Southeast Conservation Blueprint Summary

for Texas

Created 10/02/2024

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The Southeast Conservation Blueprint 2024

Southeast Conservation Adaptation Strategy

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About the Southeast Blueprint

The Southeast Conservation Blueprint is the primary product of the Southeast Conservation Adaptation Strategy (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 Blueprint webpage
- Review the Blueprint 2024 Development Process
- View and download the Blueprint data and make maps on the Blueprint page of the SECAS Atlas

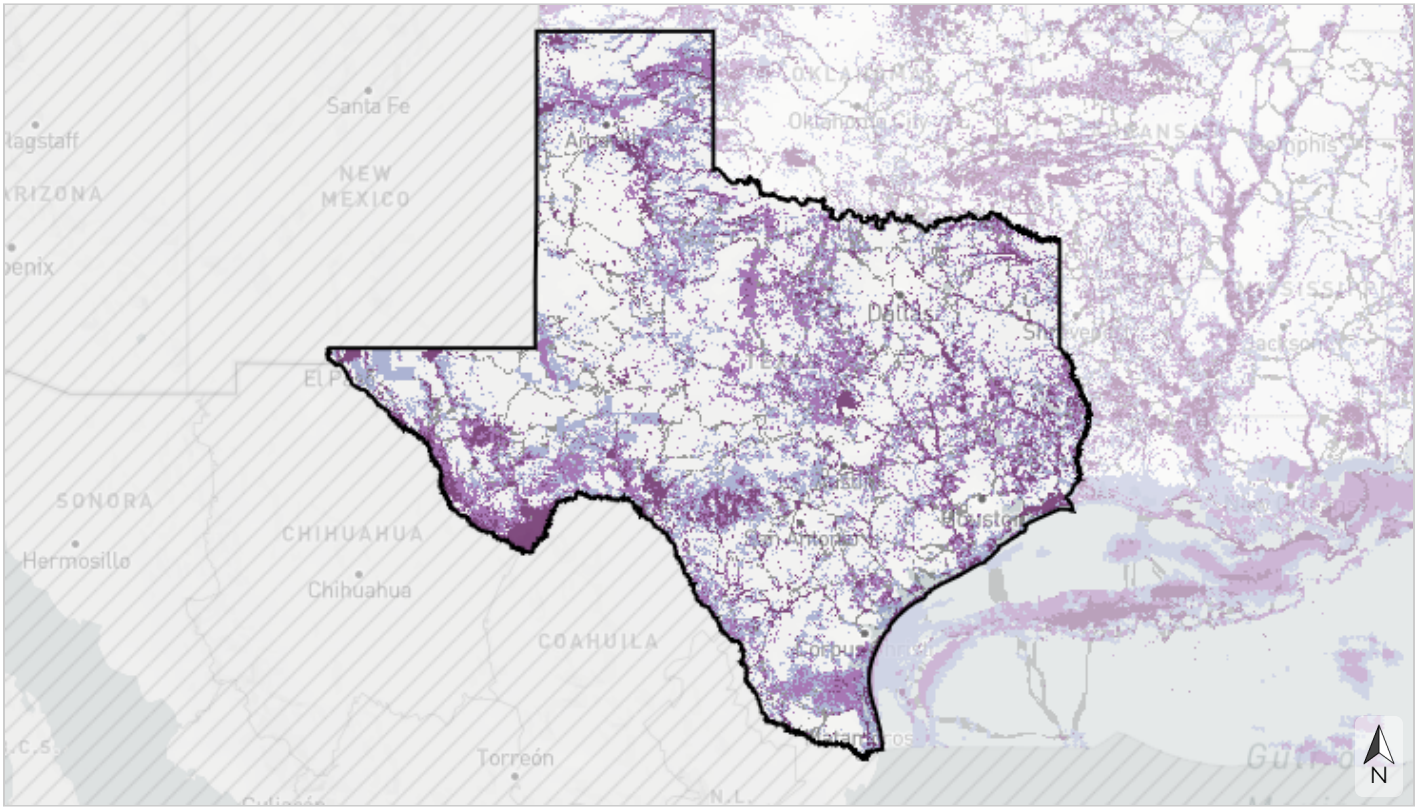
We're here to help!

- 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 Blueprint Explorer interface?

If you need help or have questions, contact Southeast Blueprint staff 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



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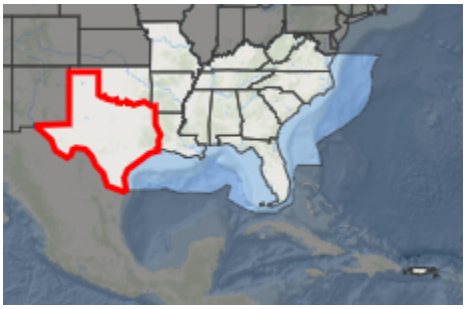


Priorities for a connected network of lands and waters

- 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.

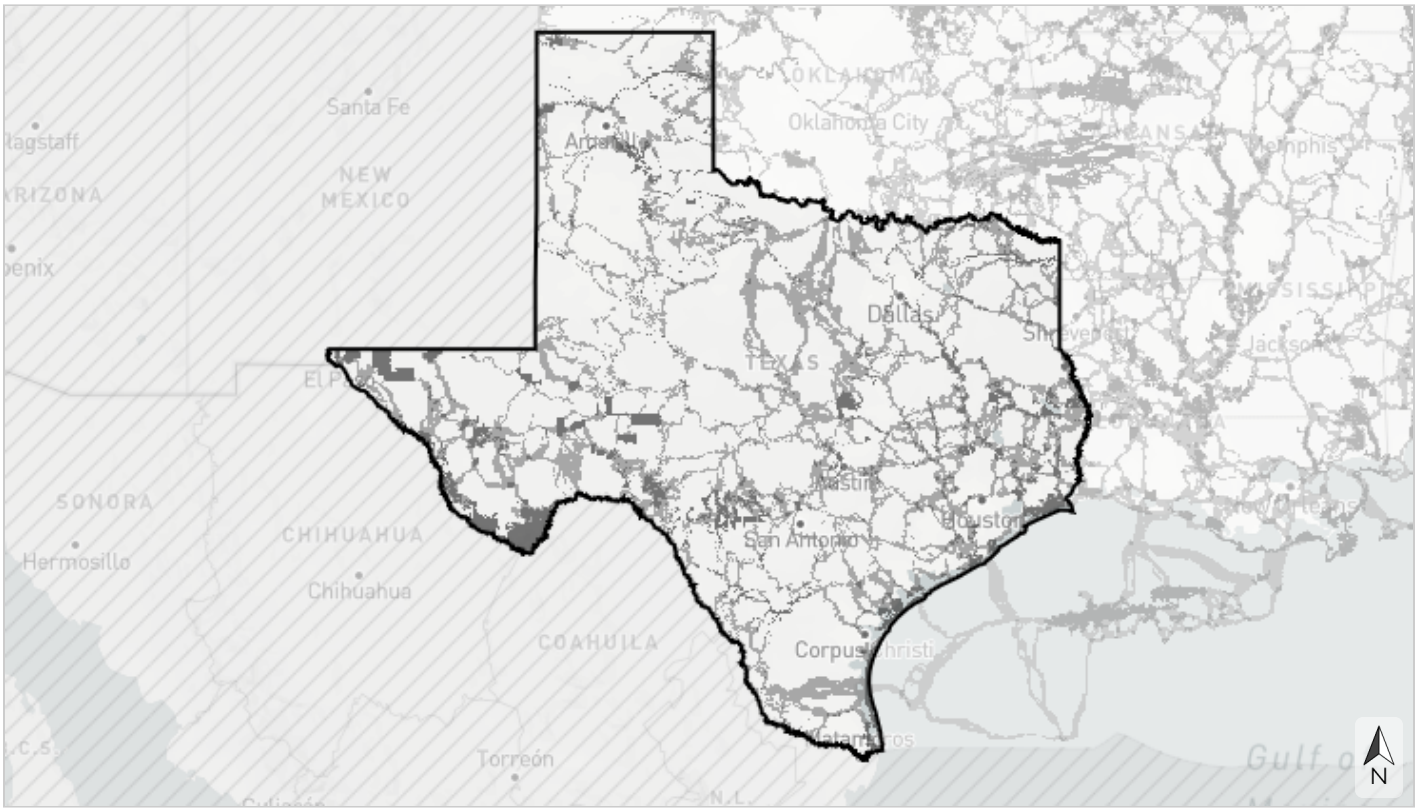
Table 1: Extent of each Blueprint priority category within Texas.

Priority Category	Acres	Percent of Area
Highest priority	15,770,201	9.2%
High priority	27,421,953	16.0%
Medium priority	34,227,655	19.9%
Priority connections	10,067,039	5.9%
Lower priority	84,410,577	49.1%
Total area	**171,897,425**	**100%**

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.

In the continental Southeast, hubs are large patches (~5,000+ acres) of highest priority Blueprint areas and/or protected lands.



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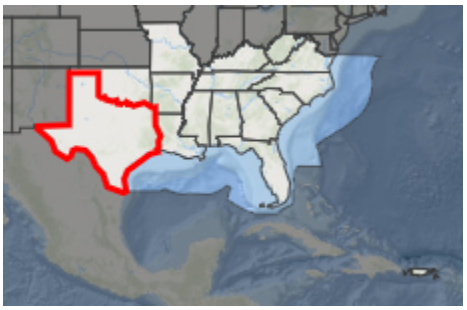

Hubs
Corridors

Table 2: Extent of hubs and corridors within Texas.

Type	Acres	Percent of Area
Hubs	11,710,079	6.8%
Corridors	36,044,149	21.0%
Not a hub or corridor	124,143,196	72.2%
Total area	**171,897,425**	**100%**

Indicator Summary

Table 3: Terrestrial indicators.

Indicator	Present
Amphibian & reptile areas	✓
Equitable access to potential parks	✓
Fire frequency	✓
Grasslands and savannas	✓
Greenways & trails	✓
Intact habitat cores	✓
Landscape condition	✓
Mississippi Alluvial Valley forest birds - protection	-
Mississippi Alluvial Valley forest birds - reforestation	-
Playas	✓
Resilient terrestrial sites	✓
Urban park size	✓
West Coastal Plain & Ouachitas forested wetland birds	✓
West Coastal Plain & Ouachitas open pine birds	✓
West Gulf Coast mottled duck nesting	✓

Table 4: Freshwater indicators.

Indicator	Present
Imperiled aquatic species	✓
Natural landcover in floodplains	✓
Network complexity	✓
Permeable surface	✓

Table 5: Coastal & marine indicators.

Indicator	Present
Coastal shoreline condition	✓
Estuarine coastal condition	✓
Gulf coral & hardbottom	✓
Gulf deep-sea coral richness	-
Gulf marine mammals	✓
Gulf sea turtles	✓
Island habitat	✓
Marine highly migratory fish	✓
Resilient coastal sites	✓
Seagrass	✓
South Atlantic maritime forest	-
Stable coastal wetlands	✓

Terrestrial

Amphibian & reptile areas

This indicator represents Priority Amphibian and Reptile Conservation Areas (PARCAs) across the Southeast. 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. The PARCA dataset is maintained by the Amphibian and Reptile Conservancy and does not yet include Virginia or Kentucky.

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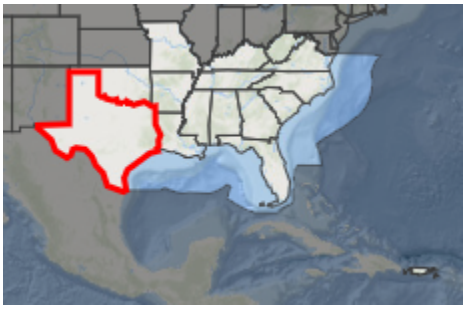

Priority Amphibian and Reptile Conservation Area (PARCA)

Not a PARCA (excluding Kentucky and Virginia)

Table 6: Indicator values for amphibian & reptile areas within Texas. 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)	34,692,469	20.2%
↓ Low	Not a PARCA (excluding Kentucky and Virginia)	137,204,649	79.8%
	Area not evaluated for this indicator	*307*	*<0.1%*
	Total area	**171,897,425**	**100%**

Priority Amphibian and Reptile Conservation Areas:

Alta Tamaulipas

The Lower Rio Grande Valley contains mostly thorn scrub and live oak woodlands, with grasslands mixed in mostly on deep, sandy soil. Scattered riparian woodlands occur along the Rio Grande and near oxbow lakes. This PARCA represents a convergence between North and South America, with many unique Central American species like the northern cat-eyed snake, speckled racer, Mexican burrowing toad, and the sheep frog occurring here at the northernmost extents of their ranges. Threats include increased mortality and dispersal limitations from border wall construction, urbanization, increased agricultural development, and climate change-worsened drought.

Balconian

Like many areas of Texas, Balconia has an impressive collection of herpetofaunal diversity, but this PARCA is a top national priority, as it also includes a massive diversity of cave salamanders that are still being described. These cave specialists are microendemic and are all facing shared threats due to the water table being lowered and local pollution, to which they are highly sensitive. Other terrestrial species are at risk from invasive species (fire ants, exotic grasses, feral cats) and nearby urbanization, which continues to convert and fragment essential habitats. Wildlife species, above and below ground, will benefit from the improved hydrology that will be a focus of conservation efforts in this PARCA.

Beaver Grasslands

This PARCA includes part of the Shortgrass Prairie Region, which is home to a diverse range of herbaceous species. Much shortgrass prairie has been converted to other land uses, such as crop fields, ranching, housing developments, and roads. Working together with partners and landowners to convert old crop fields back to shortgrass prairies using native plants and removing exotic invasive species like Russian thistle and old world bluestem is a necessary step to mending this fragmented ecosystem.

Big Bend Corridor

A famous hotspot of biodiversity, the Big Bend Corridor boasts a rich assortment of herpetofauna. Species such as the Texas horned lizard, barred tiger salamander, and Mojave rattlesnake populate diverse habitats, including Chihuahuan Desert scrub, desert grasslands, and Madrean evergreen woodlands. With an average of less than 16 inches of rain annually over much of this PARCA, amphibian and reptile distributions are heavily influenced by available moisture. Surface water rights, aquifer drawdowns, and

spring-fed water source alterations are a threat to herpetofauna, alongside increased vehicular and construction traffic along the border. Additional threats impacting riparian and wetland areas include invasive plants and free-ranging livestock populations. Though this PARCA contains large tracts of public land, such as Big Bend National Park, much of it is in private holdings, and conservation efforts require private engagement.

Big Thicket
Covering the southern Pineywoods, the Big Thicket PARCA is primarily forested but contains a diversity of habitats and variation with some open habitats, such as prairies and sandstone barrens. Vegetation communities today are very different from what was here pre-settlement, and historically mesophytic forests with defined mid and understories occurred on steep river bluffs. These forests featured large hardwoods, such as American beech, southern magnolia, and white oak. Modern management for timber production has shifted these forests to be generally younger and more dominated by loblolly pine. Xeric sandhills occur on deep riparian sand deposits and feature dry adapted plants like cacti and yuccas. The southernmost extent of longleaf pine in Texas extends into this PARCA. Herpetofauna in this PARCA is predominantly eastern, with species like the spotted dusky salamander, pig frog, and northern scarlet snake reaching the westernmost extents of their ranges. Threats include unsustainable timber practices, fire suppression, invasive species, roadway expansions, and trotlining (stringing up fishing lines with hooks at regular intervals).

Caddoan
The Caddoan PARCA in northeast Texas represents a variety of habitats; the eastern portion is generally forested with shortleaf pine, oaks and hickories, transitioning into post oak savanna and prairie in the western portions. Historically, the prairies contained a diverse microtopography of "mima" mounds and depressions. Much of this has been lost as they were converted to agriculture, but some examples on conservation and managed private lands remain. River floodplains contain some of the best bottomland hardwood forest habitat in the state of Texas. Species such as the pygmy rattlesnake, crawfish frog, and the Gulf Coast waterdog call this PARCA home, and they’re threatened by fire suppression, forest conversion and clearing, prairie succession, mining, and invasive species.

Coastal Prairie
With mid to tallgrass prairie over a gently rolling topography and ephemeral prairie "pothole" wetlands, the Coastal Prairie PARCA contains some of the best remaining habitat for species such as the crawfish frog, slender glass lizard, and historically, the Houston toad. Rivers and streams provide habitat for species like the alligator snapping turtle and Texas map turtle, and drainages east of the Brazos river are important for flood control in the Houston metropolitan area. Threats in this PARCA include urbanization, non-native "improved" grasses, fire suppression, unsustainable agricultural practices, invasive species, and altered hydrology.

Concho
The Concho PARCA contains the Concho and Colorado River basins in central Texas as well as their riparian corridors. This PARCA contains the range of the Concho water snake, a Texas endemic species found nowhere else but these river drainages. Natural riffles with lots of rocks and crevices are critical for maintaining populations of minnows, aquatic insects, and crayfish, important prey species for aquatic

herpetofauna. Maintaining water quality and habitat integrity is crucial for the biodiversity of the Concho PARCA, as well as for the human populations that depend on its water.

Davis Mountains
Rising from the surrounding deserts of West Texas, the Davis Mountains provide a "sky island," with cooler temperatures and increased precipitation at higher elevations allowing forests and other mesic habitats to persist. Largely dominated by montane grassland, woodlands typically become more prevalent at higher elevations. A large, unique assemblage of herpetofauna make their home here, including species such as the gray-banded kingsnake, reticulate banded gecko, and canyon tree frog. The vast majority of land in this PARCA is private, and threats include increasingly dense development in the region. Additional threats include altered fire regimes and climate change.

Edwards Eurycea
The Edwards Eurycea PARCA sits atop the Edwards Aquifer, a vast groundwater resource that has shaped the development of south-central Texas and today serves nearly two million users. More than 40 different subterranean adapted species occur here across many different animal groups, including catfish, amphipods, snails, and of course, salamanders. Many groundwater salamanders occur here, and their relationship to each other is still being worked out. Unique species like the Texas blind salamander are among the most fascinating inhabitants. The chief threats to the Edwards Aquifer and its biodiversity are reduced spring flows caused by increased pumping and water quality degradation from increased development.

Guadalupe San Marcos
The Guadalupe San Marcos PARCA follows the rivers of its name from south of Luling, through their confluence, downstream south of Cuero, TX. These rivers are some of Texas' most popular recreation areas, and they’re also a hotspot of aquatic biodiversity. Some threats to this PARCA include overuse for recreation (especially in sensitive areas), water use, pollution, and water quality degradation. These challenges must be addressed to ensure the river remains safe and healthy for biodiversity as well as human use.

Laredo Reach
The Laredo Reach PARCA is mostly contained in the Tamaulipan Thornscrub ecoregion, a very arid landscape largely lacking surface waters other than the Rio Grande. Sparse to degraded grasslands may be found occasionally, with riparian vegetation, both native and exotic, along the banks of the Rio Grande. Terrestrial species include the Berlandier's tortoise, Texas indigo snake, and reticulate collared lizard, while aquatic species like the Rio Grande cooter utilize the river and riparian habitats. Threats to the biodiversity of Laredo Reach include converting thornscrub to improved pasture, increased development, fencing obstacles (particularly to tortoises), and invasive riparian vegetation like giant cane.

Longleaf Ridge
The Longleaf Ridge PARCA is located entirely within the Pineywoods, and comprises the heart of the range of longleaf pine in Texas. It also contains the majority of the known range of the Louisiana pine snake within the state. Portions of Angelina and Sabine National Forests are contained within this PARCA, as well as a large area of conservation easements. The northern half of this PARCA contains longleaf pine savannas on sandy, rolling uplands, containing species such as northern scarlet snakes, while shifting

flatter towards the south. Downslope from longleaf savannas, hardwood forests, bald cypress-dominated floodplains, and seepage slopes occur, providing home for species such as the alligator snapping turtle, spotted dusky salamander, and pickerel frog. Threats to the biodiversity of this PARCA include unsustainable timber practices, forest conversion and clearing, invasive species, off-road vehicle use, and fire suppression.

Lower Little River
This important area for reptile and amphibian diversity has an intricate system of large streams, oxbow lakes, and backswamps. Covering hilly dissected uplands, floodplains, and low terraces are various species of oak, pine and cypress trees. This PARCA includes Little River National Wildlife Refuge, which is home to 11 state Champion Trees (largest of their respective species in the state) and offers refuge to several at-risk turtle species.

Monahans Sandhills
The Monahans Sandhills PARCA follows a unique formation, created thousands of years ago when sandy floodplains dried up and winds accumulated them in large sand dunes. Today, many of the dunes are vegetated with grasses and shinnery oak, which provides structure, shade, food, and breeding grounds for species like the dunes sagebrush lizard in the harsh landscape. A chief threat to this PARCA is the rapid boom in oil and gas development. With the 2024 listing of the dunes sagebrush lizard as federally endangered under the Endangered Species Act, cooperation with private industry will be crucial to preserve the natural resources of the Monahans Sandhills PARCA.

No Man's Land
The No Man’s Land PARCA contains unique geologic formations occurring in northeast to southwest bands across the area. The Jackson, Catahoula, Cook Mountain, and Fleming formations present distinctive soil types and conditions that influenced the development of natural community types along these formation bands. Calcareous clays, sandstones, saline deposits, siltstones, and ironstones have shaped the development of natural communities such as the calcareous forests, calcareous prairies, saline prairies, and small stream forests of this area. The south and southwestern portions of this PARCA are known for western longleaf pine flatwoods savannas and associated flatwoods ponds, and this area serves as the transition zone between Louisiana’s coastal prairies and upland longleaf pine woodlands. Threats to this PARCA include fire suppression, invasive species, siltation, and hydrology changes to ephemeral ponds. Major priorities for this PARCA include opening pine forests to establish natural canopy densities, returning natural burn regimes, maintaining best management practices and streamside management zones, creating/restoring ephemeral ponds, and controlling invasive species.

Padre Island
This dynamic barrier island system, largely managed by the National Park Service as Padre Island National Seashore, is located on the longest section of undeveloped barrier island in the United States. This system protects the majority of the remaining Texas coastal prairie, a dynamic environment constantly sculpted by wind and sea, and the Laguna Madre, one of the few hypersaline lagoon environments left in the world. More than 60% of this area consists of wetlands, including marshes, inland waters, wind tidal flats, and seagrass beds. These beaches are highly critical nesting habitat for many federally endangered sea turtle species such as the loggerhead, leatherback, green, hawksbill, and Kemp's ridley. This area is also home

to many important terrestrial species like the Texas indigo snake and the black spotted newt. Controlling invasive species, reducing off-road vehicles, and limiting poaching will help reduce nest disturbance and destruction, but climatic threats such as sea-level rise, algal blooms, increasing storm frequency, and high sand temperatures must be addressed through coastal forest remediation and management of human activities.

Pronatura
The Pronatura PARCA is bounded by perennial surface water drainages connected to the Rio Grande Basin. At the intersection of three ecoregions, this PARCA contains influences from the Tamaulipan Thornscrub, Edwards Plateau, and Chihuahuan Desert. For this region's unique species, such as endemic groundwater salamanders and aquatic turtles like the Rio Grande cooter, water is key. They face threats such as water overextraction, water quality degradation, and invasive species. Terrestrial species, such as the Berlandier's tortoise and Texas indigo snake, face threats from historical land use changes, land clearing, and range improvement practices. Most of this PARCA is comprised of private ranchland, making cooperation with landowners critical to maintaining its biodiversity.

Sandy Sanders
This unique PARCA is a rolling grassland located in a less populated area of Oklahoma and in one of the warmest and driest parts of the state. Most of the land in this region is privately owned ranchland, except for a 30,000-acre state Wildlife Management Area. Mixed-grass prairie and prairie shrublands with an overstory of honey mesquite are found throughout this region. Redberry juniper woodlands and gypsum canyonland habitats with rare plant species are found on hills and canyons peppered throughout the area. Fire suppression and poor range management have encouraged brush encroachment within the prairie, leading to habitat degradation. Rattlesnake roundups threaten local populations of rattlesnakes such as the western diamondback. These top predators play a major role in their ecosystems and already face many other threats, including habitat loss, road mortality, and poaching.

Shinnery Oaks
The Shinnery Oaks PARCA is a unique landscape comprised of eroded canyonlands, old sand dunes dominated by shinnery oak, mixed-grass prairies, and riparian woodlands along perennial and intermittent streams. Historically, these shrublands were once estimated to cover about 750,000 acres of Oklahoma, but now only 116,000 acres remain. The mixed-grass prairies in this area are formed by a diverse plant composition, but little bluestem and sideoats grama are the dominant grass species. Most of this important habitat has been converted to crops and ranchland, and heavy grazing coupled with fire suppression has led to an invasion of introduced grasses and forbs. Fragmentation caused by roads is another common issue in this area, and wildlife road mortalities can be detrimental to struggling species. Figuring out a solution to minimizing road fatalities, especially with hard-to-see reptiles and amphibians, will be an objective for this PARCA.

Stink Finger
The Stink Finger PARCA primarily consisted of shortleaf pine-oak-hickory woodland until post-settlement, when the majority of this community type was removed, and it has since been converted to loblolly pine plantation. Some natural stands of shortleaf pine-oak-hickory woodland still exist in this ecoregion. The major habitat types found within this PARCA consist of batture forests, hardwood slope forests, mixed

hardwood-loblolly pine forests, shortleaf pine-oak-hickory woodlands, xeric sandhill woodlands, hardwood flatwoods, calcareous forests, calcareous prairies, saline prairies, and sandbars. The Shreveport Airport contains the last known population of southern crawfish frogs in the state. Threats to this PARCA include urbanization, vehicle mortality, invasive species, and habitat conversion. Major priorities for this PARCA include restoring native habitat types, controlling invasive species, and creating habitat for the southern crawfish frog.

Sugar Sands
The Sugar Sands PARCA follows a band of deep, sandy soils that runs from the Colorado River northeast to the Trinity River. Defined at its southern boundary by the Lost Pines, a relict population of loblolly pine that is now isolated from populations further east, this area gradually transitions into post oak savannas, which along with a very high diversity of reptiles and amphibians, are rapidly disappearing. This PARCA covers what is generally thought to be the range of the federally endangered Houston toad in the northwestern part of its distribution. Some of the major threats here include fire suppression, invasive species (feral hogs), overgrazing, and human development. By working with universities and land managers, we hope to better understand how to mitigate the disappearance of critical wildlife habitats such as the post oak savanna.

Sulfur River
The Sulfur River PARCA is composed of rolling plains that are broken by nearly flat fluvial terraces, bottomlands, sandy low hills, and low cuestas. One of the biggest bottomland hardwood habitats persisting along the Red River Valley is found within this PARCA and is home to a thriving alligator population. Recreational activities are abundant in this region, but maintaining the water quality and protecting important wetlands will help defend the abundant wildlife.

Texas Bays and Marshes
The Texas Bays and Marshes PARCA follows the coastline from the border with Louisiana all the way southwest to the Corpus Christi Bay. An extensive assortment of habitats, including fresh and saltwater marshes, hardwood bottomlands, and oak woodlands, provide habitat for many species, including the diamondback terrapin, Texas indigo snake, and black spotted newt. Some proximate human-caused threats here include coastal development, fire suppression, freshwater inflow to estuaries, and barge traffic. However, climatic threats such as sea-level rise and increased frequency and severity of tropical storm systems must also be addressed.

Texas Canadian River
True to its name, the Canadian River PARCA contains the Canadian River from below the Lake Meredith Dam all the way to the Oklahoma border, as well as adjacent riparian zone and floodplain oxbow lakes. The riparian forests are dominated largely by cottonwoods and hackberries with some smaller tributaries containing mesquite-juniper brush. Beyond the riparian zone, there are large bands of mesquite shrub-grassland. Species such as the smooth softshell, Texas horned lizard, and plains hognose snake occupy this PARCA and are threatened by invasive plants and increased agricultural and urban water uses.

Texas Pineywoods
This large PARCA includes the central Pineywoods and contains the majority of Davy Crockett, Angelina, and Sabine National Forests. A rich diversity of habitats occur here, from longleaf pine savanna uplands to

hardwood stratified slopes, deep coarse sandhills, and bald cypress-tupelo bottomlands. Much of these historical habitats have been converted and lost, but large patches remain on national forest land and private conservation easements. Species such as the pygmy rattlesnake, mole salamander, and western chicken turtle represent the area's rich biodiversity, and are threatened by unsustainable timber practices, fire suppression, invasive plants and feral hogs, off-road vehicle use, and loss of prairie remnants.

Western Cross Timbers and Prairies
Located west of the Dallas/Fort Worth metro area, this PARCA contains a mix of tall to midgrass prairie remnants, western cross timbers, and riverbottom forests. This region has undergone extensive changes in the past 150 years, with timbered areas representing significant barriers to settlers traveling the open prairies. Much of the range of the Brazos water snake is contained within this PARCA, solely in the upper Brazos River drainage. Alongside this Texas endemic are species such as the eastern massasauga, Woodhouse's toad, and ornate box turtle. Threats to this PARCA include urbanization, fire suppression, oil and gas development, invasive species, and altered hydrologic regimes.

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

Equitable access to potential parks

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.

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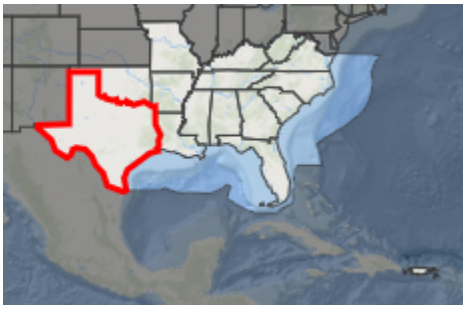

Priority for a new park that would create nearby equitable access

- 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 Texas. 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	325,796	0.2%
	High priority	450,230	0.3%
	Moderate priority	764,278	0.4%
↓ Low	Not identified as a priority (within urban areas)	168,399,407	98.0%
	Area not evaluated for this indicator	*1,957,715*	*1.1%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

Fire frequency

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 Southeast FireMap.

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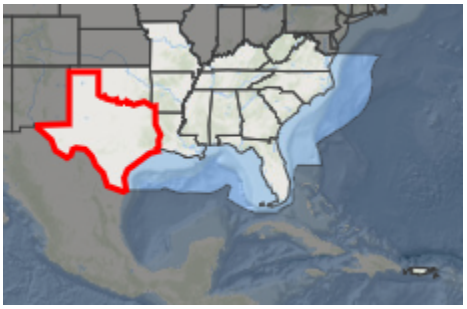
557 miles
139 279



- 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 Texas. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

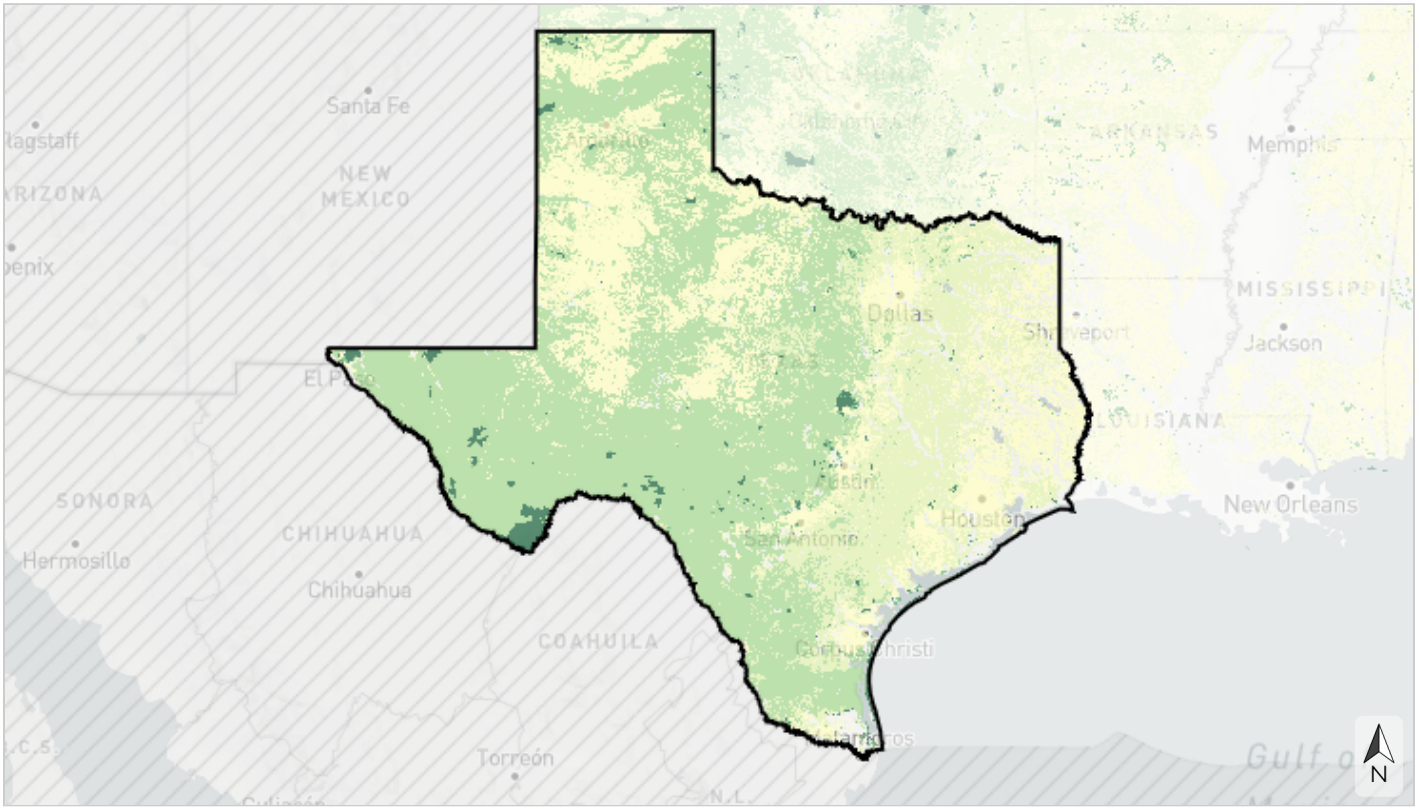
	Indicator Values	Acres	Percent of Area	
↑ High	Burned 3+ times from 2013-2021	76,345	<0.1%	
	Burned 2 times from 2013-2021	355,188	0.2%	↑ In good condition
	Burned 1 time from 2013-2021	3,050,860	1.8%	↓ Not in good condition
↓ Low	Not burned from 2013-2021 or row crop	168,396,305	98.0%	
	Area not evaluated for this indicator	*18,726*	*<0.1%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

Grasslands and savannas

This indicator represents grasslands and savannas in the southeastern United States, which support important plants, reptiles, amphibians, mammals, birds, and pollinators. It considers known grassland and savanna locations, likely locations managed for biodiversity, and surrounding pollinator buffers. It also incorporates other potential grassland and savanna locations within natural and altered landscapes, and restoration opportunities within historic locations based on past fire intervals and historic ecosystem predictions. This indicator combines data from multiple sources, including the Southeastern Grasslands Institute, the National Land Cover Database, LANDFIRE biophysical settings, Oklahoma and Texas ecological systems maps, and more.



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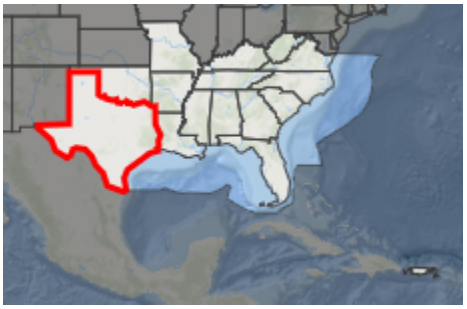

- Known grassland/savanna
- Likely grassland/savanna >10 acres
- Likely grassland/savanna ≤10 acres
- Pollinator buffer around known or likely grassland/savanna
- Potential grassland/savanna in mostly natural landscape
- Potential grassland/savanna in more altered landscape
- Historic grassland/savanna
- Not identified as grassland/savanna

Table 9: Indicator values for grasslands and savannas within Texas. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Known grassland/savanna	265	<0.1%	
	Likely grassland/savanna >10 acres	2,329,112	1.4%	
	Likely grassland/savanna ≤10 acres	34,054	<0.1%	↑ In good condition
	Pollinator buffer around known or likely grassland/savanna	999,115	0.6%	↓ Not in good condition
	Potential grassland/savanna in mostly natural landscape	72,833,042	42.4%	
	Potential grassland/savanna in more altered landscape	33,130,362	19.3%	
	Historic grassland/savanna	44,948,195	26.1%	
↓ Low	Not identified as grassland/savanna	15,662,535	9.1%	
	Area not evaluated for this indicator	*1,960,747*	*1.1%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

Greenways & trails

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.

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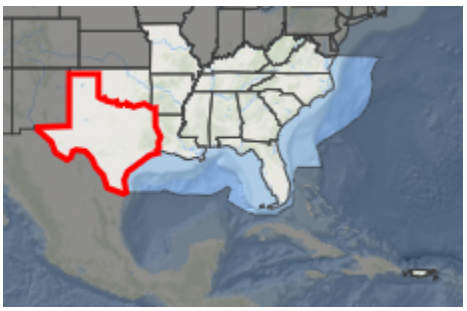


- Mostly natural and connected for ≥40 km
- Mostly natural and connected for 5 to <40 km or partly natural and connected for ≥40 km
- Mostly natural and connected for 1.9 to <5 km, partly natural and connected for 5 to <40 km, or developed and connected for ≥40 km
- Mostly natural and connected for 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

Table 10: Indicator values for greenways & trails within Texas. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

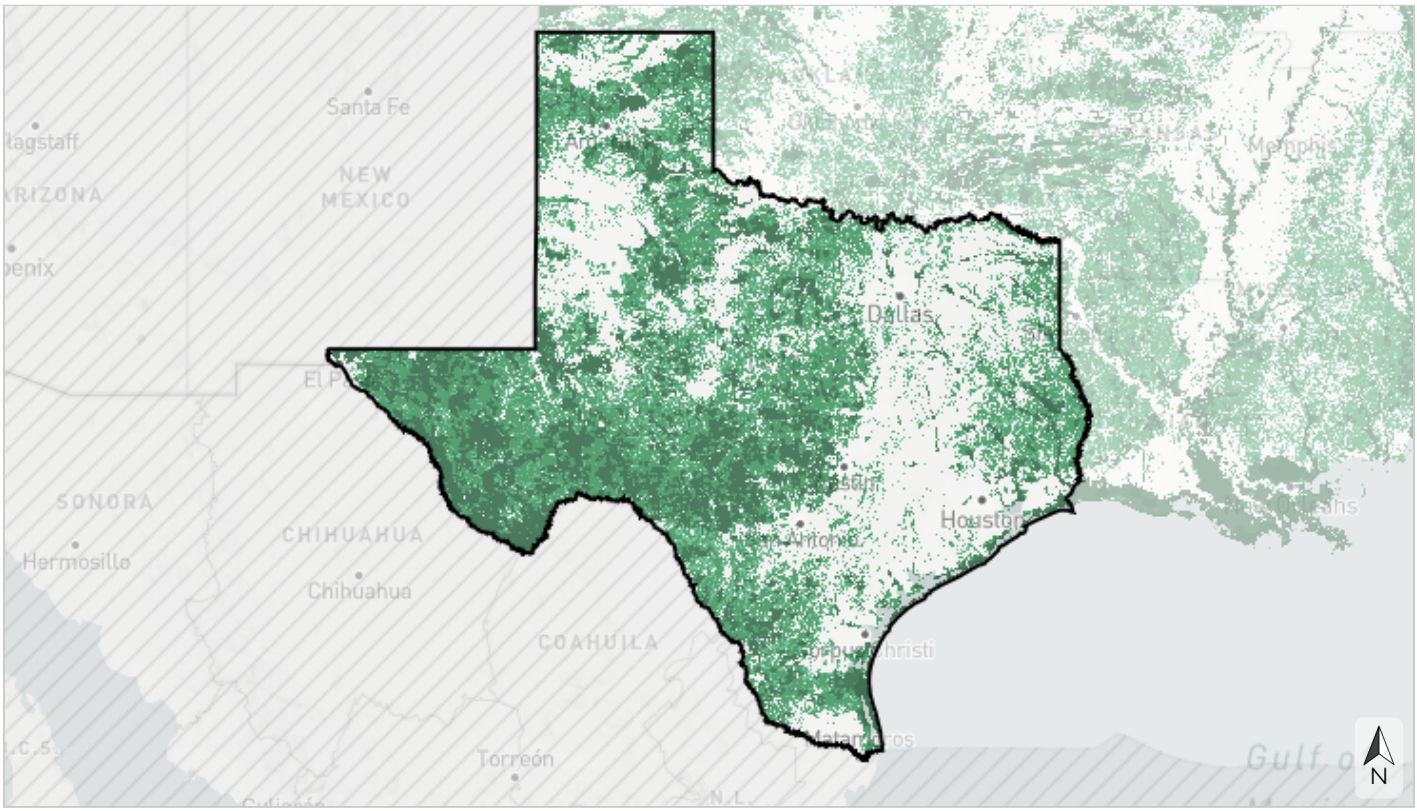
	Indicator Values	Acres	Percent of Area	
↑ High	Mostly natural and connected for ≥40 km	10,725	<0.1%	
	Mostly natural and connected for 5 to <40 km or partly natural and connected for ≥40 km	20,640	<0.1%	
	Mostly natural and connected for 1.9 to <5 km, partly natural and connected for 5 to <40 km, or developed and connected for ≥40 km	41,278	<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	31,134	<0.1%	↑ In good condition
	Partly natural and connected for <1.9 km or developed and connected for 1.9 to <5 km	18,180	<0.1%	↓ Not in good condition
	Developed and connected for <1.9 km	28,223	<0.1%	
	Sidewalk	65,229	<0.1%	
↓ Low	Not identified as a trail, sidewalk, or other path	171,630,447	99.8%	
	Area not evaluated for this indicator	*51,569*	*<0.1%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

Intact habitat cores

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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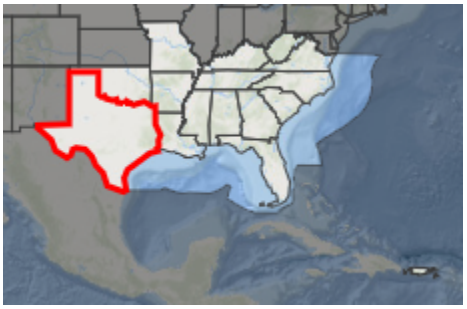

- Large core (>10,000 acres)
- Medium core (>1,000-10,000 acres)
- Small core (>100-1,000 acres)
- Not a core

Table 11: Indicator values for intact habitat cores within Texas. 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)	31,116,399	18.1%	
	Medium core (>1,000-10,000 acres)	44,602,239	25.9%	
	Small core (>100-1,000 acres)	20,494,756	11.9%	↑ In good condition
↓ Low	Not a core	75,645,108	44.0%	↓ Not in good condition
	Area not evaluated for this indicator	*38,923*	*<0.1%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

Landscape condition

This indicator represents natural areas with limited human alteration while also considering the naturalness of the surrounding landscape. Examples of human alteration include urban development and intense agricultural use. The degree of naturalness across the landscape is a key ecological condition for sustaining species and ecosystem services that are sensitive to habitat fragmentation at multiple scales. This indicator uses the National Land Cover Dataset, various data on grasslands, mines, and quarries, and ideas from the Florida Critical Lands and Waters Identification Project's approach for evaluating landscape integrity.

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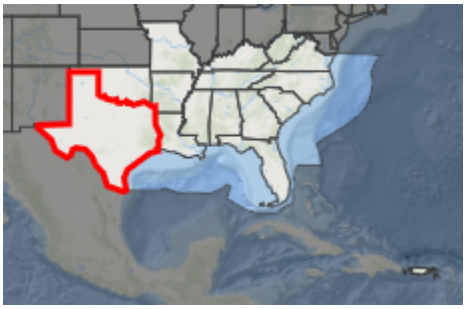

- Very natural landscape
- Natural landscape
- Mostly natural landscape
- Partly natural landscape
- Altered landscape
- Heavily altered landscape

Table 12: Indicator values for landscape condition within Texas. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Very natural landscape	56,814,158	33.1%	
	Natural landscape	38,861,644	22.6%	
	Mostly natural landscape	27,525,174	16.0%	↑ In good condition
	Partly natural landscape	40,189,598	23.4%	↓ Not in good condition
	Altered landscape	4,694,993	2.7%	
↓ Low	Heavily altered landscape	1,851,110	1.1%	
	Area not evaluated for this indicator	*1,960,747*	*1.1%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

Playas

This indicator represents the condition and location of playas, which are round, shallow depressions found primarily in the western Great Plains that serve as temporary wetlands by collecting water from rainfall and runoff. It defines a healthy playa as one that is not farmed, hydrologically modified, within a wind farm, or impacted by sediment accumulation due to agriculture. It also considers the increased benefits to wildlife provided by clusters of nearby playas, compared to more sparsely distributed playas. Playas play a critical role in recharging the Ogallala aquifer and provide habitat and food for birds and other animals. This indicator originates from the Playa Lakes Joint Venture probable playas dataset.

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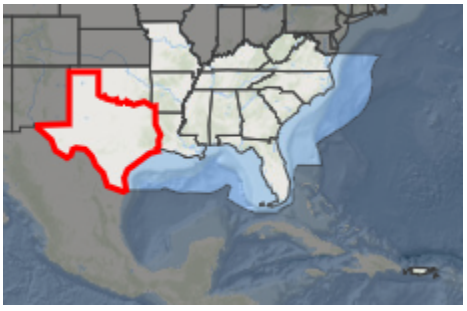


- Healthy playa and part of a larger cluster
- Healthy playa
- Other playa
- Not identified as a playa

Table 13: Indicator values for playas within Texas. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

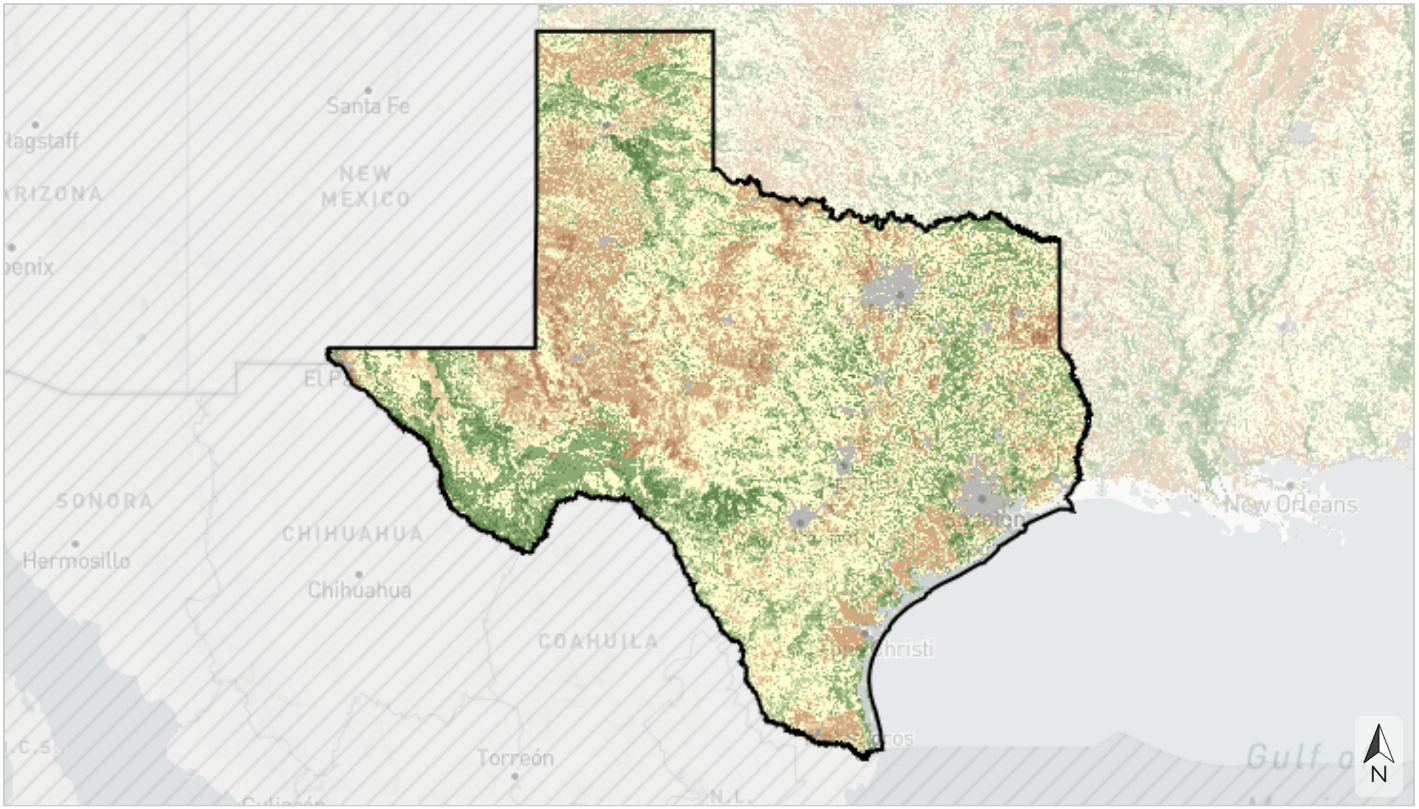
	Indicator Values	Acres	Percent of Area	
↑ High	Healthy playa and part of a larger cluster	139,261	<0.1%	
	Healthy playa	4,004	<0.1%	↑ In good condition
	Other playa	249,050	0.1%	↓ Not in good condition
↓ Low	Not identified as a playa	47,766,454	27.8%	
	Area not evaluated for this indicator	*123,738,656*	*72.0%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

Resilient terrestrial sites

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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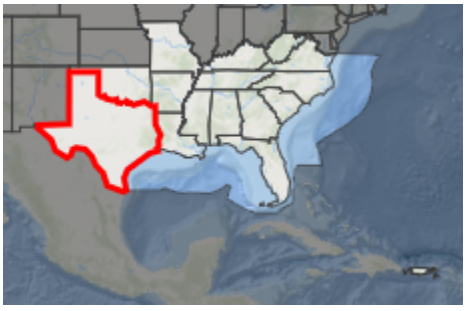


- Most resilient
- More resilient
- Slightly more resilient
- Average/median resilience
- Slightly less resilient
- Less resilient
- Least resilient
- Developed

Table 14: Indicator values for resilient terrestrial sites within Texas. A good condition threshold is not yet defined for this indicator.

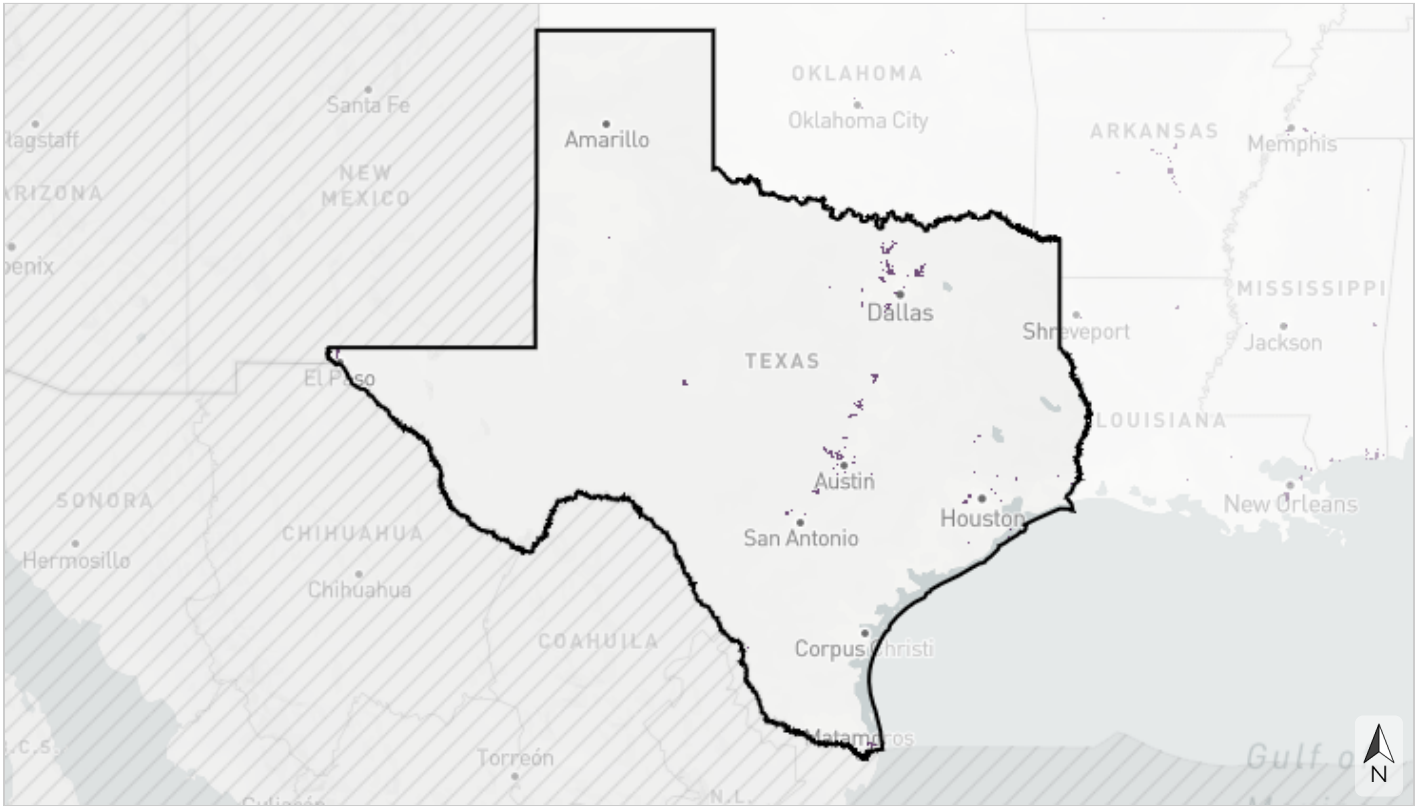
	Indicator Values	Acres	Percent of Area
↑ High	Most resilient	5,940,038	3.5%
	More resilient	26,512,527	15.4%
	Slightly more resilient	25,389,141	14.8%
	Average/median resilience	53,304,136	31.0%
	Slightly less resilient	24,129,664	14.0%
	Less resilient	21,829,734	12.7%
	Least resilient	3,342,247	1.9%
↓ Low	Developed	5,423,119	3.2%
	Area not evaluated for this indicator	*6,026,820*	*3.5%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

Urban park size

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.



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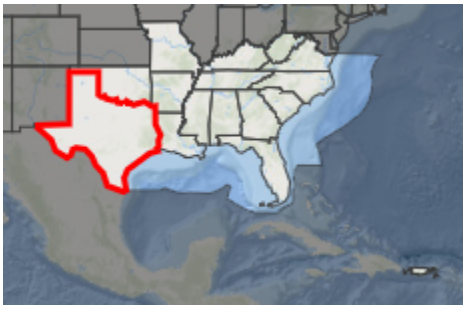

- 75+ acre urban park
- 50 to <75 acre urban park
- 30 to <50 acre urban park
- 10 to <30 acre urban park
- 5 to <10 acre urban park
- <5 acre urban park
- Not identified as an urban park

Table 15: Indicator values for urban park size within Texas. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	75+ acre urban park	611,553	0.4%
	50 to <75 acre urban park	19,438	<0.1%
	30 to <50 acre urban park	24,217	<0.1%
	10 to <30 acre urban park	37,826	<0.1%
	5 to <10 acre urban park	16,537	<0.1%
	<5 acre urban park	16,614	<0.1%
↓ Low	Not identified as an urban park	170,746,781	99.3%
	Area not evaluated for this indicator	*424,459*	*0.2%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

West Coastal Plain & Ouachitas forested wetland birds

This indicator is an index of habitat suitability for five forested wetland bird species (Acadian flycatcher, Kentucky warbler, yellow-throated warbler, prothonotary warbler, red-shouldered hawk) within bottomland hardwood forests and riparian areas in the West Gulf Coastal Plain/Ouachitas (WGCPO) Bird Conservation Region. It uses metrics like patch size, dispersal distance, and distance to water to assess the potential for habitat to support sustainable populations of these birds. This indicator originates from the Lower Mississippi Valley Joint Venture's forested wetland decision support model for the WGCPO region.

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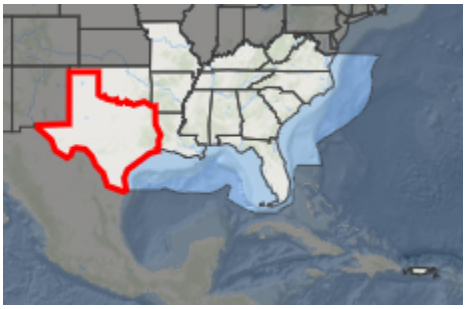


Habitat suitability for forested wetland bird umbrella species

- High habitat suitability (score >80)
- Medium-high habitat suitability (score >60-80)
- Medium habitat suitability (score >40-60)
- Medium-low habitat suitability (score >20-40)
- Low habitat suitability (score >0-20)
- Not suitable (score = 0)

Table 16: Indicator values for West Coastal Plain & Ouachitas forested wetland birds within Texas. A good condition threshold is not yet defined for this indicator.

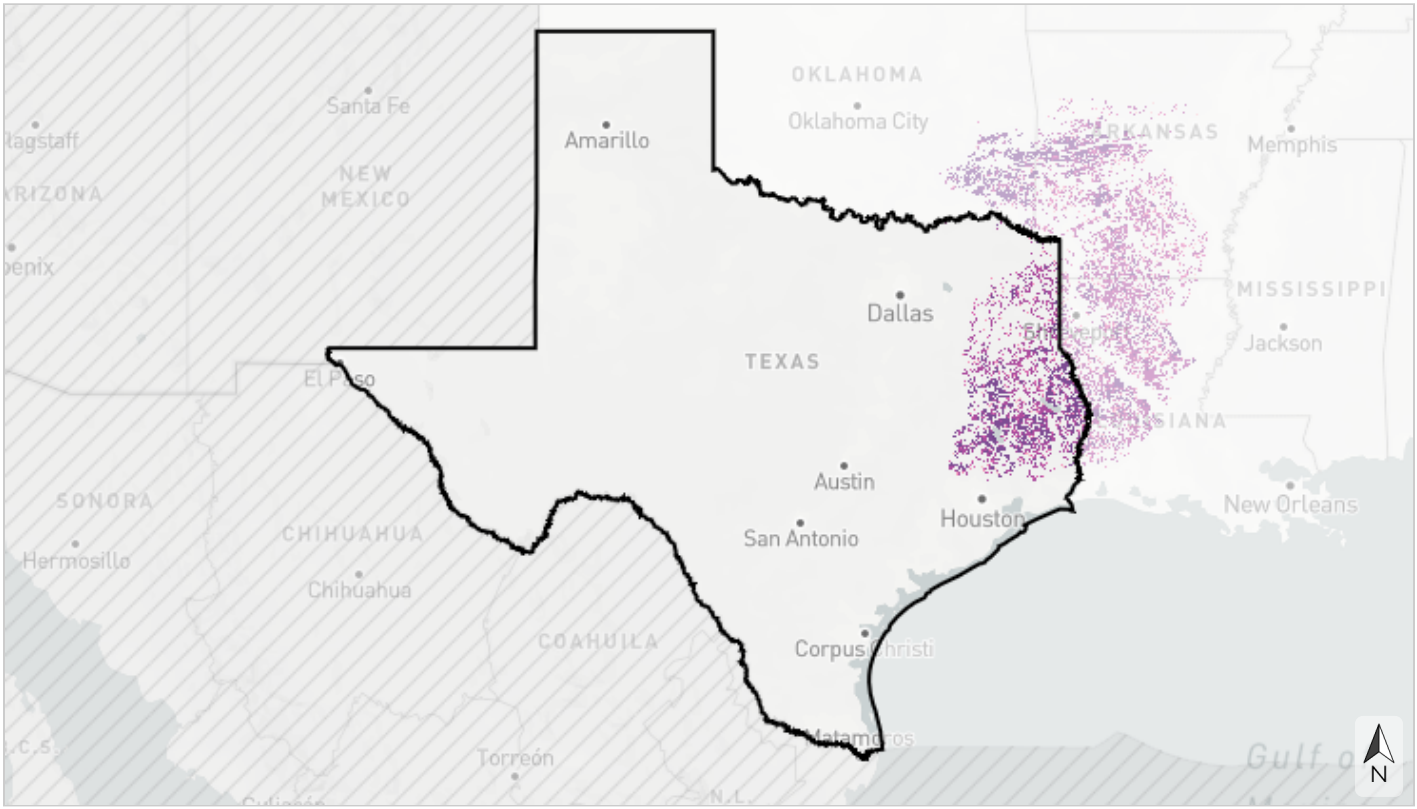
	Indicator Values: Habitat suitability for forested wetland bird umbrella species	Acres	Percent of Area
↑ High	High habitat suitability (score >80)	472,163	0.3%
	Medium-high habitat suitability (score >60-80)	318,899	0.2%
	Medium habitat suitability (score >40-60)	361,743	0.2%
	Medium-low habitat suitability (score >20-40)	566,631	0.3%
	Low habitat suitability (score >0-20)	553,694	0.3%
↓ Low	Not suitable (score = 0)	13,606,700	7.9%
	Area not evaluated for this indicator	*156,017,595*	*90.8%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

West Coastal Plain & Ouachitas open pine birds

This indicator identifies areas with pine trees that, if managed for open condition, could support a population of three umbrella bird species (brown-headed nuthatch, Bachman's sparrow, red-cockaded woodpecker). It evaluates potential habitat in the West Gulf Coastal Plain/Ouachitas (WGCPO) Bird Conservation Region based on each species' habitat needs and population dynamics, prioritizing opportunities to restore and manage habitat to benefit open pine birds. Final scores reflect both the selectiveness of the species and whether an area meets the habitat requirements through one large patch, or clusters of smaller patches in sufficiently close proximity for breeding pairs to disperse. This indicator updates the Lower Mississippi Valley Joint Venture's open pine decision support model for the WGCPO region.



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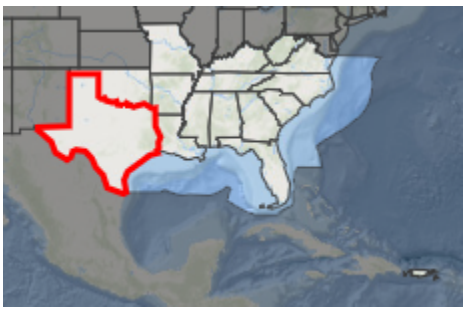


Ability of pine patch to support a population of umbrella bird species if managed in open condition

- Large enough to support a population of all 3 species
- Large enough to support a population of 2 species
- Large enough to a population of 1 species
- Part of a cluster of nearby patches able to support a population of all 3 species
- Part of a cluster of nearby patches able to support a population of 2 species
- Part of a cluster of nearby patches able to support a population of 1 species
- Pine patch too small and isolated to support a population of any species or not an upland pine patch

Table 17: Indicator values for West Coastal Plain & Ouachitas open pine birds within Texas. A good condition threshold is not yet defined for this indicator.

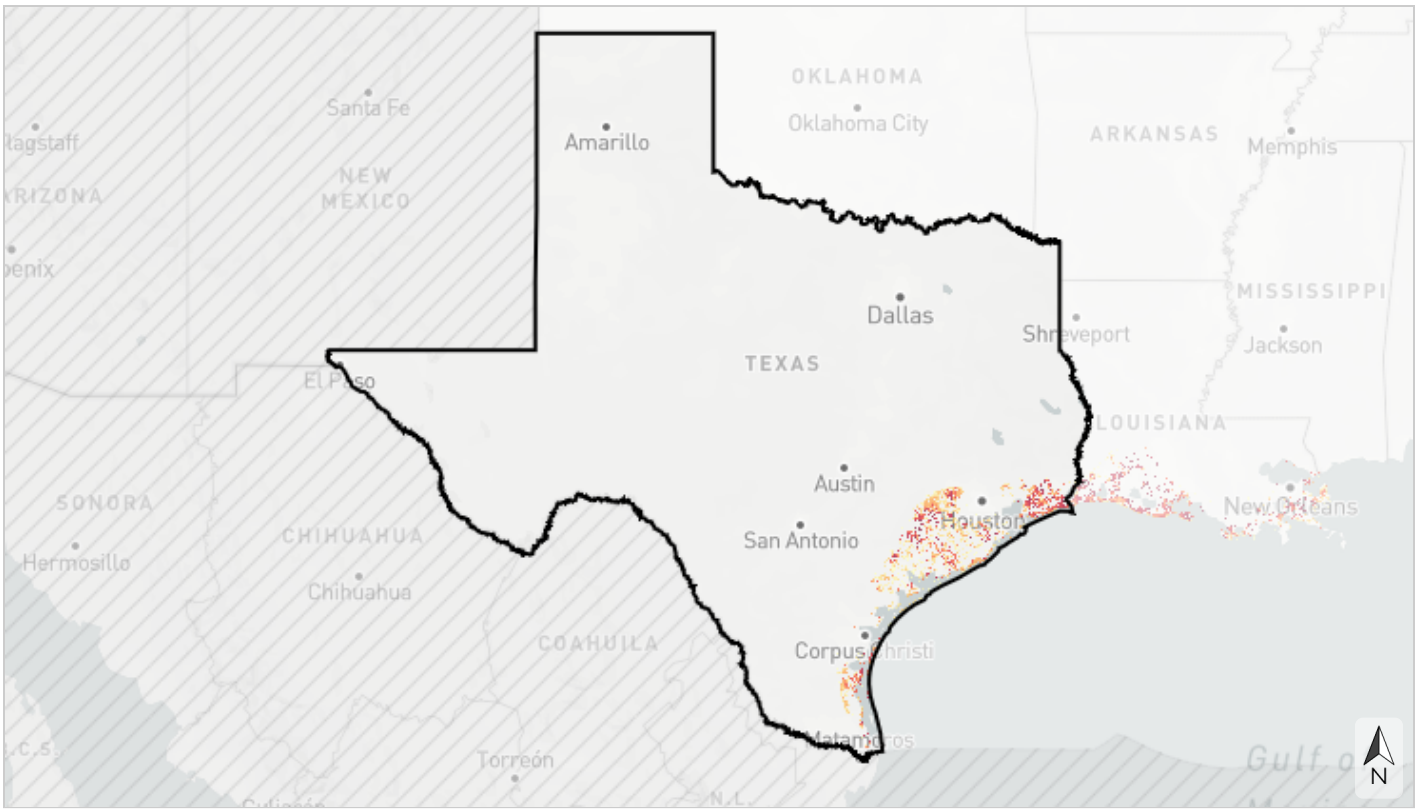
	Indicator Values: Ability of pine patch to support a population of umbrella bird species if managed in open condition	Acres	Percent of Area
↑ High	Large enough to support a population of all 3 species	1,589,538	0.9%
	Large enough to support a population of 2 species	2,163,307	1.3%
	Large enough to a population of 1 species	559,981	0.3%
	Part of a cluster of nearby patches able to support a population of all 3 species	415,274	0.2%
	Part of a cluster of nearby patches able to support a population of 2 species	1,057,850	0.6%
	Part of a cluster of nearby patches able to support a population of 1 species	5,709	<0.1%
↓ Low	Pine patch too small and isolated to support a population of any species or not an upland pine patch	10,087,885	5.9%
	Area not evaluated for this indicator	*156,017,881*	*90.8%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Terrestrial

West Gulf Coast mottled duck nesting

This indicator depicts marshes and grasslands along the coast of Louisiana and Texas that are important for mottled duck nesting, based on key biological parameters such as patch size, land cover type, and distance to brood rearing habitat. As a non-migratory bird endemic to the Gulf coast, mottled ducks serve as good indicators of coastal marsh health and function. Urban growth, agricultural development, and hydrologic changes due to human alteration and climate change have caused significant mottled duck habitat loss and population declines. This indicator originates from a mottled duck decision support tool developed by the Gulf Coast Joint Venture.



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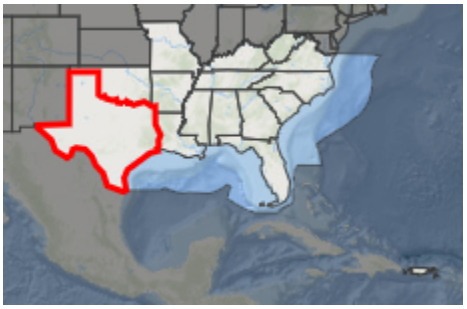


Percentile of suitable mottled duck nesting habitat

- 90th-100th 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
- 0-10th percentile
- Not identified as suitable (within TX and LA)

Table 18: Indicator values for west gulf coast mottled duck nesting within Texas. A good condition threshold is not yet defined for this indicator.

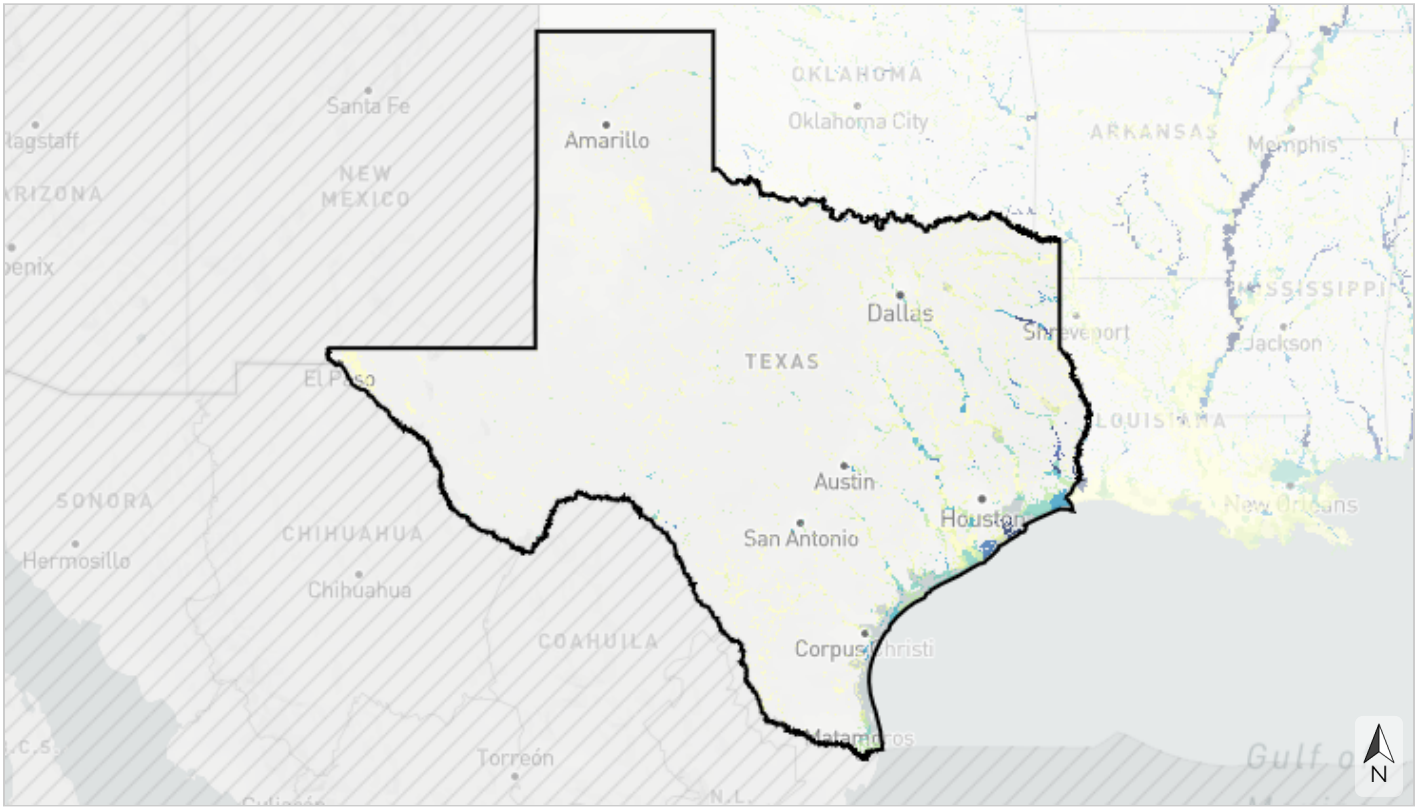
	Indicator Values: Percentile of suitable mottled duck nesting habitat	Acres	Percent of Area
↑ High	90th-100th percentile	150,896	<0.1%
	80th-90th percentile	230,369	0.1%
	70th-80th percentile	265,008	0.2%
	60th-70th percentile	281,124	0.2%
	50th-60th percentile	307,163	0.2%
	40th-50th percentile	374,127	0.2%
	30th-40th percentile	398,233	0.2%
	20th-30th percentile	405,638	0.2%
	10th-20th percentile	405,367	0.2%
	0-10th percentile	359,904	0.2%
↓ Low	Not identified as suitable (within TX and LA)	7,717,798	4.5%
	Area not evaluated for this indicator	*161,001,797*	*93.7%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Freshwater

Imperiled aquatic species

This indicator measures the number of aquatic animal Regional Species of Greatest Conservation Need (RSGCN) observed within each 12-digit HUC subwatershed, including fish, mussels, snails, crayfish, and amphibians. RSGCN are regional priority species derived from the list of SGCN identified in Southeast State Wildlife Action Plans as most in need of need of conservation action. RSGCN were chosen based on consistent criteria, such as level of conservation concern, regional stewardship responsibility, and ecological significance. This indicator 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).



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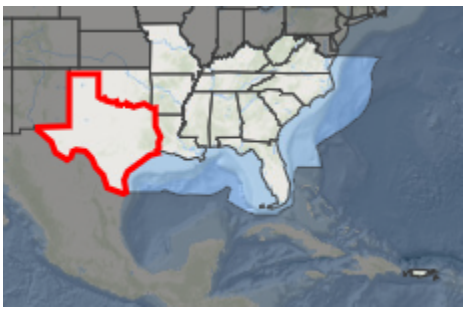


Number of aquatic animal Regional Species of Greatest Conservation Need (RSGCN) observed

- 8+ species
- 7 species
- 6 species
- 5 species
- 4 species
- 3 species
- 2 species
- 1 species
- 0 species
- Not identified as a floodplain

Table 19: Indicator values for imperiled aquatic species within Texas. A good condition threshold is not yet defined for this indicator.

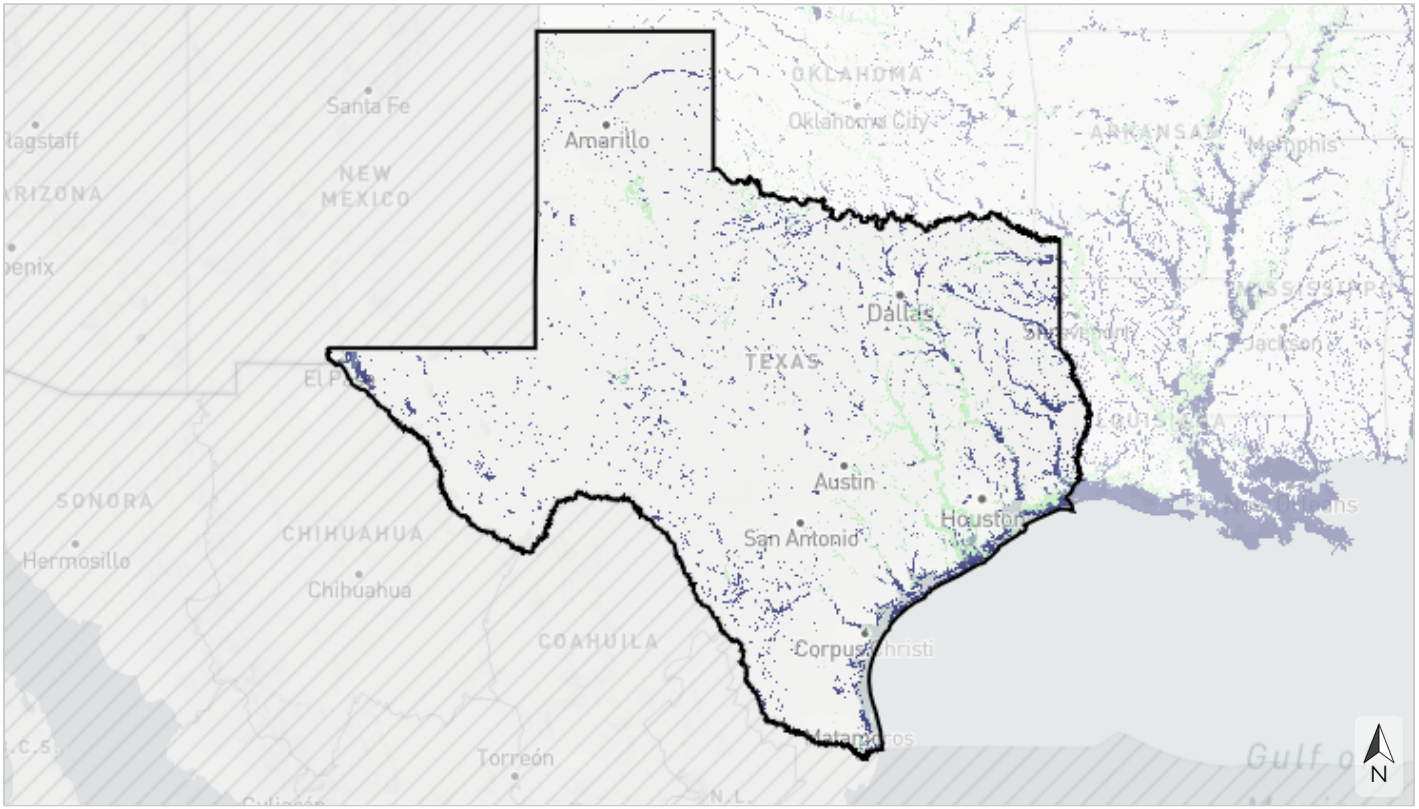
	Indicator Values: Number of aquatic animal Regional Species of Greatest Conservation Need (RSGCN) observed	Acres	Percent of Area
↑ High	8+ species	221,955	0.1%
	7 species	133,143	<0.1%
	6 species	205,787	0.1%
	5 species	430,452	0.3%
	4 species	468,540	0.3%
	3 species	1,228,067	0.7%
	2 species	1,644,315	1.0%
	1 species	2,471,257	1.4%
	0 species	15,538,142	9.0%
↓ Low	Not identified as a floodplain	147,065,874	85.6%
	Area not evaluated for this indicator	*2,489,893*	*1.4%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Freshwater

Natural landcover in floodplains

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).



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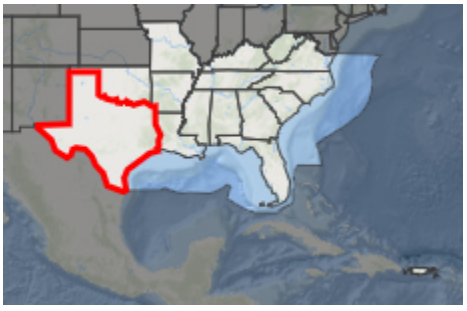

Percent natural landcover within the estimated floodplain, by catchment

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

Table 20: Indicator values for natural landcover in floodplains within Texas. 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	11,519,379	6.7%	
	>80-90% natural landcover	2,562,670	1.5%	↑ In good condition
	>70-80% natural landcover	1,833,007	1.1%	↓ Not in good condition
	>60-70% natural landcover	1,375,049	0.8%	
	≤60% natural landcover	5,051,553	2.9%	
↓ Low	Not identified as a floodplain	147,081,793	85.6%	
	Area not evaluated for this indicator	*2,473,974*	*1.4%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Freshwater

Network complexity

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).

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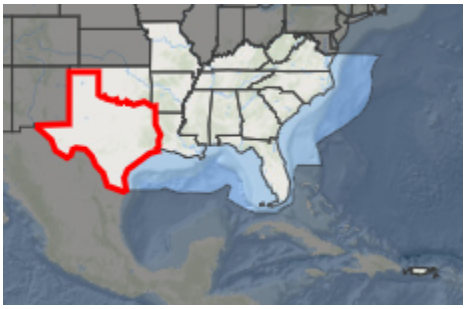


Number of connected stream size classes

- 7 size classes
- 6 size classes
- 5 size classes
- 4 size classes
- 3 size classes
- 2 size classes
- 1 size class
- Not identified as a floodplain

Table 21: Indicator values for network complexity within Texas. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

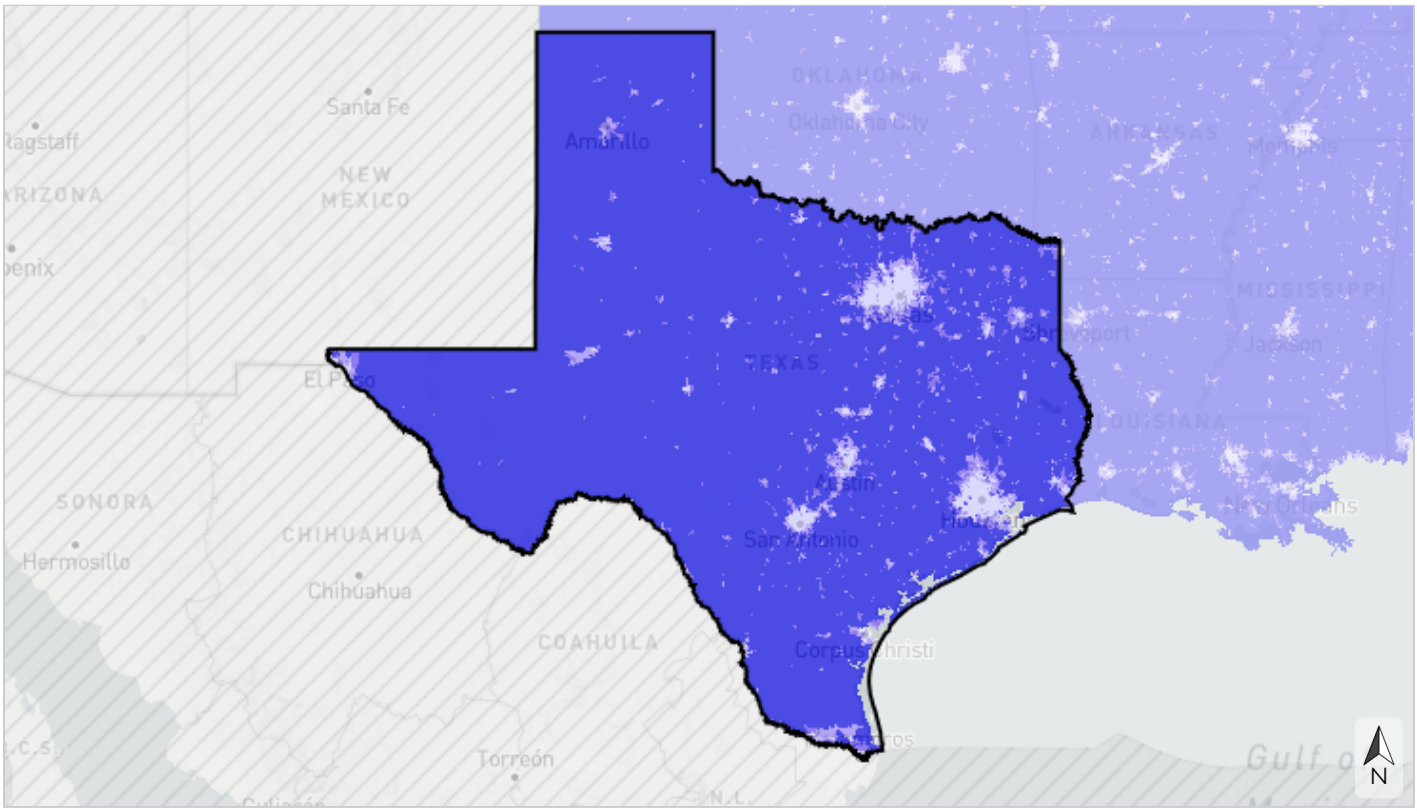
	Indicator Values: Number of connected stream size classes	Acres	Percent of Area	
↑ High	7 size classes	3,727,060	2.2%	
	6 size classes	3,591,382	2.1%	
	5 size classes	4,472,240	2.6%	
	4 size classes	2,657,194	1.5%	↑ In good condition
	3 size classes	2,637,739	1.5%	↓ Not in good condition
	2 size classes	2,839,417	1.7%	
	1 size class	2,058,003	1.2%	
↓ Low	Not identified as a floodplain	147,107,829	85.6%	
	Area not evaluated for this indicator	*2,806,560*	*1.6%*	
	Total area	**171,897,425**	**100%**	

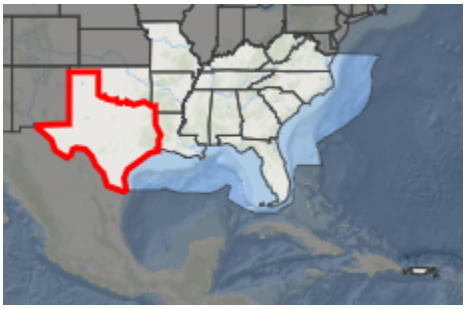
To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Freshwater

Permeable surface

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.





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

Table 22: Indicator values for permeable surface within Texas. 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)	157,051,837	91.4%	↑ In good condition
	>90-95% permeable (likely declining water quality and supporting most aquatic species)	4,516,404	2.6%	↓ Not in good condition
	>70-90% permeable (likely degraded water quality and not supporting many aquatic species)	4,790,791	2.8%	
↓ Low	≤70% permeable (likely degraded instream flow, water quality, and aquatic species communities)	3,045,088	1.8%	
	Area not evaluated for this indicator	*2,493,305*	*1.5%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Coastal & marine

Coastal shoreline condition

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.

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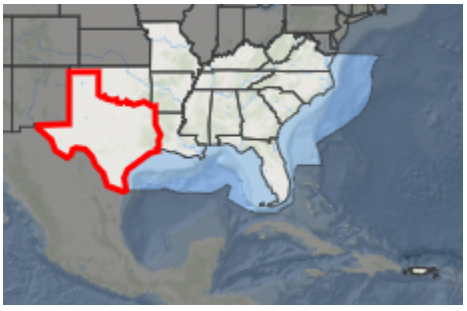

- Natural and harder to develop
- Natural
- Partially armored and harder to develop
- Partially armored
- Armored

Table 23: Indicator values for coastal shoreline condition within Texas. 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	30,548	<0.1%	
	Natural	61,163	<0.1%	↑ In good condition
	Partially armored and harder to develop	1,194	<0.1%	↓ Not in good condition
	Partially armored	4,940	<0.1%	
↓ Low	Armored	15,683	<0.1%	
	Area not evaluated for this indicator	*171,783,897*	*99.9%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Coastal & marine

Estuarine coastal condition

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.

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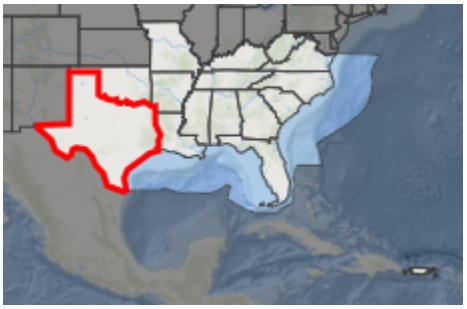

- Good
- Fair to good
- Fair
- Poor to fair
- Poor
- Shallow estuary not assessed for condition

Table 24: Indicator values for estuarine coastal condition within Texas. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

	Indicator Values	Acres	Percent of Area	
↑ High	Good	304,885	0.2%	
	Fair to good	161,270	<0.1%	↑ In good condition
	Fair	1,138,338	0.7%	↓ Not in good condition
	Poor to fair	103,359	<0.1%	
	Poor	78,889	<0.1%	
↓ Low	Shallow estuary not assessed for condition	212,935	0.1%	
	Area not evaluated for this indicator	*169,897,750*	*98.8%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Coastal & marine

Gulf coral & hardbottom

This indicator predicts the presence of coral and hardbottom in the Gulf of Mexico based on direct observations, acoustic surveys, and known locations of artificial reefs and shipwrecks. 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 micro-organisms that feed off of hydrocarbon seeps. This indicator combines data from multiple sources, including Bureau of Ocean Energy Management seismic water bottom anomalies, usSEABED sediment data, several National Oceanic and Atmospheric Administration datasets, various state layers, and more.

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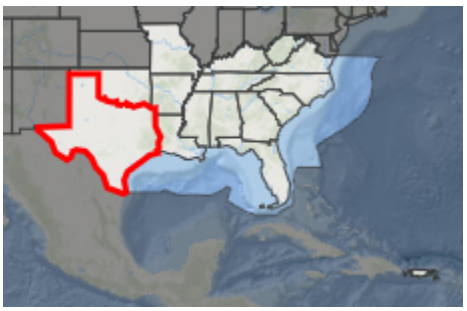


- Confirmed hardbottom-associated species (e.g., corals, sponges, patch reef, chemosynthetic communities)
- Confirmed natural hardbottom
- Artificial reefs
- Shipwrecks
- Probable natural hardbottom (fine resolution)
- Rock (coarse resolution)
- Gravel (coarse resolution)
- Not identified as hardbottom

Table 25: Indicator values for Gulf coral & hardbottom within Texas. A good condition threshold is not yet defined for this indicator.

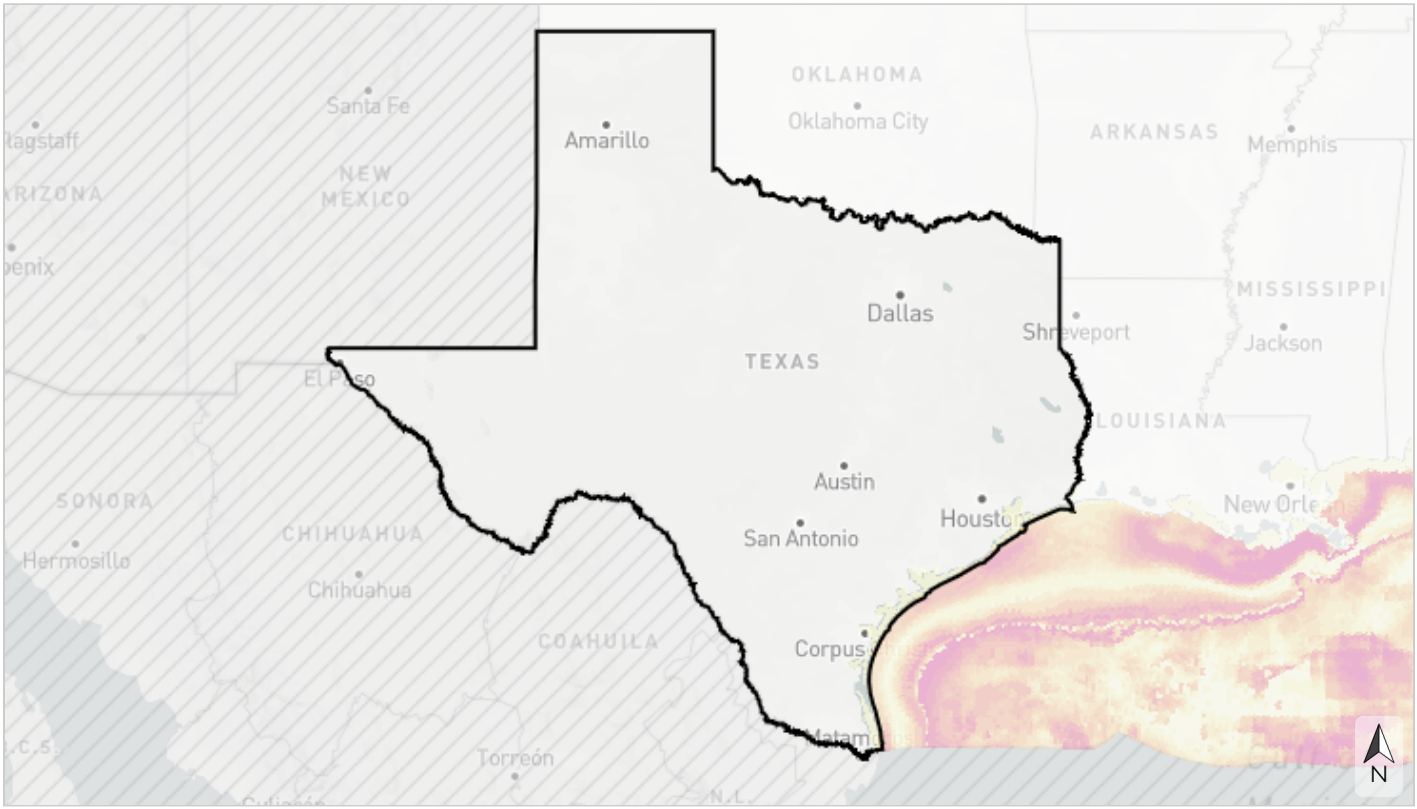
	Indicator Values	Acres	Percent of Area
↑ High	Confirmed hardbottom-associated species (e.g., corals, sponges, patch reef, chemosynthetic communities)	34	<0.1%
	Confirmed natural hardbottom	0	0%
	Artificial reefs	0	0%
	Shipwrecks	7,557	<0.1%
	Probable natural hardbottom (fine resolution)	0	0%
	Rock (coarse resolution)	3,189	<0.1%
	Gravel (coarse resolution)	76,304	<0.1%
↓ Low	Not identified as hardbottom	3,418,111	2.0%
	Area not evaluated for this indicator	*168,392,231*	*98.0%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Coastal & marine

Gulf marine mammals

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).



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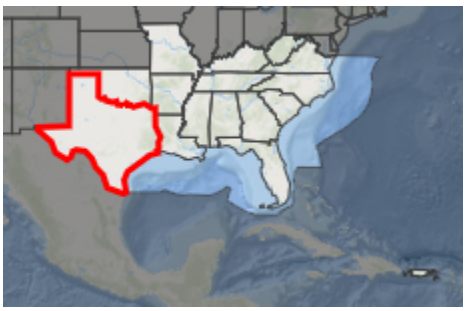


Percentile of importance for marine mammal index species (across larger analysis area)

- >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 26: Indicator values for Gulf marine mammals within Texas. A good condition threshold is not yet defined for this indicator.

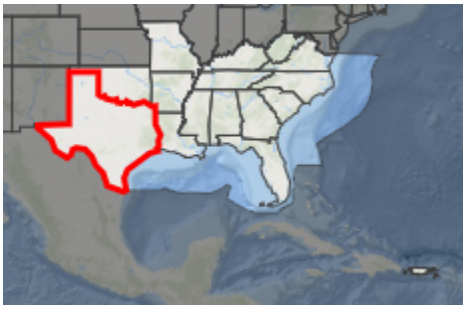
	Indicator Values: Percentile of importance for marine mammal index species (across larger analysis area)	Acres	Percent of Area
↑ High	>90th percentile	0	0%
	>80th-90th percentile	412	<0.1%
	>70th-80th percentile	13,774	<0.1%
	>60th-70th percentile	50,207	<0.1%
	>50th-60th percentile	56,763	<0.1%
	>40th-50th percentile	178,650	0.1%
	>30th-40th percentile	132,301	<0.1%
	>20th-30th percentile	252,137	0.1%
	>10th-20th percentile	52,589	<0.1%
	≤10th percentile	1,460,039	0.8%
↓ Low	Land	211,424	0.1%
	Area not evaluated for this indicator	*169,489,131*	*98.6%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

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
- >65th-70th percentile
- ≤65th percentile
- Land

Table 27: Indicator values for Gulf sea turtles within Texas. 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	168,995	<0.1%
	>80th-90th percentile	131,189	<0.1%
	>70th-80th percentile	209,502	0.1%
	>65th-70th percentile	213,229	0.1%
	≤65th percentile	1,675,136	1.0%
↓ Low	Land	1,704,558	1.0%
	Area not evaluated for this indicator	*167,794,815*	*97.6%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Coastal & marine

Island habitat

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.

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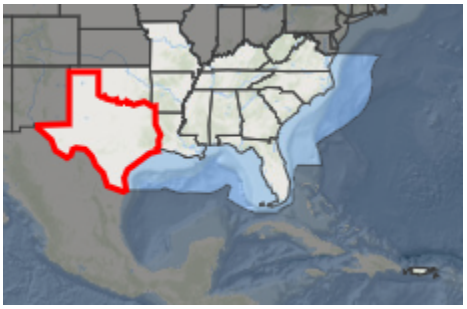

- Island critical habitat for any of six threatened and endangered species (piping plover, loggerhead sea turtle, Cape Sable thoroughwort, Florida semaphore cactus, silver rice rat, or Bartram's hairstreak butterfly)
- Other island area
- Not a coastal island

Table 28: Indicator values for island habitat within Texas. 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)	84,061	<0.1%
	Other island area	270,523	0.2%
↓ Low	Not a coastal island	11,609,712	6.8%
	Area not evaluated for this indicator	*159,933,129*	*93.0%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Coastal & marine

Marine highly migratory fish

This indicator identifies important foraging and spawning areas for highly migratory fish in the Atlantic Ocean and Gulf of Mexico. It uses physical capture and satellite tag observations, remote sensing of environmental variables, and physical oceanographic data to analyze the habitat preferences of three species (skipjack tuna, bluefin tuna, and blue shark) at various life stages. It originates from European Commission Joint Research Centre global fish models.

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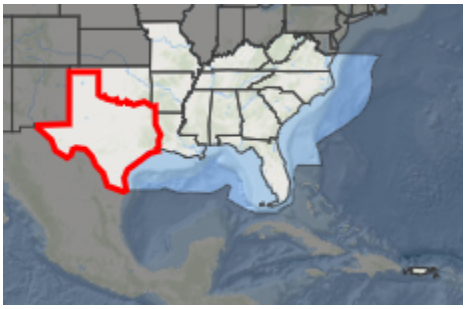

Percentile of importance for bluefin and skipjack tuna or blue shark

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

Table 29: Indicator values for marine highly migratory fish within Texas. A good condition threshold is not yet defined for this indicator.

	Indicator Values: Percentile of importance for bluefin and skipjack tuna or blue shark	Acres	Percent of Area
↑ High	>90th percentile	0	0%
	>80th-90th percentile	70	<0.1%
	>70th-80th percentile	170	<0.1%
	>60th-70th percentile	1,595	<0.1%
	>50th-60th percentile	1,185	<0.1%
	>40th-50th percentile	0	0%
	>30th-40th percentile	0	0%
↓ Low	≤30th percentile	2,363	<0.1%
	Area not evaluated for this indicator	*171,892,042*	*100.0%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Coastal & marine

Resilient coastal sites

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.

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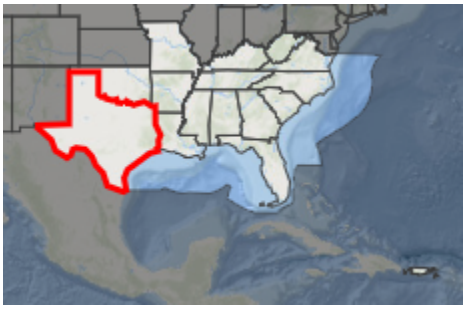

- Most resilient
- More resilient
- Slightly more resilient
- Average/median resilience
- Slightly less resilient
- Less resilient
- Least resilient

Table 30: Indicator values for resilient coastal sites within Texas. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Most resilient	237,679	0.1%
	More resilient	1,186,577	0.7%
	Slightly more resilient	377,286	0.2%
	Average/median resilience	57,161	<0.1%
	Slightly less resilient	2,327	<0.1%
	Less resilient	787	<0.1%
↓ Low	Least resilient	1,951	<0.1%
	Area not evaluated for this indicator	*170,033,658*	*98.9%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Coastal & marine

Seagrass

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.

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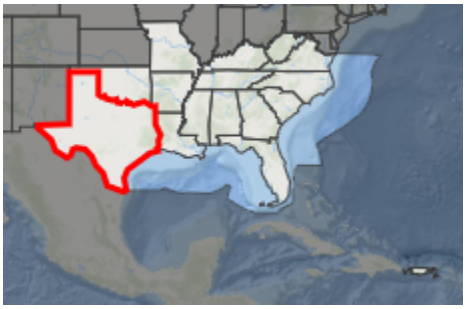

Seagrass present

Table 31: Indicator values for seagrass within Texas. A good condition threshold is not yet defined for this indicator.

	Indicator Values	Acres	Percent of Area
↑ High	Seagrass present	228,430	0.1%
	Area not evaluated for this indicator	*171,668,995*	*99.9%*
	Total area	**171,897,425**	**100%**

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

Coastal & marine

Stable coastal wetlands

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.

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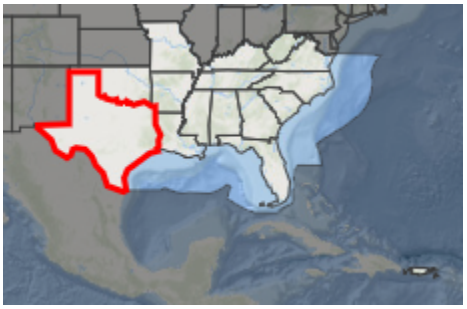

- Stable coastal wetlands
- Other coastal wetlands
- Not identified as coastal wetlands

Table 32: Indicator values for stable coastal wetlands within Texas. 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	302,417	0.2%	
	Other coastal wetlands	390,136	0.2%	↑ In good condition
↓ Low	Not identified as coastal wetlands	2,441,195	1.4%	↓ Not in good condition
	Area not evaluated for this indicator	*168,763,677*	*98.2%*	
	Total area	**171,897,425**	**100%**	

To learn more and explore the GIS data, view this indicator in the SECAS Atlas.

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.

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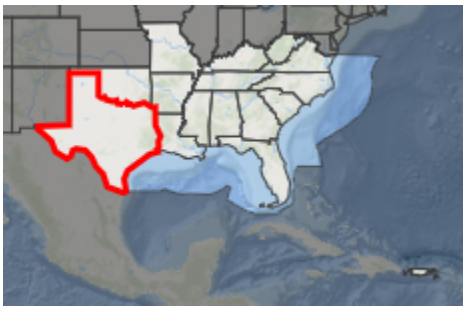


Flooding extent by projected sea-level rise (ft)

0 1 2 3 4 5 6 7 8 9 10

Table 33: Extent of flooding by projected average highest daily tide due to sea level rise within Texas. Values from the NOAA sea-level rise inundation data.

Feet of sea-level rise	Acres	Percent of Area
0 feet	2,478,465	1.4%
1 foot	2,809,554	1.6%
2 feet	3,107,056	1.8%
3 feet	3,316,412	1.9%
4 feet	3,483,160	2.0%
5 feet	3,630,119	2.1%
6 feet	3,782,377	2.2%
7 feet	3,950,305	2.3%
8 feet	4,111,739	2.4%
9 feet	4,273,813	2.5%
10 feet	4,433,222	2.6%
Not projected to be inundated by up to 10 feet	*10,499,022*	*6.1%*
Sea-level rise unlikely to be a threat (inland counties)	*156,958,840*	*91.3%*
Sea-level rise data unavailable	*6,340*	*<0.1%*
Total area	**171,897,425**	**100%**

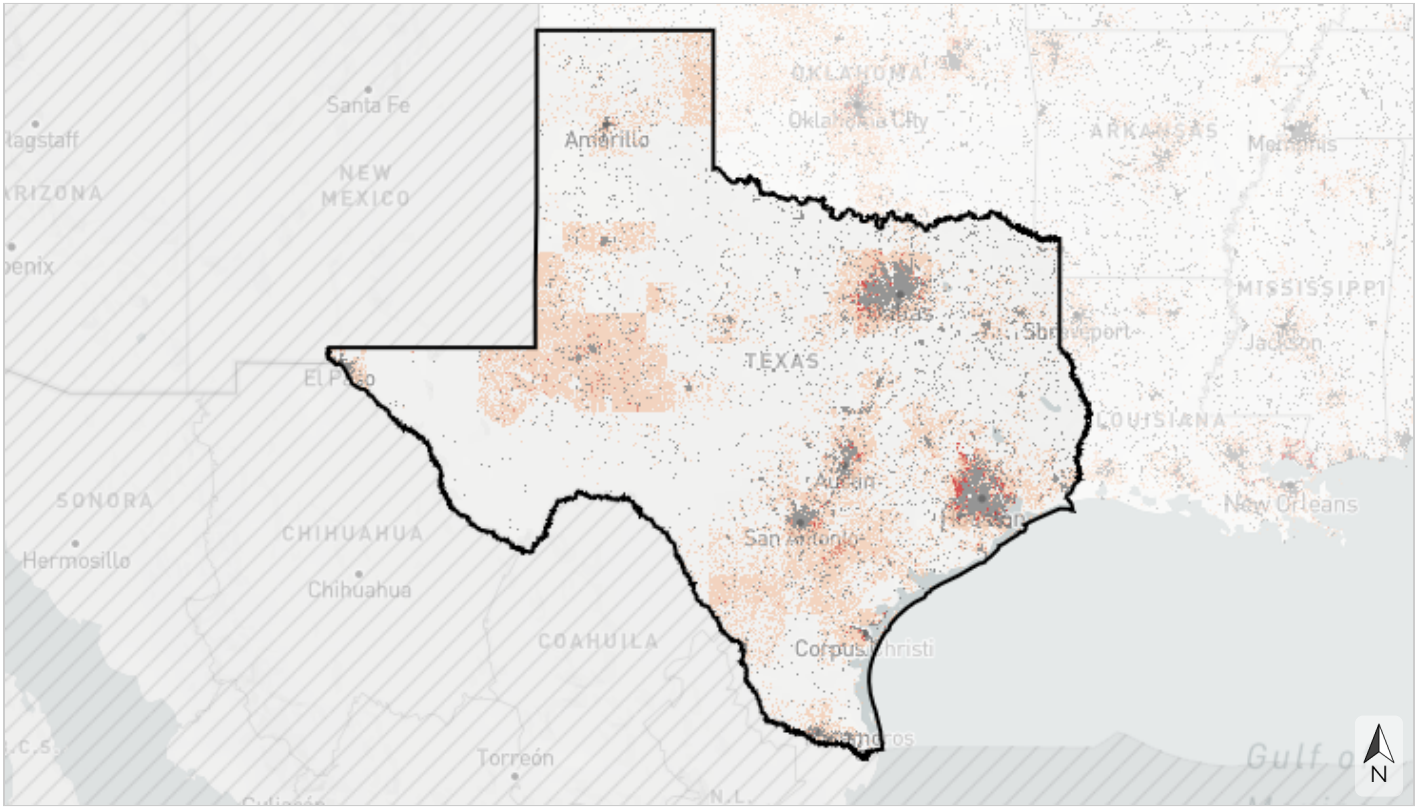
Table 34: Projected sea level rise by decade within Texas. Values are based on area-weighted averages of decadal projections for 1-degree grid cells that overlap this area based on NOAA's 2022 Sea Level Rise Report. 2060 corresponds to the SECAS goal: a 10% or greater improvement in the health, function, and connectivity of Southeastern ecosystems by 2060.

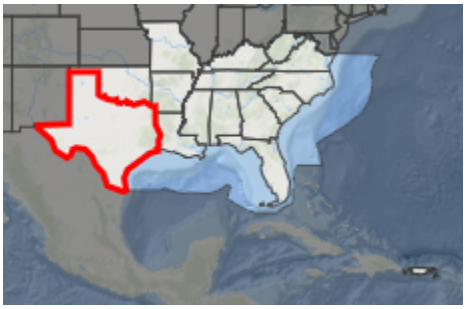
SLR Scenario	2020 (ft)	2030 (ft)	2040 (ft)	2050 (ft)	2060 (ft)	2070 (ft)	2080 (ft)	2090 (ft)	2100 (ft)
Low	0.5	0.76	1	1.3	1.5	1.7	1.9	2.1	2.3
Intermediate-low	0.53	0.82	1.1	1.4	1.7	2	2.3	2.6	2.9
Intermediate	0.54	0.85	1.2	1.5	1.9	2.4	3	3.6	4.4
Intermediate-high	0.55	0.87	1.3	1.7	2.4	3.1	4	5	6
High	0.55	0.9	1.4	1.9	2.8	3.8	5	6.3	7.7

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.

To explore maps for additional time periods, click here.





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

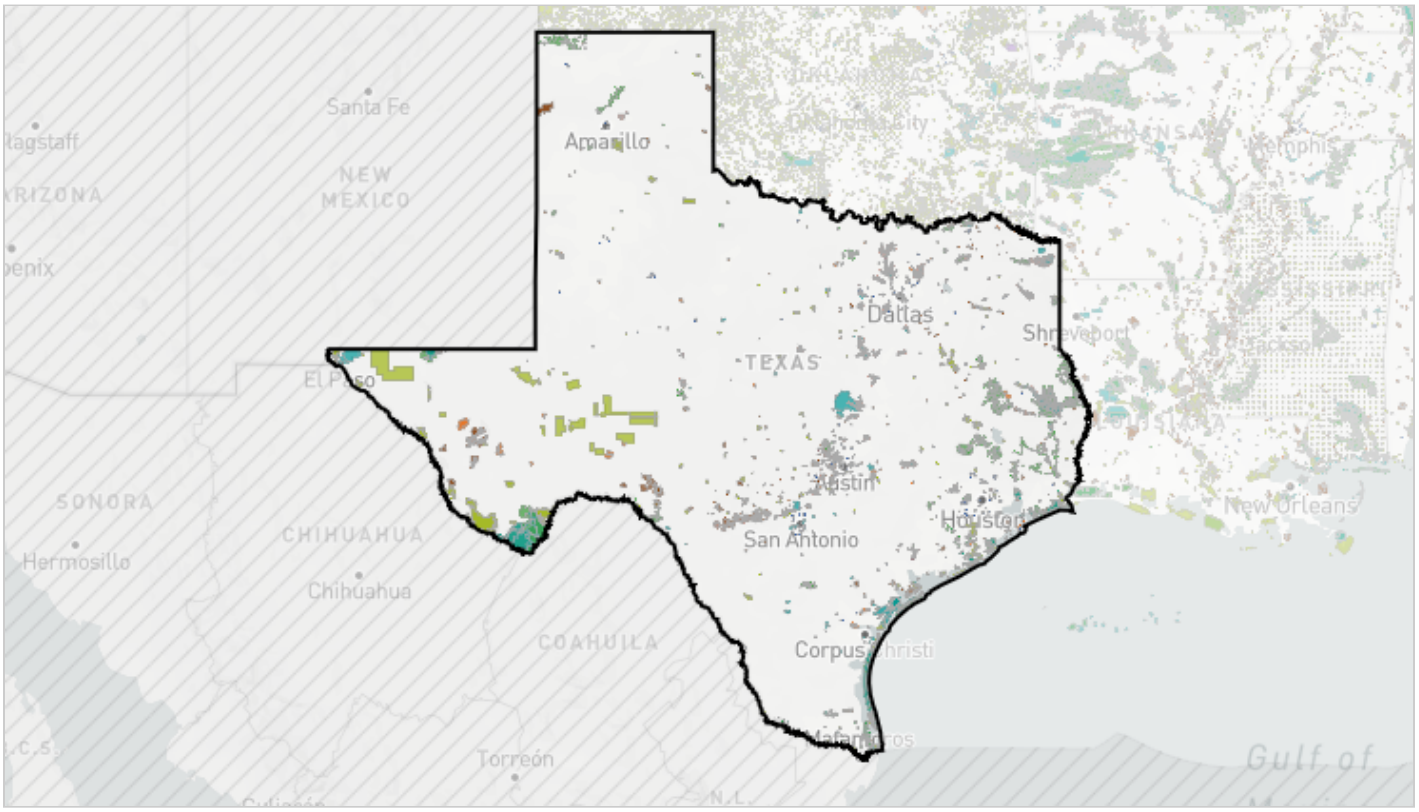
6.0% of this area is already urban in 2021, and an additional 19.5% has at least a moderate probability of urbanizing by 2060.

Table 35: Extent of projected urbanization by decade within Texas. Values from FUTURES model projections for the contiguous United States developed by the Center for Geospatial Analytics, NC State University. 2060 corresponds to the SECAS goal: a 10% or greater improvement in the health, function, and connectivity of Southeastern ecosystems by 2060.

Decade	Acres	Percent of Area
Urban in 2021	10,284,773	6.0%
2030 projected extent	11,155,182	6.5%
2040 projected extent	11,723,021	6.8%
2050 projected extent	12,219,062	7.1%
2060 projected extent	12,671,220	7.4%
2070 projected extent	13,045,617	7.6%
2080 projected extent	13,333,696	7.8%
2090 projected extent	13,535,923	7.9%
2100 projected extent	13,673,739	8.0%
Not projected to urbanize by 2100	*123,446,847*	*71.8%*
Total area	**171,897,425**	**100%**

Ownership and Partners

Conserved lands ownership



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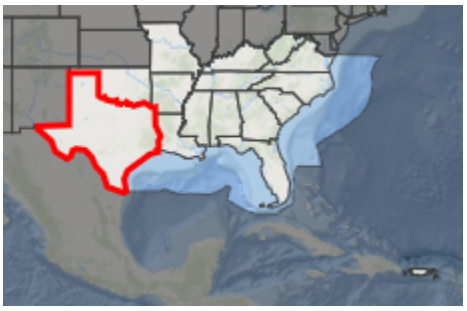
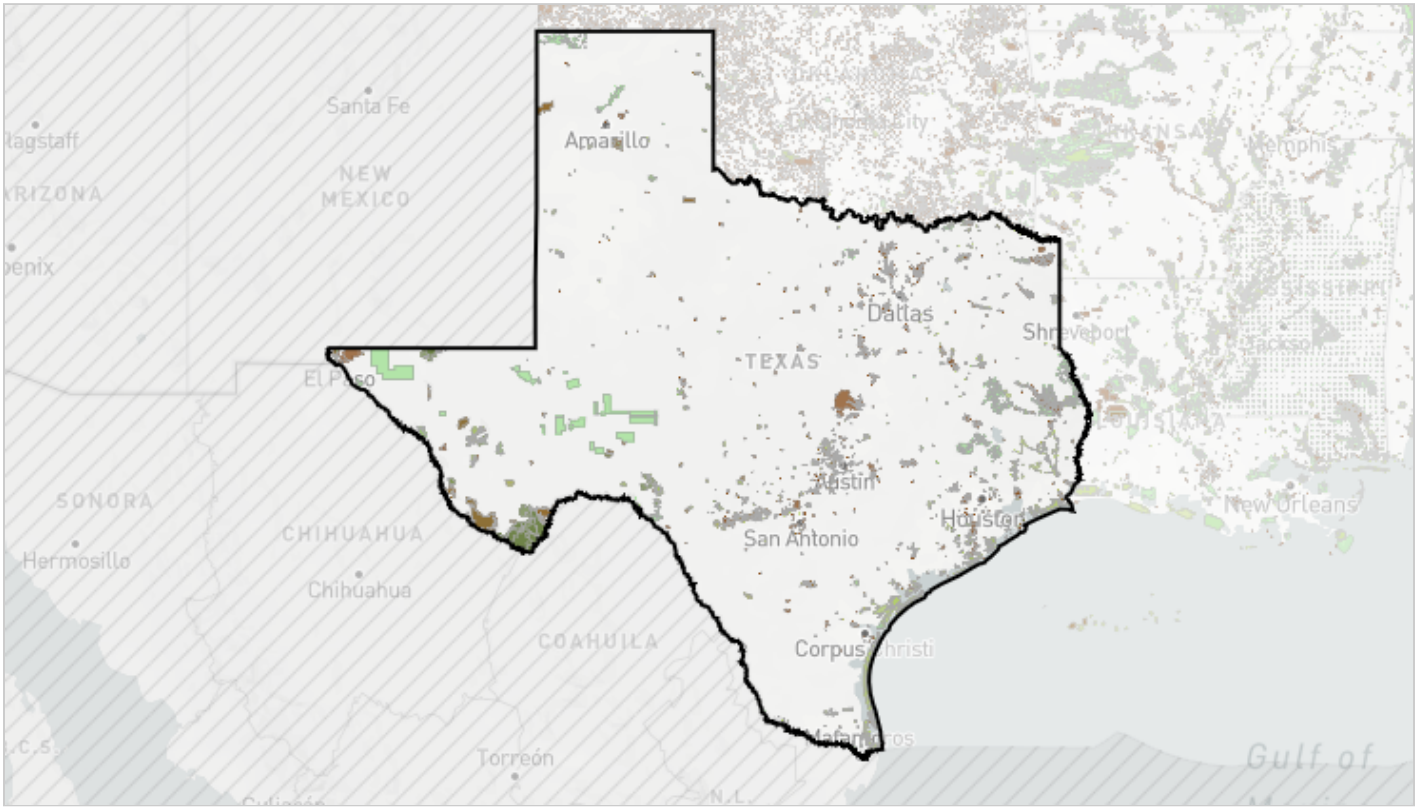


- Federal
- State/province
- Territorial
- Regional
- Local
- Joint
- Private non-profit conserved lands
- Private conservation land
- Tribal
- Designation
- Ownership unknown

Table 36: Extent of ownership class within Texas. Protected areas are derived from the Protected Areas Database of the United States (PAD-US v4.0 and 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 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	3,598,205	2.1%
State/province	3,647,196	2.1%
Regional	117,670	<0.1%
Local	694,253	0.4%
Joint	6,285	<0.1%
Private non-profit conserved lands	577,593	0.3%
Private conservation land	1,505,540	0.9%
Designation	2,420,564	1.4%
Ownership unknown	1,526,697	0.9%

Land protection status



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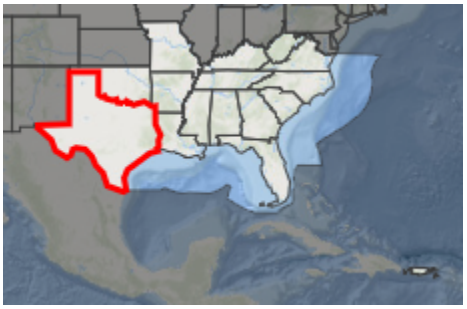

- Managed for biodiversity (disturbance events proceed or are mimicked)
- Managed for biodiversity (disturbance events suppressed)
- Managed for multiple uses (subject to extractive uses such as mining or logging, or OHV use)
- No known mandate for biodiversity protection

Table 37: Extent of land protection status within Texas. Protected areas are derived from the Protected Areas Database of the United States (PAD-US v4.0 and 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 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)	2,275,515	1.3%
Managed for biodiversity (disturbance events suppressed)	3,694,660	2.1%
Managed for multiple uses (subject to extractive uses such as mining or logging, or OHV use)	3,092,138	1.8%
No known mandate for biodiversity protection	5,031,691	2.9%

Protected Areas

- Permanent University Fund (Texas General Land Office; 1,389,712 acres)
- BIBE (NPS; 784,238 acres)
- National Forests in Texas (USDA FOREST SERVICE; 677,629 acres)
- Big Bend (Unknown owner; 576,637 acres)
- The Nature Conservancy Conservation Easement (Private Land Owner; 403,841 acres)
- Big Bend Ranch SP (Texas Parks and Wildlife Department; 313,335 acres)
- Big Bend Ranch State Park (STAT; 313,333 acres)
- Fort Hood (Unknown owner; 219,324 acres)
- Mission-Aransas National Estuarine Research Reserve (Unknown; 185,674 acres)
- Padre Island National Seashore (Unknown; 131,161 acres)
- PAIS (NPS; 130,489 acres)
- Fort Bliss (Unknown owner; 123,240 acres)
- SAM RAYBURN (Unknown; 116,718 acres)
- Aransas National Wildlife Refuge (Unknown; 116,538 acres)
- Sam Rayburn Reservoir (Unknown owner; 113,190 acres)
- BITH (NPS; 108,722 acres)
- Black Gap WMA (Texas Parks and Wildlife Department; 104,641 acres)
- Black Gap Wildlife Management Area (STAT; 104,637 acres)
- Laguna Atascosa National Wildlife Refuge (Fee; 100,351 acres)
- Lower Rio Grande Valley National Wildlife Refuge (Unknown; 98,069 acres)
- LAGUNA ATASCOSA NATIONAL WILDLIFE REFUGE (Fee; 95,359 acres)
- Laguna Atascosa National Wildlife Refuge (Unknown; 91,401 acres)
- Aransas National Wildlife Refuge (Fee; 90,764 acres)
- ARANSAS NATIONAL WILDLIFE REFUGE (Fee; 90,764 acres)
- Lower Rio Grande Valley National Wildlife Refuge (Fee; 89,853 acres)

Credits

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

Data credits

Land ownership and conservation status is derived from the Protected Areas Database of the United States (PAD-US v4.0 and v3.0).

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

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

Names and descriptions of public Priority Amphibian and Reptile Areas provided by the Amphibian and Reptile Conservancy on August 30, 2024 and edited slightly for clarity and consistency.