Recent Trends in Southeastern Ecosystems (2023)

Measuring progress toward the Southeast Conservation Adaptation Strategy (SECAS) goal

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Contents

Executive summary

Through SECAS, diverse partners are working together to design and achieve a connected network of lands and waters that supports thriving fish and wildlife populations and improved quality of life for people across the Southeastern United States and the Caribbean. The long-term goal for SECAS is a 10% or greater improvement in the health, function, and connectivity of Southeastern ecosystems by 2060. To stay on track for achieving that goal, a 1% improvement will be needed every 4 years.

This report is the fourth annual assessment of progress toward the SECAS goal using information from existing monitoring programs. It uses the best available data since SECAS was established in 2011. The report is intended to facilitate discussion around conservation actions needed to meet the goal.

Most indicators improved overall during the period covered in this report. Given the rapid changes happening in the Southeast, this is an encouraging sign for achieving the SECAS goal. Longleaf pine area, prescribed fire in longleaf pine, aquatic connectivity, forested wetland birds, working lands conservation, coastal condition, and marine fisheries indicators improved fast enough to stay on track to meet the SECAS goal. These have all been major areas of shared conservation focus in the Southeast, and those efforts are clearly having a big impact.

Only 7 of the 19 indicators had declining trends. Of these, pine and prairie birds continue to be the most off track for meeting the SECAS goal. Declines in habitat, especially within the West Gulf Coastal Plain, Piedmont, Southeast Coastal Plain, Central Hardwoods, and Peninsular Florida, are likely driving this pattern. There is still hope that focused conservation can have an impact as Bachman's sparrow, subject to significant conservation attention, increased in abundance through much of the longleaf pine range. This further reinforces the importance of accelerating open pine, pine/oak savanna, and other grassland restoration throughout the Southeast for grassland birds, pollinators, and other key species.

To learn more about the role of SECAS in meeting the goal, see the SECAS Statement of Purpose.

Overview of recent trends in ecosystem indicators

Table 1. Overview of recent trends in ecosystem indicators. Indicators shown in green are on track to meet the goal (≥1% increase every 4 years); indicators shown in yellow (<1% increase every 4 years) and red (declines) are not.

Ecosystem	Type	Indicator	Yearly % change	Page
Terrestrial				
	Health	Areas without invasive plants	0.33% decline	5
		Beach birds	0.003% increase	7
		Caribbean undeveloped land	0.39% decline	8
		Forested wetland area	0.08% increase	9
		Forested wetland birds	2.1% increase	10
		Gopher tortoise (Eastern population)	Increasing but % change unknown	12
		Longleaf pine area	4.5% increase	13
		Pine & prairie birds	2.9% decline	14
		Prescribed fire in longleaf pine	4.4% increase	16
		Salt marsh area	0.03% decline	17
		Upland forest birds	0.23% increase	18
	Function	Working lands conservation	11% increase	20
	Connectivity	Landscape condition	0.02% decline	22
		Undeveloped land in corridors	0.016% decline	23
Freshwater				
	Health	Natural landcover in floodplains	0.008% decline	25
	Function	Water quality	0.003% increase	27
	Connectivity	Aquatic connectivity	16% increase	29
Marine & Estuarine				
	Health	Coastal condition	0.56% increase	31
	Function	Fisheries	1.1% increase	33

Introduction

Background

Through [SECAS](#), diverse partners are working together to design and achieve a connected network of lands and waters that supports thriving fish and wildlife populations and improved quality of life for people across the Southeastern United States and the Caribbean. SECAS was started in 2011 by the states of the Southeastern Association of Fish and Wildlife Agencies (SEAFWA) and the federal Southeast Natural Resource Leaders Group. In the fall of 2018, SECAS leadership approved a long-term goal and supporting short-term metrics to evaluate progress toward that connected network.

The long-term goal is a 10% or greater improvement in the health, function, and connectivity of Southeastern ecosystems by 2060. One of the short-term metrics, selected to stay on track to meet the long-term goal, is a 1% improvement in the health, function, and connectivity of Southeastern ecosystems every 4 years. This report on recent trends seeks to measure progress toward that metric.

Purpose of this report

This report assesses progress toward the SECAS goal using information from existing monitoring programs. It is intended to facilitate discussion around conservation actions needed to meet the goal.

Methods

Changes since the last report

For 2023, we made four major improvements: 1) New indicators for natural landcover in floodplains, landscape condition, and Caribbean undeveloped land, 2) Updated data and methods for forested wetland area, prescribed fire in longleaf pine, undeveloped land in corridors, aquatic connectivity, and fisheries, 3) A new quantitative approach to estimate indicator trend confidence for some indicators, 4) Now uses data going back to 2011, when available, instead of the most recent 3-6 years.

Selecting indicators

We selected indicators that are monitored by consistent multi-state efforts and are already used by other organizations to evaluate ecosystem conditions.

Defining health, function, and connectivity

For the purposes of this report, we use these definitions for health, function and connectivity:

- **Health:** The condition of species and the ecosystems they depend on
- **Function:** The benefits provided to people by species and ecosystems
- **Connectivity**: The ability of species and ecosystems to move over time

Defining "recent" trends

SECAS began in 2011, so we focused on trends between 2011-2022. When data were not available for that entire period, we used as much data from that period as possible.

Estimating trends

For indicators where charts only show two points in time (e.g., longleaf pine area), we simply calculated the change between those points. For indicators showing data from more than two years (e.g., prescribed fire in longleaf pine), we estimated the trend based on the slope of a linear regression through all points. For coastal condition and bird indicators, where trends were only available for discrete subregions or states, we averaged trends equally instead of weighting by area.

Evaluating confidence in trend

We used a combination of quantitative methods and qualitative judgement to estimate confidence in the trend. For indicators where the trend is a regression, we used the p-value to estimate the likelihood that the trend is non-zero. We considered any trend with a p-value > 0.10 as not significant and having low confidence. For significant trends, we used qualitative judgement based on the design of the monitoring, overall sample size, and major sources of variability in the indicator to determine whether the confidence is medium or high. For indicators where the trend is not based on a regression, we only used the qualitative judgement.

Assessments used in the report

We used 14 different assessments to evaluate indicator trends. Assessments ranged from remotely sensed data like the National Land Cover Database to long-term volunteer-driven monitoring programs like the Breeding Bird Survey. Additional assessments used included America's Longleaf Range-wide Accomplishment Reports, Forest Inventory and Analysis, Gopher Tortoise Candidate Conservation Agreement reports, USDA Soil and Water Resources Conservation Act Reports, Southeast Conservation Blueprint, International Shorebird Survey , EPA 303(d) state reports, Southeast Aquatic Resources Partnership Aquatic Barrier Database, NOAA C-CAP Regional Landcover, National Coastal Condition Assessments, NOAA Reports to Congress on the Status of Fisheries, and Esri global landcover.

Assessments considered but not used in this report

There are many subregional assessments of ecosystem conditions (e.g., Chesapeake Bay, Everglades), but their coverage of only part of the Southeast made them difficult to formally integrate into this particular report. One national assessment, [Surfrider Foundation's State of the Beach](), had potential, but was not used because it focused on policies related to beach conditions rather than the actual condition of the beaches.

Ecosystem indicator trends

Terrestrial

All inland and coastal terrestrial ecosystems

Health

The condition of species and the ecosystems they depend on

Areas without invasive plants
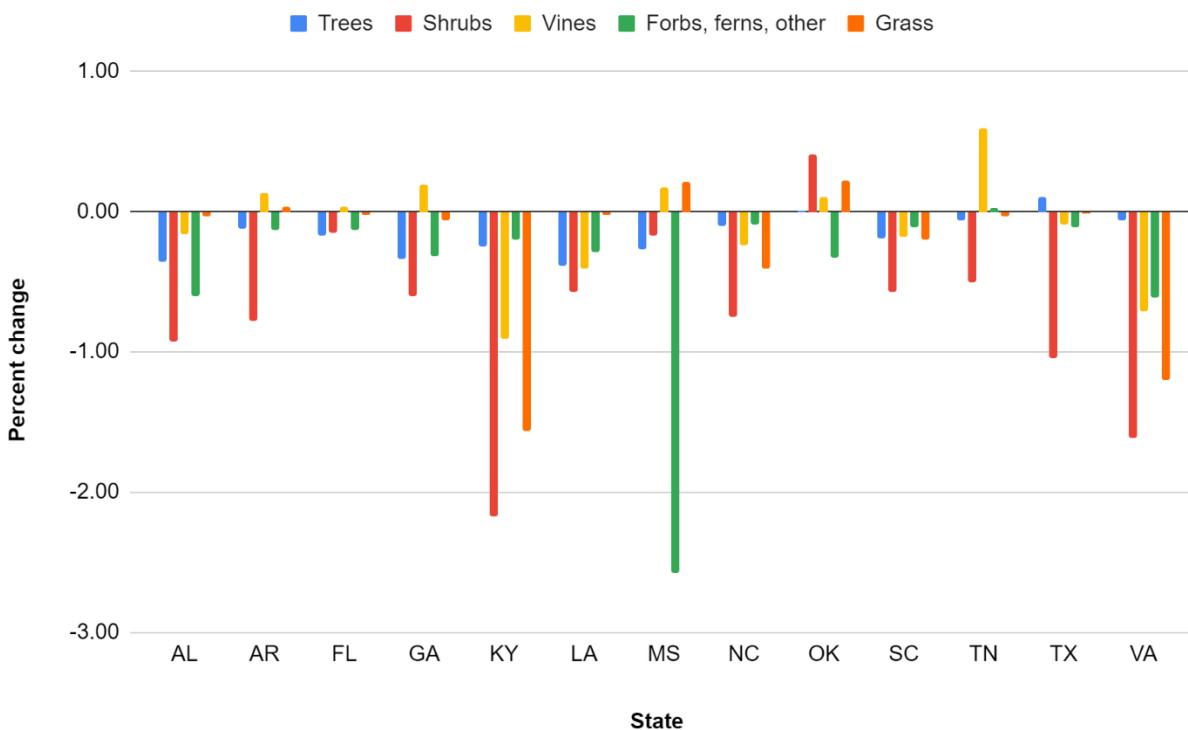
Figure 1. Percent change in areas without invasive plants by plant type, based on the most recent available state data.

Yearly trend

Most states showed declining trends for areas without different types of invasive plants. The most recent data available varied for each state, with some as old as 2016 and others as recent as 2019. Averaging trends across plant type and states results in a 0.33% decline per year. Data were not available for Missouri and West Virginia.

On track to meet SECAS goal

No. The decline of about 1.3% every 4 years is not enough to reach the SECAS goal of a 1% increase every 4 years.
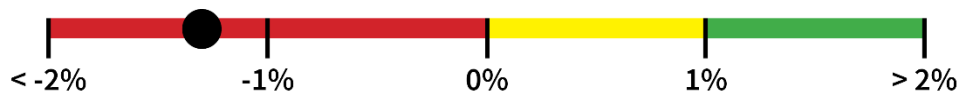
Data source

Forest Inventory Analysis (FIA) data extracted using the Southern Nonnative Invasive Plant Extraction Tool (SNIPET) (note: the U.S. Forest Service deprecated this tool after this trend was calculated)

Confidence in trend

Medium. While data for some states was a few years old, the statistically randomized design of the FIA program, its long history of tracking trends, and the sample size across all states suggest these data provide a reasonable estimate of the trend.

Interpretation

This is an indicator of local conditions across terrestrial ecosystems. This indicator suggests that work to reduce the spread of specific invasive species is having an impact. Without the ongoing work to reduce invasives, landscape and climate change in the Southeast would likely lead to far worse trends. However, this indicator also shows that additional attention to invasive plants will be required to get on track to meet the SECAS goal.

Notable trends for this indicator include: 1) improvements in areas without invasive vines in Tennessee mostly due to reductions in Japanese honeysuckle, 2) improvements in areas without invasive shrubs in Oklahoma mostly due to reductions in shrubby and Thunberg's lespedeza, 3) declines in areas without invasive forbs in Mississippi due to large increases in liriope, and 4) declines in areas without invasive grasses in Kentucky, Virginia, and the Carolinas mostly due to increases in Japanese stiltgrass.

Other information available

A table of state-level summaries associated with the graph above are available in Appendix I.

Beach birds
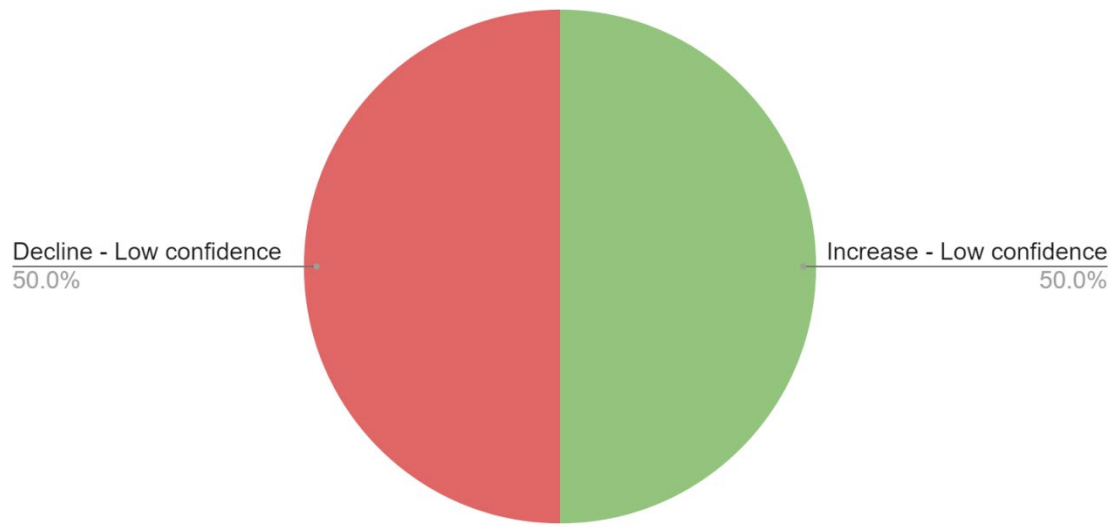
Figure 2. Beach bird trends and confidence.

Yearly trend

When averaged across species, beach birds increased by 0.003% per year from 2011-2016. Piping plover and whimbrel increased by 0.02% and 0.03% per year, respectively. Red knot and willet declined by 0.02% and 0.01%, respectively.

On track to meet SECAS goal

No. The increase of about 0.012% every 4 years is not enough to reach the SECAS goal of a 1% increase every 4 years.

Data source

International Shorebird Survey (ISS)

Special thanks to Adam Smith (Canadian Wildlife Service, Environment and Climate Change Canada) and Paul Smith (Environment and Climate Change Canada) for providing data and estimates for this report. Special thanks to Manomet for overall coordination of the ISS.

Confidence in trend

Low. All trend estimates have high statistical uncertainty. This is mostly due to low sample sizes along the South Atlantic and Gulf coasts.

Interpretation

This is an indicator of beach habitat quality. The mixed trends highlight the challenges and opportunities within this ecosystem. Habitat modification, climate change, and human disturbance continue to pose problems, but conservation action throughout the Atlantic and Gulf coasts also seems to be making an impact. As these birds are migratory, conservation actions and threats impacting their populations occur both within the Southeast and in other parts of the species' ranges.

Other information available

Species-specific summaries and tabular data associated with the chart above are available in Appendix I.

Caribbean undeveloped land
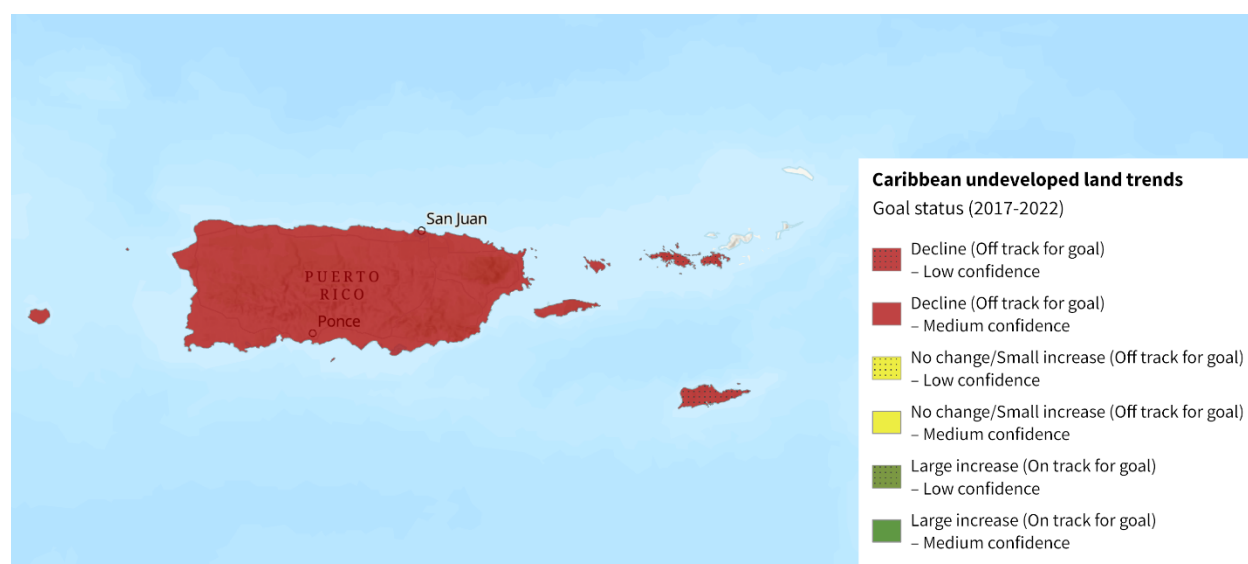
Figure 3. Trends in the amount of undeveloped land in the Caribbean from 2017-2022.

Yearly trend

Caribbean undeveloped land declined in both Puerto Rico and the U.S. Virgin Islands. Across both territories combined, this indicator declined by 0.39% per year from 2017-2022. That is a loss of approximately 279,000 acres of undeveloped land per year.

On track to meet SECAS goal

No. The decline of about 1.56% every 4 years is not enough to reach the SECAS goal of a 1% increase every 4 years.

Data source

[Esri Sentinel-2 10-Meter Land Use/Land Cover](#)

Confidence in trend

Medium. The decline is statistically significant; however, yearly weather changes and human uses can significantly impact classification errors for developed land.

Interpretation

This is an indicator of areas less impacted by development in the Caribbean. While the landcover data has significant issues with misclassification, it does seem like the Caribbean is continuing to lose undeveloped land. Overall loss in undeveloped land is most likely due to development to support tourists and others that don't live on the island year-round. The population of both Puerto Rico and the U.S. Virgin Islands actually decreased from 2017-2022.

Other information available

A table of territory-level summaries is available in Appendix I.

Forested wetland area
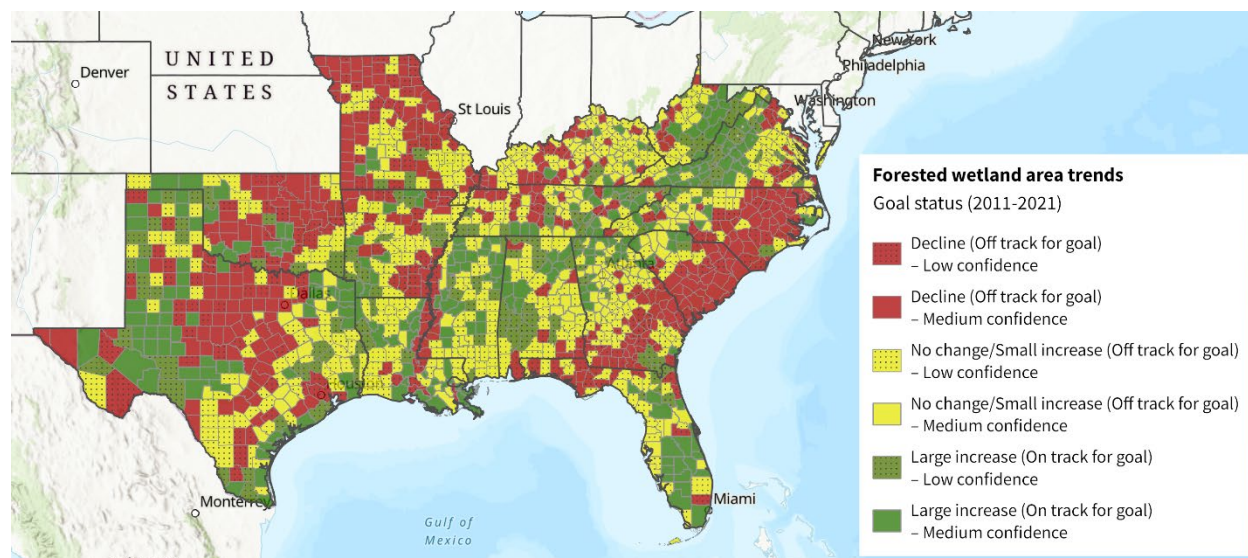
Figure 4. Trends in forested wetland area from 2011-2021.

Yearly trend

Overall area of forested wetlands increased by approximately 0.08% per year from 2011-2021. That translates to gain of approximately 181,000 acres per year. Forest wetland area overall also increased for most states.

On track to meet SECAS goal

No. The increase of about 0.32% every 4 years is not enough to reach the SECAS goal of a 1% increase every 4 years.
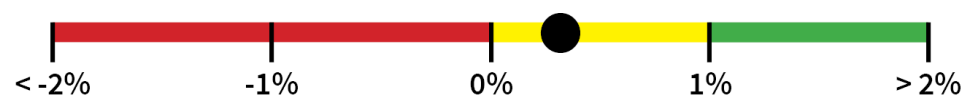
Data source

[National Land Cover Database (NLCD)](#)

Confidence in trend

Low. The trend is not statistically significant and yearly weather changes can have a major impact on classification accuracy.

Interpretation

This is a coarse indicator of the overall extent of potential habitat in the forested wetland ecosystem. Extensive conservation investments in forested wetlands, policies restricting wetland development, and growing interest from urban communities in water supply protection and reducing flood risks may be causing the increases in forested wetland area. However, forested wetland area is also very sensitive to timber management decisions and yearly weather fluctuations that facilitate or hinder harvest. It is likely that many complicated interacting factors will drive changes in this indicator in the future.

Other information available

A table of state-level summaries is available in Appendix I.

Forested wetland birds

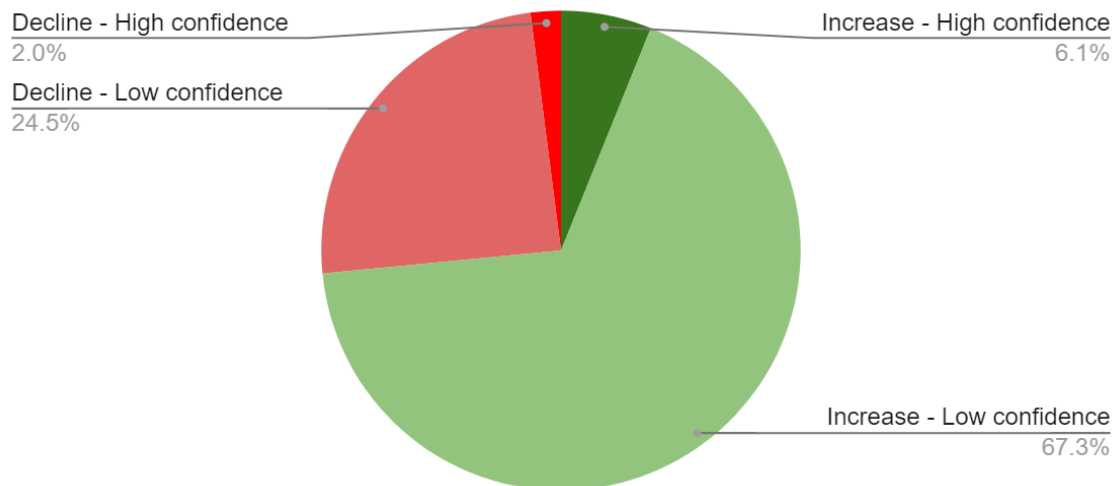*Figure 5. Percent of forested wetland bird species that are increasing or declining by state from 2014-2019.*

Yearly trend

Most states showed increasing trends for forested wetland bird species from 2014-2019. Species selected are Regional Species of Greatest Conservation Need for states in the Southeast, primarily occur in this ecosystem, and have sufficient data for trend analysis in the Breeding Bird Survey. High confidence trends were statistically significant while low confidence trends were not. Averaging species trends across species and states results in an overall 2.1% increase per year.

On track to meet SECAS goal

Yes. The increase of about 8.4% every 4 years is greater than the SECAS goal of a 1% increase every 4 years.
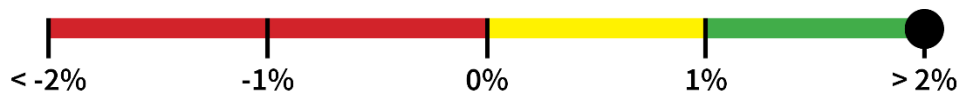
< -2%	-1%	0%	1%	> 2%

Data source

Breeding Bird Survey (BBS)

Confidence in trend

Medium. Despite issues with roadside sampling and detectability for some species, the BBS is a standardized and randomized sample regularly used to estimate bird population trends. The mixed patterns across states and the low number of trends being statistically significant ("high confidence") suggests that overall, forested wetland birds may be stable, slightly increasing, or slightly decreasing with major variation across states.

Interpretation

This is an indicator of both local and landscape conditions across the forested wetland ecosystem. While there is variation across species and states, forested wetland birds appear to be on track to meet the SECAS goal. This may be due to the extensive conservation investments in forested wetlands, policies restricting wetland development, and growing interest from urban communities in water supply protection and reducing flood risks.

Gulf Coastal Prairie is the only BCR where more species are declining than increasing (see Figure 20 in Appendix I). There are two species that are declining in this region: Prothonotary warbler and yellow-throated warbler. Prothonotary warbler populations in this region had been increasing from the 1960s into the late 1990s and have been steadily declining ever since. Yellow-throated warbler population trends are highly uncertain in this region with wide confidence intervals and a relatively small sample size.

Other information available

A table of state-level summaries for each species, a map by Bird Conservation Region (BCR), and tabular data associated with the chart above are available in Appendix I.
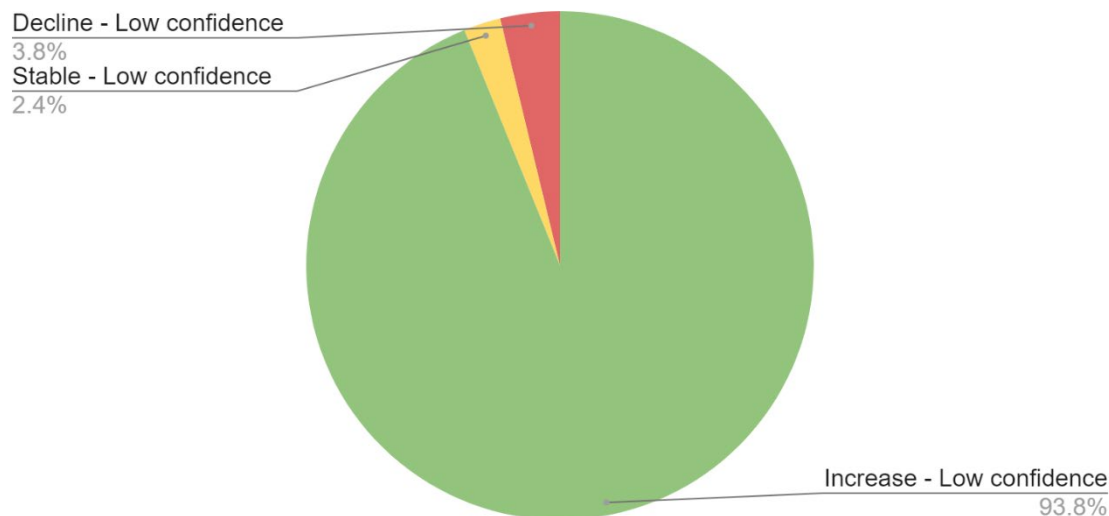
Gopher tortoise (Eastern population)

Decline - Low confidence
3.8%
Stable - Low confidence
2.4%

Increase - Low confidence
93.8%

Figure 6. Percent of gopher tortoise sites with increasing, declining, or stable trends during resurveys in 2017.

Yearly trend

Most of the sites that were resurveyed in 2017 showed an increase in gopher tortoises within the Eastern population segment (Florida, Georgia, South Carolina, and eastern Alabama). The Eastern population is a candidate for listing under the Endangered Species Act. The chart above shows reported population trends and is weighted by acres surveyed. Due to inconsistencies in methods and reporting, it was not possible to estimate a numerical trend.

On track to meet SECAS goal

Unknown

Data source

[10th Annual Gopher Tortoise Candidate Conservation Agreement report](#)

Confidence in trend

Low. Due to inconsistencies in methods and reporting, it was not possible to estimate a numerical trend. The organizations in the Candidate Conservation Agreement report collectively own and/or manage more than 1.3 million acres of gopher tortoise habitat. Only approximately 35,000 acres of that habitat was resurveyed in 2017. The areas resurveyed were also not a random sample of potential habitat.

Interpretation

This is an indicator of both local and landscape conditions in part of the pine and prairie ecosystem. Despite the low confidence in the trend, it does appear that gopher tortoise populations are increasing overall. Significant effort has gone into restoration and habitat protection for this species and, where trend data are available, it appears the species is responding positively to these actions.

Other information available

Tabular data associated with the chart above are available in Appendix I.

Longleaf pine area
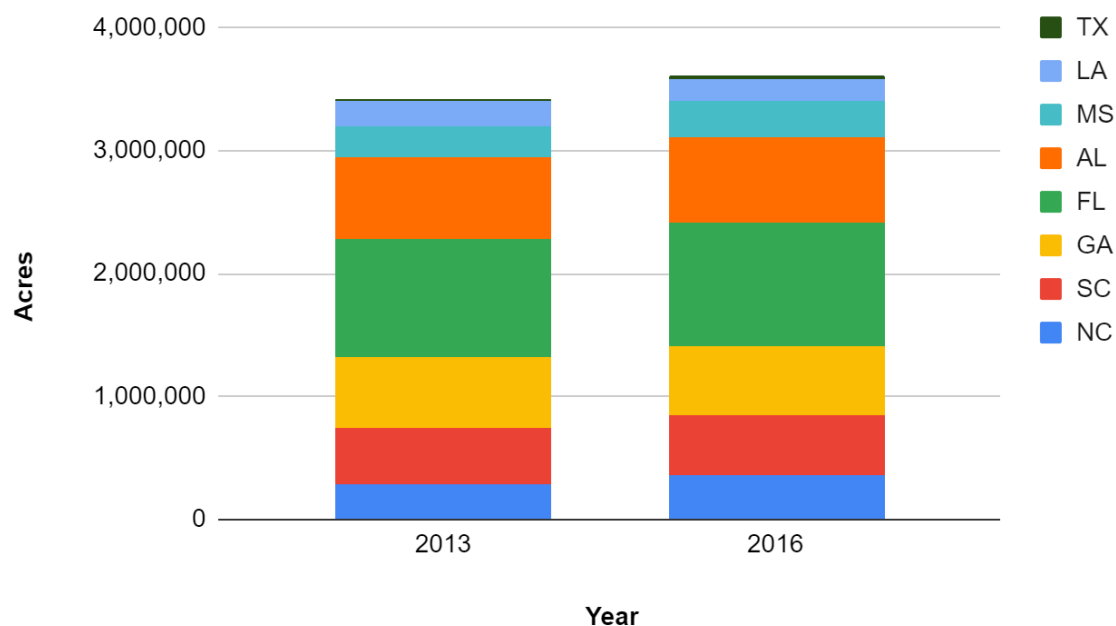
Figure 7. Acres of longleaf pine in 2013 and 2016.

Yearly trend

Longleaf pine acres increased by about 4.5% per year from 2013-2016. Acreage increased during this period in most states, except for Louisiana and Georgia, which had small overall declines. The latest data from Georgia in 2017 shows an overall increase from 2013-2017. More recent data was not available for Louisiana. Virginia also has longleaf pine, but it was not present in the samples used for this analysis.

On track to meet SECAS goal

Yes. The increase of about 18% every 4 years is greater than the SECAS goal of 1% increase every 4 years.

Data source

[Forest Inventory and Analysis (FIA) data from EVALIDator](#) (last revised April 10, 2019)

Confidence in trend

Medium. While the longleaf sample size is small in some states, the statistically randomized design of FIA, its long history of tracking trends, and the larger sample across all states with longleaf suggest these data provide a reasonable estimate of the trend across the full longleaf range.

Interpretation

This is an indicator of restoration for one part of the pine and prairie ecosystem. Longleaf pine acreage continues to increase. Reported longleaf establishment numbers from 2017 and 2018 also show this positive trend.

Other information available

A table of state-level summaries associated with the graph above is available in Appendix I.

Pine & prairie birds
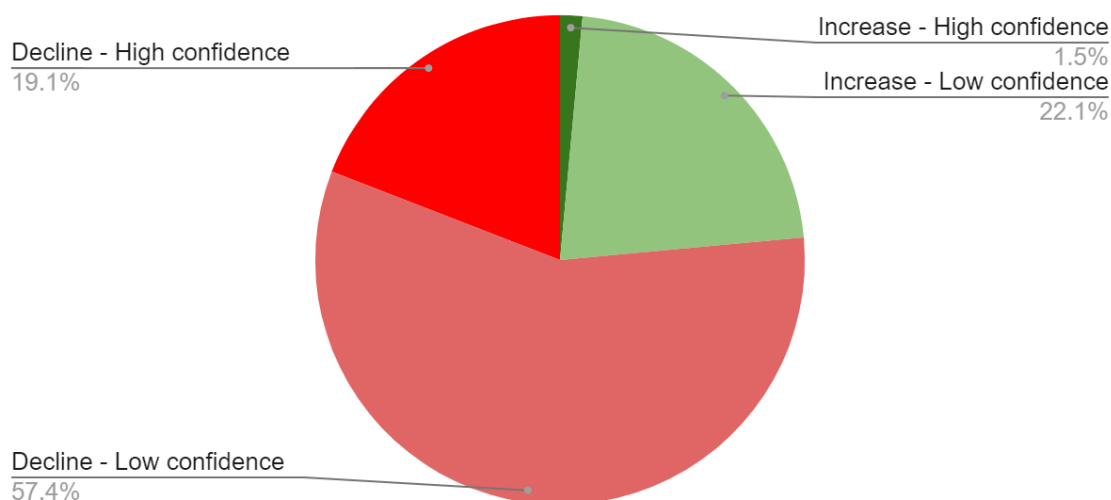
Figure 8. Percent of pine and prairie bird species that are increasing or declining by state from 2014-2019.

Yearly trend

Most states showed declining trends for pine and prairie bird species from 2014-2019. Species selected are Regional Species of Greatest Conservation Need for states in the Southeast, primarily occur in this ecosystem, and have sufficient data for trend analysis in the Breeding Bird Survey. High confidence trends were statistically significant while low confidence trends were not. Averaging species trends across species and states results in an overall decline of 2.9% per year.

On track to meet SECAS goal

No. The decline of about 11.6% every 4 years is not enough to meet the SECAS goal of a 1% increase every 4 years.
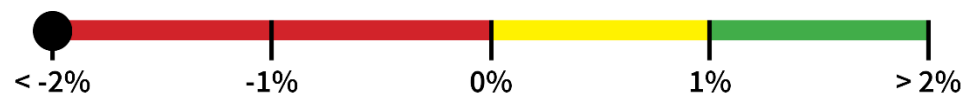
| < -2% | -1% | 0% | 1% | > 2% |

Data source

Breeding Bird Survey (BBS)

Confidence in trend

Medium. Despite issues with roadside sampling and detectability for some species, the BBS is a standardized and randomized sample regularly used to estimate bird population trends. While the declines are only statistically significant ("high confidence") for some of the states and species, the number of declining trend predictions is very suggestive of overall declines in these species.

Interpretation

This is an indicator of both local and landscape conditions across the pine and prairie ecosystem. Looking at trends within BCRs provides additional context for the state-level results (see Figure 21 in Appendix I). Recent trends for most BCRs had high percentages of declines. There are, however, some differences in drivers of major trends in Western vs. Eastern BCRs in the Southeast.

For the Western BCRs, trends in arid regions can vary significantly based on yearly weather patterns. Trends from the last few decades in pine and prairie bird species suggest that the recent declines are part of larger cycles of increases and declines.

Declines in the Eastern BCRs seem to be driven more by long-term patterns in habitat loss. While there are ongoing efforts in these regions to bring back open pine, pine/oak savanna, and other grasslands, it doesn't appear that they have yet been able to restore enough habitat to fully reverse declines across the entire area. That said, there are indications in the data that some species trends are starting to improve. In Alabama, Georgia, South Carolina, North Carolina, and Kentucky, at least 2 of the 5 index species had increasing trends. Bachman's sparrow populations had non-significant increases across the Southeast Coastal Plain. This recent increase is likely due to the substantial restoration efforts through America's Longleaf and specific targeted management for this species.

Other information available

A table of state-level summaries for each species, a map by Bird Conservation Region (BCR), and tabular data associated with the chart above are available in Appendix I.
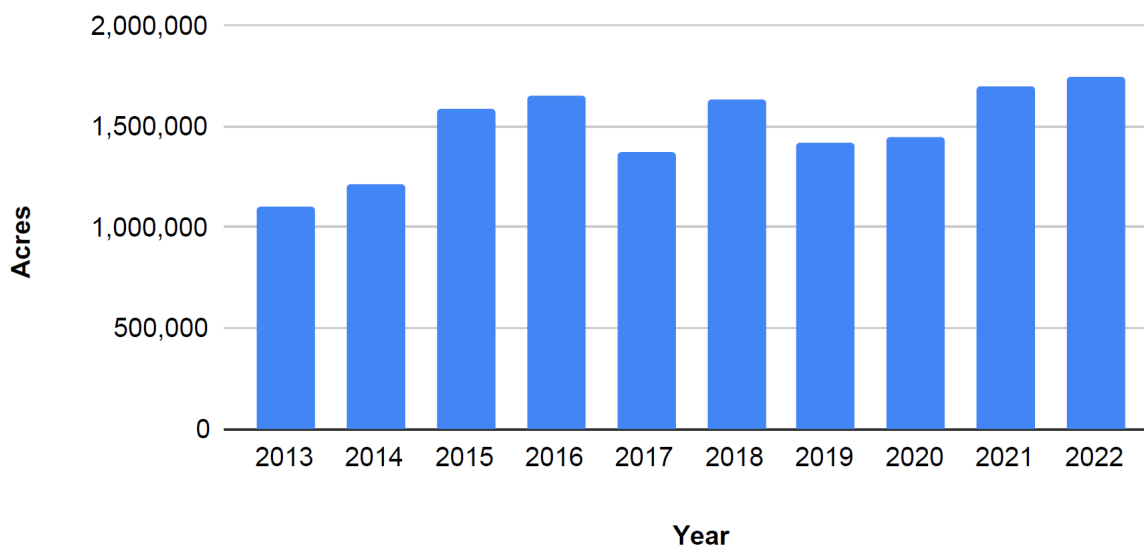
Prescribed fire in longleaf pine

Figure 9. Acres of prescribed fire in longleaf pine from 2013-2022.

Yearly trend

Prescribed fire in longleaf pine increased by about 4.4% per year from 2013-2022.

On track to meet SECAS goal

Yes. The increase of about 17% every 4 years is greater than the SECAS goal of a 1% increase every 4 years.

Data source

America's Longleaf Range-wide Accomplishment Reports

Confidence in trend

Medium. The trend is statistically significant. While the range-wide tracking system for prescribed fire in longleaf is not perfect, its strong coverage of significant geographic areas means it likely documents a large percentage of prescribed fire in longleaf over this period.

Interpretation

This is an indicator of habitat management in one part of the pine and prairie ecosystem. Prescribed fire is also important outside of the longleaf range, but sufficient trend data wasn't yet available in those areas. After a dip in prescribed fire in 2019 and 2020, numbers significantly increased in 2021 and 2022—setting new records in both years. This suggests that collaborative longleaf restoration efforts are continuing to improve the condition of this important ecosystem.

Tabular data associated with the graph above are available in Appendix I.

Salt marsh area
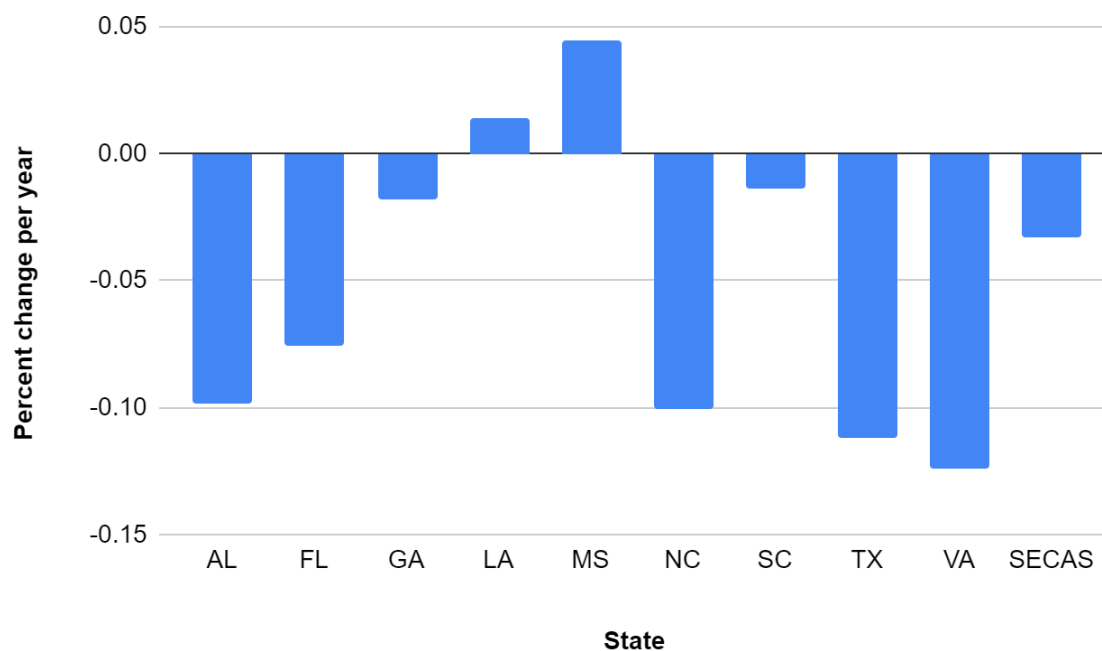
Figure 10. Percent change per year in area of estuarine emergent wetland between 2010 and 2016.

Yearly trend

Salt marsh area declined across most states. Total salt marsh area in the SECAS region declined by 0.03% per year from 2010-2016.

On track to meet SECAS goal

No. The decline of about 0.12% every 4 years is not enough to reach the SECAS goal of a 1% increase every 4 years.

Data source

NOAA C-CAP Regional Landcover

Confidence in trend

Medium. The remotely sensed data used in this indicator provides full coverage of the region, but yearly weather variations can influence how well it classifies estuarine emergent wetlands.

Interpretation

This is a coarse indicator of the overall extent of potential habitat in salt marshes. Sea-level rise is having major impacts on salt marshes and this indicator tracks how well salt marshes are keeping up with pressure from rising seas. Salt marsh area declined across most states. Two exceptions were in Mississippi and Louisiana. It's unclear how much of these increases come from marsh restoration in these areas after the 2010 Deepwater Horizon oil spill in the Gulf of Mexico. Longer-term declines suggest that, without continued focus on marsh restoration, these increases may be temporary. From 2006-2016 (not depicted), these two states and all other Southeastern states had declines in salt marsh area.

Other information available

A table of state-level summaries associated with the graph above is available in Appendix I.

Upland forest birds
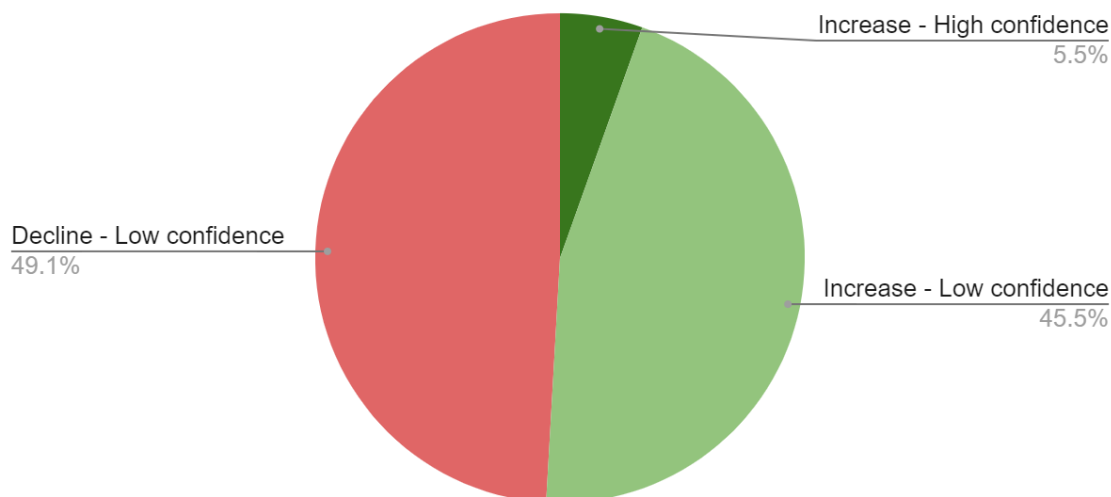
Figure 11. Percent of upland forest bird species that are increasing or declining by state from 2014-2019.

Yearly trend

A slight majority of states showed increasing trends for upland forest bird species from 2014-2019. Species trends were mixed across states. Species selected are Regional Species of Greatest Conservation Need for states in the Southeast, primarily occur in this ecosystem, and have sufficient data for trend analysis in the Breeding Bird Survey. High confidence trends were statistically significant while low confidence trends were not. Averaging species trends across species and states results in an overall 0.23% increase per year.

On track to meet SECAS goal

No. The increase of about 0.92% every 4 years is not quite enough to achieve the SECAS goal of a 1% increase every 4 years.
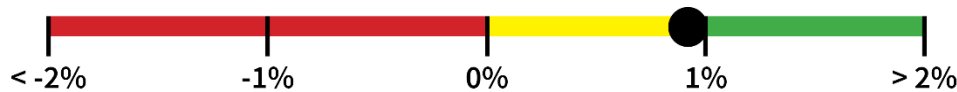
Data source

[Breeding Bird Survey (BBS)](#)

Confidence in trend

Medium. Despite issues with roadside sampling and detectability for some species, the BBS is a standardized and randomized sample regularly used to estimate bird population trends. The mixed patterns across species and the low number of statistically significant ("high confidence") trends suggests that overall, upland forest birds may be stable, slightly increasing, or slightly decreasing, with major variations in trends within species.

Interpretation

This is an indicator of both local and landscape conditions across the upland forest ecosystem. The mixed trends across species highlight competing changes in this ecosystem: increasing forest area and increasing forest fragmentation. Each species likely responds differently depending on where those changes are occurring. However, these species are all neotropical migrants, and threats to survival during migration (e.g., communication towers) and on their wintering grounds (e.g., habitat loss) are likely also impacting population trends.

Other information available

A table of state-level summaries for each species, a map by Bird Conservation Region (BCR), and tabular data associated with the chart above are available in Appendix I.

Function

The benefits provided to people by species and ecosystems

Working lands conservation
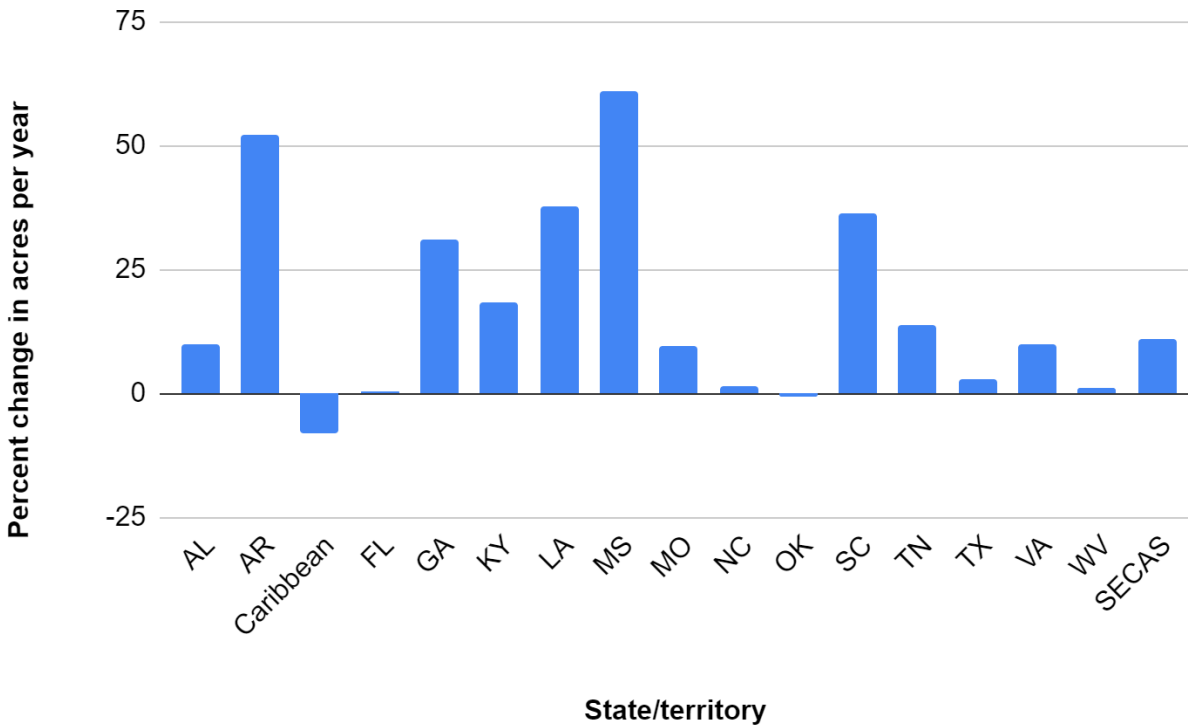
Figure 12. Percent change in acres per year under all U.S. Department of Agriculture (USDA) conservation practices from 2015-2020. Caribbean includes both Puerto Rico and the U.S. Virgin Islands.

Yearly trend

Most states and territories showed increasing trends for acres under conservation practices. Acres under conservation practices across the entire SECAS area increased by 11% per year.

On track to meet SECAS goal

Yes. The increase of about 44% every 4 years is greater than the SECAS goal of a 1% increase every 4 years.
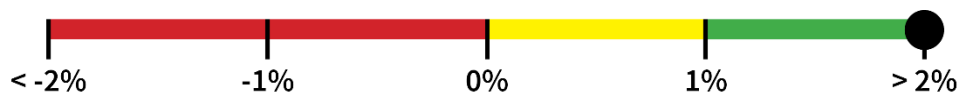
Data source

[USDA data](#) reported as part of the Soil and Water Resources Conservation Act

Confidence in trend

Medium. A substantial amount of working lands conservation in the Southeast occurs through U.S. USDA programs and the reported acres is likely a reasonable estimate of application of these programs.

Interpretation

This is an indicator of conservation on working lands. It suggests both across the Southeast and in most states, conservation on working lands has been increasing by a large amount over the last 5 years. Working lands is a large focus of conservation in the Southeast and it appears that extra effort working with landowners is resulting in increased adoption of conservation practices.

While acres can vary widely from year to year, relative trends across states are broadly similar when looking at trends going back to 2010 (not depicted).

Acreage of conservation practices by USDA programs does have a few limitations as an indicator. It does not include working lands programs administered by states or other organizations and doesn't include voluntary actions on working lands not funded by a specific conservation program. Acreage trends don't always predict trends in conservation impact as some more expensive practices that cover smaller areas can sometimes have a bigger overall impact that inexpensive practices covering large areas.

Other information available

A table of state-level summaries associated with the graph above is available in Appendix I.

Connectivity

The ability of species and ecosystems to move over time

Landscape condition
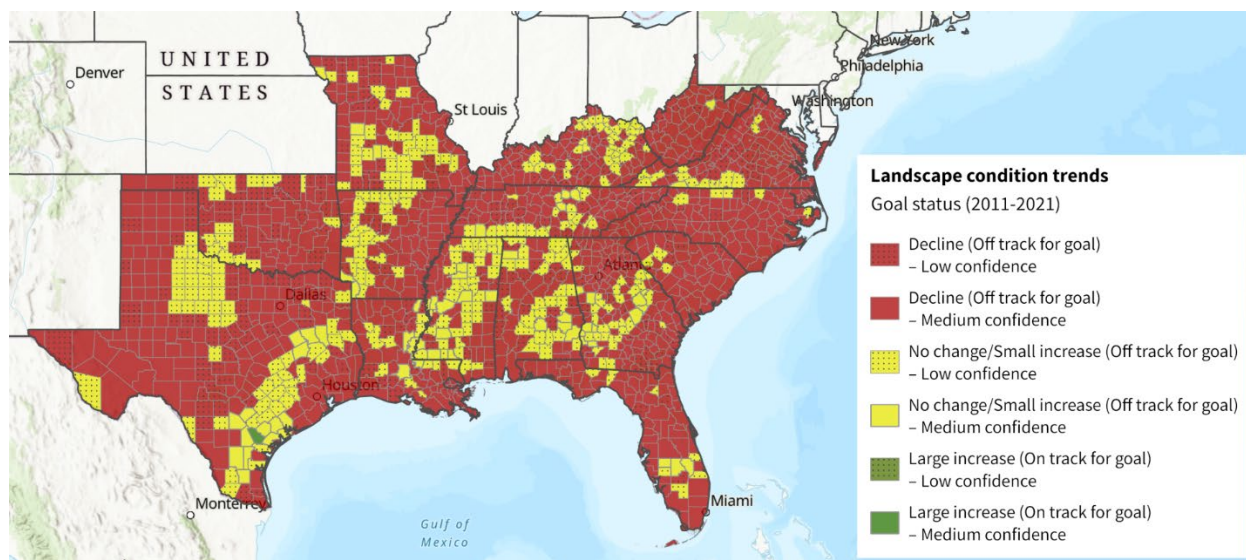
Figure 13. Trends in landscape condition from 2011-2021.

Yearly trend

Landscape condition decreased by about 0.02% per year from 2011-2021. All states had statistically significant declines except Oklahoma and Mississippi. These two states had declines that were not statistically significant.

On track to meet SECAS goal

No. The decline of about 0.08% every 4 years is not enough to reach the SECAS goal of a 1% increase every 4 years.

Data source

[National Land Cover Database (NLCD)](#)

Confidence in trend

Medium. The trend is statistically significant, but yearly weather changes can have a major impact on classification accuracy. NLCD is also not good at separating pasture from more natural grassland. That means this indicator is likely underestimating landscape condition improvements resulting from grassland restoration.

Interpretation

This is an indicator of landscape condition at multiple scales relevant to species and ecosystems. It looks at naturalness of land cover within 0.22 acres (one 30 m pixel), 10 acres, 100 acres, 1,000 acres, and 10,000 acres. While there are some issues with classification accuracy, the overall declines in landscape condition likely reflect ongoing issues with habitat fragmentation and alteration throughout the Southeast. The overall declines in this indicator, however, are overestimated in areas with significant grassland restoration because the indicator often misclassifies natural grasslands as pasture.

Other information available

A table of state-level summaries is available in Appendix I.

Undeveloped land in corridors
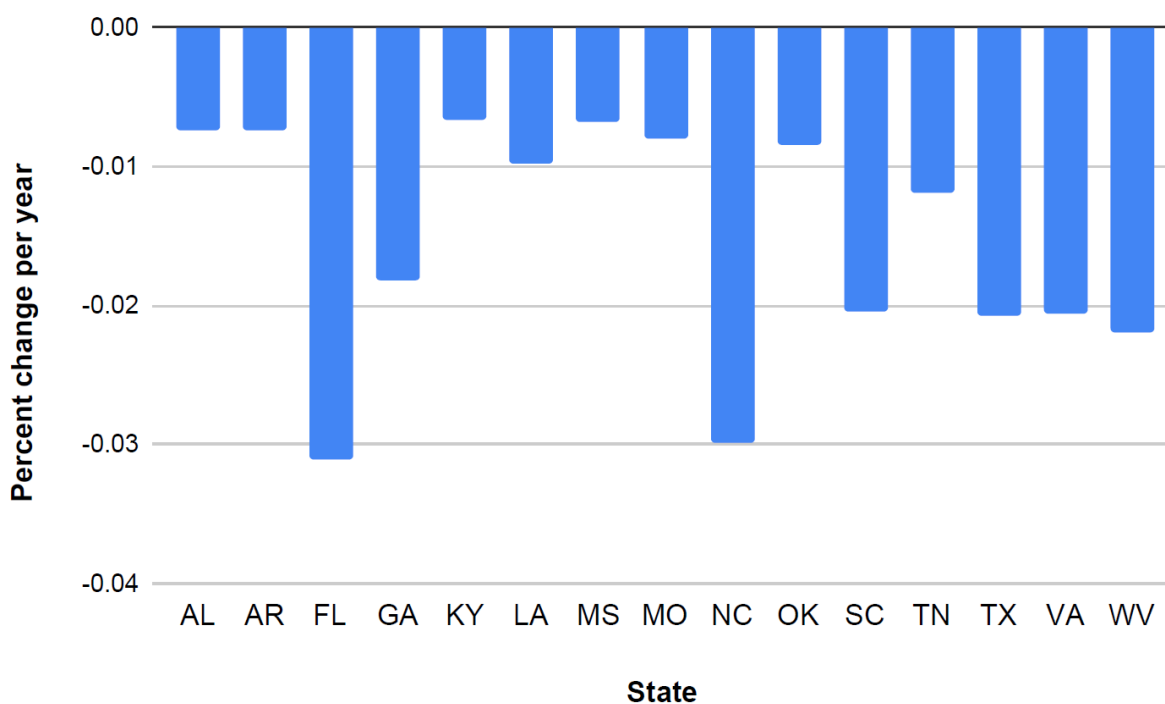
Figure 14. Percent change per year in undeveloped land within Southeast Conservation Blueprint 2023 inland continental corridors from 2011-2021.Suffient landcover data were not available to include Puerto Rico and the U.S. Virgin Islands in this analysis.

Yearly trend

All states showed statistically significant declining trends for undeveloped land in corridors. Undeveloped area within corridors across all SECAS states combined declined by 0.016% per year.

On track to meet SECAS goal

No. The decline of about 0.06% every 4 years is not enough to reach the SECAS goal of a 1% increase every 4 years.

Data source

National Land Cover Database (NLCD) and Southeast Conservation Blueprint 2023 inland continental corridors

Confidence in trend

High. The National Land Cover Database (NLCD) is particularly good at separating developed and not developed areas. There were also enough years available to get statistically significant trends for each state and all states combined.

Interpretation

This is an indicator of terrestrial connectivity that looks at the landcover change within the Southeast Blueprint 2023 continental inland corridors. It does not account for changes in the Blueprint corridor layer across different versions of the Blueprint. Development pressure varies across the states of the Southeast, so having undeveloped areas in corridors is easier for some states than others. When looking at population growth rates during the general period this indicator covers, some state performed as expected based on their population growth while others didn't. States with the largest indicator declines like Florida and North Carolina also had relatively high population growth rates. One interesting exception to this was West Virginia, which had the third highest decline in undeveloped land in corridors despite being only one of two SECAS states with a negative population growth rate.

Other information available

A table of state-level summaries associated with the graph above is available in Appendix I.

Freshwater

Rivers and streams draining into the Atlantic Ocean and Gulf of Mexico

Health

The condition of species and the ecosystems they depend on

Natural landcover in floodplains
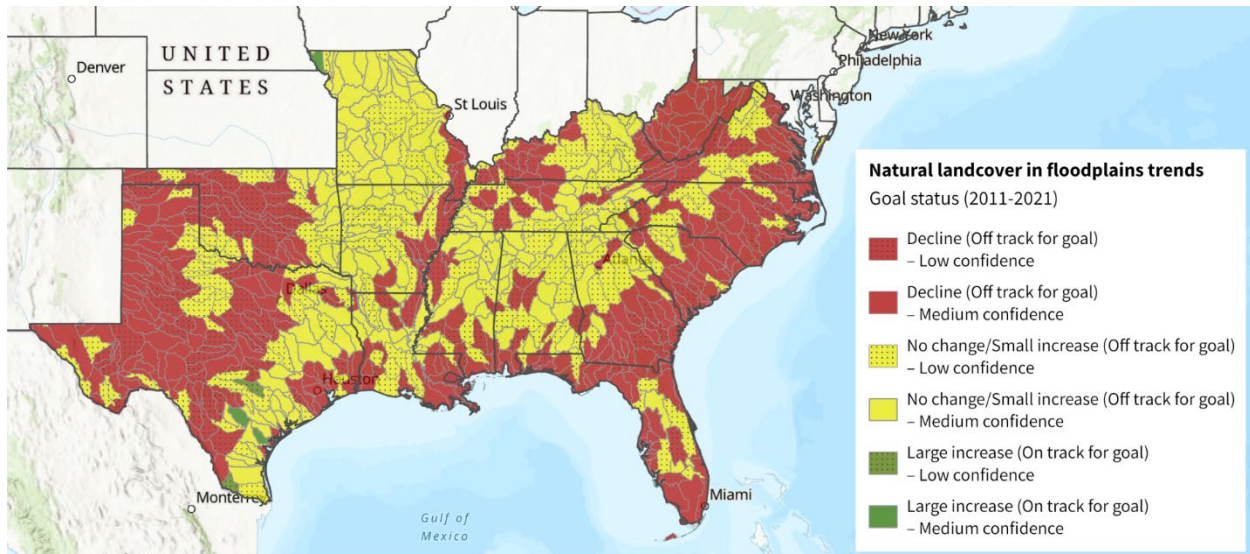
Figure 15. Trends in the amount of natural landcover in floodplains from 2011-2021.

Yearly trend

Natural landcover in floodplains declined by about 0.008% per year in the SECAS region (not including the Caribbean). That is a loss of approximately 23,400 acres per year. There were declines in most states.

On track to meet SECAS goal

No. The decline of about 0.03% every 4 years is not enough to meet the SECAS goal of a 1% increase every 4 years.

Data source

[National Land Cover Database (NLCD)](#)

Confidence in trend

Low. The decline was not statistically significant across the region. There are major issues with NLCD classification errors in floodplain areas—especially when separating non-natural habitats like pasture and row crop from natural habitats like shrublands, grasslands, and wetlands. These classification errors seem to be impacted by yearly climate variations and add significant noise to the trend data. In addition to yearly noise due to misclassification, the consistent incorrect classification of grasslands as pasture results in an overall underestimate of natural landcover in areas where grasslands occur in floodplains.

Interpretation

This is an indicator of the health of freshwater and nearby wetland ecosystems. Despite extensive conservation investments in protecting and restoring natural landcover in floodplains, this indicator does not appear to be improving since 2011. While increases in this indicator for some states are positives signs of progress, recent wetland policy changes will likely make it particularly challenging to meet the SECAS goal in future years.

Other information available

A table of state-level summaries is available in Appendix I.

Function

The benefits provided to people by species and ecosystems

Water quality
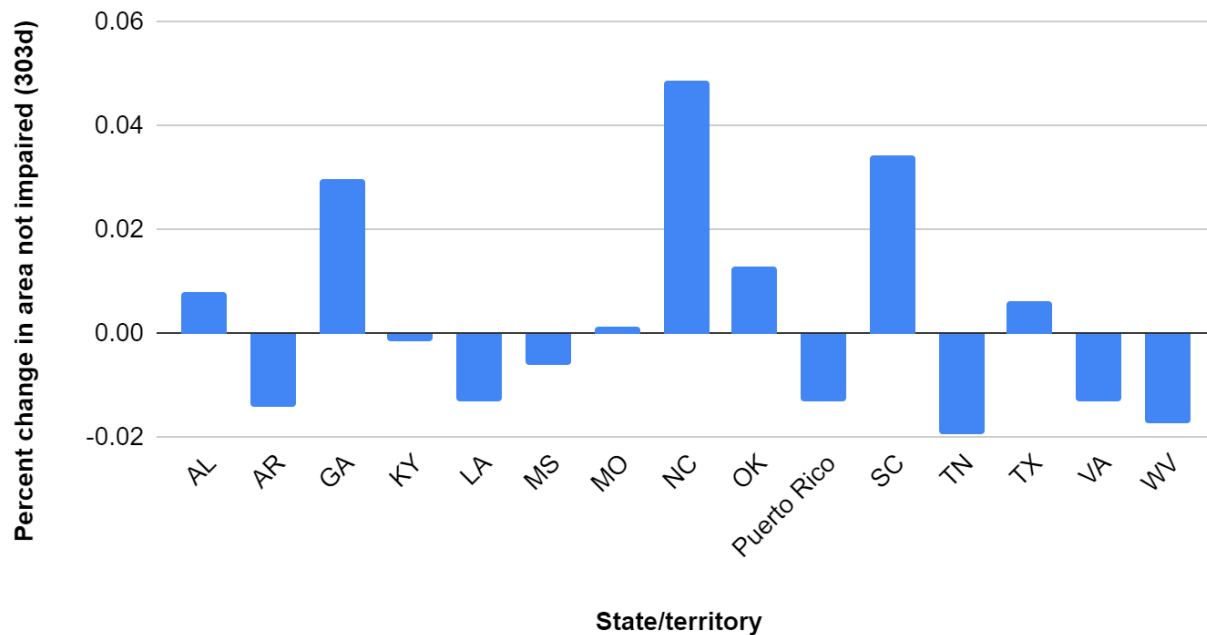
Figure 16. Percent change in area not impaired from the three most recent 303(d) assessments available per state/territory.

Yearly trend

When averaged across state trends, overall water quality increased by approximately 0.003% per year. For all states and territories except North Carolina, the most recent data available was 2014, 2016, or 2018. For North Carolina, the most recent data was 2010. Florida did not report its data in a format that allowed for trend estimates.

On track to meet SECAS goal

No. The increase of about 0.012% every 4 years is not enough to reach the SECAS goal of a 1% increase every 4 years.

Data source

[Environmental Protection Agency 303(d) Clean Water Act reports](#)

Confidence in trend

Low. Estimating water quality trends can be particularly challenging. While there are extensive survey efforts and approaches for standardization across state-specific 303(d) reports, yearly weather variation over multiple years and different state standards can complicate estimates of water quality trends.

Interpretation

This is an indicator of overall water quality across the freshwater aquatic ecosystem. Given the low confidence in the trends, it's important to not read too much into these initial numbers. That said, these numbers suggest mixed trends across different states and a lack of strong consistent improvement or decline across the Southeast.

Other information available

A table of state-level summaries associated with the graph above is available in Appendix I.

Connectivity

The ability of species and ecosystems to move over time

Aquatic connectivity
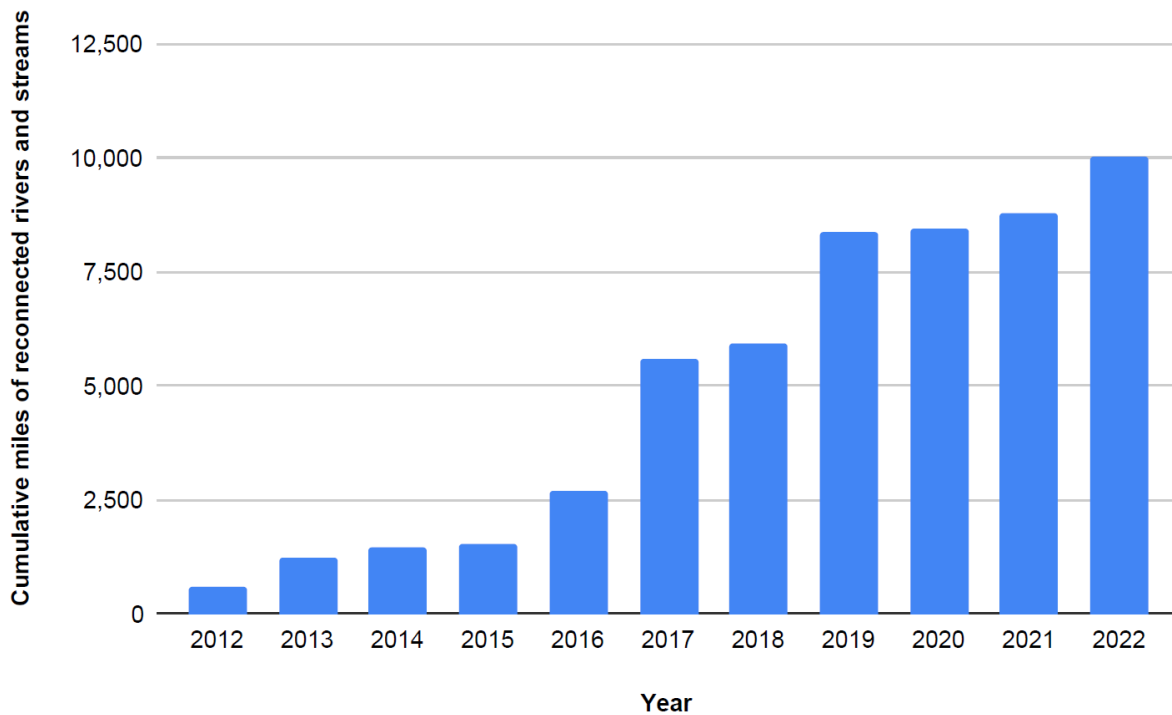
Figure 17. Miles of reconnected rivers and streams from 2012-2022. This estimate includes both dams and road-related aquatic barriers (e.g., culverts) across the full SECAS geography (including the Caribbean).

Yearly trend

Aquatic connectivity increased by about 16% per year from 2012-2022.

On track to meet SECAS goal

Yes. The increase of about 64% every 4 years is greater than the SECAS goal of a 1% increase every 4 years.
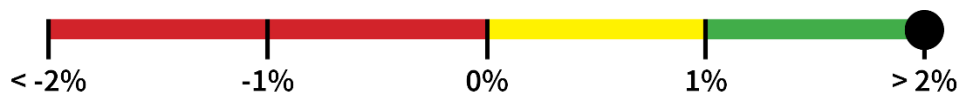
Data source

[Southeast Aquatic Resources Partnership Aquatic Barrier Database](#) (data available on request; contact kat@southeastaquatics.net)

Confidence in trend

Low. The trend estimate is not statistically significant. Tracking removals and mitigation for dams and road-related barriers, including the year they are removed, is still a challenge. Estimating the overall number of dams and road-related barriers in the region is also challenging. The current data likely underestimate both the number of miles restored and the amount of aquatic alteration in the region.

Interpretation

This is an indicator of species' ability to access habitat within the rivers and streams of the region. The increases are the result of large and collaborative work to restore aquatic connectivity throughout the Southeast and Caribbean. Past versions of the goal report, which only looked at number of dams, underestimated ongoing improvements in aquatic connectivity. Maintaining improvements in aquatic connectivity may be a challenge in the near future as coastal communities explore creating new dams and reservoirs in response to increased flooding from intense storms and sea-level rise.

Other information available

Tabular associated with the graph above are available in Appendix I.

Estuarine & marine

From estuaries to the open ocean at the edge of U.S. waters

Health

The condition of species and the ecosystems they depend on

Coastal condition
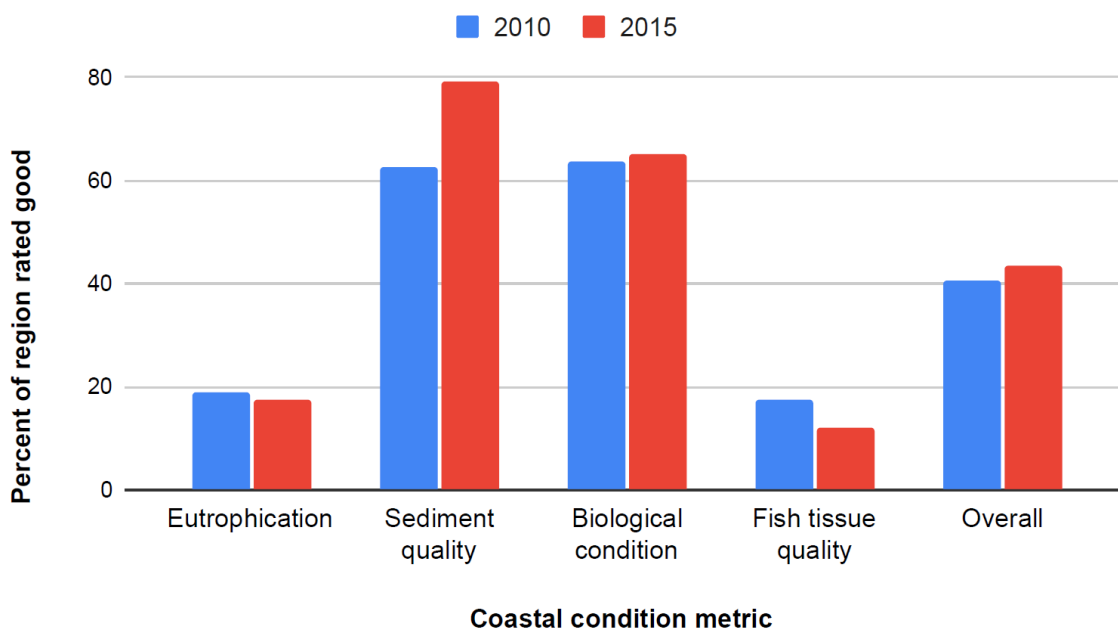
Figure 18. Percent of the Southeast rated "good" in 2010 and 2015 for the coastal condition metrics used in the Blueprint. More details on scores, trends, and uncertainty are available in the EPA dashboards for the Southeast Atlantic and Gulf regions.

Yearly trend

When averaged across subregions, overall coastal condition increased by 0.56% per year from 2010 to 2015. Overall condition declined in the Southeast and improved in the Gulf of Mexico.

On track to meet SECAS goal

Yes. The increase of about 2.25% every 4 years is greater than the SECAS goal of a 1% increase every 4 years.

Data source

Confidence in trend

Low. While this is a well-designed, randomized survey, we're only using two years of assessment to estimate the trend.

Interpretation

This is an indicator of the overall condition of the water and sediment in the estuaries and nearshore marine areas of the Southeast. The Gulf of Mexico is showing major improvements while the Southeast Atlantic is showing mixed patterns and an overall decline. From 2005/2006 (not depicted in graph) to 2015, condition also continues to improve in the Gulf and show mixed patterns in the Atlantic. The trends in sediment quality should also be viewed with caution as results of that sampling can vary significantly from year to year.

Other information available

Tabular data associated with the graph above and a table of regional summaries for each metric are available in Appendix I.

Function

The benefits provided to people by species and ecosystems

Fisheries
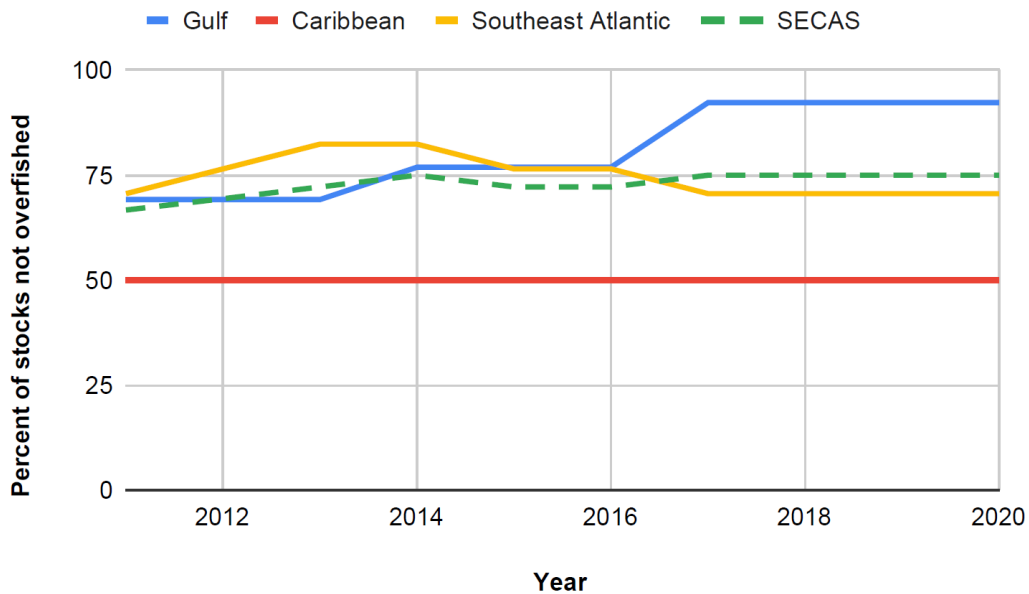
Figure 19. Percent of fisheries not overfished from 2011-2020.

Yearly trend

Overall fisheries condition increased by 1.1% per year between 2011-2020. Gulf stocks improved, Caribbean stocks were stable, while Southeast Atlantic stocks declined.

On track to meet SECAS goal

Yes. The increase of about 5.6% every 4 years is greater than the SECAS goal of a 1% increase every 4 years.
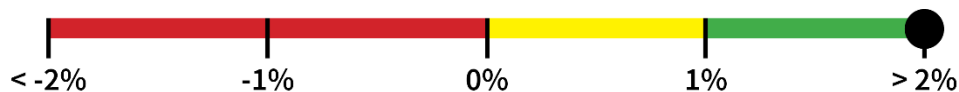
Data source

[NOAA National Marine Ecosystem Status (Overfished stocks)](#), [NOAA 2022 Stock Assessment Tables](#)

Confidence in trend

Medium. The trend estimate is statistically significant. Stock status assessments can be challenging, but extensive work and data go into assessing these statuses every year.

Interpretation

This is an indicator of management for the most important estuarine and marine fisheries of the Southeast. Fishing is only one of the many stressors faced by the fisheries of the Southeast. Overall improvements in fisheries management make important contributions to the SECAS goal, but broader ecosystem-based approaches will be important for sustaining fisheries at desired levels into the future.

Other information available

Regional summaries and tabular data associated with the graph above are available in Appendix I.

Image credits

- Ecosystem icons (terrestrial, freshwater, estuarine and marine) from the University of Maryland Center for Environmental Science [Integration and Application Network](#)
- Health, function, and connectivity icons from [the Noun Project](#)
    - o **Health:** Health by Alzam from the Noun Project
    - o **Function:** People by Kiran Shastry from the Noun Project
    - o **Connectivity:** Chain by Robert Bjurshagen from the Noun Project

Appendix I: Additional Tables and Figures

This appendix contains supplementary tables and figures for all indicators in the SECAS Goal Report. For accessibility purposes, it includes the tabular data associated with each graph included in the report.

Aquatic connectivity

Table 2. Tabular data associated with Figure 17. Miles of reconnected rivers and streams from 2012-2022. This estimate includes both dams and road-related aquatic barriers (e.g., culverts) across the full SECAS geography (including the Caribbean).

Year	Miles reconnected during year	Cumulative miles reconnected since 2011
2011	183	183
2012	425	608
2013	639	1,247
2014	209	1,456
2015	79	1,535
2016	1,177	2,712
2017	2,875	5,588
2018	344	5,931
2019	2,444	8,375
2020	72	8,447
2021	341	8,788
2022	1,250	10,038

Areas without invasive plants

Table 3. Tabular data associated with Figure 1. State-specific change in areas without invasive plants by plant type, based on the most recent available state data. Green colors represent any positive trend and do not imply that the increase is sufficient to be on track to achieve the SECAS goal.

	Trees	Shrubs	Vines	Forbs, ferns, other	Grass
Alabama	-0.36%	-0.93%	-0.16%	-0.60%	-0.04%
Arkansas	-0.12%	-0.78%	0.13%	-0.14%	0.04%
Florida	-0.17%	-0.16%	0.03%	-0.13%	-0.02%
Georgia	-0.34%	-0.61%	0.20%	-0.32%	-0.06%
Kentucky	-0.25%	-2.18%	-0.91%	-0.21%	-1.57%
Louisiana	-0.39%	-0.58%	-0.41%	-0.28%	-0.03%
Mississippi	-0.27%	-0.17%	0.18%	-2.58%	0.21%
North Carolina	-0.10%	-0.76%	-0.24%	-0.10%	-0.41%
Oklahoma	0.003%	0.41%	0.11%	-0.33%	0.22%
South Carolina	-0.19%	-0.58%	-0.18%	-0.12%	-0.20%
Tennessee	-0.06%	-0.51%	0.59%	0.03%	-0.03%
Texas	0.11%	-1.05%	-0.09%	-0.11%	-0.01%
Virginia	-0.06%	-1.61%	-0.71%	-0.62%	-1.20%

Beach birds

Table 4. Beach bird trends and confidence by species.

	Piping plover	Whimbrel	Red knot	Willet
Southeast-wide	Increase - Low confidence	Increase - Low confidence	Decline - Low confidence	Decline - Low confidence

Table 5. Tabular data associated with Figure 2. Beach bird species trends and confidence.

	% of species	# of species
Increase - Low confidence	50%	2
Decline – Low confidence	50%	2

Caribbean undeveloped land

Table 6. Territory-specific change in undeveloped land from 2017-2022. Darker colors indicate higher confidence.

	Acres (2022)	Yearly acres gained/lost 2017-2022	Yearly % change 2017-2022	Confidence in trend
Puerto Rico	68,085,842	-262,106	-0.4%	Medium
U.S. Virgin Islands	2,177,841	-16,934	-0.8%	Low

Coastal condition

Table 7. Change in percent "good" from 2010-2015 for each subregion.

	Eutrophication condition	Sediment quality	Biological condition	Fish tissue quality	Overall
Southeast Atlantic	-4.1%	6.9%	-0.3%	-8.8%	-1.6%
Gulf of Mexico	1.5%	26.4%	3.2%	-2.3%	7.2%

Table 8. Tabular data associated with Figure 18. Percent of the Southeast rated "good" in 2010 and 2015 for the coastal condition metrics used in the Blueprint.

	% good (2010)	% good (2015)	Yearly % change 2010-2015
Eutrophication condition	18.8%	17.5%	-1.3%
Sediment quality	62.6%	79.2%	16.7%
Biological condition	63.6%	65.1%	1.5%
Fish tissue quality	17.6%	12.1%	-5.6%
Overall	40.6%	43.5%	2.8%

Fisheries

Table 9. Regional change in number of fisheries not overfished from 2011-2020. Darker colors indicate higher confidence.

	% stocks not overfished (2020)	Yearly % change 2011-2020	Confidence in trend
Gulf	92.3%	4.9%	Medium
Caribbean	50%	0%	Medium
Southeast Atlantic	70.6%	-1.1%	Low
SECAS	75%	1.1%	Medium

Table 10. Tabular data associated with Figure 19. Percent of fisheries not overfished by region from 2011-2020.

	% stocks not overfished (Gulf)	% stocks not overfished (Caribbean)	% stocks not overfished (Southeast Atlantic)	% stocks not overfished (SECAS-wide)
2011	69.2%	50%	70.6%	66.7%
2012	69.2%	50%	76.5%	69.4%
2013	69.2%	50%	82.4%	72.2%
2014	76.9%	50%	82.4%	75%
2015	76.9%	50%	76.5%	72.2%
2016	76.9%	50%	76.5%	72.2%
2017	92.3%	50%	70.6%	75%
2018	92.3%	50%	70.6%	75%
2019	92.3%	50%	70.6%	75%
2020	92.3%	50%	70.6%	75%

Forested wetland area

Table 11. State-specific change in forested wetland area from 2011-2021. Green colors represent any increasing or positive trend and do not imply that the increase is sufficient to be on track to achieve the SECAS goal. Darker colors indicate higher confidence.

	Acres (2021)	Yearly acres gained/lost 2011-2021	Yearly % change 2011-2021	Confidence in trend
Alabama	16,595,393	34,941	0.2%	Low
Arkansas	15,434,936	12,961	0.1%	Low
Florida	42,790,820	62,969	0.1%	Medium
Georgia	27,070,394	-151	-0.001%	Low
Kentucky	1,388,828	-915	-0.1	Low
Louisiana	29,454,305	48,942	0.2	Low
Mississippi	22,355,770	35,817	0.2	Low
Missouri	3,663,060	-4,087	-0.1	Low
North Carolina	20,313,656	-17,722	-0.1	Low
Oklahoma	1,532,162	198	0.01%	Low
South Carolina	17,746,925	-48,314	-0.3%	Medium
Tennessee	3,841,349	4,944	0.1%	Low
Texas	21,338,818	45,726	0.2%	Low
Virginia	5,651,773	4,876	0.1%	Low
West Virginia	115,493	1,020	0.9%	Medium

Forested wetland birds

Table 12. Species trend data from 2014-2019 for each state. Darker colors indicate higher confidence. Green colors represent any positive trend and do not imply that the increase is sufficient to be on track to achieve the SECAS goal.

	Prothonotary warbler	Swallow-tailed kite	Yellow-throated warbler	Swainson's warbler
Alabama	Increase - Low confidence	Increase - Low confidence	Increase - Low confidence	Increase - Low confidence
Arkansas	Increase - Low confidence		Decline - Low confidence	Decline - Low confidence
Florida	Increase - Low confidence	Increase - High confidence	Increase - Low confidence	Increase - Low confidence
Georgia	Increase - Low confidence	Increase - High confidence	Decline - Low confidence	Increase - Low confidence
Kentucky	Increase - Low confidence		Increase - Low confidence	Increase - Low confidence
Louisiana	Increase - Low confidence	Increase - Low confidence	Decline - Low confidence	Increase - High confidence
Mississippi	Decline - Low confidence	Increase - Low confidence	Increase - Low confidence	Decline - Low confidence
Missouri	Increase - Low confidence		Decline - Low confidence	
North Carolina	Decline - Low confidence		Increase - Low confidence	Increase - Low confidence
Oklahoma	Decline - Low confidence		Increase - Low confidence	
South Carolina	Increase - Low confidence	Increase - Low confidence	Decline - High confidence	Increase - Low confidence
Tennessee	Increase - Low confidence		Increase - Low confidence	Increase - Low confidence
Texas	Decline - Low confidence		Increase - Low confidence	Increase - Low confidence
Virginia	Decline - Low confidence		Increase - Low confidence	Increase - Low confidence
West Virginia	Decline - Low confidence		Increase - Low confidence	Increase - Low confidence
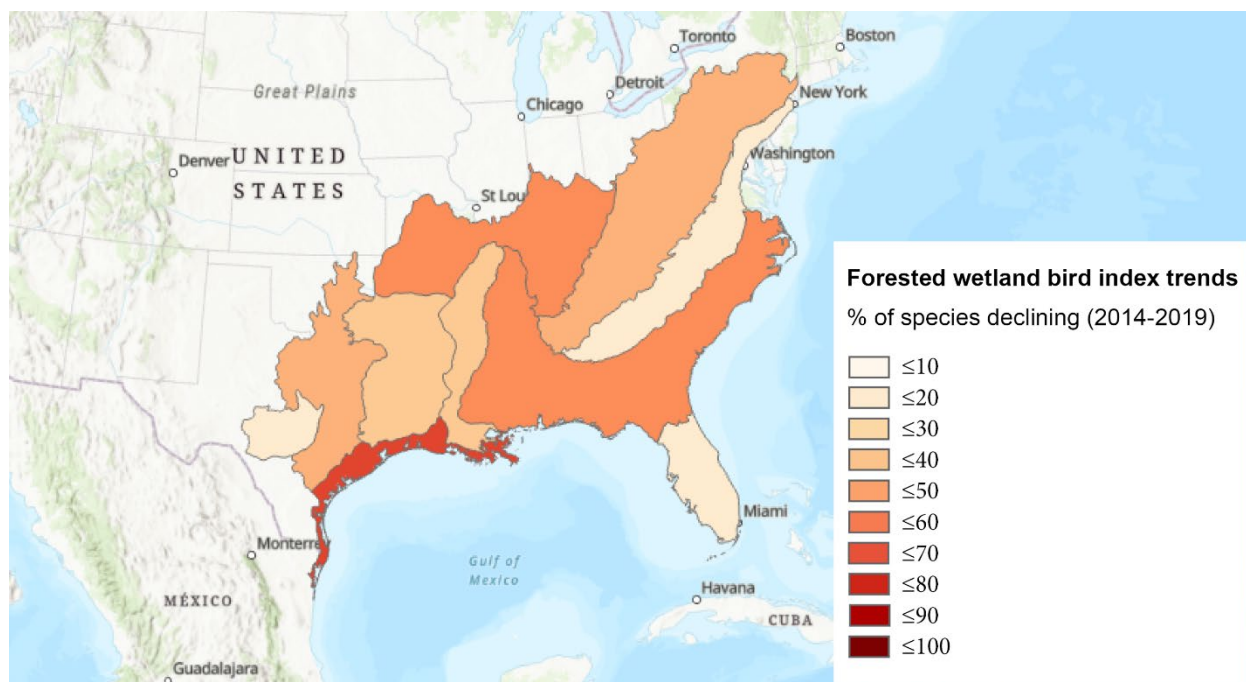
Figure 20. Percent of forested wetland bird species declining from 2014-2019 by Bird Conservation Region (BCR).

Table 13. Tabular data associated with Figure 5. Forested wetland bird species trends and confidence by state from 2014-2019.

	% of species	# of species
Increase – High confidence	6.1%	3
Increase - Low confidence	67.3%	33
Decline - High confidence	2.0%	12
Decline – Low confidence	24.5%	1

Gopher tortoise

Table 14. Tabular data associated with Figure 6. Gopher tortoise sites with increasing, declining, or stable trends during resurveys in 2017.

	% of sites
Increase - Low confidence	93.8%
Stable - Low confidence	2.4%
Decline - Low confidence	3.8%

Landscape condition

Table 15. State-specific change in landscape condition from 2011-2021. The landscape condition score ranges from 1 (heavily altered) to 3 (natural). Darker colors indicate higher confidence.

	Average condition score (2021)	Yearly % change 2011-2021	Confidence in trend
Alabama	2.7	-0.01%	Medium
Arkansas	2.6	-0.01%	Medium
Florida	2.6	-0.03%	Medium
Georgia	2.7	-0.02%	Medium
Kentucky	2.6	-0.01%	Medium
Louisiana	2.7	-0.01%	Medium
Mississippi	2.7	-0.001%	Low
Missouri	2.4	-0.004%	Medium
North Carolina	2.6	-0.03%	Medium
Oklahoma	2.6	-0.02%	Low
South Carolina	2.7	-0.02%	Medium
Tennessee	2.6	-0.01%	Medium
Texas	2.7	-0.03%	Medium
Virginia	2.7	-0.01%	Medium
West Virginia	2.8	-0.01%	Medium

Longleaf pine area

Table 16. Tabular data associated with Figure 7. Change in acres of longleaf pine from 2013-2016.

	Acres (2013)	Acres (2016)	Overall % change 2013-2016
North Carolina	282,551	358,124	26.7%
South Carolina	468,962	491,975	4.9%
Georgia	569,254	565,575	-0.6%
Florida	957,754	1,000,538	4.5%
Alabama	668,140	687,129	2.8%
Mississippi	246,345	293,111	19.0%
Louisiana	209,252	177,837	-15.0%
Texas	16,529	32,370	95.8%

Natural landcover in floodplains

Table 17. State-specific change in natural landcover in floodplains from 2011-2021. Green colors represent any positive trend and do not imply that the increase is sufficient to be on track to achieve the SECAS goal. Darker colors indicate higher confidence.

	Acres (2021)	Yearly acres gained/lost 2011-2021	Yearly % change 2011-2021	Confidence in trend
Alabama	19,440,964	2,060	0.01%	Medium
Arkansas	20,701,929	1,068	0.01%	Low
Florida	61,184,688	-10,015	-0.02%	Medium
Georgia	23,751,318	-2,386	-0.01%	Medium
Kentucky	7,119,382	-384	-0.01%	Low
Louisiana	53,906,274	5,006	0.01%	Medium
Mississippi	22,017,490	4,610	0.02%	Medium
Missouri	11,722,797	4,620	0.04%	Medium
North Carolina	19,090,875	-2,292	-0.01%	Medium
Oklahoma	20,284,247	-2,502	-0.01%	Low
South Carolina	17,690,203	-2,573	-0.01%	Medium
Tennessee	8,284,443	1,103	0.01%	Low
Texas	81,032,025	-28,713	-0.04%	Low
Virginia	8,631,233	-426	-0.005%	Low
West Virginia	2,353,292	-1,557	-0.07%	Medium

Pine & prairie birds

Table 18. Species trend data from 2014-2019 for each state. Darker colors indicate higher confidence. Green colors represent any positive trend and do not imply that the increase is sufficient to be on track to achieve the SECAS goal.

	Northern bobwhite	Grasshopper sparrow	Prairie warbler	Loggerhead shrike	Bachman's sparrow
Alabama	Increase - Low confidence	Increase - Low confidence	Decline - Low confidence	Decline - Low confidence	Decline - Low confidence
Arkansas	Decline - Low confidence	Increase - Low confidence	Decline - High confidence	Decline - Low confidence	Decline - Low confidence
Florida	Decline - Low confidence		Decline - Low confidence	Decline - Low confidence	Decline - Low confidence
Georgia	Increase - Low confidence	Increase - Low confidence	Decline - High confidence	Decline - Low confidence	Increase - Low confidence
Kentucky	Decline - High confidence	Decline - High confidence	Increase - Low confidence	Increase - Low confidence	Decline - Low confidence
Louisiana	Decline - High confidence		Decline - Low confidence	Decline - Low confidence	Decline - Low confidence
Mississippi	Decline - Low confidence	Decline - Low confidence	Decline - Low confidence	Decline - Low confidence	Decline - Low confidence
Missouri	Decline - Low confidence	Decline - High confidence	Increase - Low confidence	Decline - Low confidence	
Oklahoma	Decline - High confidence	Decline - Low confidence	Decline - Low confidence	Decline - Low confidence	
North Carolina	Decline - High confidence	Decline - Low confidence	Decline - High confidence	Decline - Low confidence	Increase - Low confidence
South Carolina	Decline - Low confidence	Decline - Low confidence	Decline - High confidence	Increase - Low confidence	Increase - Low confidence
Tennessee	Decline - High confidence	Decline - Low confidence	Decline - Low confidence	Decline - Low confidence	
Texas	Decline - High confidence	Increase - High confidence	Decline - Low confidence	Increase - Low confidence	Increase - Low confidence
Virginia	Decline - Low confidence	Decline - Low confidence	Decline - Low confidence	Decline - Low confidence	
West Virginia	Decline - Low confidence	Decline - High confidence	Increase - Low confidence	Decline - Low confidence	
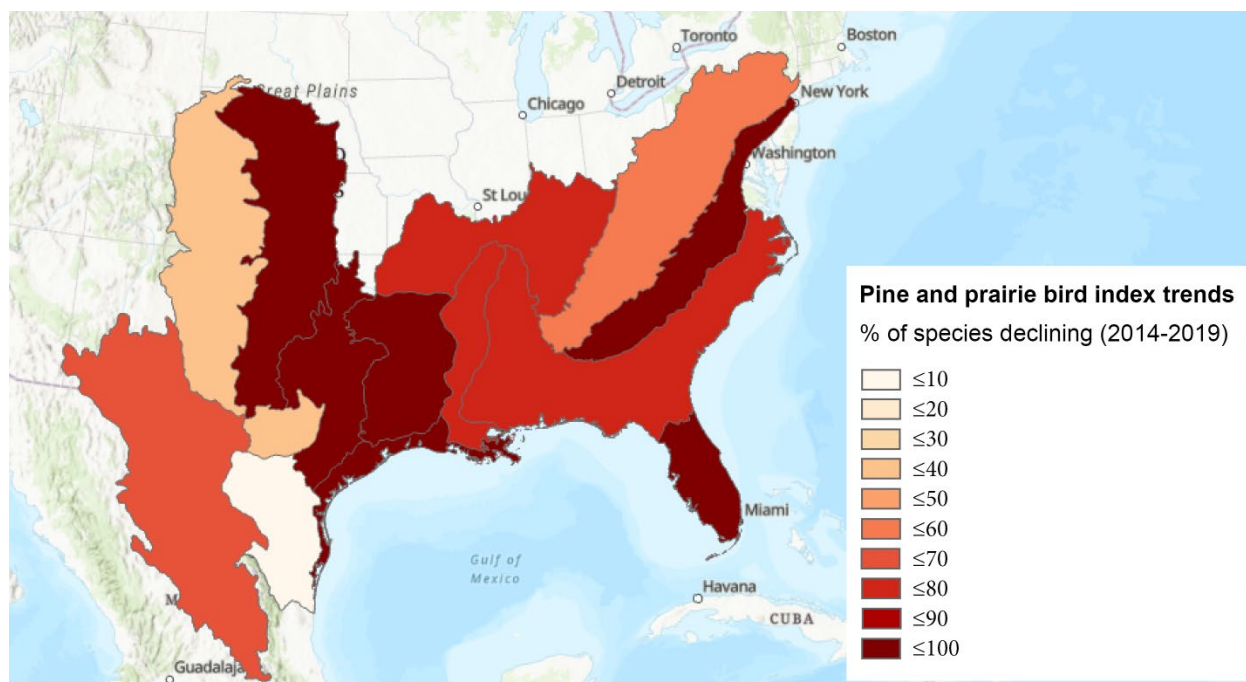
Figure 21. Percent of pine and prairie bird species declining from 2014-2019 by Bird Conservation Region (BCR).

Table 19. Tabular data associated with Figure 8. Percent of pine and prairie bird species that are increasing or declining by state from 2014-2019.

	% of species	# of species
Increase – High confidence	1.5%	1
Increase - Low confidence	22.1%	15
Decline - High confidence	19.1%	13
Decline – Low confidence	57.4%	39

Prescribed fire in longleaf pine

Table 20. Tabular data associated with Figure 9. Acres of prescribed fire in longleaf pine from 2013-2022.

	Acres
2013	1,100,808
2014	1,216,952
2015	1,582,522
2016	1,655,096
2017	1,368,182
2018	1,632,755
2019	1,414,761
2020	1,446,879
2021	1,693,992
2022	1,747,583

Salt marsh area

Table 21. Tabular data associated with Figure 10. State-specific changes in area of estuarine emergent wetland from 2010-2016. Green colors represent any increasing or positive trend and do not imply that the increase is sufficient to be on track to achieve the SECAS goal.

	Acres (2010)	Acres (2016)	Yearly % change
Alabama	151,510	150,618	-0.10%
Florida	2,323,622	2,313,068	-0.08%
Georgia	1,652,478	1,650,713	-0.02%
Louisiana	7,513,330	7,519,457	0.01%
Mississippi	265,745	266,456	0.04%
North Carolina	1,015,849	1,009,748	-0.10%
South Carolina	1,612,309	1,610,953	-0.01%
Texas	2,177,225	2,162,614	-0.11%
Virginia	847,644	841,351	-0.12%
SECAS-wide	17,559,712	17,524,978	-0.03%

Undeveloped land in corridors

Table 22. Tabular data associated with Figure 14. State-specific change in undeveloped land in Southeast Conservation Blueprint 2023 inland continental corridors from 2011-2021.Suffient landcover data were not available to include Puerto Rico and the U.S. Virgin Islands in this analysis.

	Acres (2021)	Yearly acres gained/lost 2011-2021	Yearly % change 2011-2021	Confidence in trend
Alabama	39,865,082	-2,933	-0.01%	Medium
Arkansas	28,291,318	-2,106	-0.01%	Medium
Florida	25,085,971	-7,834	-0.03%	Medium
Georgia	28,818,771	-5,234	-0.02%	Medium
Kentucky	22,089,823	-1,461	-0.01%	Medium
Louisiana	33,658,387	-3,321	-0.01%	Medium
Mississippi	28,300,772	-1,924	-0.01%	Medium
Missouri	45,873,601	-3,699	-0.01%	Medium
North Carolina	24,937,758	-7,468	-0.03%	Medium
Oklahoma	55,941,356	-4,732	-0.01%	Medium
South Carolina	20,174,566	-4,141	-0.02%	Medium
Tennessee	25,576,035	-3,046	-0.01%	Medium
Texas	175,889,882	-36,479	-0.02%	Medium
Virginia	18,823,580	-3,885	-0.02%	Medium
West Virginia	15,563,919	-3,431	-0.02%	Medium

Upland forest birds

Table 23. Species trend data from 2014-2019 for each state. Darker colors indicate higher confidence. Green colors represent any positive trend and do not imply that the increase is sufficient to be on track to achieve the SECAS goal.

|	Cerulean warbler	Wood thrush	Louisiana waterthrush	Worm-eating warbler
Alabama		Decline - Low confidence	Decline - Low confidence	Decline - Low confidence
Arkansas	Decline - Low confidence	Increase - Low confidence	Decline - Low confidence	Decline - Low confidence
Florida		Decline - Low confidence	Decline - Low confidence	
Georgia		Increase - Low confidence	Decline - Low confidence	Increase - Low confidence
Kentucky	Decline - Low confidence	Increase - Low confidence	Increase - Low confidence	Increase - Low confidence
Louisiana		Increase - High confidence	Decline - Low confidence	Increase - Low confidence
Mississippi	Decline - Low confidence	Increase - High confidence	Decline - Low confidence	Decline - Low confidence
Missouri	Increase - Low confidence	Increase - Low confidence	Increase - Low confidence	Increase - Low confidence
North Carolina	Decline - Low confidence	Decline - Low confidence	Increase - Low confidence	Decline - Low confidence
Oklahoma		Decline - Low confidence	Increase - Low confidence	Increase - Low confidence
South Carolina		Increase - Low confidence	Decline - Low confidence	Decline - Low confidence
Tennessee	Increase - Low confidence	Increase - Low confidence	Decline - Low confidence	Decline - Low confidence
Texas		Increase - High confidence	Decline - Low confidence	Decline - Low confidence
Virginia	Decline - Low confidence	Decline - Low confidence	Increase - Low confidence	Increase - Low confidence
West Virginia	Increase - Low confidence	Increase - Low confidence	Increase - Low confidence	Increase - Low confidence
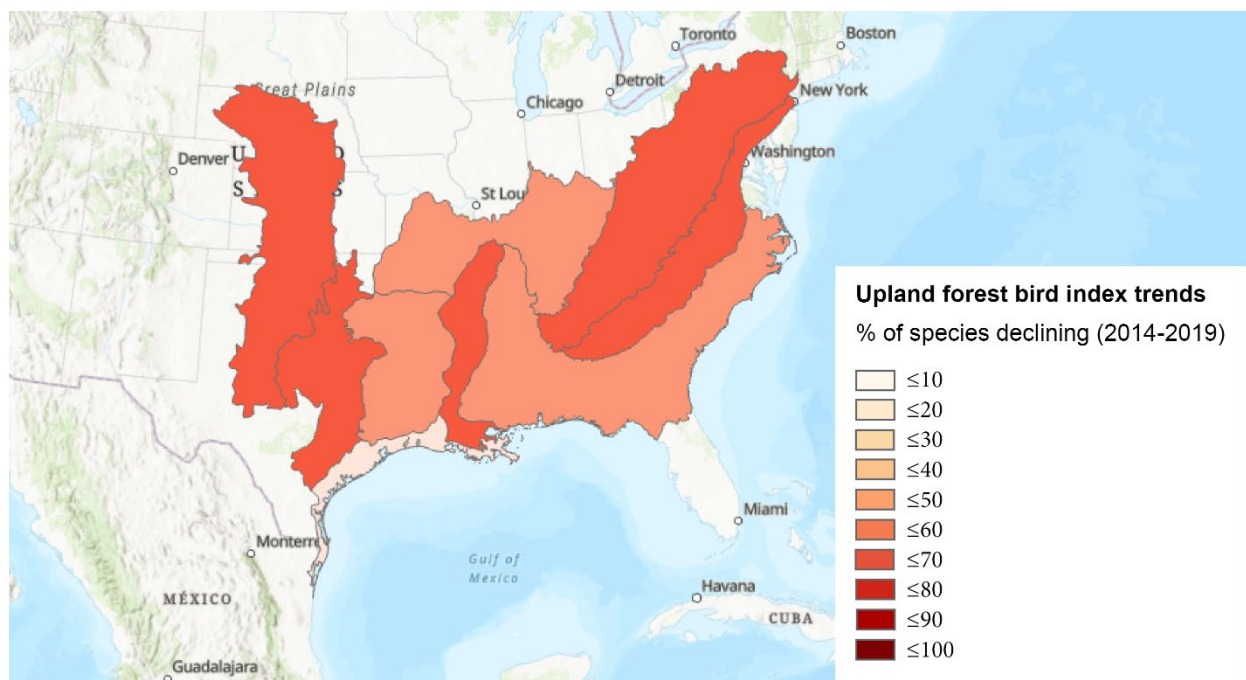
Figure 22. Percent of upland forest bird species declining from 2014-2019 by Bird Conservation Region (BCR).

Table 24. Tabular data associated with Figure 11. Upland forest bird species that are increasing or declining by state from 2014-2019.

	% of species	# of species
Increase – High confidence	5.5%	3
Increase - Low confidence	45.5%	25
Decline – Low confidence	49.1%	27

Water quality

Table 25. Tabular data associated with Figure 16. Percent change in area not impaired from the three most recent 303(d) assessments available per state/territory. Green colors represent any increasing or positive trend and do not imply that the increase is sufficient to be on track to achieve the SECAS goal.

	Yearly % change
Alabama	0.01%
Arkansas	-0.01%
Georgia	0.03%
Kentucky	0.001%
Louisiana	-0.01%
Mississippi	-0.01%
Missouri	0.001%
North Carolina	0.05%
Oklahoma	0.01%
Puerto Rico	-0.01%
South Carolina	0.03%
Tennessee	-0.02%
Texas	0.01%
Virginia	-0.01%
West Virginia	-0.02%

Working lands conservation

Table 26. Tabular data associated with Figure 12. State-specific working lands conservation metrics from 2015-2020. Caribbean includes both Puerto Rico and the U.S. Virgin Islands. Green colors represent any increasing or positive trend and do not imply that the increase is sufficient to be on track to achieve the SECAS goal.

	% of state composed of private land	Acres of conservation practices (2020)	Yearly % change 2015-2020	# of conservation practices/acre of private land (2020)
Alabama	95.2%	2,384,324	10.0%	0.07
Arkansas	88.6%	6,211,121	52.3%	0.21
Caribbean	95.1%	37,226	-8.2%	0.01
Florida	75.6%	1,437,251	0.2%	0.04
Georgia	93.4%	3,564,081	31.0%	0.10
Kentucky	94.9%	1,013,557	18.2%	0.04
Louisiana	91.0%	3,431,829	37.6%	0.11
Missouri	93.5%	11,963,013	61.1%	0.29
Mississippi	91.3%	3,164,320	9.5%	0.11
North Carolina	90.6%	624,856	1.4%	0.02
Oklahoma	96.6%	2,936,612	-0.5%	0.07
South Carolina	93.3%	1,135,824	36.2%	0.06
Tennessee	91.1%	1,663,166	13.9%	0.07
Texas	96.7%	23,095,458	3.0%	0.14
Virginia	89.4%	868,485	9.7%	0.04
West Virginia	88.9%	389,941	1.1%	0.03
SECAS-wide	92.4%	63,921,063	11.1%	0.11