resource indicators. This class covers roughly 10% of the Southeast Blueprint geography.

High priority

Areas where conservation action would make a big impact, based on a suite of natural and cultural resource indicators. This class covers roughly 15% of the Southeast Blueprint geography.

Medium priority

Areas where conservation action would make an above-average impact, based on a suite of natural and cultural resource indicators. This class covers roughly 20% of the Southeast Blueprint geography.

Priority connections

Connections between priority areas that cover the shortest distance possible while routing through as much Blueprint priority as possible. This class covers roughly 5% of the Southeast Blueprint geography.

Priority Category	Acres	Percent of Area
Highest priority	4,717,643	14.1%
High priority	5,604,977	16.7%
Medium priority	6,782,862	20.2%
Priority connections	1,513,036	4.5%
Lower priority	14,930,290	44.5%
Total area	33,548,808	100%

Table 1: Extent of each Blueprint priority category within Alabama.

Hubs and Corridors

The Blueprint uses a least-cost path connectivity analysis to identify corridors that link hubs across the shortest distance possible, while also routing through as much Blueprint priority as possible.

Inland hubs are large patches (~5,000+ acres) of highest priority Blueprint areas and/or protected lands, connected by inland corridors. Marine and estuarine hubs are large estuaries and large patches (~5,000+ acres) of highest priority Blueprint areas. Marine and estuarine corridors connect those hubs within broad marine mammal movement areas.





- Inland continental hubs
- Inland continental corridors
- Marine & estuarine continental hubs
- Marine & estuarine continental corridors
- Not a hub or corridor

Table 2: Extent of hubs and corridors within Alabama.

Туре	Acres	Percent of Area
Inland continental hubs	3,911,193	11.7%
Inland continental corridors	6,212,408	18.5%
Marine & estuarine continental hubs	412,604	1.2%
Marine & estuarine continental corridors	92,317	0.3%
Not a hub or corridor	22,920,286	68.3%
Total area	33,548,808	100%

Indicator Summary

Table 3: Terrestrial indicators.

Indicator	Present
East Coastal Plain open pine birds	\checkmark
Equitable access to potential parks	\checkmark
Fire frequency	\checkmark
<u>Greenways & trails</u>	\checkmark
Intact habitat cores	\checkmark
Interior Southeast grasslands	\checkmark
Mississippi Alluvial Valley forest birds - protection	-
Mississippi Alluvial Valley forest birds - reforestation	-
Resilient terrestrial sites	\checkmark
South Atlantic amphibian & reptile areas	\checkmark
South Atlantic forest birds	\checkmark
South Atlantic low-urban historic landscapes	\checkmark
Urban park size	\checkmark
West Gulf Coast mottled duck nesting	-

Table 4: Freshwater indicators.

Indicator	Present
Atlantic migratory fish habitat	-
Gulf migratory fish connectivity	\checkmark
Imperiled aquatic species	\checkmark
Natural landcover in floodplains	\checkmark
Network complexity	\checkmark
Permeable surface	\checkmark

Table 5: Coastal & marine indicators.

Indicator	Present
Atlantic coral & hardbottom	-
Atlantic deep-sea coral richness	-
Atlantic estuarine fish habitat	-
Atlantic marine birds	-
Atlantic marine mammals	-
Coastal shoreline condition	\checkmark
Estuarine coastal condition	\checkmark
Gulf coral & hardbottom	\checkmark
Gulf deep-sea coral richness	-
Gulf marine mammals	\checkmark
Gulf sea turtles	\checkmark
Island habitat	\checkmark
Marine highly migratory fish	-
Resilient coastal sites	\checkmark
<u>Seagrass</u>	\checkmark
South Atlantic maritime forest	-
Stable coastal wetlands	\checkmark



This indicator identifies areas within the historic longleaf pine range east of the Mississippi River where creating or maintaining open pine habitat would most benefit six focal species of birds (Bachman's sparrow, red-cockaded woodpecker, Henslow's sparrow, red-headed woodpecker, Northern bobwhite, brown-headed nuthatch). It prioritizes areas for open pine conservation based on suitability for longleaf pine, feasibility of prescribed burning, proximity to protected lands, habitat suitability for focal bird species, and proximity to bird source populations. It originates from the East Gulf Coastal Plain Joint Venture's prioritization of areas for open pine ecosystem restoration.





Priority for open pine conservation for focal bird species

- High priority (score >80-100)
- Medium-high priority (score >60-80)
- Medium priority (score >40-60)
- Medium-low priority (score >20-40)
- Low priority (score 0-20)
- Not a priority (not identified as upland pine)

Table 6: Indicator values for east coastal plain open pine birds within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values: Priority for open pine conservation for focal bird species	Acres	Percent of Area
↑ High	High priority (score >80-100)	0	0%
	Medium-high priority (score >60-80)	65,965	0.2%
	Medium priority (score >40-60)	724,158	2.2%
	Medium-low priority (score >20-40)	4,675,958	13.9%
	Low priority (score 0-20)	3,007,695	9.0%
↓ Low	Not a priority (not identified as upland pine)	13,449,599	40.1%
	Area not evaluated for this indicator	11,625,434	34.7%
	Total area	33,548,808	100%



This cultural resource indicator prioritizes places to create new parks that would fill gaps in equitable access to open space within socially vulnerable communities in urban areas. It identifies areas where residents currently lack access to parks within a 10-minute walk (accounting for walkable road networks and access barriers like highways and fences), then prioritizes based on park need using demographic and environmental metrics. Parks help improve public health, foster a conservation ethic by providing opportunities for people to connect with nature, and support critical ecosystem services. This indicator originates from the Trust for Public Land's ParkServe park priority areas and the Center for Disease Control's Social Vulnerability Index.





Priority for a new park that would create nearby equitable access

- Very high priority
- High priority
- Moderate priority
 - Not identified as a priority (within urban areas)

Table 7: Indicator values for equitable access to potential parks within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values: Priority for a new park that would create nearby equitable access	Acres	Percent of Area
↑ High	Very high priority	157,385	0.5%
	High priority	228,762	0.7%
↓ Low	Moderate priority	270,836	0.8%
	Not identified as a priority (within urban areas)	32,430,018	96.7%
	Area not evaluated for this indicator	461,806	1.4%
	Total area	33,548,808	100%



This indicator uses remote sensing to estimate the number of times an area has been burned from 2013 to 2021. Many Southeastern ecosystems rely on regular, low-intensity fires to maintain habitat, encourage native plant growth, and reduce wildfire risk. This indicator combines burned area layers from U.S. Geological Survey Landsat data and the inter-agency Monitoring Trends in Burn Severity program. Landsat-based fire predictions within the range of longleaf pine are also available through <u>Southeast FireMap</u>.





Burned 3+ times from 2013-2021
Burned 2 times from 2013-2021
Burned 1 time from 2013-2021
Not burned from 2013-2021 or row crop

Table 8: Indicator values for fire frequency within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Burned 3+ times from 2013-2021	65,452	0.2%	
	Burned 2 times from 2013-2021	158,761	0.5%	↑ In good condition
	Burned 1 time from 2013-2021	849,770	2.5%	↓ Not in good
↓ Low	Not burned from 2013-2021 or row crop	32,467,595	96.8%	condition
	Area not evaluated for this indicator	7,230	<0.1%	
	Total area	33,548,808	100%	



This cultural resource indicator measures both the natural condition and connected length of greenways and trails to characterize the quality of the recreational experience. Natural condition is based on the amount of impervious surface surrounding the path. Connected length captures how far a person can go without leaving a dedicated path, based on common distances for walking, running, and biking. This indicator originates from OpenStreetMap data and the National Land Cover Database.





- Mostly natural and connected for ≥40 km
- Mostly natural and connected for 5 to <40 km or partly natural and connected for ≥40 km
- Mostly natural and connected for 1.9 to <5 km, partly natural and connected for 5 to <40 km, or developed and connected for ≥40 km
- Mostly natural and connected for <1.9 km, partly natural and connected for 1.9 to <5 km, or developed and connected for 5 to <40 km
- Partly natural and connected for <1.9 km or developed and connected for 1.9 to <5 km
- Developed and connected for <1.9 km</p>
- Sidewalk
- Not identified as a trail, sidewalk, or other path

Table 9: Indicator values for greenways & trails within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Mostly natural and connected for ≥40 km	6,081	<0.1%	
	Mostly natural and connected for 5 to <40 km or partly natural and connected for ≥40 km	7,192	<0.1%	
	Mostly natural and connected for 1.9 to <5 km, partly natural and connected for 5 to <40 km, or developed and connected for ≥40 km	6,510	<0.1%	
	Mostly natural and connected for <1.9 km, partly natural and connected for 1.9 to <5 km, or developed and connected for 5 to <40 km	6,426	<0.1%	↑ In good condition
	Partly natural and connected for <1.9 km or developed and connected for 1.9 to <5 km	4,051	<0.1%	↓ Not in good condition
	Developed and connected for <1.9 km	5,985	<0.1%	
	Sidewalk	11,307	<0.1%	
↓ Low	Not identified as a trail, sidewalk, or other path	33,493,745	99.8%	
	Area not evaluated for this indicator	7,511	<0.1%	
	Total area	33,548,808	100%	



This indicator represents the size of large, unfragmented patches of natural habitat. It identifies minimally disturbed natural areas at least 100 acres in size and greater than 200 meters wide. Large areas of intact natural habitat are important for many wildlife species, including reptiles and amphibians, birds, and large mammals. This indicator originates from Esri's green infrastructure data.



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Large core (>10,000 acres) Medium core (>1,000-10,000 acres) Small core (>100-1,000 acres) Not a core

129

64

Table 10: Indicator values for intact habitat cores within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Large core (>10,000 acres)	4,297,310	12.8%	
	Medium core (>1,000-10,000 acres)	11,369,593	33.9%	
	Small core (>100-1,000 acres)	3,948,812	11.8%	↑ In good condition
↓ Low	Not a core	13,925,583	41.5%	↓ Not in good condition
	Area not evaluated for this indicator	7,511	<0.1%	
	Total area	33,548,808	100%	



This indicator represents grasslands in the interior southeastern United States, which support important plants, birds, and pollinators. It includes grasslands with and without trees that are historically maintained by geology (e.g., outcrops, glades, and barrens), fire (e.g., Piedmont prairies), and/or the regular violent flooding on the banks of high-energy rivers known as "riverscour" (e.g, riverscour prairies). Known grasslands receive the highest scores, followed by bumble bee habitat buffers around known sites, areas in potentially compatible management, and restoration opportunities within grassland geology. This indicator combines data from multiple sources, including the Southeastern Grasslands Institute, Central Hardwoods Joint Venture, Rangeland Analysis Platform, and more.





- Known grassland
- Known grassland buffer
- Potentially compatible management within grassland geology (undeveloped powerline right-of-way or perennial forbs and grasses) Potentially compatible management outside of grassland geology (undeveloped powerline right-of-way or perennial forbs and grasses) Grassland geology
- Grassland less likely

Table 11: Indicator values for Interior Southeast grasslands within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Known grassland	18,587	<0.1%
	Known grassland buffer	1,007,710	3.0%
	Potentially compatible management within grassland geology (undeveloped powerline right-of-way or perennial forbs and grasses)	695,193	2.1%
	Potentially compatible management outside of grassland geology (undeveloped powerline right-of-way or perennial forbs and grasses)	2,840,670	8.5%
	Grassland geology	3,029,441	9.0%
↓ Low	Grassland less likely	24,529,601	73.1%
	Area not evaluated for this indicator	1,427,607	4.3%
	Total area	33,548,808	100%



This indicator depicts an area's capacity to maintain species diversity and ecosystem function in the face of climate change. It measures two factors that influence resilience. The first, landscape diversity, reflects the number of microhabitats and climatic gradients created by topography, elevation, and hydrology. The second, local connectedness, reflects the degree of habitat fragmentation and strength of barriers to species movement. Highly resilient sites contain many different habitat niches that support biodiversity, and allow species to move freely through the landscape to find suitable microclimates as the climate changes. This indicator originates from The Nature Conservancy's Resilient Land data.



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Most resilient More resilient Slightly more resilient Average/median resilience Slightly less resilient Less resilient Least resilient Developed

Table 12: Indicator values for resilient terrestrial sites within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Most resilient	1,207,807	3.6%
	More resilient	5,770,385	17.2%
	Slightly more resilient	5,715,236	17.0%
	Average/median resilience	9,248,683	27.6%
	Slightly less resilient	3,346,496	10.0%
	Less resilient	2,927,203	8.7%
	Least resilient	990,105	3.0%
↓ Low	Developed	3,010,693	9.0%
	Area not evaluated for this indicator	1,332,200	4.0%
	Total area	33,548,808	100%



This indicator represents Priority Amphibian and Reptile Conservation Areas (PARCAs) in the South Atlantic. PARCA is an expert-driven, nonregulatory designation that includes places capable of supporting viable amphibian and reptile populations, places occupied by rare or imperiled species, and places rich in biodiversity or species unique to that geographic area (i.e., endemism). Reptiles and amphibians are a critical part of the Southeast region's rich biodiversity and many populations are declining in the face of threats like habitat loss, invasive species, and climate change.





Priority Amphibian and Reptile Conservation Area (PARCA) Not a Priority Amphibian and Reptile Conservation Area (PARCA) Table 13: Indicator values for South Atlantic amphibian & reptile areas within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Priority Amphibian and Reptile Conservation Area (PARCA)	895,807	2.7%
↓ Low	Not a Priority Amphibian and Reptile Conservation Area (PARCA)	4,077,295	12.2%
	Area not evaluated for this indicator	28,575,706	85.2%
	Total area	33,548,808	100%

Priority Amphibian and Reptile Conservation Areas:

Lake Seminole Region

Longleaf pine communities and embedded isolated wetlands provide habitat for gopher tortoises and eastern diamondback rattlesnakes. The Lower Chattahoochee and Flint Rivers, as well as Spring Creek, are inhabited by good populations of Barbour's map and alligator snapping turtles. Apalachicola dusky and Chamberlain's dwarf salamanders are found in seepages in this region. This area is underlain by the Floridan aquifer, which is home to the Georgia blind salamander.

Talladega

Largely forested and, although fragmented, still has nice deciduous forest habitats.



This indicator is an index of habitat suitability for twelve upland hardwood and forested wetland bird species (wood thrush, whip-poor-will, American woodcock, red-headed woodpecker, Chuck-will's widow, hooded warbler, Kentucky warbler, Acadian flycatcher, Northern parula, black-throated green warbler, prothonotary warbler, Swainson's warbler) based on patch size and other ecosystem characteristics such as proximity to water and proximity to forest and ecotone edge. The needs of these species are increasingly restrictive at higher index values, reflecting better quality habitat. It originates from Southeast Gap Analysis Program and Designing Sustainable Landscapes bird habitat models.





- Very large patches near water (potential for presence of Swainson's warbler)
- Large patches often near water (potential for presence of Northern parula, black-throated green warbler, or prothonotary warbler)
 Medium patches (potential for presence of Acadian flycatcher)
 Small patches often near water (potential for presence of hooded
- warbler or Kentucky warbler)
 Very small patches or near open areas (potential for presence of wood thrush, whip-poor-will, red-headed woodpecker, Chuck-will's widow, or American woodcock)
- Less potential for presence of forest bird index species

Table 14: Indicator values for South Atlantic forest birds within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Very large patches near water (potential for presence of Swainson's warbler)	483,605	1.4%	
	Large patches often near water (potential for presence of Northern parula, black-throated green warbler, or prothonotary warbler)	108,724	0.3%	
	Medium patches (potential for presence of Acadian flycatcher)	707,641	2.1%	
	Small patches often near water (potential for presence of hooded warbler or Kentucky warbler)	222,026	0.7%	↑ In good condition
	Very small patches or near open areas (potential for presence of wood thrush, whip- poor-will, red-headed woodpecker, Chuck- will's widow, or American woodcock)	2,561,244	7.6%	↓ Not in good condition
↓ Low	Less potential for presence of forest bird index species	580,727	1.7%	
	Area not evaluated for this indicator	28,884,842	86.1%	
	Total area	33,548,808	100%	



This cultural resource indicator is an index of sites on the National Register of Historic Places surrounded by limited urban development. It identifies significant historic places that remain connected to their context in the natural world. It uses the National Land Cover Database and historic places data from the National Park Service and various state historic resource agencies.





Historic place with nearby low-urban buffer Historic place with nearby high-urban buffer Not in the National Register of Historic Places Table 15: Indicator values for South Atlantic low-urban historic landscapes within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Historic place with nearby low-urban buffer	148	<0.1%
	Historic place with nearby high-urban buffer	276	<0.1%
↓ Low	Not in the National Register of Historic Places	4,504,642	13.4%
	Area not evaluated for this indicator	29,043,742	86.6%
	Total area	33,548,808	100%



This cultural resource indicator measures the size of parks larger than 5 acres in the urban environment. Protected natural areas in urban environments provide urban residents a nearby place to connect with nature, and offer refugia for some species. This indicator complements the equitable access to potential parks indicator by capturing the value of existing parks. It originates from the Protected Areas Database of the United States, Census urban areas, and the National Land Cover Database.





75+ acre urban park
50 to <75 acre urban park
30 to <50 acre urban park
10 to <30 acre urban park

- 5 to <10 acre urban park
- <5 acre urban park or not identified as an urban park</p>

Table 16: Indicator values for urban park size within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	75+ acre urban park	150,710	0.4%
	50 to <75 acre urban park	4,348	<0.1%
	30 to <50 acre urban park	3,926	<0.1%
	10 to <30 acre urban park	6,761	<0.1%
	5 to <10 acre urban park	2,373	<0.1%
↓ Low	<5 acre urban park or not identified as an urban park	33,380,295	99.5%
	Area not evaluated for this indicator	397	<0.1%
	Total area	33,548,808	100%



This indicator captures how far upstream migratory fish in the Gulf of Mexico have been observed. How far upstream migratory fish can travel reflects not just the presence of dams and other barriers, but also the presence of measures like fish ladders that allow specific species to access habitat upstream of dams. This indicator originates from The Nature Conservancy's Southeast Aquatic Connectivity Assessment Project and applies to the Environmental Protection Agency's estimated floodplain, which spatially defines areas estimated to be inundated by a 100-year flood (also known as the 1% annual chance flood).





Presence of Gulf sturgeon

Presence of Alabama shad, American shad, or striped bass

Not identified as Gulf migratory fish habitat (east of the Mississippi River)

Table 17: Indicator values for Gulf migratory fish connectivity within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Presence of Gulf sturgeon	131,857	0.4%	
	Presence of Alabama shad, American shad, or striped bass	202	<0.1%	↑ In good condition
↓ Low	Not identified as Gulf migratory fish habitat (east of the Mississippi River)	22,685,308	67.6%	↓ Not in good condition
	Area not evaluated for this indicator	10,731,441	32.0%	
	Total area	33,548,808	100%	



This indicator measures the number of aquatic animal Species of Greatest Conservation Need (SGCN) observed within each 12-digit HUC subwatershed, including fish, mussels, snails, crayfish, and amphibians. SGCN are identified in State Wildlife Action Plans as most in need of conservation action. This indicator captures patterns of rare and endemic aquatic species diversity. It originates from state Natural Heritage Program data collected by the Southeast Aquatic Resources Partnership and applies to the Environmental Protection Agency's estimated floodplain, which spatially defines areas estimated to be inundated by a 100-year flood (also known as the 1% annual chance flood).





Table 18: Indicator values for imperiled aquatic species within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values: Number of aquatic animal Species of Greatest Conservation Need observed	Acres	Percent of Area
↑ High	8+ species	355,484	1.1%
	7 species	139,197	0.4%
	6 species	157,322	0.5%
	5 species	226,466	0.7%
	4 species	337,780	1.0%
	3 species	504,150	1.5%
	2 species	797,117	2.4%
	1 species	1,095,315	3.3%
	0 species	1,482,251	4.4%
$\downarrow Low$	Not identified as a floodplain (excluding West Virginia)	27,957,394	83.3%
	Area not evaluated for this indicator	496,332	1.5%
	Total area	33,548,808	100%



This indicator measures the amount of natural landcover in the estimated floodplain of rivers and streams within each catchment. It assesses the stream channel and its surrounding riparian buffer, measuring the percent of unaltered habitat like forests, wetlands, or open water (rather than agriculture or development). Intact vegetated buffers within the floodplain of rivers and streams provide aquatic habitat, improve water quality, reduce erosion and flooding, recharge groundwater, and more. This indicator originates from the National Land Cover Database and applies to the Environmental Protection Agency's estimated floodplain, which spatially defines areas estimated to be inundated by a 100-year flood (also known as the 1% annual chance flood).





Percent natural landcover within the estimated floodplain, by catchment

- >90% natural landcover >80-90% natural landcover
- >70-80% natural landcover
- >60-70% natural landcover
- ≤60% natural landcover
- Not identified as a floodplain

Table 19: Indicator values for natural landcover in floodplains within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values: Percent natural landcover within the estimated floodplain, by catchment	Acres	Percent of Area	
↑ High	>90% natural landcover	3,162,671	9.4%	∧ In good
	>80-90% natural landcover	572,953	1.7%	condition
	>70-80% natural landcover	337,882	1.0%	↓ Not in good
	>60-70% natural landcover	264,057	0.8%	condition
	≤60% natural landcover	757,519	2.3%	
↓ Low	Not identified as a floodplain	27,957,939	83.3%	
	Area not evaluated for this indicator	495,787	1.5%	
	Total area	33,548,808	100%	



This indicator depicts the number of connected stream size classes in a river network between dams or waterfalls. River networks with a variety of connected stream classes help retain aquatic biodiversity in a changing climate by allowing species to access climate refugia and move between habitats. This indicator originates from the Southeast Aquatic Resources Partnership and applies to the Environmental Protection Agency's estimated floodplain, which spatially defines areas estimated to be inundated by a 100-year flood (also known as the 1% annual chance flood).





Table 20: Indicator values for network complexity within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values: Number of connected stream size classes	Acres	Percent of Area	
↑ High	7 size classes	682,132	2.0%	
	6 size classes	1,130,726	3.4%	
	5 size classes	1,984,673	5.9%	
	4 size classes	504,841	1.5%	\uparrow In good condition
	3 size classes	328,300	1.0%	↓ Not in good
	2 size classes	280,493	0.8%	condition
	1 size class	178,566	0.5%	
↓ Low	Not identified as a floodplain	27,957,580	83.3%	
	Area not evaluated for this indicator	501,496	1.5%	
	Total area	33,548,808	100%	



This indicator measures the average percent of non-impervious cover within each catchment. High levels of impervious surface degrade water quality and alter freshwater flow, impacting both aquatic species communities and ecosystem services for people, like the availability of clean drinking water. This indicator originates from the National Land Cover Database.



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Percent of catchment permeable

- >95% permeable (likely high water quality and supporting most sensitive aquatic species)
- >90-95% permeable (likely declining water quality and supporting most aquatic species)
- >70-90% permeable (likely degraded water quality and not supporting many aquatic species)

64

129

≤70% permeable (likely degraded instream flow, water quality, and aquatic species communities)

Table 21: Indicator values for permeable surface within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values: Percent of catchment permeable	Acres	Percent of Area	
↑ High	>95% permeable (likely high water quality and supporting most sensitive aquatic species)	30,432,352	90.7%	↑ In good condition
	>90-95% permeable (likely declining water quality and supporting most aquatic species)	1,126,810	3.4%	↓ Not in good condition
	>70-90% permeable (likely degraded water quality and not supporting many aquatic species)	1,208,729	3.6%	
↓ Low	≤70% permeable (likely degraded instream flow, water quality, and aquatic species communities)	284,656	0.8%	
	Area not evaluated for this indicator	496,262	1.5%	
	Total area	33,548,808	100%	



This indicator assesses shoreline condition based on the presence of hardened structures like jetties, groins, and riprap, as well as other human development. By restricting the natural movement of sediment, shoreline armoring increases erosion, prevents the inland migration of coastal ecosystems in response to sea-level rise, and degrades habitat for birds, sea turtles, fish, plants, and other species both on and offshore. Natural shorelines in harder-to-develop coastal areas receive the highest shoreline condition scores, while hardened shorelines receive the lowest scores. This indicator originates from the National Oceanic and Atmospheric Administration's Environmental Sensitivity Index dataset.



Table 22: Indicator values for coastal shoreline condition within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Natural and harder to develop	1,673	<0.1%	
	Natural	17,564	<0.1%	↑ In good condition
	Partially armored and harder to develop	16	<0.1%	↓ Not in good condition
	Partially armored	829	<0.1%	
↓ Low	Armored	2,256	<0.1%	
	Area not evaluated for this indicator	33,526,471	99.9%	
	Total area	33,548,808	100%	



This indicator combines measures of water quality, sediment quality, contaminants in fish tissue, and benthic community condition to create an overall index of coastal estuarine condition. Estuaries serve as important nursery habitat for wildlife, including many species of fish and shellfish eaten as seafood. They also improve water quality by filtering out sediments and pollutants, provide recreational opportunities, and support coastal economies. This indicator originates from the Environmental Protection Agency's National Coastal Condition Assessment data.



Table 23: Indicator values for estuarine coastal condition within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Good	7,174	<0.1%	
	Fair to good	190,145	0.6%	↑ In good condition
	Fair	210,039	0.6%	↓ Not in good
↓ Low	Poor to fair	33	<0.1%	condition
	Poor	0.22	<0.1%	
	Shallow estuary not assessed for condition	36,246	0.1%	
	Area not evaluated for this indicator	33,105,170	98.7%	
	Total area	33,548,808	100%	



This indicator predicts the presence of coral and hardbottom in the Gulf of Mexico based on direct observations, acoustic surveys, designated Coral Habitat Areas of Particular Concern, and known locations of human-created structures like artificial reefs. Hardbottom provides an anchor for important seafloor habitats such as deep-sea corals, plants, and sponges, providing valuable structure that supports a wide range of invertebrate and fish species. Hardbottom is also sometimes associated with diverse chemosynthetic communities supported by bacteria that feed off of hydrocarbon seeps. This indicator combines data from multiple sources, including Bureau of Ocean Energy Management seismic water bottom anomalies, usSEABED sediments, several National Oceanic and Atmospheric Administration datasets, and more.





- Confirmed hardbottom-associated species (corals, patch reef, chemosynthetic communities, or other organisms)
- Confirmed human-created hardbottom (shipwrecks, artificial reefs, decommissioned oil and gas platforms)
- Predicted hardbottom (fine resolution)
- Coral Habitat Area of Particular Concern (HAPC)
- Rock (coarse resolution)
- Gravel (coarse resolution)
- Not identified as hardbottom

Table 24: Indicator values for Gulf coral & hardbottom within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Confirmed hardbottom-associated species (corals, patch reef, chemosynthetic communities, or other organisms)	17	<0.1%
	Confirmed human-created hardbottom (shipwrecks, artificial reefs, decommissioned oil and gas platforms)	3,581	<0.1%
	Predicted hardbottom (fine resolution)	0	0%
	Coral Habitat Area of Particular Concern (HAPC)	0	0%
	Rock (coarse resolution)	17,726	<0.1%
	Gravel (coarse resolution)	1,055	<0.1%
↓ Low	Not identified as hardbottom	3,160,562	9.4%
	Area not evaluated for this indicator	30,365,866	90.5%
	Total area	33,548,808	100%



This indicator identifies important areas in the Gulf of Mexico for dolphins and whales. It incorporates monthly density predictions for 13 marine mammal species or species groups (Atlantic spotted dolphin, beaked whales, blackfish [which includes killer whale, melon-headed whale, false killer whale, pygmy killer whale], bottlenose dolphin, Bryde's whale, clymene dolphin, pantropical spotted dolphin, pilot whales, pygmy/dwarf sperm whales, Rice's whale, Risso's dolphin, sperm whale, spinner dolphin) based on sightings from boat-based and aerial surveys and data on oceanographic conditions. It uses marine mammal models developed by the National Oceanic and Atmospheric Administration as part of the Gulf of Mexico Marine Assessment Program for Protected Species (GoMMAPPS).





Percentile of importance for marine mammal index species (across larger analysis area)

>90th percentile
>80th-90th percentile
>70th-80th percentile
>60th-70th percentile
>50th-60th percentile
>40th-50th percentile
>30th-40th percentile
>20th-30th percentile
>10th-20th percentile
≤10th percentile
Land

Table 25: Indicator values for Gulf marine mammals within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values: Percentile of importance for marine mammal index species (across larger analysis area)	Acres	Percent of Area
↑ High	>90th percentile	0	0%
	>80th-90th percentile	4,445	<0.1%
	>70th-80th percentile	6,993	<0.1%
	>60th-70th percentile	5,855	<0.1%
	>50th-60th percentile	34,745	0.1%
	>40th-50th percentile	17,408	<0.1%
	>30th-40th percentile	13,654	<0.1%
	>20th-30th percentile	0	0%
	>10th-20th percentile	0	0%
	≤10th percentile	390,916	1.2%
↓ Low	Land	3,471	<0.1%
	Area not evaluated for this indicator	33,071,322	98.6%
	Total area	33,548,808	100%

Coastal & marine Gulf sea turtles

This indicator identifies important areas in the Gulf of Mexico for sea turtles. It incorporates monthly density predictions for four species (green, Kemp's ridley, leatherback, and loggerhead sea turtles) based on sightings from boat-based and aerial surveys and data on oceanographic conditions. It uses sea turtle models developed by the National Oceanic and Atmospheric Administration as part of the Gulf of Mexico Marine Assessment Program for Protected Species (GoMMAPPS).





Percentile of importance for sea turtle index species (across larger analysis area)

- >90th percentile >80th-90th percentile
- >70th-80th percentile
- >60th-70th percentile
- ≤60th percentile
- Land

Table 26: Indicator values for Gulf sea turtles within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values: Percentile of importance for sea turtle index species (across larger analysis area)	Acres	Percent of Area
↑ High	>90th percentile	41,124	0.1%
	>80th-90th percentile	44,711	0.1%
	>70th-80th percentile	0	0%
↓ Low	>60th-70th percentile	0	0%
	≤60th percentile	423,970	1.3%
	Land	231,006	0.7%
	Area not evaluated for this indicator	32,807,997	97.8%
	Total area	33,548,808	100%

Coastal & marine

This indicator represents important habitat for coastal island-dependent species across the Southeast. Because the isolation of islands can make them ecologically unique and protect them from disturbance and mainland predators, they often serve as important habitat for many species of mammals, plants, and insects, as well as breeding coastal birds and sea turtles. The highest scores go to island critical habitat for six threatened and endangered animal and plant species: piping plover, loggerhead sea turtle, Cape Sable thoroughwort, Florida semaphore cactus, silver rice rat, and Bartram's hairstreak butterfly. This indicator uses U.S. Fish and Wildlife Service critical habitat data and island boundaries from the U.S. Geological Survey and Esri.





Island critical habitat for any of six threatened and endangered species (piping plover, loggerhead sea turtle, Cape Sable thoroughwort, Florida semaphore cactus, silver rice rat, or Bartram's hairstreak butterfly)

- Other island area
- Not a coastal island

Table 27: Indicator values for island habitat within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Island critical habitat for any of six threatened and endangered species (piping plover, loggerhead sea turtle, Cape Sable thoroughwort, Florida semaphore cactus, silver rice rat, or Bartram's hairstreak butterfly)	2,223	<0.1%
	Other island area	32,054	<0.1%
↓ Low	Not a coastal island	2,319,153	6.9%
	Area not evaluated for this indicator	31,195,378	93.0%
	Total area	33,548,808	100%



This indicator depicts the capacity of coastal habitats to migrate to adjacent lowlands in order to sustain biodiversity and natural services under increasing inundation from sea-level rise. It is based on the physical and condition characteristics of current tidal complexes, their predicted migration space, and surrounding buffer areas. These characteristics include marsh complex size, shared edge with migration space, sediment balance, water quality, natural landcover, landform diversity, and more. This indicator originates from The Nature Conservancy's Resilient Coastal Sites project.



- Slightly less resilient
 - Less resilient
- Least resilient

Table 28: Indicator values for resilient coastal sites within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Most resilient	0	0%
	More resilient	199,726	0.6%
	Slightly more resilient	29,493	<0.1%
	Average/median resilience	20,549	<0.1%
	Slightly less resilient	591	<0.1%
	Less resilient	804	<0.1%
\downarrow Low	Least resilient	397	<0.1%
	Area not evaluated for this indicator	33,297,247	99.3%
	Total area	33,548,808	100%



This indicator represents the presence of seagrass in the Atlantic Ocean and Gulf of Mexico. Seagrasses provide food and habitat for a range of marine and estuarine wildlife, including fish, sea turtles, shrimp, crabs, oysters, and more. They also produce oxygen, filter water, control erosion, and buffer storms. Seagrasses serve as an important indicator of the overall health of coastal ecosystems because they are sensitive to water quality and require sufficiently clear water for sunlight to penetrate. This indicator originates from the National Oceanic and Atmospheric Administration's Marine Cadastre.





Seagrass present

Table 29: Indicator values for seagrass within Alabama. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Seagrass present	9,312	<0.1%
	Area not evaluated for this indicator	33,539,496	100.0%
	Total area	33,548,808	100%



This indicator uses remote sensing to calculate the unvegetated-vegetated ratio of tidal wetlands, which compares how much of a wetland is not covered by plants (e.g., sediment, rocks, open water) to how much is covered by plants. Marshes that maintain a higher proportion of vegetation tend to be more stable and resilient to threats like sea-level rise, erosion, and coastal development. This ratio, and how it changes over time, is a good surrogate for salt marsh degradation processes like sediment loss and conversion to open water. This indicator originates from a U.S. Geological Survey project on an unvegetated to vegetated ratio for coastal wetlands.





Stable coastal wetlands

- Other coastal wetlands
- Not identified as coastal wetlands

Table 30: Indicator values for stable coastal wetlands within Alabama. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Stable coastal wetlands	41,628	0.1%	
	Other coastal wetlands	13,063	<0.1%	↑ In good condition
↓ Low	Not identified as coastal wetlands	825,117	2.5%	↓ Not in good condition
	Area not evaluated for this indicator	32,669,000	97.4%	
	Total area	33,548,808	100%	

Threats

Sea-level rise

NOAA's sea-level rise (SLR) inundation models represent areas likely to experience flooding at high tide based on each foot of SLR above current levels. Darker blue areas will experience flooding first, and at greater depth, compared to lighter blue areas. These models are not linked to a future timeframe; see the projections below. NOAA calculates the inundation footprint at "mean higher high water", or the average highest daily tide. The area covered in each SLR scenario includes areas projected to be inundated at lower levels. For example, the area inundated by 4 ft of SLR also includes areas inundated by 3 ft, 2 ft, 1 ft, and 0 ft of SLR (where 0 ft represents current levels).



To explore additional SLR information, please see NOAA's Sea Level Rise Viewer.



Flooding extent by projected sea-level rise (ft)



Table 31: Extent of flooding by projected average highest daily tide due to sea level rise within Alabama. Values from the <u>NOAA sea-level rise inundation data</u>.

Feet of sea-level rise	Acres	Percent of Area
0 feet	551,149	1.6%
1 foot	608,017	1.8%
2 feet	655,482	2.0%
3 feet	685,453	2.0%
4 feet	705,527	2.1%
5 feet	722,488	2.2%
6 feet	739,980	2.2%
7 feet	757,461	2.3%
8 feet	774,516	2.3%
9 feet	795,794	2.4%
10 feet	814,278	2.4%
Not projected to be inundated by up to 10 feet	3,717,727	11.1%
Sea-level rise unlikely to be a threat (inland counties)	29,016,803	86.5%
Total area	33,548,808	100%

Table 32: Projected sea level rise by decade within Alabama. Values are based on area-weighted averages of decadal projections for 1-degree grid cells that overlap this area based on <u>NOAA's 2022 Sea Level Rise</u> <u>Report</u>. 2060 corresponds to the <u>SECAS goal</u>: a 10% or greater improvement in the health, function, and connectivity of Southeastern ecosystems by 2060.

SLR Scenario	2020 (ft)	2030 (ft)	2040 (ft)	2050 (ft)	2060 (ft)	2070 (ft)	2080 (ft)	2090 (ft)	2100 (ft)
Low	0.28	0.44	0.6	0.76	0.89	1	1.1	1.1	1.3
Intermediate- low	0.31	0.5	0.7	0.89	1.1	1.3	1.5	1.7	1.9
Intermediate	0.31	0.52	0.75	1	1.3	1.7	2.1	2.7	3.3
Intermediate- high	0.32	0.55	0.84	1.2	1.7	2.4	3.1	3.9	4.8
High	0.32	0.57	0.91	1.4	2.1	3	4.1	5.3	6.5

Urban growth

The FUTURES urban growth model predicts the likelihood that an area will urbanize at every decade from 2020 to 2100. Developed areas from the 2021 National Landcover Database serve as the baseline for current urban areas. The model simulates landscape change based on trends in population growth, local development suitability factors, and an urban patch-growing algorithm. It considers environmental drivers like distance to floodplain, slope, and available infrastructure, and even socio-economic status. The probability of urbanization for each area reflects how many times it urbanized out of 50 model runs.





Probability of urbanization by 2060

- Urban in 2021
- Very high likelihood of urbanization (>50% probability)
- High likelihood of urbanization (25 50% probability)
- Moderate likelihood of urbanization (2 25% probability)
- Not likely to urbanize

7.9% of this area is already urban in 2021, and an additional 7.4% has at least a moderate probability of urbanizing by 2060.

Table 33: Extent of projected urbanization by decade within Alabama. Values from <u>FUTURES model</u> projections for the contiguous United States developed by the <u>Center for Geospatial Analytics</u>, NC State University. 2060 corresponds to the <u>SECAS goal</u>: a 10% or greater improvement in the health, function, and connectivity of Southeastern ecosystems by 2060.

Decade	Acres	Percent of Area
Urban in 2021	2,659,986	7.9%
2030 projected extent	2,721,298	8.1%
2040 projected extent	2,749,996	8.2%
2050 projected extent	2,767,927	8.3%
2060 projected extent	2,783,901	8.3%
2070 projected extent	2,797,580	8.3%
2080 projected extent	2,808,092	8.4%
2090 projected extent	2,815,762	8.4%
2100 projected extent	2,820,299	8.4%
Not projected to urbanize by 2100	28,123,449	83.8%
Total area	33,548,808	100%

Ownership and Partners

Conserved lands ownership



Table 34: Extent of ownership class within Alabama. Protected areas are derived from the <u>Protected Areas</u> <u>Database of the United States</u> (PAD-US v3.0) and include Fee, Designation, Easement, Marine, and Proclamation (Dept. of Defense lands only) boundaries. Note: areas are based on the polygon boundary of this area compared to protected area polygons, rather than pixel-level analyses used elsewhere in this report. Also note: PAD-US v3.0 includes protected areas that may overlap within a given area; this may cause the area within and between the following categories to be greater than the actual ground area.

Ownership	Acres	Percent of Area
Federal	752,829	2.2%
State/province	620,945	1.9%
Regional	352	<0.1%
Local	33,830	0.1%
Joint	72	<0.1%
Private non-profit conserved lands	15,114	<0.1%
Private conservation land	409,092	1.2%
Tribal	4,085	<0.1%
Designation	281,648	0.8%
Ownership unknown	156,050	0.5%

Land protection status





- Managed for biodiversity (disturbance events proceed or are mimicked)
- Managed for biodiversity (disturbance events suppressed)
- Managed for multiple uses (subject to extractive uses such as mining or logging, or OHV use)
- No known mandate for biodiversity protection

Table 35: Extent of land protection status within Alabama. Protected areas are derived from the <u>Protected</u> <u>Areas Database of the United States</u> (PAD-US v3.0) and include Fee, Designation, Easement, Marine, and Proclamation (Dept. of Defense lands only) boundaries. Note: areas are based on the polygon boundary of this area compared to protected area polygons, rather than pixel-level analyses used elsewhere in this report. Also note: PAD-US v3.0 includes protected areas that may overlap within a given area; this may cause the area within and between the following categories to be greater than the actual ground area.

Land Protection Status	Acres	Percent of Area
Managed for biodiversity (disturbance events proceed or are mimicked)	102,009	0.3%
Managed for biodiversity (disturbance events suppressed)	564,898	1.7%
Managed for multiple uses (subject to extractive uses such as mining or logging, or OHV use)	1,057,831	3.2%
No known mandate for biodiversity protection	549,280	1.6%

Protected Areas

- National Forests in Alabama (USDA FOREST SERVICE; 672,630 acres)
- State-owned Submerged Lands (State of Alabama; 209,387 acres)
- Fort Rucker AL (58,126 acres)
- Redstone Arsenal (38,180 acres)
- FW 15 Mobile-Tensaw Delta Tract (Alabama Forever Wild Land Trust; 35,627 acres)
- FW 71 Mulberry Fork WMA Tract (Alabama Forever Wild Land Trust; 33,457 acres)
- FW 20 Lauderdale and Freedom Hills WMA Tract Additions (Alabama Forever Wild Land Trust; 31,893 acres)
- FW 72 Cahaba River WMA Tract (Alabama Forever Wild Land Trust; 28,434 acres)
- Guntersville Reservoir Retained Land (Unknown; 25,886 acres)
- Sipsey Wilderness (25,853 acres)
- WALTER F. GEORGE (Unknown; 24,272 acres)
- Mobile-Tensaw Delta Wildlife Management Area (US Corps of Engineers; 22,468 acres)
- NG Pelham Range Training Site Fort McClellan (22,225 acres)
- Barbour Wildlife Management Area (ADCNR, Division of Wildlife and Freshwater Fisheries; 20,965 acres)
- Scotch Wildlife Management Area (Private Landowner; 19,754 acres)
- Coosa Wildlife Management Area (Private Landowners; 19,195 acres)

- W. L. Holland Wildlife Management Area (ADCNR, Division of Wildlife and Freshwater Fisheries; 19,188 acres)
- Walter F. George Lake (19,052 acres)
- James D. Martin Skyline Wildlife Management Area (ADCNR, Division of Wildlife and Freshwater Fisheries; 18,908 acres)
- Wheeler NWR (Unknown; 18,851 acres)
- Frank W. and Rob M. Boykin Wildlife Management Area (Private Landowner; 18,614 acres)
- Sam R. Murphy Wildlife Management Area (Private Landowner; 17,821 acres)
- Wheeler Reservoir Retained Land (Unknown; 16,536 acres)
- Jackson County Waterfowl Area and Refuge (Unknown; 16,198 acres)
- Anniston Army Depot (15,578 acres)
- ... and 1,928 more protected areas ...

Nearby land trusts

<u>Click here</u> to search for land trusts within 250 miles of this area on the Land Trust Alliance website.

Credits

This report was generated by the Southeast Conservation Blueprint Explorer, which was developed by <u>Astute Spruce, LLC</u> in partnership with the U.S. Fish and Wildlife Service under the <u>Southeast</u> <u>Conservation Adaptation Strategy</u>.

Data credits

Land ownership and conservation status is derived from the <u>Protected Areas Database of the United</u> <u>States</u> (PAD-US v3.0).

Future urban growth estimates derived from <u>FUTURES model projections for the contiguous United States</u> developed by the <u>Center for Geospatial Analytics</u>, NC State University.

Sea level rise data are derived from the National Oceanic and Atmospheric Administration's <u>Sea Level Rise</u> <u>Inundation Depth Data</u> and the <u>2022 Sea Level Rise Technical Report</u>.