

2024

FISCAL YEAR

CONSERVING GEORGIA'S  
**WILDLIFE**



**GEORGIA**  
DEPARTMENT OF NATURAL RESOURCES

WILDLIFE RESOURCES DIVISION



**F**or most of us at DNR's Wildlife Conservation Section, 2024 has been the Year of the SWAP.

What is SWAP? That's what we call the State Wildlife Action Plan. Required by the U.S. Fish and Wildlife Service, this plan lays out all of Georgia's conservation needs and goals. It's updated on 10-year cycles and completed in years that end with a 5.

While work on the State Wildlife Action Plan takes a lot of time, involves scores of partners and doesn't necessarily make for glossy pictures or pithy quotes, Georgia's plan has consistently ranked among the nation's finest. With the 2025 version close to completion, I want to thank Dr. Brett Albanese for leading this revision. I am certain it will be the best one yet.

As for the cool photos and action news, we have some great things for you! From the return of red-cockaded woodpeckers to Sprewell Bluff and a new record for prescribed burning on state lands to being on the cusp of reaching our long-standing goal of permanently protecting 65 large gopher tortoise populations in Georgia – wow, it's been a big year. I think you will like what you find inside.

We have so much to be proud of in Georgia, and a great quality of life, all thanks in no small part to our amazing natural environments.

As always, public support is essential to what we do to help protect and educate the public about wildlife and habitats. Less than a half of 1 percent of our research and conservation budget comes from state funds. Your contributions, whether through renewing or buying a monarch, eagle or hummingbird license plate or by making a direct donation, are critical to us. We are very grateful for your support.



I hope that you enjoy this journey through the past year as much as I have.

A white, handwritten signature of Matt Elliott on a dark green background.

**Matt Elliott**  
*Chief, DNR Wildlife Conservation Section*

*Dawn at the cluster of red-cockaded woodpecker nest cavities on Sprewell Bluff WMA (Hal Massie/DNR)*



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# BIRDS

## Waterbirds

Georgia's barrier island beaches, salt marshes and coastal freshwater wetlands support 86 species of seabirds, shorebirds and wading birds. These species, collectively known as waterbirds, are the focus of DNR's Waterbird Conservation Initiative. This effort involves research, monitoring, management and education efforts within the Wildlife Conservation Section and working with a variety of partners.

### ■ Seabirds

As part of this initiative, the Wildlife Conservation Section works to protect important seabird nesting colonies by posting and roping off colonies, working with "stewards" to educate beachgoers about the birds on public beaches, and coordinating with DNR's Law Enforcement officers to enforce what's called the Bird Island Rule, which limits access at set sites to protect nesting birds. Staff also team with partners to educate the public, including ecotourism guides and boaters, through training classes, signage, brochures and booklets. Surveys to document the number of nesting pairs of priority species and estimate the number of chicks fledged also are conducted each year.

The Brunswick Harbor Bird Island was the largest colony again in fiscal year 2024, with nesting species and totals including 2,858 nests for royal tern, 631 for laughing gulls, 262 for black skimmers, 81 for brown pelicans and 20 for gull-billed terns. While royal tern numbers were down, black skimmers posted above-average productivity this year, with two large colonies producing more than 600 fledglings. Least terns lost a few colonies due to overwash, but the birds were active at a new dredge island in Camden County. The U.S. Army Corps of Engineers created the island using material dredged from the Intracoastal Waterway north of Naval Submarine Base Kings Bay. The island was designed with birds in mind and began attracting birds even before the pumping was completed.

Ogeechee Bar in Chatham County proved to be a highly productive colony in 2024 with over 1,000 royal tern nests, close to 800 black skimmer nests and more than 100 gull-billed tern nests. Unfortunately, despite extensive signage and monitoring by DNR game wardens, the site experienced some *disturbance by people and dogs*. Overwash also affected the bar, especially an early least tern colony.

In 2024, staff also coordinated the banding of more than 650 royal tern chicks in one day. Thirty-four volunteers from coastal organizations made the large-scale project possible. Staff continue to document numerous adult birds returning to the colony that were banded as chicks by a blitz in 2019.



Banding American oystercatchers on Sapelo Island (Tim Keyes/DNR)



Red knots eating horseshoe crab eggs (Fletcher Smith/DNR)



## ■ Shorebirds

The Wildlife Conservation Section and coastal partners monitored about 120 pairs of nesting American oystercatchers in fiscal year 2024. Productivity improved significantly over 2023, with 35 chicks fledging. Six of those fledged from enhanced shell rakes. Using wooden timbers, shell and a geocell mesh, these existing rakes were elevated 6 to 7 feet above the mean water level. Five platforms were raised, and oystercatchers used four as soon as they were completed. More oystercatcher chicks fledged from these enhanced shell rakes in 2024 than from the entire Georgia coast the previous year.

Wildlife Conservation staff completed a spring red knot season focused on the ecology of migrating red knots. The species has declined by up to 80 percent since the 1980s. Georgia provides critical foraging and roosting habitat for red knots in spring, fall and winter. The agency also organized and conducted a coastwide aerial

survey of red knots during the spring season. Survey dates were picked to best represent the two populations that cycle through the coasts of Georgia and South Carolina – April for short-distance migrants and May for the mixture of short- and long-distance migrants.

In addition, staff trapped and satellite-tagged 13 red knots using Lotek Pinpoint solar-powered transmitters. All of the birds were tracked to breeding grounds, providing some of the first data showing the connectivity between Southeastern stopover sites and breeding sites in the high Arctic.

During spring, horseshoe crab eggs are one of the most important foraging sources for red knots and many other shorebirds. Yet little is known about where or how many horseshoe crabs spawn in Georgia. Wildlife Conservation partnered with conservation groups in spring 2024 to establish the first survey of horseshoe crab egg distribution

and density in the state. A total of 320 surveys to document spawning were conducted at two critical sites during full and new moon tides in spring.

DNR's work with red knots was supported in part by a National Fish and Wildlife Foundation and Southern Co. grant.

During the 2024 spring field season, Wildlife Conservation staff and partners also conducted night roost surveys for whimbrels along the coast between Daufuskie Island, S.C., and Little St. Simons Island. The work documented several large roosts, including one with an estimated 3,456 whimbrels at Tomkins Island, S.C., and 1,965 on Georgia's Ogeechee Bar in May. These surveys are helping determine high-priority locations for protection and driving management at the sites. Wildlife Conservation plays a key role in this long-term study, providing logistical and field support and conducting many of the surveys.



## Red-cockaded Woodpeckers

The red-cockaded woodpecker is the only woodpecker in the U.S. that excavates cavities in living pines. The drastic loss of mature pine forests over the past 200 years has been the primary cause of this species' decline. Suitable habitat now occurs primarily on some military bases, national forests and other public lands, although red-cockaded woodpeckers are still found on many private properties.

The birds were listed as endangered under the Endangered Species Act of 1969 and protected with the same status in passage of the Endangered Species Act in 1973. In September 2020, the U.S. Fish and Wildlife Service proposed downlisting the species to threatened. In October 2024, that reclassification and regulations for continued conservation of the species were finalized, marking the red-cockaded woodpecker's progress toward recovery.

As part of that recovery effort, in 1999 DNR developed the nation's first statewide red-cockaded woodpecker Habitat Conservation Plan, providing management options for private landowners. The plan includes options for mitigated incidental take and for Safe Harbor. Safe Harbor focuses on landowners in southwest Georgia, where plantations managed for northern bobwhites also support a significant population of red-cockaded woodpeckers.

Safe Harbor involves a landowner's commitment to manage habitat beneficially for a site's "baseline" number of woodpecker families – those on the site when the agreement is made. A family group refers to the red-cockaded woodpeckers that occupy a cluster of cavity trees. These groups can vary from a single bird to a breeding pair and one to three helpers. Helpers are typically male offspring from previous years that help feed younger siblings. In exchange for maintaining the baseline number of family groups, the landowner's responsibility does not increase if the woodpecker population increases.

2024 proved busy both for Safe Harbor and red-cockaded woodpeckers in Georgia. A 2,772-acre site in Worth County was enrolled, and considering the size, robust habitat and adjacency to other Safe Harbor properties,



DNR's Joe Burnham bands a red-cockaded woodpecker chick (Hal Massie/DNR)



red-cockaded woodpeckers could potentially be reintroduced here. Statewide, 196,120 acres are enrolled in Safe Harbor agreements that cover a combined 112 baseline groups of red-cockaded woodpeckers and support 55 surplus groups. (Surplus groups are additions to baseline populations.) Most of the properties are in the Red Hills region near Thomasville. The Red Hills supports the largest population of red-cockaded woodpeckers on private lands. Since the start of Safe Harbor in 2000, the Red Hills population has increased to approximately 260 groups and continues to grow.

The Wildlife Conservation Section worked with Safe Harbor participants and conservation partners in fiscal 2024 to conduct outreach and monitor woodpecker nesting and populations on cooperating properties. Using a U.S. Fish and Wildlife Service grant, the agency also bought materials to build 250 artificial cavity inserts for use on public and private lands. As part of that work, Wildlife Conservation partnered with Tall Timbers to install 40 inserts at 10 Safe Harbor properties to boost woodpecker populations.

Staff also worked with Tall Timbers on a Georgia Ornithological Society grant funding the construction and installation of artificial cavities on four significant properties in southwest Georgia.

Wildlife Conservation and partners surveyed and updated the cavity tree inventory on multiple Safe Harbor properties this year. More than 100 new cavity trees were found and mapped for monitoring and to ensure they are protected during land management activities. New family groups and territories also were discovered, the result of birds in the Red Hills moving into unoccupied habitat. During annual monitoring, staff and partner biologists discovered two new “pioneer” clusters on Safe Harbor properties near Thomasville. Pioneer clusters are groups of cavity trees created by the birds in an area that had no cavity trees. These natural expansions, which happen infrequently, indicate a healthy population of woodpeckers and quality habitat.

Staff also surveyed many other Safe Harbor properties to check the status of clusters, update property maps and mark cluster

boundaries before timber harvests. Damaged cavity inserts were replaced on five southwest Georgia tracts, and seven recruitment cluster sites were added or refurbished.

In partnership with Tall Timbers and The Jones Center at Ichauway, staff banded 99 nestlings on Safe Harbor properties in 2024. Some of the banded nestlings will be captured and translocated – or moved – to boost populations on other Safe Harbor properties in the Red Hills. The previous fiscal year, the agency and conservation partners laid the groundwork for research aimed at improving genetic diversity in small red-cockaded woodpecker populations by cross-fostering nestlings. Cross-fostering involves the transfer of nestlings between populations and placing them in the nests of unrelated adult birds.

In spring 2024, staff and Tall Timbers biologists successfully cross-fostered 10 nestlings between seven properties in the Red Hills, including River Creek, the Rolf and Alexandra Kauka Wildlife Management Area near

DNR's Nathan Klaus watches newly released red-cockaded woodpeckers at Sprewell Bluff (Ethan Hatchett/DNR)





Thomasville. All cross-fostered nestlings thrived in their new homes. The birds will be monitored in coming years to determine their role in the foster population and evaluate the potential of this practice for improving genetics in small woodpecker populations. Staff plan to continue the project in spring 2025.

Wildlife Conservation also worked with the Jones Center to restore the red-cockaded woodpecker population at Ichauway in Baker County. The 29,000 acres supported a single male in 1999. Largely through translocating 75 young birds and installing recruitment clusters in suitable but unoccupied habitat, Ichauway now has 59 family groups.

In 2008, DNR acquired 8,400 acres near Bainbridge to create Silver Lake Wildlife Management Area, the first state-owned property with red-cockaded woodpeckers. Silver Lake features extensive stands of mature longleaf pine habitat with intact native groundcover. However, in October 2018, Hurricane Michael destroyed hundreds of acres of habitat and 154 of the 272 (or 57 percent) of the woodpecker cavity trees on the WMA, severely affecting the 36 red-cockaded woodpecker family groups on Silver Lake at the time. With help from a National Fish and Wildlife Foundation grant, Wildlife Conservation quickly replaced cavities, and contract crews cleared debris to allow the continued use of prescribed fire.

Silver Lake's red-cockaded woodpecker population has rebounded and is still the largest on state-owned land. As of fiscal 2024, there were 44 family groups, with 40 potential breeding groups and four single-bird "groups." That count has grown by two groups since 2023, further evidence of the positive impact of habitat work, including regular prescribed fire, cavity management and installing recruitment clusters.

In recent years, staff expanded the Silver Lake red-cockaded woodpecker population onto adjacent U.S. Army Corps of Engineers properties managed by DNR as Lake Seminole Wildlife Management Area. Even more opportunity exists here as the birds begin to occupy all available habitat on Silver Lake. Wildlife Conservation monitored nesting in 40 clusters at Silver Lake and banded 45 young. Despite the habitat loss and management

challenges caused by Hurricane Michael, the population at Silver Lake is growing and, through careful management, will eventually sustain about 45 family groups.

At Moody Forest Wildlife Management Area, Wildlife Conservation continued working with The Nature Conservancy to manage red-cockaded woodpeckers. As of spring 2024, the WMA near Baxley had 10 potential breeding groups, one more than in 2023. With the new group, Moody Forest met its property goal of 10 groups, a testament to years of work by The Nature Conservancy and DNR. Partners monitored seven nests on the property in fiscal 2024. Habitat management and restoration, including timber thins and frequent prescribed fire, continue to improve and create more red-cockaded woodpecker habitat. Better habitat combined with translocations and artificial cavity and recruitment cluster installations have resulted in rapid population growth on the WMA. Staff will add more cavity inserts next year to ensure an adequate number of suitable cavities are available for the birds.

In 2017, DNR reintroduced red-cockaded woodpeckers to River Creek, the Rolf and Alexandra Kauka WMA by translocating woodpeckers from Apalachicola National Forest in Florida. The state acquired River Creek, which is on the periphery of the Red Hills region, in 2005 in part because of its intact longleaf pine habitat and potential for woodpecker reintroduction. In fiscal 2024, staff added or refurbished nine cavity inserts to ensure that each of the WMA's eight cluster sites had at least four suitable cavities. Since 2018, River Creek's woodpecker population increased from two single birds to seven family groups (six potential breeding groups and one single-bird group).

River Creek WMA had a successful nesting season in spring 2024, with four nests producing eight fledglings. The birds were also busy creating natural cavities and refreshing old, relict cavities. Two of this season's nests were in recently finished natural cavities. In spring 2022, an unbanded male, likely from the adjacent Red Hills population, showed up at River Creek. Staff captured and banded this solitary bird and paired him

with a translocated female from Apalachicola National Forest in Florida. The matchmaking proved successful: The two are now a breeding pair and nested for the first time in 2024. Natural dispersal and successful reproduction are positive trends for the rare birds at River Creek. With habitat management and prescribed fire, River Creek's red-cockaded woodpecker population is expected to increase to as many as 10 family groups.

In middle Georgia, efforts to prepare habitat for reintroducing red-cockaded woodpeckers reached milestones on two properties. At Jarrell Plantation near Juliette, a long-awaited timber thin was completed. Herbicide control of remaining hardwoods followed the property's first burn in decades. With the habitat shaping up, inserts will likely be installed in the coming year as Wildlife Conservation, State Parks and Historic Sites, and the U.S. Forest Service work to return the birds to Jarrell Plantation. The project has a high likelihood of success, given that the state historic site is surrounded by clusters of red-cockaded woodpeckers in the Oconee National Forest and Piedmont National Wildlife Refuge.

After years of habitat restoration and planning, Spirewell Bluff Wildlife Management Area received its first red-cockaded woodpeckers in December 2023. Prior to the reintroduction, staff installed five recruitment clusters at the WMA near Thomaston. On Dec. 5, six birds were captured at Fort Stewart Army base near Hinesville and transported to Spirewell Bluff. Placed into their new homes under bright starlight, the birds were released at dawn. About 40 representatives from project partners, including Georgia Power, PotlatchDeltic, The Nature Conservancy and DNR, celebrated the release.

Beating the averages for translocations, five of the six birds remained into the nesting season. Even better, two nesting attempts in spring 2024 fledged a total of two young, which is remarkable considering the translocated birds were juveniles. More translocations are planned to grow the population at Spirewell Bluff, which is the fourth state-owned property with red-cockaded woodpeckers.



## Surveys and Habitat Restoration

### ■ Grassland Birds

The Henslow's sparrow is a small songbird that nests in grasslands of the Midwest and Northeast and winters in grassy areas of pine flatwoods, pitcherplant bogs and powerline corridors in the Southeast's Coastal Plain. Numbers of this species have declined precipitously over the last several decades, likely because of habitat loss at breeding and wintering grounds. This sparrow is a species of high conservation concern because of its small population size, greatly reduced habitats and other factors. But its secretive nature and small numbers make it difficult to survey and monitor. Little is known about the distribution and population of Henslow's sparrows across most of its range, including in Georgia.

From 2019-2021, a Georgia Southern University graduate student conducted radio-telemetry surveys and vegetation analysis at Moody Forest, Paulks Pasture and Townsend wildlife management areas under a Wildlife Conservation Section contract. A Virginia Tech University student then used telemetry data from that research, plus habitat and environmental data collected by Sentinel 2

satellites, to develop habitat models that should help in predicting potential suitable habitat for the sparrows. A paper summarizing the work has been accepted for publication in a major ornithological journal.

A similar effort to learn more about the distribution of Henslow's sparrows in powerline corridors began in 2018. Based on known Henslow's sites and a qualitative evaluation of potential habitat, a habitat predictor model was developed with the Georgia Cooperative Fish and Wildlife Research Unit to identify potential sites for the birds. Georgia Power provided maps and access to the company's powerline corridors. Maps of potentially suitable habitat within these corridors were generated using remote sensing imagery. Testing and refining of these models continue, with the hope of developing versions with a high level of predictive ability in the near future. The models could then be used with other information to gauge the size of Georgia's Henslow's sparrow population.

For southeastern American kestrels, nest box numbers reached yet another record high in 2024, with 33 nests fledging 122 chicks. Those totals mark the second-best year since the nesting project began in 2009. The increases can be traced to 2016, when Wildlife Conservation partnered with

a regional power distribution company to place 19 nest boxes high on the company's transmission line towers in a small section of Georgia's western sandhills. These boxes were about 100 feet above the ground, compared to 15-20 feet for boxes on wooden power poles (the latter are referred to as low boxes). Occupancy of the high boxes has been much higher than that of the low ones. The high boxes offer greater protection against predators and, therefore, higher nest success. Subsequent efforts to increase the number of high boxes has resulted in about 75 more installed statewide.

During fiscal 2024, Wildlife Conservation also placed 10 low nest boxes at Silver Lake Wildlife Management Area to encourage kestrel nesting on the WMA near Bainbridge.

### ■ Bachman's Sparrows

From 2006-2008, the Wildlife Conservation Section initiated surveys for Bachman's sparrows on several wildlife management areas and a national wildlife refuge. The systematic survey effort was the first for this rare pine savanna bird on state lands in Georgia. Surveys were done in forest stands and other areas that either had suitable habitat or were going to be managed in ways that could create or restore habitat (through forest thinning, prescribed fire and restoring native groundcover). In 2018, these surveys were re-initiated at many of the WMAs to determine the success of long-term restoration efforts and what else might be done to improve the quality and quantity of habitat for this species.

Identical survey methodologies were used in 2006-2008 and from 2018 to present. Each six-minute count has a two-minute passive listening period followed by two minutes of call playback and ending with two minutes of passive listening. The 2024 surveys were conducted at over 200 points on Silver Lake, River Creek, Doerun, Chickasawhatchee, Sandhills, Di-Lane and Yuchi wildlife management areas.

In addition to tracking the population response of Bachman's sparrows to habitat management and restoration activities, recent surveys provided data for developing mathematical



Henslow's sparrow (Todd Schneider/DNR)



models that will be used to predict Bachman's habitat suitability on other state, federal and private lands. This preliminary modeling was done under contract by a graduate student and a researcher at the Virginia Cooperative Fish and Wildlife Research Unit at Virginia Tech University. After developing the first models, the student refined them using data from surveys in 2022. The student completed her master's thesis at the start of fiscal 2024. Publication of the results in one or more major ornithological journals is likely.

## ■ Prothonotary Warblers

The Wildlife Conservation Section continued surveying for prothonotary warblers in fiscal year 2024. Striking in looks, this bird is declining in numbers and considered a State Wildlife Action Plan high-priority species for conservation. Prothonotary warblers are found in flooded swamps and hardwood bottomlands along rivers and streams. They nest in cavities – the only warbler in the Southeast to do so – and often over water.

As part of a study exploring the bird's use of nesting habitat in riparian corridors in the region, Wildlife Conservation placed 45 nest boxes along the Ochlockonee and Alapaha rivers on Alapaha River Wildlife Management Area and River Creek, the Rolf and Alexandra Kauka WMA. Alapaha River WMA is near Ocilla; River Creek is near Thomasville. To better work with researchers across the warbler's range, staff joined the Prothonotary Warbler Working Group. This collaboration will enhance projects to better understand status of the species in Georgia.

In 2024, six artificial nesting boxes were installed to replace the oldest boxes at both sites. At Alapaha River WMA, 21 chicks from nine nests were color-banded. Due to flooding that inundated the nest boxes, no nests were documented at River Creek in 2024. Prothonotary warblers infrequently use nest boxes at this WMA, despite the birds being prevalent during point counts and staff seeing several adult pairs exhibiting nesting behaviors.

Point count surveys at 21 locations along the Ochlockonee and Alapaha rivers also were conducted during the 2024 breeding season. Banding and monitoring prothonotary warblers at these sites allow biologists to better understand the birds' site fidelity, nesting productivity, survival and habitat use in southern Georgia.

## ■ Wading Birds

Although the Wildlife Conservation Section's wading bird program has typically focused on wood storks, in fiscal year 2024 staff conducted a Coastal Plain-wide survey for all colonial waterbirds, from anhingas to great egrets and tricolored herons. This work is part of a multistate effort coordinated with U.S. Fish and Wildlife Service and featuring shared survey protocols.

A range-wide survey had not been conducted since 1995-1996. Staff flew fixed-wing transects in blocks across the state to find colonies and allow for modeling the varying density of colonies in different regions. Using the data, a detection probability for finding colonies was calculated, allowing project coordinators to model both the probable number of colonies missed in the survey and colony densities across the area. The surveys also discovered many colonies not documented before.

Between 70 ground surveys and 210 plane and helicopter surveys, the effort documented 142 active wading bird colonies in 42 counties across the Coastal Plain in 2024. The colonies, ranging in size from one nest to 1,678, included a total of 19,348 wading bird nests and 15 species. Data will be stored in the Avian Knowledge Network database, where it can be used to develop range-wide inferences and trends for wading bird species. Wildlife Conservation mailed letters to all landowners with colonies and began discussions with many about long-term conservation of these important wetlands.

As for wood storks, surveys showed the large birds posting their second-highest nest count in the state. Totals included 2,566 nesting pairs scattered among 32 colonies and 17 counties. The increase can be attributed in part to finding new colonies through the expanded search efforts. Staff also tracked nesting success at several colonies, including Harris Neck National Wildlife Refuge, Chew Mill Pond in Jenkins County and Gilman in Camden County.

Wood storks were federally listed as endangered in 1984 following dramatic declines in breeding colonies in southern Florida. Wood stork nests were first documented in Georgia in 1965. By the 1980s, those numbers were surging. Georgia now supports more than 20 percent of wood storks nesting in the U.S., a population that is approaching 10,000 breeding pairs.

The recovery plan for wood storks in Georgia includes monitoring the reproductive success of nesting colonies, identifying potential threats and collaborating with landowners and site managers to promote colony survival and longevity. The species was downlisted from endangered to threatened in 1984. And in 2023, the Fish and Wildlife Service proposed removing wood storks from the Endangered Species List, based on the bird's recovery and dramatic expansion of its range. Presuming careful ongoing monitoring, DNR supported the proposal, based on meeting recovery goals for the species.

Nesting anhingas and wood storks at Harris Neck NWR (Jimmy Cash/Georgia Nature Photographers Association)





## ■ Swallow-tailed Kites

The swallow-tailed kite has suffered a significant range reduction since the 1880s, when the species bred in 21 states. These elegant raptors are now found in seven Southeastern states, where they nest in bottomland forests along large rivers. Most nests in Georgia are on private land, specifically industrial timberlands. Data from years of late-summer communal roost sites in Florida seem to indicate a gradual increase in population in the southeastern U.S. since the late 1980s.

The Wildlife Conservation Section's efforts include finding and monitoring nests, advising the public about reporting sightings, protecting nests from predators where possible, working with private landowners to ensure habitat viability, supporting habitat management on protected lands where kites nest and searching for previously radio-tagged kites.

An estimated 150-200 pairs of swallow-tailed kites nest in Georgia each year. Most nests are on the lower stretches of the Satilla and Altamaha rivers, but nests are also scattered across other south Georgia river drainages that feed into the Atlantic – such as the Savannah, Ogeechee and St. Marys – and almost all rivers that drain into the Gulf of Mexico, including the Suwannee, Alapaha, Aucilla, Little, Ochlockonee and Withlacoochee. While densities are highest in the lower stretches of these rivers, kites even nest into the upper Coastal Plain on the Ocmulgee and Oconee rivers.

During the 2024 nesting season, Wildlife Conservation confirmed 22 active swallow-tailed kite nests. Nesting was considered probable at another seven sites. Most of the nests were on private timber company land, though kites continued to nest on some wildlife management areas in the coastal region, including Ceylon, Little Satilla and Penholoway. Staff also coordinated with the Avian Research Conservation Institute to find, trap and satellite-tag kites. Data from these tracked birds are providing insights into kite behavior and migration. Also, a large roosting site in Wayne County found in fiscal year 2023 was monitored, although fewer kites used the roost this year.

## ■ Bald Eagles

Once common in Georgia, the bald eagle declined in abundance during the mid-20th century and was not nesting in the state by the early 1970s. However, populations have rebounded here and elsewhere, helped by a 1972 ban on DDT in the U.S., habitat improvements following enactment of the federal Clean Water and Clean Air acts, recovery of forest resources following extensive logging of old-growth trees during the late 19th and early 20th centuries, protection through the Endangered Species Act, increased public awareness, and restoration of local populations through release programs known as hacking.

Following federal delisting of the species in 2007, primary legal protection for eagles comes under the Bald and Golden Eagle Protection Act. Nest trees and associated primary and

secondary buffer zones are conserved via recommendations of federally established bald eagle management guidelines. Georgia's ongoing conservation efforts include monitoring known eagle nests in January-February and March-April, collaborating with landowners and other agencies to protect nest sites, public education programs about eagle conservation and ecology, and rehabilitating injured eagles.

The Wildlife Conservation Section's 2022 survey was the first statewide assessment of eagle nests in five years. The survey documented 229 nest territories, exceeding the previous high of 218 in 2017.

Returning to the approach of checking nesting in most areas only every other year, the 2024 survey included north/northwest Georgia – generally north of Atlanta from Interstate 85 east of the city and from Interstate 20 west of it – the



Bald eagle (Bob Sargent/DNR)



coastal counties and barrier islands, a triangular swath of northeast Georgia framed by Athens, Dublin, and Augusta-area reservoirs, and several reservoirs between Atlanta and Macon. Nest success rates varied from the average of 71 percent in north/northwest Georgia to an above-average 82 percent on the coast and in central and northeast Georgia. The latter survey covered a lot of ground and water, ranging from reservoirs between Macon and Atlanta east to the Oconee River watershed and along the large Savannah River reservoirs north of Augusta.

On the coast, the 83 nest territories marked the second straight year that total significantly exceeded the average. The 82 percent nest success rate was also up from 73 percent last year, with an average of 1.5 young fledged per nest. The total of 99 eaglets fledged from 68 successful nests topped last year's 89 fledglings and far surpassed the 50 eaglets fledged from only 34 successful nests in 2022, the year of the avian influenza outbreak. Dead eaglets were observed in two nests, but at least one of those was clearly the result of predation. Great horned owls, raccoons and a few other predators kill eaglets. There was no evidence of nest failures due to highly pathogenic avian influenza.

The survey documented 21 nest territories in north/northwest Georgia. Territories in this area are scarce because there are fewer big reservoirs and other large water bodies. The 15 successful territories fledged 28 eagles. In central and northeast Georgia, of 33 occupied nest territories found, 27 fledged eagles, for 42 fledglings in all. Eagles in this region tend to establish territories along large, broad rivers and the reservoirs they feed, but some pairs nest near clusters of farm ponds.

Accounting for eagle nests not monitored, the totals suggest Georgia has maintained over 200 nest territories a year since 2015, while the number of eagles nesting here has continued to increase. That increase has noticeably slowed over the past 10 years as compared to the rapid growth rate in the early years of the new century. Only 25 years ago, the state had no more than about 50 nest territories.

As in previous years, Wildlife Conservation worked with landowners to conserve nesting

habitats, minimize disturbances near nest trees during the nesting season, help explain federal permitting processes regarding development projects, capture injured eagles and deliver them to veterinary and rehabilitation facilities, and return rehabilitated eagles to the wild.

## ■ Peregrine Falcons

For the sixth consecutive year, peregrine falcons apparently did not nest on the cliff face at Tallulah Gorge State Park, the state's only known peregrine nest in a natural setting. Prior to the discovery of nesting peregrines at the gorge in 2015, the state's only other confirmed nest outside an urban area was at Cloudland Canyon in the 1940s. Although at least one adult falcon was seen at Tallulah Gorge during the 2024 breeding season, no nest was found despite extensive inspections on foot. In April, DNR staff also surveyed the entire gorge and its reservoirs by helicopter in conjunction with an eagle nest survey in north Georgia but saw no peregrine nesting activity. During the flight, DNR also looked unsuccessfully for falcons on Yonah and Bell mountains.

In Atlanta, staff set up a bi-weekly surveillance schedule of the Four Seasons Hotel and neighboring high-rise buildings. This area has been the most consistent place in the city to see peregrine nesting activity over the last 20 years. Thanks to support from the hotel's staff, DNR also searched potential nest sites on the upper floors of the hotel. The suspicion is the birds might be nesting in ventilator shaft openings, but that has not been confirmed.

In 2022 and 2023, DNR staff observed fledgling falcons on and near the Four Seasons in June. It is possible the birds fledged from a nest on a nearby building and were roosting on or hunting from ledges at the Four Seasons. No juvenile falcons were observed in the area in 2024, although at least one adult falcon was seen there throughout the nesting season. Staff at the hotel and Wildlife Conservation Section biologists installed a falcon nest box on the hotel's 50th floor in January 2022. Peregrines have inspected the box each year but have not nested in it.

As usual, a substantial number of peregrine falcon sightings were reported along the Georgia

coast during fall migration in September and October. Most of those birds originated from Canada and Greenland. In fiscal 2025, biologists will explore opportunities to install more nest boxes on high-rise buildings in Atlanta and conduct foot searches of some north Georgia cliffs that served as hacking sites for young falcons in the late 1980s and early 1990s, part of DNR efforts to recover the population.

## ■ Common Ravens

While searching Tallulah Gorge for peregrine falcon activity on March 22, 2024, DNR discovered the nest of another species that is rare in Georgia: common raven. Staff had photographed a recently fledged raven at the gorge in April 2021 but did not see a nest. One or two ravens had been seen in the gorge on several occasions in the previous six or seven years, but the juvenile in 2021 was the first indication the birds might be nesting at the state park. The 2024 sighting confirmed that.

In the eastern U.S., the common raven's range shrank over the past 100-150 years because of clearing of the birds' preferred forested habitats and from persecution in the form of shooting, trapping, poisoning and disturbance at nest sites. The population declined substantially. By the early to mid-1900s, the species was considered extinct, endangered or threatened in several eastern and southeastern states. In Georgia, the common raven is not common at all. It is considered a rare bird of wildlands and high elevation, nesting (if sparsely) above 3,000 feet. During DNR's Breeding Bird Atlas project from 1994 to 2001, the species was documented as a possible breeder in north Georgia's Lumpkin, Rabun, Union and Towns counties, but was confirmed breeding only at Brasstown Bald. In 2021, a falconer discovered a raven nest on the Nottely Reservoir dam near Blairsville. This sighting was unusual, not just because few raven nests have been found in Georgia, but also because it was the first time a raven nest had been found on anything other than a cliff ledge in the state. Ravens also nested at Nottely dam in 2022 and 2023.

Common ravens are large members of the crow family. Like others in that family, they are quite intelligent. Ravens work together to solve problems and exhibit a variety of play behaviors.



such as sliding down slopes on their bellies. They are graceful flyers known for acrobatic stunts, including rolls, somersaults and even flying upside down. In the South, common ravens generally build large nests (up to 5 feet wide by 2 feet deep) made mostly of sticks in early winter. Nests may be in trees, but more often are built in recesses on rock ledges.

Breeding Bird Survey trend data show that from 1966-2019 raven populations increased substantially, up 2.5 percent annually in the U.S. and 4 percent in the Appalachian Mountain region. These increases are likely the result of greater protection from shooting and other forms of persecution, regrowth of eastern forests, and the species' ability to adapt to human-caused habitat changes – including using artificial nesting substrates like the Nottely dam – and take advantage of roadside carrion and human-provided food sources. Still, DNR categorizes the common raven as a rare species and its conservation as a high priority. Protecting nest sites from human disturbance is probably the most practical and effective way to conserve Georgia's especially small breeding population.

At Tallulah Gorge, Wildlife Conservation provided documentation of the nest site to state park

staff, as well as guidance from literature and biologists in states where ravens are more common to help develop plans to protect the nest. Staff from both agencies monitored the nest weekly, and the park provided visitors information, including an observations journal. The ravens fledged two young in mid-May.

### ■ Marshbirds

Little is known about the population status of the Florida sandhill crane, a resident subspecies that only occurs in peninsular Florida and the Okefenokee National Wildlife Refuge in Georgia. The Wildlife Conservation Section has been conducting annual helicopter surveys in the Okefenokee in March and April since 2012. From 2014-2017, a standardized grid of transects was flown for these counts.

After conducting these counts for several years, biologists determined the transect grid being used was not sufficient to provide a statistically robust sample to develop accurate population estimates. Staff worked with the Georgia Cooperative Fish and Wildlife Research Unit at the University of Georgia to revamp the survey. Although similar to the previous survey, the new version features more miles of

transects placed using a statistically adequate design. This design should allow for accurate population estimates going forward. The first flights using this survey design occurred in 2018, and additional survey flights were flown in 2019. Unfortunately, survey flights were not conducted from 2020-2023 due to the COVID pandemic, pilot shortages, bad weather and other logistical issues.

In April 2024, Wildlife Conservation staff resumed the survey flights. The first, flown April 16, found four active nests and two nest "starts." The second flight, on April 29, documented one nest and two that had been used recently. After each survey flight, additional flights were flown to help develop detection probability estimates, needed to correct for variability in the detectability of birds across different habitat types and observation conditions. High-water levels and the late start of surveys likely contributed to the low number of nests detected in 2024.

On the coast in fiscal year 2024, Wildlife Conservation and the Center for Conservation Biology at the College of William & Mary in Virginia began a large-scale study of marsh sparrows to help determine which saltmarsh attributes are important to predicting wintering bird density. That information could be used to prioritize marshes for conservation and management.

The entire suite of bird species using tidal saltmarsh habitat in coastal Georgia in winter is of high conservation concern. Included are saltmarsh sparrows, Nelson's sparrows and seaside sparrows. Each species is on several high-priority bird conservation lists, including Georgia's State Wildlife Action Plan. In addition, the population of saltmarsh sparrows has declined by an estimated 80 percent in only the last 15 years and is being considered for protection under the Endangered Species Act.

Staff and partners surveyed a portion of Georgia's saltmarshes using a double-pass rope-drag technique. In the winter of 2023-24, the work primarily covered saltmarsh between the Savannah River and Brunswick. In winter 2024-25, the focus will shift to the marshes from Jekyll Island to St. Mary's.

DNR's Bob Sargent and Liz Morata monitor a common ravens nest at Tallulah Gorge (Austin Suhr/DNR)





# AMPHIBIANS AND REPTILES

## Sea Turtles

Loggerhead sea turtles are found in Georgia's coastal waters year-round and nest on all barrier island beaches. In accordance with the National Oceanic and Atmospheric Administration/U.S. Fish and Wildlife Service recovery plan for this species, DNR management efforts focus on surveying and protecting loggerhead nests and managing nesting beach habitat. The Wildlife

Conservation Section coordinates the Georgia Sea Turtle Cooperative, a group of volunteers, researchers and government employees who conduct nest protection and management activities on Georgia beaches.

Wildlife Conservation also manages the nesting projects on the state-owned islands of Sapelo and Ossabaw, including hiring and supervising seasonal technicians. Management activities designed to improve reproductive success include relocating nests to protect them from tidal inundation, installing predator screening and predator control.

Since comprehensive surveys were established in 1989, loggerhead nesting has been highly variable, with an average of 1,666 nests per year. In 2024, more than 2,490 loggerhead nests were documented on Georgia beaches. Nesting was slightly higher than the 35-year average yet below the recovery goal of 2,800 nests a year, the target set in the National Marine Fisheries Service/U.S. Fish and Wildlife Service recovery plan of 2008. Overall, loggerheads have shown a 3.8 percent annual increase in nesting since 1989. Nesting data indicates that the loggerhead sea turtle population in Georgia is making slow but steady progress toward recovery but is still short of all recovery goals for the species.

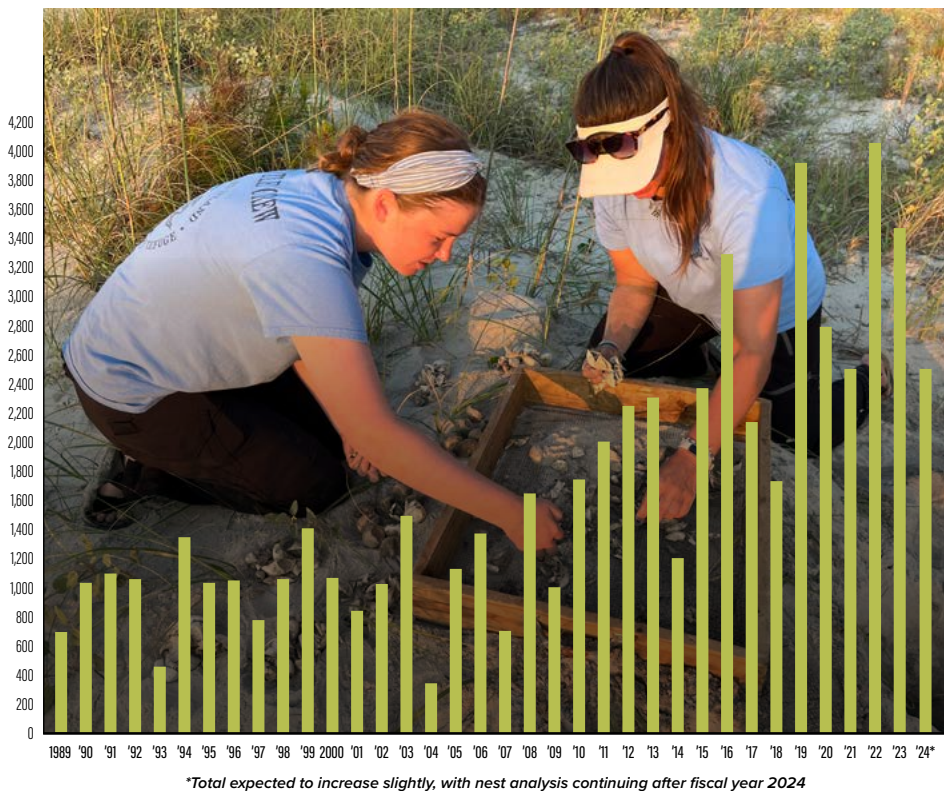
Other conservation activities conducted by Wildlife Conservation during the fiscal year included assisting with training and compliance checks involving turtle excluder devices (TEDs), conducting lighting surveys and assessing the effects of artificial lighting from coastal development projects on hatchling orientation and monitoring the effects of harbor dredging projects on sea turtles. In addition, staff continued a study to assess the effects of nest management practices (nest relocation, predator screening and predator control) on reproductive success.

To develop a comprehensive understanding of the number and relatedness of loggerheads nesting on Georgia beaches, DNR and the University of Georgia created a catalog of unique genetic profiles for Georgia's nesting female turtles. Dr. Brian Shamblin, working with DNR staff, identified an average of 692 loggerhead females using the Georgia coast annually from 2008-2023, with a range of 337 to 1,093 turtles per year. A genetic sample was collected from every known nest deposited in Georgia in 2024. The ongoing project is providing a better understanding of loggerhead nesting ecology and interpretation of nesting trends.

DNR's Joyce Sanks releases loggerhead hatchlings (Mark Dodd/DNR)



## LOGGERHEAD NESTING IN GEORGIA Annual nest totals since comprehensive surveys began in 1989



Sea turtle technicians inventory a loggerhead nest (Mark Dodd/DNR)

## Sea Turtle Stranding and Salvage Network

The Wildlife Conservation Section monitors sea turtle mortality through the Sea Turtle Stranding and Salvage Network. Systematic patrols of barrier island beaches provide information on the number and species of dead turtles that wash up on the Georgia coast. When possible, necropsies of stranded turtles are done to evaluate causes of mortality. Sea turtle strandings are the primary index of threats to sea turtles in the state's coastal waters.

In fiscal year 2024, 93 dead or injured turtles were documented on Georgia beaches. That total is below the 30-year average of 187 strandings per year. Strandings have declined overall by approximately 2.4 percent annually over the last 40 years during a period of increasing sea turtle abundance. The use of TEDs in the shrimp trawl fishery is partially responsible for the decline. Results from necropsy examinations indicate that boat collisions and commercial fishery mortality are the leading sources of mortality, accounting for 22 and 16 percent of strandings respectively in fiscal 2024.

The public is encouraged to report stranded sea turtles in Georgia by contacting DNR at 800-2-SAVE-ME (800-272-8363). Stranding updates are available at [seaturtle.org/strand/summary](http://seaturtle.org/strand/summary) (choose Georgia from "Select a Program").

## Gopher Tortoise Conservation Initiative

The Gopher Tortoise Conservation Initiative is a Georgia-based effort that has worked since 2015 to conserve gopher tortoises and help prevent Endangered Species Act listing of Georgia's state reptile in the eastern part of the species' range. Members include DNR, Georgia Forestry Commission, the U.S. Department of Defense, U.S. Fish and Wildlife Service, U.S. Department of Agriculture's Natural Resources Conservation Service, The Nature Conservancy, The Conservation Fund, Georgia Conservancy, Knobloch Family Foundation, Robert W. Woodruff Foundation, Bobolink Foundation, Georgia Chamber of Commerce, the Orianna Society and others.

Gopher tortoises are found in the Coastal Plain from eastern Louisiana to western South Carolina and southern Florida. Ecologically,

the gopher tortoise is a keystone species. Tortoises dig deep, long burrows that are used by more than 300 different animal species. One, the eastern indigo snake, is federally listed as threatened. Others are being considered for federal listing, including the gopher frog, Florida pine snake and eastern diamond-backed rattlesnake.

The gopher tortoise is federally listed as threatened in Louisiana, Mississippi and western Alabama. Within the rest of its range, the tortoise was classified as a candidate species that warranted listing until October 2022, when the Fish and Wildlife Service announced that tortoise populations in the eastern range were "robust," negating the need to list the reptile in that area.

The federal agency said partnerships contributed to conserving gopher tortoises and even helped find and document populations. Although Georgia's populations did not warrant federal listing, the Fish and Wildlife Service and DNR emphasized that the species still faces major threats, such as habitat loss, and the need for continued protection and habitat conservation is critical.

As the Gopher Tortoise Initiative grew, partners realized they could be proactive and work to avoid listing gopher tortoises, or they could be reactive and face the consequences of increased federal regulation that could affect key parts of the state's economy, including commercial development, agriculture, forestry and military base activities.

To help preclude the need for listing – a decision that members knew would not rest solely on efforts in Georgia – the initiative worked to permanently protect many of the state's gopher tortoise populations. Georgia has at least 125 known viable populations. A minimum viable population is defined by the Fish and Wildlife Service as 250 adult tortoises. Permanent protection of populations is being achieved through a combination of fee-simple land acquisitions and conservation easements.

The goal of the initiative is to protect 65 populations, an effort expected to require raising an estimated \$150 million, with funding coming equally from three sources: state and federal funding and private donations. When the effort



Gopher tortoise (Jenny Burdette/Georgia Nature Photographers Association)

juveniles for release in protected habitat, with higher survival rates than observed in the wild. During the initial survey at Lanahassee Creek, the survey crew saw evidence of natural recruitment, finding hatchling gopher tortoises as well as juveniles that had not been head-started. Also, one head-started tortoise released in 2022 was seen in March 2024 still using the burrow it had been released into, indicating good site fidelity and survival.

In 2024, the survey crew also began a resurvey of Altama Plantation Wildlife Management Area near Brunswick and marked tortoise burrows ahead of timber sales and habitat improvement projects at Altama as well as Silver Lake and Chickasawhatchee wildlife management areas in southwest Georgia.

The agency started line-transect distance sampling for gopher tortoises in 2007. As of fiscal 2024, surveys had been completed on 124 sites statewide, both public and private lands. Nineteen sites have been resurveyed, with all but one showing the tortoise population increasing or stable. The increases are likely because of improved habitat management or additions to the population by translocations, along with head-starting juvenile tortoises. Survey results are incorporated into conservation strategies aimed at precluding the need to federally list the tortoise under the Endangered Species Act.

As discussed in the Gopher Tortoise Conservation Initiative section, in coordination with the U.S. Fish and Wildlife Service, Georgia set a target of 65 viable populations permanently protected across 13 conservation units in the state. Since 2015, the initiative increased the total from 36 to 64. Conservation easements in the works are expected to reach and exceed the collaboration's goal in fiscal 2025.

In another study funded and supported by Wildlife Conservation, the Orianne Society continued occupancy monitoring of habitat for eastern indigo snakes to determine the overall prevalence of indigo snake populations across suitable habitat in southern Georgia.

In this region, indigos overwinter in xeric sandhill habitats, where they shelter in gopher tortoise burrows to escape potentially lethal temperatures. The study focuses on assessing site occupancy on suitable sandhill sites

started, Georgia had 36 permanently protected tortoise populations. At the close of fiscal year 2024, the total was 64, protecting a combined 130,000-plus acres since 2015. With only one population to go, projects already in the works are expected to surpass the goal of 65 protected populations by the end of fiscal year 2025.

The progress made in conserving gopher tortoises has been achieved through range-wide surveys to identify tortoise-rich tracts, extensive coordination with landowners and nonprofits, strategic planning, and deep support, varying from foundations and federal grants to the U.S. Defense Department and the Georgia Outdoor Stewardship Program. Highlights include acquisitions for Ceylon and Alapaha River wildlife management areas in deep south Georgia, plus conservation easements on private lands.

## Gopher Tortoises and Eastern Indigo Snakes

Both the gopher tortoise and the eastern indigo snake, which is federally listed as threatened, are priority species in Georgia's State Wildlife Action Plan. During fiscal year 2024, the Wildlife Conservation Section's gopher tortoise survey crew completed line-transect distance surveys on Townsend and Lanahassee Creek wildlife management areas, near Ludowici and Preston, respectively. A state wildlife grant supported this work.

Lanahassee Creek WMA has served as a focal area for the release of head-started juvenile gopher tortoises. Federal partners at the Warm Springs National Fish Hatchery hatch and rear tortoises until they are 2 years old. This practice produces larger



in the Altamaha, Alapaha and Satilla river drainages. Each survey season, a subset of sites is checked, with a total of approximately 60 sites surveyed over three years. During each survey season, sites are visited three times, and suitable habitats are walked by one or more observers who visually search for indigo snakes.

The Orianne Society, a nonprofit organization dedicated to conserving rare reptiles and amphibians, conducted surveys for indigo snakes at 20 sites in Georgia during fiscal 2024, including Canoochee Sandhills, Ceylon, Alapaha River and other wildlife management areas in southeast Georgia and several private properties, among others. Snakes were detected using visual encounter surveys for live snakes or recent sheds. Twenty-three indigo snakes and 16 sheds were detected at

a total of eight sites. Habitat management for indigo snakes included prescribed fire and longleaf pine restoration on these sites.

Concurrent with the Orianne Society's work, Wildlife Conservation conducted a seventh year of a mark-recapture study of indigos on other lands. In fiscal 2024, staff tagged 26 "new" indigos with PIT, or passive integrated transponder, tags and recaptured 17 indigos that had been tagged before. The agency crew also found eight Florida pine snakes and 57 eastern diamond-backed rattlesnakes during indigo surveys: Both counts set annual records for these survey efforts. Mark-recapture data will be used to uniquely identify individual snakes and help assess population estimates and trends. Plans are to continue this effort in 2025.

## Bog Turtles

The federally threatened bog turtle lives in Georgia mountain fen wetlands. Bog turtles, the world's smallest turtle species, are generally found along slow-moving spring creeks and seepages in low mountain valleys.

During the spring and summer of 2024, Wildlife Conservation Section and U.S. Fish and Wildlife Service staff at the Chattahoochee Forest National Fish Hatchery monitored bog turtle populations at seven wetland sites. Surveys included setting 111 live traps for a total of 6,216 trap days. Thirty-two different bog turtles were caught and released, including 14 young bog turtles that had not been captured before. The newly documented young are evidence of reproductive success and a testament to the value of habitat restoration work over the past 10 years. That work included extensive clearing of woody vegetation at three of the wetlands.

## Green Salamanders

The green salamander is a medium-sized lungless salamander found in the Appalachian Mountains, including the northern corners of Georgia in both the Cumberland Plateau and nearby Ridge and Valley, as well as along the Blue Ridge Escarpment. Green salamanders are uncommon to rare throughout their range, in part because of their specialized habitat preference for rocky outcrops and crevices in which to breed and overwinter. During the warmer months, green salamanders are known to be partially arboreal in some areas. Populations in the Blue Ridge seem to be especially small and isolated.

Collaborating with partners at Kennesaw State University, the Wildlife Conservation Section surveyed and monitored sites in the Blue Ridge and adjacent upper Piedmont ecoregions along the Blue Ridge Escarpment. Also as part of this continuing work in fiscal year 2024, genetic samples are being collected via tail tips and combined with previously collected samples to assess genetic structure and diversity between populations. Deep genetic divides and isolation between some populations has been detected by previous work, indicating a need to conserve these unique populations and preserve this cryptic diversity.



Eastern indigo snake (Matt Moore/DNR)

## Gopher Frogs

State-listed as rare, gopher frogs depend on intact sandhill and longleaf pine habitats, where adults survive within the burrows of their namesake host, the gopher tortoise, as well as burned out stump holes and rodent burrows. These frogs also require nearby fishless, temporary wetlands to breed in, where their tadpoles can develop in an environment with fewer predators. Widespread upland and wetland habitat alteration throughout the species' range has greatly reduced populations. Gopher frogs are known at fewer than 10 sites in Georgia, with some populations 90 miles or more apart.

In 2007, the Wildlife Conservation Section began a project that involved collecting gopher frog eggs from healthy populations, rearing them to late-stage tadpoles or post-metamorphic froglets and releasing them at an unoccupied, potential habitat within the species' historical range. Partners including the University of Georgia, Warm Springs National Fish Hatchery, the Amphibian Foundation, Gaskins Forest Education Center and Abraham Baldwin Agricultural College operate the project's rearing facilities.

To address difficulties with obtaining wild-produced gopher frog eggs, lab-reared gopher frogs were placed in mesocosms at the Amphibian Foundation in Atlanta. The hope is they will breed in captivity and provide reliable sources of eggs for future efforts. Some of these frogs have been observed calling during the winter-spring breeding season, indicating their potential interest in reproducing.

Two reintroduction or augmentation sites collectively received over 2,300 head-started frogs in fiscal year 2024: two wetlands at Alapaha River Wildlife Management Area near Ocilla and two wetlands at Townsend Wildlife Management Area near Ludowici. The sites were selected and incorporated into a parallel multi-state experiment on wetland restoration techniques, including comparisons between the effects of prescribed fire, herbicide and mechanical treatments such as girdling undesirable hardwood trees.

An additional 500 Georgia gopher frogs were reared at the Amphibian Foundation for release in a newly constructed pond at the Robert G. Wehle Nature Center in southern Alabama as part of another cooperative project involving wetland hydrology restoration and gopher frog head-starting. Also,

approximately 200 frogs and 150 head-started tadpoles were returned to the source pond where the eggs were collected to supplement that existing population. In all, more than 3,000 gopher frog metamorphs were reared in Georgia in fiscal 2024.

Twenty captive-reared Georgia gopher frogs retained at UGA also contributed to a telemetry and survivorship research project in cooperation with the South Carolina Department of Natural Resources. These adult frogs were "soft released" into outdoor enclosures in habitats at the James W. Webb Wildlife Center in Garnett, S.C. They are being monitored to assess the potential of soft releasing adult frogs to start new populations.

## Eastern Hellbenders

The eastern hellbender, North America's largest salamander, lives in clear, cold streams in the north Georgia mountains. The species is state-protected and is a candidate for listing under the U.S. Endangered Species Act.

The Wildlife Conservation Section surveys for hellbenders in mountain streams each year. A subset of streams is sampled every three years. This cycle is building a long-term dataset through which hellbender numbers can be estimated,

populations monitored and habitat conditions checked. Hellbenders caught are assessed, marked with a Passive Integrated Transponder (PIT) tag for future identification if they don't already have a tag, and released. In the summer of 2024, 22 stretches within 18 different streams were surveyed and data collected from 117 hellbenders.

The sampling season also yielded a welcomed discovery: common mudpuppies in Georgia. Although the species' range reaches from New York to the Great Lakes and from southern Canada to the rivers of northern Mississippi, Alabama and Georgia, common mudpuppies are abundant in only parts of their range, and the large salamanders are rare in Georgia. The three that Wildlife Conservation captured and released near Blairsville in 2024 marked only the third time the species has been documented in the state's rivers and streams. While mudpuppies are found alongside hellbenders throughout much of the hellbender's range, the mudpuppy's elusiveness and apparent absence from many streams in western North Carolina and Georgia is a mystery.

During fiscal year 2024, Wildlife Conservation staff represented Georgia and presented research at the 10th Hellbender Symposium, held by Clemson University in Seneca, S.C.



Eastern hellbender being assessed (Erika Noriega Torres/DNR)



## Flatwoods Salamanders and Striped Newts

Fiscal year 2024 updates regarding flatwoods salamanders and striped newts include:

- The Jones Center at Ichauway in southwest Georgia's Baker County received 120 captive-bred striped newt larvae reared at Atlanta Botanical Garden for repatriation to wetlands on-site. The larvae were released into restored wetlands at Ichauway, where the species hasn't been seen in the wild since 2006. Future releases are planned in the hope of restoring this species to a small portion of its former range in Georgia.
- The Amphibian Foundation, an Atlanta nonprofit focused on conserving amphibians, maintained a captive population of striped newts, all of which are thriving and reproductively active. The breeding colony

consists of adult newts from the state's sandhills habitats and a pair from south-central Georgia. Their progeny will be used to restore sites in the wild. Striped newts are a candidate for federal listing.

- Amphibian Foundation also keeps a breeding colony of frosted flatwoods salamanders, a federally threatened species. The group bred for the first time in captivity in winter 2021-2022. These larvae were raised to metamorphosis and distributed to other facilities to broaden the effort and better safeguard the species from catastrophic events.
- In surveying for reticulated flatwoods salamanders at Mayhaw Wildlife Management Area in March 2024, Wildlife Conservation detected a single larva in a wetland where the salamanders had been found before. This site at the Miller County WMA was burned via a prescribed fire in May 2024 to maintain and

restore the grassy vegetation and other plants that flatwoods salamanders need in and around shallow fishless wetlands. Providing these areas for cover and breeding habitat is critical to the species' survival.

- In fall of 2023, The Amphibian and Reptile Conservancy partnered with the Fish and Wildlife Branch at Fort Stewart Hunter Army Airfield to monitor for frosted flatwood salamanders and restore ponds these endangered amphibians breed in. After finding eggs at the known breeding pond and larvae at a newly discovered breeding site on the base, Amphibian and Reptile Conservancy biologists began the first on-site head-starting operation for the species at the base. In December 2023, over 300 salamander eggs were collected from the two breeding sites, reared in captivity at Fort Stewart and released into their natal wetlands as late-stage larvae in spring 2024.

Frosted flatwoods salamander released at Fort Stewart (Rob Tiffin/Amphibian and Reptile Conservancy)







# MAMMALS

## North Atlantic Right Whales

North Atlantic right whales are a critically endangered species that numbers approximately 360 individuals. The species was nearly driven to extinction by centuries of hunting. Recovery has been slow because of reduced genetic diversity, natural variability in food resources and high rates of mortality and injury from vessel collisions and entanglement in commercial fishing rope.

Right whales forage on zooplankton along the coast of New England and Canada. Each November through January, pregnant females migrate more than 1,000 miles to the coast of Georgia and northeast Florida, the species' only known calving grounds. Moms and calves stay here for one to two months, until the calves are strong enough to migrate north during February and March. A variable number of non-calving right whales also migrate to the southeastern U.S. each winter. The migrant whales do not feed in southeastern waters, instead relying on energy stored in their thick blubber.

The North Atlantic right whale population increased by more than 40 percent during the 2000s, suggesting the species was beginning to

recover. However, in 2010 calving rates began to drop in response to changes in zooplankton distribution in New England and Canada – changes apparently driven by warming ocean temperatures and associated shifts in ocean currents. At the same time, right whales began suffering unprecedented levels of mortality and injury. An estimated 133 whales died from 2010 to 2017. Necropsies show that almost all mortalities are caused by ship strikes and entanglement in commercial fishing gear. More than 80 percent of surviving whales bear scars from fishing rope entanglements.

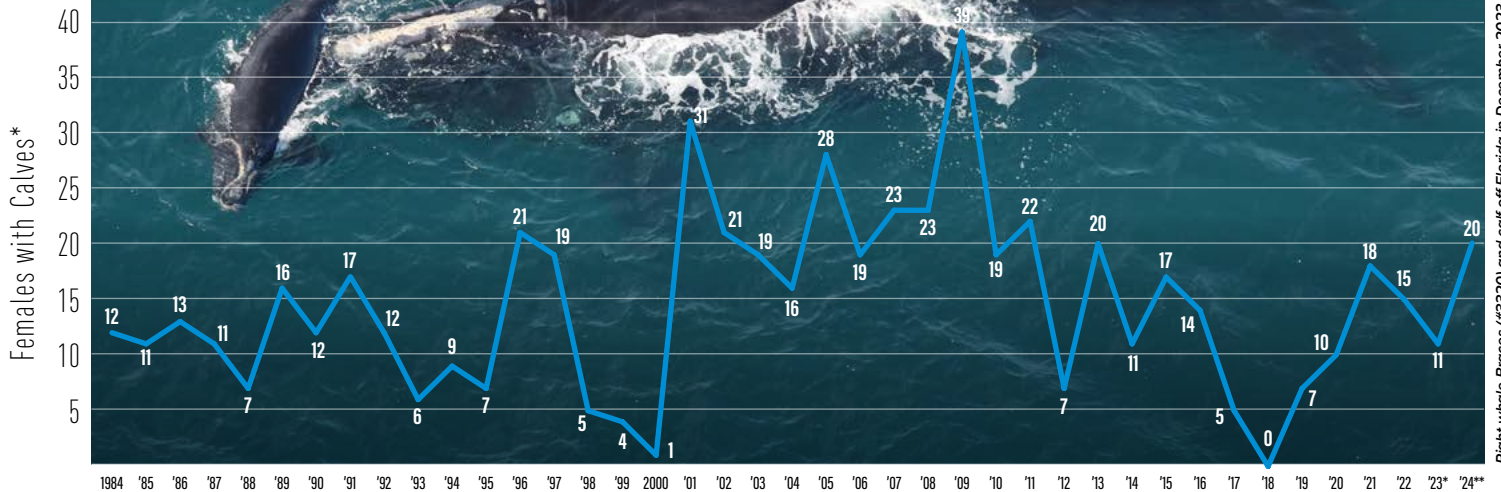
Even worse, females are having fewer calves and are dying at faster rates than males, probably because of the added energy that calving demands. The species is declining rapidly, and its future is uncertain. Data from the North Atlantic Right Whale Consortium placed the species at 336 whales as of 2020, down from a peak of 480 in 2011. The last time there were fewer was in 2001. The National Oceanic and Atmospheric Administration estimates that 50 calves are needed each year for the species to recover at the current high levels of mortality, which is impossible given that there are only about 70 breeding females. The same population models predict the species could stabilize if vessel strikes and rope entanglement are curtailed sharply.

DNR collaborates with scientists and managers from NOAA, the Florida Fish and Wildlife Conservation Commission, Clearwater Marine Aquarium Research Institute and other North Atlantic Right Whale Consortium members to conserve right whales in the southeastern U.S. Each December through March, aerial and boat surveys are conducted to monitor the presence of whales on the calving grounds. Biologists use modified crossbows to collect genetic samples from calves and digital cameras to photo-identify other whales. The data are used to estimate population size, growth rates and other parameters. DNR's Wildlife Conservation Section also documents entangled whales and removes fishing rope from them when possible.

DNR management and policy activities focus on reducing human-related mortality and protecting right whale habitat. Wildlife Conservation staff serve on the Right Whale Recovery and the Atlantic Large Whale Take Reduction teams. Support also is provided by DNR's Coastal



## Right Whale Calving



Right whale calves (#3320) and calf off Florida in December 2023 (Cleanwater Marine Aquarium Research Institute/NOAA, permit 26919)

Includes females with calves documented outside the southeastern U.S.

\*A 12th newborn found dead was not seen with a mother. \*\*1 calf died from a vessel strike in the Southeast; 4 are presumed dead after their mothers died or were seen without them.

Resources and Law Enforcement divisions with education and outreach, policy efforts and enforcement of federal right whale protections. Most funding for DNR's right whale conservation efforts is provided by grants from NOAA.

During the 2024 calving season, survey teams identified 19 females with calves. Off the coast of Georgia, four adult females without calves, one adult male and two juvenile whales were also seen. A 20th calf was documented near the Virginia-North Carolina border in June 2024. Four whale deaths attributed to vessel strikes occurred in the Southeast in the winter of 2023-2024. Two were along Georgia's coast and two as the whales migrated back to their foraging grounds in the Northeast.

The first – a right whale carcass off Savannah – was reported by the U.S. Coast Guard in February 2024. An aerial survey team saw the carcass about 24 nautical miles off Wassaw Sound. Wildlife Conservation, arriving by boat, assessed the carcass and attached a satellite tracking buoy, all while sharks scavenged the remains. Staff towed the carcass to Tybee Island for a necropsy. The results revealed skull fractures and other injuries from blunt force trauma consistent with a vessel strike before death. The whale was identified as the 2023 calf of right whale no. 4340. The 1-year-old had

been seen alive twice, most recently Feb. 3, 2024, off Melbourne Beach, Fla., by the volunteer network Blue World Research Institute.

The second death involved the season's first calf, born to Juno (right whale no. 1612). On Jan. 3, 2024, anglers saw the calf with serious injuries on its head, wounds attributed to being hit by boat propellers. That March, National Park Service staff reported a stranded whale on Cumberland Island. Wildlife Conservation and Florida Fish and Wildlife confirmed the carcass, its head scored by deep lacerations, was the calf. A necropsy attributed the cause of death to multiple areas of necrosis from wounds that penetrated into deep tissue and bone in the animal's head.

The third and fourth mortalities of the 2024 calving season were a mother and her dependent calf. The adult female no. 1950 was reported by aerial survey teams off the Virginia coast in March 2024. Her dependent calf was not seen again and is presumed dead. A necropsy of whale 1950 found catastrophic injuries consistent with blunt force trauma from a vessel strike before the animal died.

Vessel strikes are one of the two leading threats to North Atlantic right whales. Collaborative solutions to reducing strikes are being pursued and implemented through public and private partnerships.



Carcass of Juno's calf on Cumberland Island National Seashore (DNR/NOAA MMHSRP, permit 24359)

## Marine Mammal Stranding Network

The Georgia Marine Mammal Stranding Network was created in 1989 to coordinate marine mammal stranding responses in the state. The Wildlife Conservation Section coordinates the Georgia network with funding from the National Oceanic and Atmospheric Administration and help from other agencies and private organizations. Network goals include investigating human impacts on marine mammals, monitoring population health, providing rapid and humane response to live stranded marine mammals, contributing to marine mammal research, and educating the public about marine mammal conservation.

Since 2005, the network has documented an average of 34 stranded dolphins and whales per year. Bottlenose dolphins were the most commonly stranded species, making up 80 percent of strandings, followed by pygmy and dwarf sperm whales (9 percent combined).

Other species stranded in Georgia historically include Atlantic spotted dolphins, Atlantic white-sided dolphins, rough-toothed dolphins, Risso's dolphins, pygmy killer whales, false killer whales, short-finned pilot whales, humpback whales, North Atlantic right whales and multiple species of beaked whales.

The network documented 10 cetacean strandings and three entanglements involving live animals in calendar year 2023. The counts included eight bottlenose dolphins and one pygmy sperm whale, one Atlantic spotted dolphin, a humpback whale and one North Atlantic right whale. The cause of stranding could not be determined in the majority of the cases because carcasses were either heavily scavenged, too decomposed or could not be recovered.

Collaborating with the Florida Fish and Wildlife Conservation Commission and in coordination with the National Oceanic and Atmospheric Administration, DNR Wildlife Conservation responded to an entangled North Atlantic right whale reported east of Jekyll Island in January

2023. The whale, identified as Nimbus (no. 3812), had a long piece of rope passing through its mouth. Aerial survey and boat-based teams were able to cut off and collect the majority of the line. Nimbus was seen free of any fishing gear less than two months later off the coast of Maine.

Also, in March 2023 off Georgia's St. Catherines Island, an aerial survey contracted by DNR to the Clearwater Marine Aquarium Research Institute spotted a humpback whale with fishing line wrapped around its peduncle. (Due to the whale's behavior, the entanglement was not identified until the photos were analyzed.) And in April of that year, Chatham County Marine Patrol alerted DNR to a dolphin entangled in crab pot lines and struggling to stay at the surface. Because of the urgency of the situation, Wildlife Conservation provided guidance to responders, who freed the dolphin.

The public is encouraged to report stranded marine mammals in Georgia by contacting DNR at 800-2-SAVE-ME (800-272-8363).



DNR staff at the right whale necropsy on Tybee Island (Tyler Jones/DNR/NOAA MMHISRP permit 24359)



## Florida Manatees

Florida manatees inhabit tidal rivers, estuaries and near-shore ocean waters throughout coastal Georgia during the warm months of the year. The Florida manatee population numbers fewer than 8,000, with about half of the population found along Florida's Gulf Coast and the remainder along the Atlantic Coast and the St. Johns River. Each spring and summer an unknown and variable number migrate into Georgia, returning to Florida in fall as water temperatures cool.

Formerly listed as endangered under the Endangered Species Act, manatees were downlisted in 2017 to threatened status thanks to sustained population growth throughout their U.S. range. But an ongoing die-off of manatees along Florida's Atlantic Coast since 2021 threatened that recovery. A collapse in seagrass resources in Brevard and nearby Florida counties led to nearly 1,000 manatees dying from a combination of starvation and cold stress during the winter of 2021-2022. Satellite tagging and photo-ID research conducted by the Wildlife Conservation Section and partners shows that the bulk of Georgia's manatees overwinter in the same areas affected by the seagrass collapse.

Deaths subsided during the summers of 2021, 2022 and 2023 as manatees were able to disperse and find food in other parts of Florida and Georgia. As of summer 2024, about 30 percent of manatee deaths documented in Florida that year were perinatal animals. Most of the dead appeared to be stillborn, likely a holdover from females' having less forage in previous seasons but also a positive sign that reproduction was increasing after declining drastically after the seagrass collapse. Biologists are concerned that mortalities will continue in coming winters until forage quality improves. Seagrasses have been impacted by persistent algal blooms, which are exacerbated by agricultural runoff, discharges from septic tanks and other human activities. The Wildlife Conservation Section is cooperating with the Florida Fish and Wildlife Conservation, the U.S. Fish and Wildlife Service and other partners to monitor the situation.

Manatee management in Georgia focuses on reducing human-related mortality and protecting habitat. Recovery tasks include documenting causes of mortality and injury, rescuing injured and

out-of-habitat manatees, monitoring distribution and habitat use, educating boaters about watercraft impacts and reviewing permits and policies that may affect manatees and their habitat.

Wildlife Conservation staff have documented an average of 4.8 manatee mortalities a year in Georgia waters since 2005, ranging from two to 11 carcasses annually. The leading causes of mortality are watercraft collisions (27 percent) and cold stress/hypothermia (16 percent). Less common causes include drowning in commercial fishing gear, entrapment and even gunshot, as with one case in 2005. Five manatee carcasses were found in Georgia during calendar year 2023. Four of the carcasses had injuries pointing to trauma from a boat strike as the probable cause of death. In June 2023, Wildlife Conservation led efforts to rescue a manatee with serious injuries from a boat strike. Although the rescue was successful, the manatee succumbed to its injuries, dying about two weeks later at Jacksonville Zoo and Gardens where it was being cared for.

## Small Mammals

The Wildlife Conservation Section is continuing to work with the U.S. Fish and Wildlife Service and the Georgia Department of Transportation to perform statewide surveys of transportation structures for bats. Environmental surveys conducted by DOT ecologists and consultants for DOT maintenance and improvement projects provide most of the data collected on bats' use of transportation structures in the state. These data are tracked through the Georgia Bats in Bridges Survey123 application. The database, hosted through Esri's ArcGIS Online, is easily shared with partner agencies for coordination on DOT or research projects. Over 3,200 surveys of transportation structures for bats have been done, including more than 700 surveys in fiscal year 2024. In addition to managing survey documentation, Wildlife Conservation staff visited bridges and culverts with DOT to assess the status of bat colonies, confirm species identification and assist in project planning.

DNR's Emily Ferrall weighs a bat (Benjamin Galland/Volvo Project/St. Simons Land Trust)



Every year, Wildlife Conservation staff hold field training for DOT ecologists and consultant ecologists, as well as other government agency staff, focused on successful survey techniques for transportation structures. Since 2019, nearly 250 people have attended. The agency held three courses in April and May 2024, including the first session solely for government agency employees. Eighty-six people were trained in fiscal 2024. The agency-only training involved 21 participants representing 12 states. The training ensures more effective surveys by qualified staff and is highly valued by partners. It also provides an avenue for agencies' staff, ecologists and consultants to work with Wildlife Conservation in addressing problems and brainstorming solutions to streamline surveys targeting the large number of transportation improvement projects in the works in the U.S. Partners across the country are using the Bats and Transportation Structures tools developed by Wildlife Conservation. These tools include the Survey123 application, training materials and the newly completed bat programmatic agreement. That approach, led by DNR, DOT, the U.S. Fish and Wildlife Service and the Georgia division of the Federal Highway Administration, along with other project contributors, resulted in a [2024 Environmental Excellence Award](#) from the Federal Highway Administration.

In fiscal 2024, Georgia DOT and DNR signed a bat conservation funding agreement. This agreement complements a programmatic consultation agreement developed with DOT, the Fish and Wildlife Service, the Federal Highway Administration, and the U.S. Army Corps of Engineers to streamline consultation for transportation projects required under the Endangered Species Act. Both agreements are considered firsts in the U.S. in their joint approach to conserving bats and bat habitat. The funding pact allows the transfer of funding from DOT to DNR to protect high-quality bat habitat, offsetting the loss of forested habitats along transportation rights of ways. This document was made possible by agency staff collaborating to conserve Georgia's native wildlife and support the state's critical transportation improvements. The proposed federal listing of tricolored bats as endangered helped spur the year-plus work to develop the agreements. Tricolored bats are found in forests statewide.

Wildlife Conservation also continued coordination of the statewide Anabat surveys in fiscal 2024. Project volunteers drove 12 DNR mobile acoustic routes and seven North American Bat Monitoring Program route transects across the state collecting bat calls. DNR and U.S. Forest Service partners drove

another 19 routes for the surveys. Most routes (detailed at [georgiawildlife.com/AnabatProject](http://georgiawildlife.com/AnabatProject)) were run once or twice. Staff used software to analyze acoustic survey calls collected in calendar year 2023 and supplied the data to the North American Bat Monitoring Program to feed into range-wide monitoring for at-risk species.

Through additional analysis, biologists can determine most bat species and numbers per route. The routes have been run over multiple years to build a long-term set of call data to help determine bat population trends across the state. Understanding changes in bat populations as white-nose syndrome spreads and measuring the magnitude of population declines to assess disease impacts is crucial for informing management decisions. White-nose syndrome is a disease deadly to bats.

Every other year, Wildlife Conservation partners with the Fish and Wildlife Service to do emergence surveys in north and south Georgia to monitor summering populations of gray bat and southeastern myotis. Thousands of bats were observed, and the populations appear stable. In fiscal 2024, two caves in north Georgia plus a cave and two human-made structures – a bat building and a bat condo – in south Georgia were surveyed using thermal infrared technology to capture bats emerging at dusk. Software programs developed to count bats in the videos are still in the early use stages and more analysis is needed to verify population numbers at these sites. The roosts will be monitored again in fiscal 2025.

A citizen-science program started in 2014 to monitor summer bat maternity roosts in the state continued in 2024. This outreach encourages the public to count bats at bat houses, barns and other roosts twice each summer. This effort mirrors programs in Pennsylvania and Wisconsin and allows the public to contribute to long-term monitoring of wildlife populations. Thirty-seven surveys totaling over 4,000 bats emerging were reported through the online survey. Wildlife Conservation staff also connected with volunteers who completed counts on public lands for the project. Information and annual reports can be found at [georgiawildlife.com/bat-roost-monitoring](http://georgiawildlife.com/bat-roost-monitoring).

In August 2023, staff hosted the Southeastern Bat Diversity Network's 20th annual Bat Blitz. The



Commissioners Walter Rabon (DNR) and Russell McMurry (DOT) sign bat conservation funding agreement (DOT)



event based at Fort Mountain State Park near Chatsworth involved more than 80 bat biologists, researchers, managers and students from 14 states volunteering time and sharing survey equipment to conduct a landscape-scale survey for bats in the Chattahoochee National Forest and adjacent state and federal lands. Thirty-three sites were sampled over three nights, and 98 bats were captured and released. The species caught included a federally endangered northern long-eared bat, one tricolored bat (proposed for federal listing), one small-footed myotis (a species of conservation concern), 53 big brown bats, 39 red bats and three evening bats.

This year's blitz doubled as a resampling event, surveying sites previously sampled during the Southeastern Bat Diversity Network's 2010 blitz. The previous event was held before white-nose syndrome was detected in Georgia. Comparing the results, the stark differences in bat abundance and diversity provide further evidence that white-nose syndrome has drastically changed the bat community in the Southeast. Notably, the 2010 blitz captured 89 northern long-eared bats and 65 tricolored bats, compared to one of each in 2023. The 2010 blitz also documented 292 bats representing nine species, compared to the 98 bats and six species in 2023. A paper based on the blitz data ("Changes in Forest Bat Communities in Georgia and Alabama") was being set for publishing in the *Journal of Bat Research and Conservation* in fiscal 2025.

As of winter 2024, Wildlife Conservation confirmed white-nose syndrome in 15 north Georgia counties and detected *Pseudogymnoascus destructans*, or Pd, the causative agent for the disease, in eight more counties. Biologists have since documented an 87-percent decline in bat populations at known hibernacula in north Georgia. White-nose, or WNS, has killed millions of bats. According to the Fish and Wildlife Service, at the close of fiscal 2024 the disease had been documented in 40 states and nine Canadian provinces. Wildlife Conservation will keep monitoring sites in winter to document the spread of WNS and related mortality. Staff expanded monitoring to south Georgia. During surveys, bats are swabbed to check for Pd.

This year, staff surveyed 13 caves and checked culvert sites that are considered significant hibernacula for state-tracked species, such as the tricolored bat and southeastern myotis.

DNR cave survey for bats (Katrina Morris/DNR)



Continued monitoring is important both for conservation decisions and DOT project consultation. In winter 2024, 22 road culverts were surveyed as a part of annual long-term monitoring of structures with significant bat populations. One culvert in Carroll County had 230 tricolored bats. No new counties tested Pd-positive this winter.

A recent paper by Santiago Perea of the University of Georgia and DNR's Emily Ferrall and Katrina Morris in *The Journal of Wildlife Management* ("A Decade of Hibernating Bat Communities Along the Periphery of a Region of White-nose Syndrome") explains that a number of winter tricolored bat colonies in Alabama and Georgia are showing higher-than-expected survivorship, despite their continuing WNS infections. Wildlife Conservation biologists also are working with the public and the caving community to promote awareness of white-nose syndrome and support for bat conservation. Staff conducted 21 bat education and outreach programs in fiscal 2024. The programs were given to school groups, master gardeners, volunteer groups and visitors at state parks and nature centers statewide.

In a project focused on bats and birds, Wildlife Conservation partnered with the American Bird Conservancy to increase the Motus station network throughout Georgia. The Motus Wildlife Tracking System uses automated radiotelemetry to track the movements of migratory species like birds, bats and insects through a network of stations. An agreement with the Georgia Forestry Commission allowed staff to build stations on existing fire towers across the state, creating

a detection "fence" that will record any tagged individuals that migrate near a tower. Since the project's start in January 2024, 10 Motus stations have been installed in the state and three existing towers upgraded. This network will help give biologists a better understanding of the migration routes used by bat and bird species across Georgia. More information, including maps and detection records, can be found at [motus.org](https://motus.org).

Just before the start of fiscal 2024, Wildlife Conservation staff joined Forest Service biologists to trap for Appalachian cottontails in the Chattahoochee National Forest. Although they set 38 baited live traps for four nights, no cottontails were caught. Weather conditions during this survey may have undercut the effort. Appalachian cottontails are a species of greatest conservation need in the Southeast. These rabbits dwell in high elevations and are considered rare due to habitat loss, disease and competition with the more common eastern cottontail.

Staff also have been working to update the mammal segments of Georgia's State Wildlife Action Plan, and as part of this effort organized in fiscal 2024 the first Georgia Small Mammal Working Group meeting. This group of researchers and students will assist Wildlife Conservation with planning and conducting monitoring for small mammals statewide. The success of the Georgia Bat Working Group prompted the creation of this mammal counterpart. The expectation is that the Small Mammal Working group will help increase statewide surveys and monitoring for small mammal species that are not bats but are listed as species of greatest conservation need in the Wildlife Action Plan.



The southeastern U.S. is a recognized hotspot globally for aquatic biological diversity and one of the temperate world's richest areas for freshwater crayfishes, fishes, mussels, snails and other aquatic groups. Georgia exemplifies this pattern, ranking among the top four states nationwide in native species of mussels (127), fishes (265), crayfishes (70) and aquatic snails (84).

Unfortunately, Georgia is also among the top states in imperiled freshwater aquatic species. The State Wildlife Action Plan recognizes 152 imperiled freshwater aquatic species in Georgia, more than half of which have a significant portion of their global range within the state's boundaries. Approximately 22 percent of Georgia's freshwater fishes, 28 percent of mollusks and 36 percent of crayfishes are rated as imperiled or critically imperiled in the state. Yet even these numbers understate the problem because they don't include an additional 48 species, most of them mollusks, considered historic or extirpated from Georgia.

Important populations of rare aquatic species are distributed throughout the state. However,

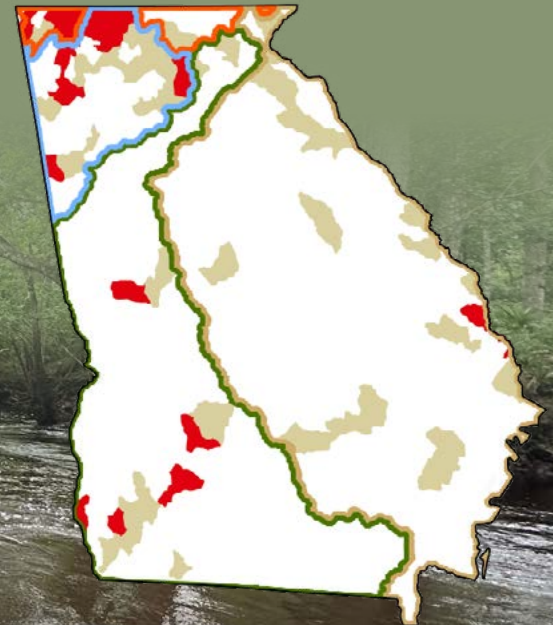
certain areas support an exceptional number of common and rare species, and 165 are listed as high-priority watersheds in Georgia's State Wildlife Action Plan. Examples range from the Coosa River in northwest Georgia to the upper Toccoa River in northeast Georgia (home to the state's only population of tangerine darters) and Spring Creek in southwest Georgia. As part of the Wildlife Action Plan, experts prioritized Georgia watersheds based on their number of rare aquatic species and the global conservation importance of each species. The map at bottom shows Georgia's river drainages and the watersheds within each drainage with the most high-priority species. (Only watersheds rated first or second in priority – colored red and yellow, respectively – are included here.)

Joining with partners around the state, the Wildlife Conservation Section coordinates and carries out work to monitor and conserve Georgia's aquatic diversity. The effort, started with a single biologist covering the state in 1998, features a team of biologists, technicians and seasonal staff focused on priority watersheds and species identified in

the Wildlife Action Plan. Formally organized into the section's Freshwater Biodiversity Program in 2021, the team conducts surveys and long-term monitoring projects, participates in collaborative conservation partnerships and promotes aquatic species conservation through educational outreach and environmental review. In fiscal year 2024, DNR's Stream Survey Team joined with Wildlife Conservation, expanding the Freshwater Biodiversity Program. Projects and other highlights are explored in the regional summaries that follow.

Data from surveys and monitoring, including data submitted through the agency's scientific collecting permit program, are entered into the NatureServe Biotics database, a national inventory of rare species. Partnerships also are maintained with the Georgia Museum of Natural History, increasing the amount of data available for environmental review and conservation planning. Aquatic species data, along with range maps, photographs and species profiles, are available to the public on the Georgia Biodiversity Data Portal ([georgiabiodiversity.org](http://georgiabiodiversity.org)).

# FRESHWATER AQUATIC SPECIES



## River Basins and Priority Watersheds

- | River Basins     | Priority Watersheds |
|------------------|---------------------|
| Atlantic Slope   | Highest             |
| Coosa-Tallapoosa | High                |
| Gulf Coast       |                     |
| Tennessee        |                     |



## ■ Coosa-Tallapoosa River Drainage

The Wildlife Conservation Section continued work with the University of Georgia's River Basin Center in fiscal year 2024 to monitor fishes and mussels annually in Holly Creek, a major tributary to the Conasauga River. Ten sites were surveyed, detecting rare fish and mussel species such as blue shiner, trispot darter, bridled darter, finlined pocketbook, southern pocketbook, Alabama creekmussel, Coosa creekshell and Alabama rainbow. The yearly surveys complement a larger suite of conservation actions implemented in the Holly Creek watershed by partners including The Nature Conservancy, River Basin Center, Limestone Valley Resource Conservation and Development Council, and the U.S. Fish and Wildlife Service. The work is supported by a grant from the National Fish and Wildlife Foundation's Southeast Aquatics Fund, with additional funding from Fish and Wildlife and the U.S. Forest Service.

Wildlife Conservation also contracts with UGA for long-term monitoring of fish in the Etowah and Conasauga rivers. These river systems are among the most diverse and imperiled in the southeastern U.S. Monitoring has been ongoing since 1998. Information from these studies is important for conservation planning, species status assessments and documenting relationships between fish populations and environmental stressors.

In fiscal 2024, staff concluded a project centered on conserving the federally endangered Coosa moccasinshell. Historically, this mussel could be found throughout the upper Coosa watershed in Alabama, Georgia and Tennessee. However, in the last few decades it has been found only in the Conasauga in Tennessee and Georgia's Holly Creek.

Staff coordinated with the Tennessee Wildlife Resources Agency and the Alabama Aquatic Biodiversity Center to design a project aimed at addressing recovery objectives for the Coosa moccasinshell. Partners from each agency searched for brood stock in the Tennessee portion of the Conasauga, and in 2024 collected females holding larvae. These mussels were taken to the Alabama Aquatic Biodiversity Center near Marion, Ala., where the larvae transformed into juveniles on the gills of bronze darters. Parasitism on fish is a necessary stage of a freshwater mussel's life cycle, adding an extra layer of complexity for propagating these rare animals. The juveniles propagated in 2024 are the third-year class for the project, which began in 2021. The center also raised groups from fiscal 2021 and 2022.

About 400 juveniles from the 2021 class were reintroduced at two sites in Alabama in 2022. In July 2023, an additional 400 mussels were released, 100 each at the 2022 sites as well as at two new sites, including one in Georgia. A video highlighting mussel conservation in the

Coosa basin, using the Coosa moccasinshell as an example, was produced as part of the project and is available for viewing on the DNR Wildlife Resources Division's YouTube channel.

Wildlife Conservation's Freshwater Biodiversity Program, along with partners from The Nature Conservancy and the Limestone Valley Resource Conservation and Development Council, was awarded an America the Beautiful Challenge Grant in fiscal 2024 for work focused on the federally threatened trispot darter. This small fish makes a winter migratory spawning run into small channels filled with seasonal groundwater. Yet habitat fragmentation from impassable road crossings poses a significant threat to the species. The project is aimed at helping recover trispot darters by removing barriers to reconnect spawning habitats. In 2024, teams from Wildlife Conservation and partners were trained on the Southeastern Aquatic Resource Partnership's barrier assessment protocol, and Dalton State College hired to begin assessing crossings in the Mill Creek watershed, critical habitat for the fish.

Wildlife Conservation also joined a project led by the Fish and Wildlife Service and the Tennessee Aquarium Conservation Institute to conduct occupancy sampling in potential breeding habitats. The survey teams sampled 20 sites twice each, detecting trispot darters at two sites. Plans are to continue sampling in fiscal 2025.

Dalton State College students check out blackspotted topminnows at a Dade County creek (Ani Escobar/DNR)



DNR's Robert Lamb with a tagged finlined pocketbook mussel (Ani Escobar/DNR)



## ■ Tennessee River Drainage

Despite its large size and unique dorsal fin shape, the sicklefin redhorse was not recognized as a distinct species until 1991. The fish has a limited range in the Little Tennessee and Hiwassee River systems in North Carolina and Georgia. The only Georgia population occurs in Brasstown Creek, yet this population is considered critical for conserving the species. Throughout the year, sicklefin redhorse use a variety of habitats in large creeks and rivers, varying from overwintering in pools and runs near Hiwassee Reservoir in North Carolina to spawning in the rocky upper reaches of Brasstown Creek in Georgia.

In 2016, DNR entered into a Candidate Conservation Agreement for sicklefin redhorse with the U.S. Fish and Wildlife Service, North Carolina Wildlife Resources Commission, Duke Energy, Tennessee Valley Authority, and the Eastern Band of Cherokee Indians. (The Cherokee recognized and valued

sicklefin redhorse as a food source long before modern ichthyologists recognized it as a species. The Cherokee name for the species is **OYUC**, pronounced U-gi-dátli and translated as “it has a feather.”) Through the agreement, partners cooperate on actions that conserve, manage and improve sicklefin redhorse populations, with the goal of precluding the need to list the species under the Endangered Species Act. Based in part on this effort, the Fish and Wildlife Service decided in 2016 that listing sicklefin redhorse was not warranted.

The spawning population in Brasstown Creek has been monitored annually since 2014. Seines and fyke nets, which use side nets to funnel migrating fish into a central chamber (*watch*), are used to collect sicklefin redhorse during their spring migration. The fish are weighed, measured, assessed for health and reproductive condition, and released in their direction of travel. All are also injected with a passive integrated transponder (PIT) tag, which

is used to track fish when they are recaptured or detected swimming over a PIT antenna system in Brasstown Creek near the North Carolina border. The antenna system consists of a loop of wire buried in stream gravel and connected to a tag reader on the bank.

As of June 2024, 419 adult sicklefin redhorse have been tagged in Brasstown Creek since the study began. The Georgia Cooperative Wildlife Research Unit uses data to estimate annual survival, recruitment and population size. The current model estimates that sicklefin redhorse exhibit high annual survival in the stream, with hundreds of adults migrating to upper Brasstown Creek each year. 2024 proved an exceptional one: Crews captured and released 57 adult sicklefin redhorse – the most caught since 2017 – through a combination of seining and fyke netting. The PIT antenna system detected 82 different sicklefin redhorse swimming over the antenna between April 2 and June 7.



Sicklefin redhorse (DNR)



## ■ Atlantic Slope Drainage

Like sicklefin redhorse, the robust redhorse is managed through a cooperative agreement between state agencies, hydropower companies and stakeholders. The Robust Redhorse Conservation Committee has directed research and recovery work since the early 1990s. Those efforts include rearing and stocking, monitoring, enhancing spawning habitat, and research studies. Despite these continued efforts, the robust redhorse remains an at-risk species.

A determination by the U.S. Fish and Wildlife Service on whether to list robust redhorse under the Endangered Species Act is expected in late 2024. Wildlife Conservation Section staff helped the Fish and Wildlife Service in developing the robust redhorse Species Status Assessment in fiscal year 2024. The Species Status Assessment is a risk assessment used to inform policy decisions under the act. As the resource agency tasked with monitoring and management, Wildlife Conservation provides critical data and knowledge through ongoing research and partnerships.

In Georgia, the robust redhorse is known to occur in the Altamaha, Ocmulgee, Oconee, Ogeechee, Broad and Savannah rivers. Adults overwinter in the lower sections of rivers and migrate upstream to spawn in shoal and gravel-bar habitat. Weighing almost 20 pounds and known to live nearly 30 years, the robust redhorse is the largest and longest-lived sucker in the Southeast.

In 2024, partners continued a long-term study of the robust redhorse's Savannah population. Twenty-six fish were tagged and released with surgically implanted acoustic transmitters. The acoustic transmitters emit sonic pings that can be detected by receiver arrays stretching from the estuary to Augusta Shoals, the known range of the robust redhorse's Savannah population. This study is aimed at not only increasing understanding of the species' life history and population dynamics, but also providing insight into the efficacy of a pending fish passage at New Savannah Bluff Lock and Dam and highlighting areas of the river to prioritize for conservation.

Following release of the tagged fish, staff periodically floated the reach of river bracketing the release point, listening with a portable

acoustic receiver. All tagged fish remained within the two-mile site for at least a week, and about half were still detected within the area one month after being released.

Also, during the 2024 spawning season, Wildlife Conservation and staff from South Carolina's Marine Resources Research Institute completed an environmental DNA study on the Little River using mitigation funds from the Georgia Department of Transportation. Little River was unintentionally stocked with Oconee River broodstock that escaped the hatchery system over 20 years ago. This population has since declined to levels undetectable by standard sampling methods; therefore, partners tried a newly developed environmental DNA (eDNA) tool for robust redhorse.

Water samples were collected and filtered at 12 sites longitudinally stratified along the river at two separate times during the presumed peak of spawning. These results will be presented at the Robust Redhorse Conservation Committee's annual meeting. Although the abundance of the population remains unknown, this information is important when considering potential impacts to the river or species.

In addition to robust redhorse, the Altamaha River basin is also well-known for its diversity of freshwater mussel species, including endemic forms such as the Altamaha spiny mussel. In 2017, DNR entered into a Candidate Conservation Agreement with Georgia Power and the Fish and Wildlife Service for the basin's freshwater mollusks. The purpose: Implement conservation actions for mussels and snails occurring within or near Georgia Power's project areas in the Oconee, Ocmulgee and Altamaha rivers. The agreement provides a mechanism for funding critical surveys, monitoring and research, and will be a major focus of Wildlife Conservation mussel biologists for years.

In fiscal 2024, staff conducted surveys in the Altamaha basin to identify the distribution and abundance of four freshwater mussel species that could be listed under the Endangered Species Act. Parts of the Altamaha River and Lake Jackson were surveyed at different depths using snorkeling and scuba. Species distribution and demographic data were collected at new sites, while other areas were identified for resampling. 2024 marked the first year for repeat sampling at one of the designated survey sites. In all, 15 sites on



Tagging a robust redhorse (Ethan Dodson/DNR)





Surveying mussels on the Altamaha River (Percy Knight/DNR)

evidence of recruitment. The working hypothesis is that the increase resulted from several years without a significant drought event. The five sites continue to provide habitat for common and rare species and remain a priority for monitoring and conservation. In particular, the Spring Creek site near Colquitt showed marked population increases as 2,200 mussels were collected and over 1,000 tagged.

Wildlife Conservation hosted the third virtual meeting of the newly reformed Apalachicola-Chattahoochee-Flint Freshwater Mussel Stakeholder Group. The meeting was well attended by members of academia, nonprofits and state and federal agencies from Florida, Georgia and Alabama. The group meets annually to share research and collaborate on conservation efforts in the basin.

A staff biologist taught the annual Apalachicola-Chattahoochee-Flint Freshwater Mussel Identification Workshop at the Jones Center at Ichauway near Newton. The three-day classroom and field workshop is attended by students, state and federal natural resources agency staff, and private sector consultants to learn about freshwater mussel natural history, conservation, biology and identification in the basin.



Well drilling discussion for developing a lower Flint mussel conservation plan (Matthew Rowe/DNR)

Lake Jackson originally surveyed in 2019 have been revisited. During a brief period of very low flows, another six sites also were sampled on the Altamaha, though none of the four mussel species targeted were found.

Three locations on the Alcovy, Yellow and South Rivers were checked for reverse pebblesnail. The species was found in the Alcovy and Yellow, but not in the South. Additional work is needed at the South River site to confirm the snails are not there. As part of the Candidate Conservation Agreement, staff submitted to Georgia Power and the Fish and Wildlife Service a 2023 annual report, which covered the first half of DNR's fiscal 2024.

Wildlife Conservation also managed contracted research involving federally endangered shortnose and Atlantic sturgeon. The work is conducted by researchers at UGA's Warnell School of Forestry and Natural Resources and funded by the National Marine Fisheries Service. The current project focuses on monitoring juvenile recruitment of these sturgeon in the lower Altamaha and estimating the number of adult Atlantic sturgeon migrating into Altamaha tributaries – the Oconee and Ocmulgee rivers – for spawning. The Altamaha and Savannah River populations of both species are among the largest within their overall ranges and significant for the species' recovery.

### ■ Gulf Coast Drainage

The Gulf Coast drainages of the Southeast also contain some of the most diverse and unique freshwater mussel faunas in the world. In Georgia, the Apalachicola-Chattahoochee-Flint system and the headwaters of the Ochlockonee and Suwannee rivers are rich areas for mussel diversity. For example, the Apalachicola-Chattahoochee-Flint drains a large portion of western Georgia, crossing both the Piedmont and Coastal Plain physiographic provinces. This system is home to 33 surviving species of mussels, five of which are endemic to the basin.

The Wildlife Conservation Section has been monitoring important populations of freshwater mussels in southwest Georgia since the early 2000s. These populations face significant threats from streamflow depletion associated with extreme droughts and agricultural water withdrawals. In fiscal year 2024, biologists completed surveys of all five long-term monitoring sites in the lower Flint River and observed how prevailing conditions affected mussel assemblages.

Populations in these streams continued a positive trend first documented in 2020, with high numbers of listed species and strong



Staff also provided technical support for the [Georgia Flow Incentive Trust](#). This stakeholder-led group is implementing creative strategies to minimize the impact of future droughts on stream flows and mussel populations in the Lower Flint River Basin.

Wildlife Conservation biologists took part in the first year of the new Lower Flint River Mussel Habitat Conservation Plan Planning group, with a primary goal being development of a habitat conservation plan for conserving freshwater mussel populations while ensuring adequate water supply for agriculture. The draft plan was scheduled for submission to the U.S. Fish and Wildlife Service late in calendar year 2024. The group's assistance was particularly critical in the creation of a listed mussel take-estimation methodology and model. Other activities included monthly planning meetings and participating in an experts meeting focused on development of the take estimation model.

## ■ Stream Survey Team

As noted, in fiscal year 2024 the Stream Survey Team was moved to the Wildlife Conservation Section, expanding the Freshwater Biodiversity Program. The Stream Team monitors the health of Georgia's wadeable streams (those shallow enough to be adequately sampled without a boat). Data is used by DNR's Environmental Protection Division to complete pollutant standards, called total maximum daily loadings, for assessing the water quality in streams and lakes.

But the Stream Team's work ranges even further. Staff assist EPD with federal Environmental Protection Agency's National Rivers and Streams Assessment surveys throughout the state. The team also conducts native black bass surveys to identify essential habitats and assess the status of native black bass throughout their ranges. Results have expanded what's known about each species by filling information gaps and providing the background needed to make educated conservation and management decisions. Genetics as a molecular tool is used to document the genetic integrity of the fragmented populations and understand where the threat of hybridization with invasive Alabama bass occurs.

The Stream Team also supports statewide aquatic nuisance species surveys, while providing help

with other projects as needed. There is an outreach component, as well, and staff hold events each year focused on children and young adults.

Since its creation, the Stream Team has conducted 1,831 aquatic community surveys at 1,558 sites across the state and developed the Georgia Fish Index of Biotic Integrity for four of Georgia's five primary ecoregions. This index allows relevant and consistent evaluation of stream health while providing a much-needed database of fish distribution records. Staff have also conducted 381 black bass genetic surveys since 2016 and National Rivers and Streams Assessment sampling since 2008.

This fiscal year, the team did genetics surveys and Biotic Integrity samples across the Coosa, Tallapoosa and Tennessee drainages. River and stream assessments were completed at 17 wadeable sample sites and aquatic nuisance species surveys started in the Coosa and Chattahoochee drainages. Staff partnered with the U.S. Forest Service to sample for Altamaha and Ocmulgee shiners at nine sites on Chattahoochee-Oconee National Forest streams. The data was provided to the Southern Research Station's Center for Aquatic Technology Transfer program.

Members of the Stream Team also assist other sections in DNR's Wildlife Resources Division, as well as external agencies. In 2024, staff helped the Game Management Section set up culvert cameras around Atlanta and supported some surveys and sampling for hellbenders, sicklefin and robust redbhorse, and invasive mystery snails. Nongame

fishes were collected for educational displays at the Go Fish Education Center. The Stream Team also collaborated with the U.S. Army Corp of Engineers in resampling a Flat Creek restoration site.

DNR staff joined the South Carolina Department of Natural Resources at the Chattooga River near the North Carolina/South Carolina state line to sample the wilderness area near Ellicott's Rock. The annual sampling on the Chattooga is a partnership between Georgia DNR's Fisheries Management Section, South Carolina DNR, the Forest Service, Trout Unlimited and numerous volunteers. For two decades, one of three Chattooga River sections has been sampled to assess the fish community. This year, the six-mile round-trip hike to the site was worth the effort: Staff documented trout populations and 25 nongame species.

Also in 2024, the Stream Team worked with multiple universities, helping with outdoor labs and discussing careers in natural resources. Staff taught Oglethorpe University students how to seine and backpack electroshock for fish in streams and lakes; Oxford College students about sampling and the significance and use of biotic integrity indexes; and Abraham Baldwin Agricultural College Wildlife Society members about the Stream Team's role in DNR and natural resources career options with a focus on fisheries. The team also helped with field components of the University of Georgia's Maymester ichthyology course and worked with Sandy Creek Nature Center to educate children and young teens about stream fishes and fish diversity in Georgia.

Surveys include assessing the status of Altamaha and other native black bass species (Ethan Dodson/DNR)







Outplanting rescued pitcherplants with DOT at Alapaha WMA (Lisa Kruse/DNR)

# PLANTS AND NATURAL HABITATS

## Rare Plant Conservation

Rare plant conservation in the Wildlife Conservation Section is led by the botany team. The public looks to DNR as a primary source of information on rare plants and their conservation, and the agency has a leadership role in plant conservation in the state and the Southeast, alongside primary partners of the Georgia Plant Conservation Alliance, or GPCA.

The botany team is pursuing the following long-term topical goals.

- **Natural heritage:** Serve as the go-to source for conservation status information on Georgia flora.
- **Adaptive management:** Monitor priority plants and habitats to inform conservation actions and management plans.
- **Stewardship:** Maintain safeguarding and habitat restoration at priority rare-plant sites.
- **Networking:** Support and use the GPCA to share data, expertise and resources.

- **Promote plants:** Raise awareness of plant conservation, foster young botanists and build connections with landowners.

Systematically ranking the conservation priority of plant species is central to DNR's advisory role. A significant challenge is that Georgia has more than 4,500 plant species. Many are newly described, and no assessment of the conservation ranks for plant species has been made since Georgia's 2015 State Wildlife Action Plan. However, fiscal years 2023 and 2024 brought an opportunity for scientific



reassessment of these rankings as work began to revise the Wildlife Action Plan, a new project for recently hired botany staff. The team worked to develop and implement a transparent, repeatable methodology for a 2025 list of plant species of greatest conservation need. Although not all state plans have a list of high-priority plants, by including them Georgia will be eligible for federal plant conservation funds if Recovering America's Wildlife Act is passed and signed into law. (Under the current federal State Wildlife Grants Program, plant conservation is not eligible for funding.)

On another front, the botany team worked to create opportunities in conservation work for young professionals and increase career-related outreach to races and ethnicities that are under-represented in the conservation field. Staff took part in the Conservation Access Relevancy and Engagement Committee of the Southeastern Association of Fish and Wildlife Agencies and regularly attended student workshops to help the committee train students in networking for conservation jobs.

In 2023-2024, Wildlife Conservation received funding from the committee to start a summer internship program and guided the program's first intern through a season of fieldwork. The agency hired and funded a second student intern for summer 2024.

Guided by Georgia's State Wildlife Action Plan, implementation of agency goals to protect plant biodiversity requires a multipronged approach. Surveys and monitoring, rare species data management (Natural Heritage data), safeguarding genetic material, population and habitat restoration, and fostering partnerships are all important parts of this effort.

### ■ Surveys and Monitoring

Periodic surveys and monitoring are key to determining trends in priority plant populations and detecting declines before local extirpation occurs. Results provide vital data to the U.S. Fish and Wildlife Service for formal species status assessments and update Georgia's rare species database – called Biotics – in partnership with NatureServe.

Consistent and strong support from Fish and Wildlife Service Endangered Species Act grants is critical to botanical surveys in Georgia and underscores why surveys often target plants that are either federally listed or petitioned for listing. A State Wildlife Grant supports surveys for high-priority plants on state conservation lands to inform management planning. Rare plants are also often found during environmental surveys for timber management proposals.

Surveys for federally listed or petitioned plants in fiscal year 2024 included Alabama leatherflower (*Clematis socialis*), swamp pink (*Helonias bullata*), Canby's dropwort (*Oxypolis canbyi*), dwarf sumac (*Rhus michauxii*), hairy rattleweed (*Baptisia arachnifera*), large-flowered skullcap (*Scutellaria montana*), persistent trillium (*Trillium persistens*) and black-spored (*Isoetes melanospora*) and mat-forming quillwort (*Isoetes tegetiformans*), as well as three at-risk species – bog spicebush (*Lindera subcoriacea*), ciliate-leaf tickseed (*Coreopsis integrifolia*) and hartwrightia (*Hartwrightia floridana*).

DNR's Hannah Umstead surveys bog spicebush (Carlee Steppe/DNR)





**Bog spicebush:** This rare, dioecious woody shrub is found in southeastern wetlands and acidic seepages. The species is considered vulnerable globally and critically imperiled in Georgia. It has been documented at only four places in the state. In May 2023, Wildlife Conservation botanists checked the four locations. The construction of a lake had destroyed one site. At another, only a single plant was found. However, later in the fiscal year, staff invited employees of the landowner – Green Diamond Resource Co. – to visit that site for a resurvey. After narrowing down the suitable habitat using the online mapping software ArcGIS, botanists and Green Diamond foresters searched the target area and found three more plants. Considering the interest in and willingness of Green Diamond to provide access to the property for future work, the relationship with the company could prove critical in conserving this population.

**Canby's dropwort:** Botanists monitored five Canby's dropwort populations at Big Dukes Pond Wildlife Management Area near Millen and at private properties in Jenkins and Lee counties, all as part of a federal Recovery Challenge grant. Staff collected seed and completed a rough population status assessment at each site. The dropwort at Big Dukes had not fared well. Plant

community changes marked by an increase in weedy species indicated the habitat was drying out. Since nearby populations were robust and the rainfall recorded in summer 2024 was normal, there is concern that Big Dukes Pond is undergoing a significant ecological change. Continued monitoring will help shape and implement management recommendations for the WMA's Carolina bay.

A state-owned dropwort population in Lee County, where the plants had not been seen from 2015-2021, revealed about 20 stems where Canby's dropwort had reappeared in 2021. The widening of nearby U.S. 19 may be spurring hydrology changes. The small number of dropworts marks a significant loss for the species: This population once had hundreds of plants and ranked as one of Georgia's largest stands.

At The Nature Conservancy's Oakbin Pond Preserve, Canby's dropwort had reappeared in 2020 after not being documented on the Dooly County property since 2008. Habitat restoration from 2016-2018 improved conditions for the plants, and the population has remained at about 200 stems since 2020. Severe hog rutting undercut the dropwort in early 2022. But the damage eased following increased rains that summer. The population showed a seasonal

recovery in fiscal 2024, with nearly all of the plants flowering.

**Dwarf sumac:** Monitoring endangered dwarf sumac typically involves counting stems as an indicator of population stability or growth. Long-term monitoring has indicated most populations, including those that have been introduced or augmented, are thriving. In 2024, monitoring shifted to focus on reproductive individuals because dwarf sumac is dioecious, with separate male and female plants. Population counts by gender help inform future introductions and augmentations where more males or females are needed to increase the potential for successful seed set and self-sustaining, reproductive populations.

Flower counts for dwarf sumac took place at five of 11 sites in 2024. A population at Zoo Atlanta turned out to be female only, with 11 of 61 stems flowering. A 2023 outplanting with Trees Atlanta along the Atlanta Beltline had 16 stems, three male and four female. Of great curiosity, one of the rhizomes had one male and one female stem attached underground. This mixed-gender expression or switching has been documented in the species before, although it apparently is rare. Across the two populations at Panola Mountain State Park, staff found five males flowering and 187 females. Females



Georgia Power and DNR staff with signage helping protect hawthorn in a transmission lines right of way (Georgia Power)



were first planted at the park near Stockbridge in 2008 and are well-established. Males were outplanted in 2020 and are still establishing and spreading. Not far from Panola Mountain, plants at the Georgia Wildlife Federation's Alcovy Conservation Center were relocated in 2024, though only one stem out of six flowered.

Unfortunately, late spring and summer 2024 turned dry during the critical flowering time for dwarf sumac. A check of plants at Lower Broad River Wildlife Management Area near Elberton found that all had dropped their flowers early, and the plants' gender could not be determined. At Beech Hollow Farms in Oglethorpe County, a single plant from the 2023 introduction of the species at the native plant nursery flowered, but the gender could not be determined. Counts were completed during late summer at the Gold Branch population on the Chattahoochee River National Recreation Area in Sandy Springs, with 67 stems documented. Most flowers had already senesced, or deteriorated. While this population was planted with males and females, only male flowers have been observed in recent years.

**Hairy rattleweed:** Wildlife Conservation conducted a population survey in October 2023 for the federally endangered plant on Sansavilla Wildlife Management Area's Baptisia Tract in Wayne County. The count totaled 136 plants. The assessment will be compared to past surveys and repeated every five years to help inform management strategies that better safeguard hairy rattleweed. Two previous assessments between 2015 and 2020 found 135 individuals. Seeds were collected from four plants in the latest survey. Staff plan to propagate the seeds at the nursery on Altama Plantation Wildlife Management Area near Brunswick. The hope is to raise plants that can eventually be outplanted on the Baptisia Tract, bolstering that population.

**Hartwrightia:** During the fiscal year, staff also checked the state's largest population of hartwrightia, which is under Georgia Power transmission lines southeast of Waycross. After this stand was damaged by inappropriate herbicide use in 2023, Wildlife Conservation outplanted 40 hartwrightia grown from seed originally collected from the population. Signs have been added to help shield the plants from any harmful impacts in routine right-of-way management.

Fringed gentian (Brian Romm/DNR)



**Large-flower skullcap:** Botanists surveyed for this federally threatened species as part of a U.S. Fish and Wildlife Service monitoring protocol for delisting large-flower skullcap. After conducting an updated species status assessment, Fish and Wildlife proposed removing the species from the Endangered Species Act. Before delisting can be approved, the plant's status must be monitored throughout its range for five years. Wildlife Conservation botanist Carlee Steppe coordinated with Fish and Wildlife, the U.S. Department of Defense, the Tennessee Department of the Environment and Conservation, and the Tennessee Valley Authority to create a standardized monitoring protocol across the species' range. In May 2024, DNR monitored 17

records, conducting population counts as well as noting threats such as deer herbivory, invasive species and habitat conversion and modification.

**Quillworts:** Black-spored quillwort (*Isoetes melanospora*) and mat-forming quillwort (*Isoetes tegetiformans*) are diminutive plants that superficially resemble grass and grow only in ephemeral spring pools on granite outcrops. Both federally listed species are targeted in the Recovery Challenge grant project. In fiscal 2024, Wildlife Conservation and Atlanta Botanical Garden teamed to check three populations of each species. Plants were also connected for analysis and to conserve genetic material. Quillworts reproduce by tiny spores, and the



long-term banking of spores is not well-studied. As part of the grant work, Atlanta Botanical Garden is researching how to optimally store quillworts so that new plants can be produced from them.

Lands owned by the granite quarrying industry have significant quillwort populations. DNR botanists met with representatives from two companies, Vulcan Materials and Martin Marietta Materials, to share information about the needs of these rare plants and explore with quarry leaders where conservation is possible. Such meetings are critical and can result in productive collaboration. For example, quillwort species occur in wetlands that were protected at one quarry. That knowledge and DNR's relationship with the company could result in continued access for biologists to monitor the populations.

Surveys for state-listed and rare plants with no federal protection are also important for conservation of Georgia's floristic diversity. Significant targets addressed in fiscal 2024 included sun-loving draba (*Draba aprica*), fringed gentian (*Gentianopsis crinita*), grooved flax (*Linum sulcatum*), cutleaf beardtongue (*Penstemon dissectus*) and Alabama snow-wreath (*Neviusia alabamaensis*).

An important focus for surveys is the Ridge and Valley Province in Georgia's northwestern corner. The region's unique geology supports a high number of extremely rare plant species. 2024 highlights from the Ridge and Valley included the rediscovery of a number of species known only from historical records. These included relocating a 70-year-old record of the cedar glade species American bluehearts (*Buchnera americana*) and a 50-year-old record for grooved flax. The latter spurred a focused effort by Wildlife Conservation botanists that found seven more occurrences of the plant. A population of eastern turkeybeard (*Xerophyllum asphodeloides*) was discovered on Iron Mountain in the northwestern Cohutta Mountains. More than 100 plants were documented.

Surveys continued for the state-endemic cutleaf beardtongue in 2024. The objective: Update records for populations not visited in at least 10-20 years. Cutleaf beardtongue

is an Altamaha grit associate that grows in the transition between rock exposures and the surrounding pine savanna uplands. Wildlife Conservation's Brian Romm led evaluations of six populations, three of which represented new element occurrences. On a private property southwest of Arabi, a population consisting of thousands of stems was surveyed and mapped. The property is carefully managed, with intact groundcover and embedded communities such as Altamaha grit outcrops and herbaceous bogs treated with regular prescribed fires. This cutleaf beardtongue population is the state's third-most robust on a single management unit and serves as an excellent example of landscape-level management for multiple natural communities.

DNR's Mary Nell Armstrong found two new populations of cutleaf beardtongue on Ohoopsee Dunes Wildlife Management Area near Swainsboro. The survey also turned up a new population of pineland Barbara's buttons (*Marshallia ramosa*) at a nearby Altamaha grit outcrop. Both populations were mapped. Three other known populations of cutleaf beardtongue were also surveyed and updated, and management recommendations made to benefit the plants.

Staff led surveys for state-listed fringed gentian in fall 2023. With help from local volunteers, all element occurrences were checked, although plants were found at only two sites. One roadside population thought to have been extirpated by herbicides in 2021 produced four plants, suggesting some resiliency and seed bank persistence. The other population ranges from a privately owned field to a residential-area roadside. Five plants were seen in the roadside portion, once considered lost to mowing and herbicide use. In the field, seven flowering stems were counted, down from about 60 in 2022. It is possible that fall 2023 marked a lag year, reflecting the species' biennial nature. The hope is that fall 2024 is more productive for flowering, and seeds can be collected and sown on a nearby Nature Conservancy preserve. All told, only 16 flowering stems of fringed gentian were found during the fall 2023 surveys, representing a dire situation for this species in Georgia.

Wildlife Conservation also continued annual population monitoring of Radford's mint (*Dicerandra radfordiana*), a state-endangered species known to exist in only two locations along the north side of the Altamaha River in Georgia. This year's totals at Townsend Wildlife Management Area in Long and McIntosh counties, which has natural and outplanted populations, revealed an increase to 2,556 plants from last year's low of 538.

Georgia has 13 documented occurrences of sun-loving draba but as of 2023 the species had not been seen in the state in over 20 years. The Georgia Plant Conservation Alliance made searching for this species a priority for fiscal 2024. DNR botanists conducted a systematic survey of all accessible populations. Two populations were relocated. Unfortunately, the population at Rock and Shoals Natural Area near Athens, a focus of regular GPCA monitoring, is tenuous: Its low numbers are consistent and not due to annual variation. Therefore, seed were collected from a protected population at The Nature Conservancy's Heggie's Rock Preserve in Columbia County to help create a long-term seed bank for the species.

## ■ Natural Heritage Data

Heritage extends beyond historical landmarks, cultural traditions and artistic achievements to include the natural world. The Wildlife Conservation Section's heritage botany staff works behind the scenes as stewards of archival data, documenting and preserving the rare plant species and unique natural communities that are an essential part of Georgia's natural history.

Staff regularly add to the knowledge base of which wild plant species occur in Georgia, where they are and how they are doing. This information is compiled by surveying habitats and species, collecting and identifying herbarium specimens, updating DNR's Biotics database, assigning species rarity ranks, and using those ranks to set conservation priorities. Wildlife Conservation works with Natural Heritage Network partners at NatureServe, a nonprofit leveraging biodiversity data to prevent species from becoming extinct and habitats from being eliminated.



The first step in effective conservation is identifying plant species most at risk of extinction in Georgia. To prioritize efforts, botanists must not only know the current distribution but also where the plants were documented historically and if or how their taxonomy has changed over time. In fiscal year 2024, Wildlife Conservation hired a new heritage botanist, Hannah Umstead. Picking up where her predecessor left off, Umstead delved into maintaining the state checklist of vascular plants and reviewing historic floras and herbarium specimens, ensuring the agency's state tracking list accurately reflects the most imperiled species and guiding steps to determine conservation actions.

NatureServe defines global and subnational, or state level, conservation status ranks. Those ranks are used as a standard for state heritage and federal programs to fund work on the species most likely to go extinct. In a NatureServe Global Ranking Workshop at Atlanta Botanical Garden in February 2024, botanists from the southeastern U.S. worked for three days to review the global conservation ranks of a preselected plant list. Wildlife Conservation botanists Lisa Kruse and Hannah Umstead attended in person and used DNR's archival data to inform decisions. The updates were incorporated into DNR's heritage database and used to prioritize state-tracked species list in Georgia's State Wildlife Action Plan.

Field work is critical for understanding natural heritage data. Reports of new species must be confirmed. For example, witch-alder (*Fothergilla* species) is a complex genus that scientists recently redefined to include four species. In fiscal 2024, botanists visited Georgia's known occurrences of witch-alder to determine their identification per the update, work key to understanding their conservation status.

Also, in January 2024, Wildlife Conservation's botany team launched an online form for tracked plants so that Georgia Plant Conservation Alliance members and the public can submit rare plant locations. The ArcGIS Survey 123 form has been used to update over 100 locations of rare plants in Georgia.

## ■ Safeguarding

For the most imperiled rare plants, safeguarding genetic material ex-situ (out of a species' natural habitat), augmenting populations and introducing populations in-situ (in the plant's natural habitat) are critical conservation actions. Safeguarding involves propagation using cuttings, seed or roots to ensure that Georgia-native genotypes are available to enhance natural populations or establish new ones in appropriate habitat in a species' historic range. Much of this work involves the Georgia Plant Conservation Alliance, or GPCA, a vital conservation network.

In fiscal year 2022, a Wildlife Conservation Section-led partnership was awarded nearly \$780,000 to safeguard 14 imperiled plant species in Georgia. The U.S. Fish and Wildlife Service Recovery Challenge grant has boosted capacity for plant conservation at the State Botanical Garden of Georgia in Athens, Atlanta Botanical Garden and the Chattahoochee Nature Center in Roswell, while also supporting the spread of horticultural expertise and support to GPCA members. The overarching goal for the five years of grant-funded work is to develop genetically sound plant collections – living and



Fringed campion (Hal Messie/DNR)



seed-banked – in botanical gardens and in the wild, and to increase the GPCAs safeguarding capacity to better conserve these and other priority plants identified in Georgia's State Wildlife Action Plan.

In fiscal year 2024, which included the third year of the grant, specific objectives were set for all 14 species and seeds or spores collected from eight. With propagule collection nearing completion for the remaining six, the focus shifted to increasing and sharing plants, and, in some cases, augmenting or introducing populations. Another critical aim of the Recovery Challenge project is developing best practices for using internationally recognized Center for Plant Conservation guidelines in plant conservation. Work by coordinators this year included an updated meeting structure, new workflows and new technologies used to share data.

As for safeguarding specific species, the goal for hairy rattleweed (*Baptisia arachnifera*) – found globally in only two counties in coastal Georgia – is to gather and grow seeds from each of the plant's known occurrences. In past years, DNR, the State Botanical Garden and volunteers collected seed from three sites, including an at-risk population on industrial timberland. Seeds were added to long-term seed banks at the Atlanta and state botanical gardens. As the number of plants grown from this effort increase, plants will be shared for safekeeping with the Coastal Georgia Botanical Gardens, which is part of the University of Georgia in Savannah, and Georgia Southern University's Botanic Garden. Eventually, the plants will be planted on state conservation lands.

The three known populations of Coosa Barbara's buttons (*Marshallia mohrii*) in Georgia are on the Coosa Valley Prairies in Floyd County, private properties northwest of Coosa Valley and Berry College campus. Seed was collected in August 2023, yielding 209 maternal lines for safeguarding. Atlanta Botanical Garden kept 80 for the long-term seedbank. The remainder went to Chattahoochee Nature Center for a living collection. That collection has plants from Berry College and the private property, populations more threatened than at Coosa Valley Prairies. By the end of April 2024, seed from 67 maternal lines had germinated and will be cultivated until ready for outplanting, likely in 2025.

Dwarf sumac (*Rhus michauxii*) is a federally endangered species whose southernmost extent runs through the state. While Georgia has only one wild population, Wildlife Conservation and partners have worked to return this species within its historic range. Recovery efforts in fiscal 2024 included introducing 12 presumed male rhizomes for a new population at Lake Russell Wildlife Management Area near Cornelia, a milestone for the partnership between DNR, the U.S. Forest Service and the U.S. Fish and Wildlife Service. It took several years to establish the legal agreements necessary for planting this federally listed species on federally managed land.

Diversifying safeguarding collections at the State Botanical Garden was a priority this year, allowing experiments to better understand the species' seed biology. Six presumed males were transferred to the Athens garden from Lower Broad River Wildlife Management Area near Elberton in spring 2024. None flowered, and the gender of the propagules was not confirmed. Dwarf sumac plants at the Georgia Wildlife Federation Alcovy Center have been in sharp decline since 2020, spurring a decision to relocate that dwindling population to a new area at the Covington center. About six rhizomes were moved and replanted in spring 2024 at a drier prairie site. Several of the rhizomes took and one stem flowered. Monitoring continues.

In addition to creating new populations and fostering safeguarding partnerships, many of the existing dwarf sumac sites require routine maintenance. Wildlife Conservation and GPCA partners coordinate and lead workdays that include cutting encroaching woody shrubs, maintaining deer fences and applying prescribed fires in spring on a two- to three-year rotation. In fiscal 2024, this work included the Atlanta Beltline, Beech Hollow Farms in Oglethorpe County, Chattahoochee National Recreation Area in Sandy Springs, Lower Broad River WMA, Panola Mountain State Park near Stockbridge and Zoo Atlanta.

Fringed campion's global distribution is limited to the western Georgia Fall Line and the Apalachicola Ravines in southwest Georgia and the Florida Panhandle. *Silene polypetala* is a fragile species that requires mature hardwood forest with intact slopes near streams. Although there are about 35 records in Georgia – some of them are historic (not observed in over 20 years)

– most populations are tenuous due to forest fragmentation and impacts from feral hogs and invasive plant species. However, a partnership with Mercer University is strongly bolstering fringed campion populations in combination with the Recovery Challenge project. At Mercer, research by Dr. Heather Bowman-Cutway is revealing how to grow the species and increase its numbers for augmenting and introducing populations.

In fiscal 2024, DNR collected cuttings from two fringed campion populations that will be grown by Bowman-Cutway and duplicated at the State Botanical Garden. Also this year, Atlanta Botanical Garden conducted germination trials using seed collected from Mercer's research plots. Unfortunately, most of the seed was not viable, highlighting the need to better understand the species' pollination system. A new project to restore fringed campion habitat in the heart of Macon also began and will hopefully raise awareness and improve conditions for urban populations of the species. This effort, the result of relationships Bowman-Cutway built with the landowners, is funded by the Fish and Wildlife Service.

Wildlife Conservation and Atlanta Botanical Garden botanists visited six sites with federally endangered black-spored and mat-forming quillworts. These long-lived, spore-reproducing perennials are specialized organisms that have adapted to extremely harsh environments. Living in pools on exposed granite outcrops, the plants are submerged through winter and early spring but by May desiccate to a crisp on the dry, frying-pan-hot rock. At each occurrence, plants were collected to keep live plants in safeguarding at Atlanta Botanical Garden and analyze the genetic and morphologic diversity of the genus *Isoetes*' pool-dwelling members in Georgia (via DNR collections). *Isoetes* reaches the height of its diversity here, with copious hybridization, and the taxonomy is far from settled. This work will help inform scientists about which quillworts live in the state, where, their status and how to tell them apart.

The Recovery Challenge grant has also helped partner efforts to boost populations of federally listed smooth coneflower (*Echinacea laevigata*). The State Botanical Garden collected thousands of seed from five populations in 2021 and 2022. A portion representing 154 maternal lines is part



of the long-term seedbank at Atlanta Botanical Garden. In fall 2023, the State Botanical Garden collected seed from three additional occurrences. All but 100 of the seeds were sent to Atlanta Botanical Garden. The Athens garden used the others to grow plants. In calendar year 2024, about 100 plants were transplanted from greenhouse pots into raised beds to serve as back-up living collections for wild populations. Twenty-five plants were also shared with Chattahoochee Nature Center in Roswell as duplicated collections.

In a milestone for smooth coneflower, 300 plants were introduced to a new location within the species' range on national forestland in winter 2024. A formal agreement between the U.S. Forest Service and U.S. Fish and Wildlife Service was required to introduce a federally listed plant onto federal lands.

Nestled in the mountains of northwest Georgia, the federally listed Virginia spirea (*Spiraea virginiana*) is known from only two locations in the state. This species, considered critically imperiled in the state and globally imperiled, relies on river scour to minimize competition, with a root system that is able to reach deep into gravel bars and cracks within rock beds to hold tight during high, fast-

moving waters that wash away most other plant species. Because Virginia spirea occurs in such an unstable environment and has not been documented reproducing by seed in Georgia, collecting material from both populations for safeguarding in ex-situ gardens was considered critical.

Chattahoochee Nature Center and Wildlife Conservation botanists worked with the Lula Lake Land Trust to survey and collect cuttings for propagation. In an unexpected but welcomed find, the plant is flourishing on the trust's property. Previous efforts had secured material from some populations at each of the known locations, but two populations of the plant at Cloudland Canyon State Park and Lula Lake Land Trust remained unrepresented until spring 2024 when 25 stem cuttings from both were taken and shared with Chattahoochee Nature Center for propagation. The Roswell center will house material from all known populations, propagating plants to share with conservation partners and for outplanting to create new populations. Wildlife Conservation is working with the Fish and Wildlife Service to determine sites for introduction.

Endangered Canby's dropwort (*Oxypolis canbyi*) does not grow well in artificial collections, and

GPCA partners have been unable to keep this plant alive in botanical gardens. To safeguard genetic material, Wildlife Conservation is collecting seed from wild populations in the species' cypress savanna habitat for the seed bank at Atlanta Botanical Garden. In fiscal 2024, staff added seed from three populations.

Safeguarding is also important for high-priority species that are not federally protected. Because DNR has no stable funding source for this work, the effort relies on GPCA members. Examples include the following.

Alabama milkvine (*Matelea alabamensis*) is recorded in only seven locations in Georgia, three on the coast. In March 2024, Wildlife Conservation planted 26 plants grown by the Chattahoochee Nature Center – using seeds from one of the coastal populations – at three sites on Altamaha River bluffs in habitat similar to where the seeds came from. Staff will monitor the outplantings. The hope is they become self-sustaining populations and add to the long-term security of this species in the wild.

Alabama snow-wreath (*Neviusia alabamensis*) is considered critically imperiled in the state and vulnerable globally. There are only a handful of

Smooth coneflower safeguarding collection at Chattahoochee Nature Center (Lisa Kruse/DNR)





populations in northwest Georgia. None of those populations, first documented in the early 1980s, were in safeguarding because of previously unsuccessful attempts to propagate the species from stem and root cuttings, and fear that continuing those efforts could compromise the wild populations. However, propagation techniques and success rates have improved. In fiscal 2024, Wildlife Conservation botanists partnered with horticulturalists through the GPCA to move samples from known populations into safeguarding. Material from each population is now housed at partners, including Chattahoochee Nature Center and Kennesaw State University. Plans also include continuing to replicate safeguarded material at the State Botanical Garden.

For royal catchfly (*Silene regia*), DNR served as a consultant and GPCA partners did the fieldwork. At one of a handful of viable locations, GPCA's Melanie Flood took the lead in coordinating the removal of woody plants, as well as conducting prescribed fire and seed collection. The site is managed by Georgia Power and the Georgia Department of Transportation, making coordination more complex. In fiscal 2024, GPCA also coordinated with a Kennesaw State graduate student to learn about royal catchfly's reproductive biology.

Wildlife Conservation continued work, as well, with the Georgia Department of Transportation and the Fish and Wildlife Service to mitigate potential impacts to Florida corkwood (*Leitnaria floridana*) in the footprint of roadwork on Ga. 40 in Camden County. Wildlife Conservation staff outplanted previously propagated specimens from the potential impact area in protected areas on Ceylon Wildlife Management Area, which is in Camden. The success of this outplanting will help inform mitigation plans for other plant populations facing direct impacts from the construction.

In a similar situation in Chatham County, the agency teamed with the same agencies to mitigate roadwork effects on coastal bishopweed (*Ptilimnium ahlessii*) along Ga. 25. Seeds were collected from the site in fiscal 2022-2023. Staff are safeguarding the material until construction is finished and the plants or seeds can be returned to the site. In spring 2024, plants were introduced to protected areas on Ceylon and Altama Plantation Wildlife Management Area in Glynn County, as well as a site near Darien.

## ■ Plant Habitat Restoration

To achieve recovery needs, imperiled rare-plant populations often require stewardship that goes beyond broad-scale prescribed fire or timber management programs. These targeted approaches include localized control of woody or invasive vegetation, excluding herbivores and small-scale controlled burns and hydrologic repairs. In fiscal year 2024, the Wildlife Conservation Section used this approach to help restore habitat for federally endangered Alabama leatherflower, dwarf sumac, pineland or sandhills, lily, and for herbaceous pitcherplant bogs.

Georgia's only known natural population of Alabama leatherflower is on a state-owned site in Floyd County managed by DNR and the Georgia Department of Transportation. The primary threats to Alabama leatherflower are deer herbivory and the loss of open woodland habitat to encroaching trees and shrubs. Browsing by deer poses a significant threat at the site, preventing any leatherflower from setting fruit in the 10-plus years DOT has owned the property. In fiscal 2023, deer fencing was installed around the entire site (funded in a collaborative effort of DNR and DOT). Springtime monitoring in 2023 and 2024 indicated that the population has tripled in size. The hope is enough fruit will be produced to allow a seed-bank collection.

Pineland lily (*Lilium pyrophilum*) is a priority plant for the GPCA and rare in Georgia, with only three known populations in the state. The lily grows along the ecotones of fire-maintained uplands and blackwater stream floodplains. Wildlife Conservation staff and volunteers have installed cages around the lilies at The Nature Conservancy's Broxton Rocks Preserve in Coffee County. The cages protect the plants from deer browsing, in hopes they survive to flower and produce seed. DNR, The Nature Conservancy and volunteers have been caging the lilies at Broxton Rocks for more than five years. Coupled with prescribed fire management in the adjacent uplands, the work has helped the population grow. Wildlife Conservation also plans to add signage at a roadside population in fiscal 2025 to help shield it from mowing and herbicide use.

Pitcherplant bogs are a focus for plant habitat stewardship. Georgia's herbaceous

bogs are small but rare jewels, providing critical habitat for many imperiled species. Yet these bogs are threatened by issues such as hydrologic disturbance, fire suppression and land development. Many bog plants, including pitcherplant and orchid species, are safeguarded by GPCA partners. Wildlife Conservation works in mountain and Coastal Plain bogs, habitats that are different in origin and ecology.

Mountain bogs are one of the Southern Appalachians' most critically imperiled habitats. These wetlands, historically maintained by beavers and fires, are usually small, from a half-acre to 5 acres, and associated with seeps, springs and small creeks. They support a variety of unique flora and fauna, including the federally threatened bog turtle – possibly the state's rarest reptile – and swamp pink, which when the GPCA began this work had declined in Georgia to one small population. Federally endangered green pitcherplants also occupy wet meadows in the seeps. Other rare and state-protected mountain bog plants include mountain purple pitcherplant (petitioned for federal listing), broadleaf white meadowsweet, Carolina bog laurel, Canada burnet, Cuthbert's turtlehead, marsh bellflower and various orchid species. Poaching, rutting by feral hogs and encroachment by woody plants are the most significant threats to these plants.

Work to restore and maintain mountain bogs is spearheaded by Atlanta Botanical Garden, on behalf of the GPCA. Target sites include eight mountain bogs in northeast Georgia and one upper-Piedmont prairie/woodland site in north-central Georgia. Wildlife Conservation's botany team lead efforts at one site, an ultramafic seep near Rabun Bald. In fiscal 2024, staff coordinated a workday to reduce an encroachment of woody shrubs and trees that was limiting the herbaceous community and, potentially, bog turtles. A group including Atlanta Botanical Garden, the State Botanical Garden, DNR State Parks and Historic Sites, and local volunteers removed a substantial portion of the woody growth, steering the bog toward a more herbaceous-dominated system. Wildlife Conservation will continue helping manage the rare natural community, removing more of the woody vegetation and hopefully reintroducing fire.





Georgia's Coastal Plain features remnants of wide expanses of seepage slopes and savannas that once spanned the landscape. Here, prescribed fire is a critical tool for restoring bogs. Fire helps keep woody species out while maintaining the low-nutrient soils and germination conditions for pitcherplants, orchids and other rare plants. The Interagency Burn Team is an essential resource. The team's flexibility and expertise has been crucial for the technical burns required at these small but significant sites.

As part of this work, a flagship long-term project is conserving the state's only known site for Coastal Plain purple pitcherplant, a bog complex in southeast Georgia. These bogs are home to five other protected plant species. They also feature gopher tortoises, Georgia's state reptile. The bogs are in adjacent drains owned by five landowners. The Wildlife Conservation Section coordinates with each landowner to monitor and restore the bogs along a powerline right of way.

Work at the site began in 2006. The positive results demonstrate the effectiveness of partnerships and consistent landowner outreach in concert with the Interagency Burn Team. GPCA, Atlanta Botanical Garden, Georgia Power Co., Georgia Botanical Society and the Georgia Native Plant Society. In fiscal year 2024, a spring prescribed burn was conducted by the southeast Georgia fire crew and other Wildlife Conservation staff

at a site where several hundred purple and trumpet pitcherplants were outplanted in 2013. This burn was the site's seventh. While not formally protected, the property is conserved by agreement with the landowners.

Also in fiscal 2024, Wildlife Conservation continued work with the State Parks and Historic Sites Division to monitor and steward a critically important bog at Jack Hill State Park in Reidsville. The bog is significant for its vigorous population of sweet pitcherplant, the largest population in Georgia's southeastern Coastal Plain. Most protected sites for sweet pitcherplant are in the western Fall Line sandhills region of the state. Wildlife Conservation botanists, with assistance from other DNR fire personnel, led the first prescribed burn at the site since 2017. Titi trees had overgrown much of the area containing pitcherplants. The burn was largely successful, knocking back titi around the priority pitcherplant area. Consistent burns will be necessary to promote the herbaceous community and bolster the pitcherplant population.

Also in southeast Georgia, Wildlife Conservation began restoration of a privately owned seepage bog that has sweet pitcherplant (*Sarracenia rubra*) and critically imperiled witch-alder (*Fothergilla* species). The landowner is working to restore adjacent longleaf pine sandhills, but the pitcherplant habitat had not been burned in over 20 years.

Staff planted over 330 hooded pitcherplants (*Sarracenia minor*) at Ceylon Wildlife Management Area near Woodbine in March 2024. Volunteers rescued the pitcherplants from a St. Marys development site the previous fall. The plants were temporarily kept at the native plant nursery on Altama Plantation Wildlife Management Area near Brunswick. Staff chose suitable sites: seepage flows adjacent to cypress wetlands within an upland pine and flatwoods matrix. Most did not have pitcherplants but likely once did. The habitats will be managed with prescribed fire to maintain conditions so the plants can flourish.

Restoration of grassland communities has been identified as one of the most critical conservation actions needed in the Southeast. Grasslands are defined as areas where the herbaceous plant community constitutes the majority of biomass and species richness. Wildlife Conservation's botany team, which wrote the grassland restoration segment for the 2025 revision of Georgia's State Wildlife Action Plan, worked with partners to prioritize actions for restoring grassland communities, including mountain bogs, herb bogs and seeps in the Coastal Plain, longleaf pine savannas, Piedmont pine-oak savannas, woodlands, glades, calcareous prairies, and many others. The State Wildlife Action Plan restoration section recognizes grasslands as a stable-state ecosystem rather than a successional one.

The focus also raises awareness that Georgia landscapes once had a much more prominent grassland component, compared to the closed-canopy forests now covering much of the state.

Different suites of plant and animal species require stewardship of mature forest habitat. Tallulah Gorge in northeast Georgia has an important representation of Eastern hemlock cove forest, which includes Wildlife Action Plan priority species such as persistent trillium, Carolina hemlock, eastern spotted skunk, red squirrel, green salamander, southern red-backed vole, hairy-tailed mole and southern bog lemming. Eastern hemlock (*Tsuga canadensis*) is a keystone species of southern and central Appalachian cove forests. These evergreen trees, found primarily in riparian zones, can live up to 800 years. They provide a dense canopy, helping maintain moisture and moderating forest-floor and stream temperatures. This ecological niche is essential for diverse aquatic and terrestrial wildlife, with at least 57 at-risk species reported. Yet eastern hemlock is declining throughout most of its range because of the invasive hemlock woolly adelgid, an aphid-like insect of Asian origin that attacks hemlocks. The woolly adelgid was first reported in Georgia in 2003. The death of hemlocks and resulting canopy loss can shift habitats from moist to dry, posing negative consequences on the biodiversity and health of watersheds and terrestrial habitats.

Injecting insecticide (imidacloprid and dinotefuran) into the roots of a hemlock can protect a tree for up to a decade. Using State Wildlife Grant and Pittman-Robertson Wildlife Restoration funds, Wildlife Conservation conducted hemlock health assessments across Tallulah Gorge on state, federal and Georgia Power Co. lands. Staff used Forestry Inventory Analysis standards for gauging the health of trees and collected data for every hemlock over 135 centimeters tall, or about 4.4 feet. Analysis showed hemlock recruitment and health declining, although live trees were present and salvageable. In 2023-2024, Wildlife Conservation completed treating the eastern hemlocks on Tallulah Gorge Wildlife Management Area and Georgia Power property. This treatment should help preserve these trees for the next seven to 10 years, hopefully allowing the ecosystem time to recover from damage caused by hemlock woolly adelgids.

## ■ Partnerships for Protection

### Georgia Plant Conservation Alliance

The Georgia Plant Conservation Alliance, or GPCA, is an innovative network of public gardens, government agencies, academic institutions, utility companies and environmental organizations committed to preserving Georgia's endangered flora. Formed in 1995, with the Wildlife Conservation Section as a charter member, GPCA's work started with a single species (*Sarracenia purpurea var. montana*) and now involves over 100, plus more than 75 partner organizations and 120 active members.

The GPCA's mission is to study and conserve the state's flora through multidisciplinary research, education and advocacy; facilitate the recovery of rare, threatened and endangered plants of Georgia and the southeastern U.S. through collaborative efforts in the state; support the development and implementation of the Georgia State Wildlife Action Plan, as well as other plant, wildlife and habitat conservation plans by member agencies and organizations; and communicate the importance of preserving biodiversity worldwide.

Garden historian and author Mac Griswold has called gardening "the slowest of the performing arts." Now in its 29th year, the GPCA agrees. Conservation and restoration actions and results take decades and even generations of commitment. Members have seen species numbers and reproductive capacity oscillate from influences in ecology not fully understood to everything from weather to invasive species, climate and catastrophic events. Significantly, though, GPCA has observed all targeted species moving forward through the steadfast commitment of DNR and the wider network.

The partnership's metrics of success in fiscal year 2024 included:

- 17 new collections of imperiled plant species made for safeguarding as seed, spore and living collections for the state.
- Four experimental outplantings of imperiled plant species made in natural areas safeguarded in the wild.
- Nine new locations of imperiled plant species found and documented.

- 110 field trips conducted to monitor and manage rare-plant populations.
- 70 plant species of conservation concern visited in situ.

Supported by the multiyear Recovery Challenge grant project, GPCA is helping increase the conservation horticulture capacity statewide. Historically, the major partners in curating living collections of Georgia's critically imperiled plants have been in the Piedmont; namely, Atlanta Botanical Garden, Chattahoochee Nature Center in Roswell and the State Botanical Garden of Georgia in Athens. These partners are coordinating collections with 11 organizations throughout Georgia, tripling the number of organizations in the state with expertise in horticulture conservation science. New partners fostered in fiscal year 2024 included Kennesaw State University, the University of North Georgia and the Jones Center at Ichauway in Baker County. The support involves sharing plant materials, initial supplies and, most importantly, knowledge. Duplicating imperiled living plant collections helps prevent loss due to natural disasters and environmental pressures.

Since 2022, to accommodate growth the GPCA has held five annual planning meetings, one each in five Georgia regions: northwest, northeast, central, coastal and southwest. At the meetings, partners prioritize recovery actions in their area and make plans for field seasons. In fiscal 2024, the five meetings totaled 19 hours of discussion, 377 work hours committed and planning actions for 77 target species set. Four GPCA coordinators supported the network this year. Online applications such as a new tracked plant survey using ArcGIS Survey 123, developed by DNR's Wildlife Conservation Section for GPCA, linked GPCA field data and management actions to staff managing the Biotics database. Data from a network of over 300 conservation professionals representing 80 conservation organizations in the state is now captured and compiled electronically.

Also in fiscal 2024, GPCA helped revise the State Wildlife Action Plan, contributing to prioritizing plant conservation actions and ranking species of greatest conservation need. Themes included conservation priorities for land management, grassland conservation, prescribed fire, species searches, floristic inventory and habitat restoration.





Training the next generation of plant conservationists and maintaining steadfast volunteers remained high priorities. By the end of 2024, GPCA had built a list of 95 registered volunteers. The network also supports graduate research, helping students with project design, site access and expert advice. GPCA mentored three students from 2022-24 who are nearing completion of their research projects. That work covers imperiled species on granite outcrops, royal catchfly and persistent trillium. Undergraduate students contribute to GPCA conservation work ex situ and in situ through programs at Mercer University, the University of North Georgia, Kennesaw State University and the University of Georgia. Citizen scientists are trained via the Certificate in Native Plants, which by fiscal 2024 had seen 1,300 participants complete the program. Volunteering is required to earn the certificate.

Weaving in work with other organizations that prioritize conservation from different perspectives, the GPCA partnered with the Georgia Pollinator Partnership, Georgia Invasive Species Council, Private Lands Network, the U.S. Forest Service Foothills Project and the Longleaf Alliance. The network also collaborated with the Southeastern Plant Conservation Alliance and 11 other state plant conservation alliances, from Florida to Pennsylvania to Indiana.

The Georgia Native Seed Network, an idea that took root at GPCA's 2022 fall symposium, is an initiative aimed at meeting the habitat

restoration-driven need for Georgia seeds of common species. Local sources for native seed are scarce. A priority is providing genetically diverse and regionally appropriate seeds for habitats that support imperiled plant species. In 2023, a GPCA team worked with the U.S. Fish and Wildlife Service on the Bipartisan Infrastructure Law – Burned Area Rehabilitation program. In fiscal 2024, following a visit that April to the State Botanical Garden by the agency's Joan Mooney, principal deputy assistant secretary for policy, management and budget, the program provided

funding to support the Georgia Native Seed Network. The network connects farmers, growers and plant nurseries to organizations that need local seeds for restorations.

Through emphasizing teams in each region of the state, a range of conservation experts in species recovery teams and support for conservation students in their careers, the GPCA is working to recover and build the resilience of Georgia's most critically imperiled plant species and their plant communities.

State Botanical Garden's Will Rogers discusses pitcherplants with Joan Mooney of U.S. Fish and Wildlife (USA)





## Agency Partnerships

Public-private partnerships are vital to plant conservation because, particularly considering that with the high percentage of private land in Georgia, an imperiled plant's populations may all be on private land. The Wildlife Conservation Section works with landowners who have high-quality and critically imperiled rare-plant communities. Through federal Endangered Species Act grants, the agency provides crucial support and outreach to these landowners.

Another partnership focus is utility and highway rights of way, where remnant rare habitats persist in the opened areas. Communication with partners such as Georgia Power Co. and the

Georgia Department of Transportation is key to protecting these sites. Maintenance that is not well-planned or coordinated regarding plants and habitats can have negative impacts. Case in point this fiscal year: Georgia Power partnered with the Georgia Plant Conservation Alliance to improve habitat for federally threatened smooth coneflower (*Echinacea laevigata*) on a Georgia Power right of way near Toccoa. In late July 2023, a company right-of-way management crew treated woody plants resprouting on the site with prescribed herbicide. The employees were shown coneflowers and other plants of interest and directed to use care when spraying. No coneflowers were killed during the work, and the site was significantly improved for coneflower and a diverse range of wildflowers found there.

DNR and DOT renewed their emphasis on improving data collection and communications regarding rights of way in fiscal 2024. Wildlife Conservation Section biologists collaborated with DOT staff to standardize management recommendations for protected plant species in rights of way. Communicating and providing protection for rare plants in these sensitive areas is challenging, in part because of the many levels of staff between management planning and DOT staff or contractors doing the work in the field. DOT has strengthened efforts to improve coordinating the management of environmentally sensitive areas, leading to effective communication with DNR and positive results for plants. Wildlife Conservation provides survey data and recommendations for managing protected plants at these sites.

Wildlife Conservation also led in the stewardship of high-priority conservation properties owned by DOT. Botanists have long collaborated with DOT about habitat restoration on the transportation agency's lands for Tennessee yellow-eyed grass (*Xyris tennesseensis*), Canby's dropwort (*Oxypolis canbyi*) and Alabama leatherflower (*Clematis socialis*). DOT also coordinates with DNR when protected plants will be affected by construction projects. DNR consults on the determination of plant relocation methods and frequently works at sites with DOT ecologists and contractors to help ensure relocation protocols, which can be complicated for sensitive species, are understood.

One example of this partnership centered on sandhill milkvetch (*Astragalus michauxii*) and the turkey oak sandhill habitat where this state imperiled plant is found. Sandhill milkvetch is difficult to detect, rarely abundant and typically scattered across the landscape. But the plant is able to persist even in degraded sites and serves as an indicator of what is, or once was, high-quality sandhill habitat. In fiscal 2024, planning for several DOT construction projects required surveying for sandhill milkvetch. Wildlife Conservation botanists and DOT staff worked together, taking time to examine and assess degraded habitats as potential sites for the species and other sandhill associates. This effort will help DOT evaluate sandhill habitats, even if a cryptic species such as sandhill milkvetch is not found.

DNR and DOT work together during construction projects to minimize impacts to rare plant populations. In spring 2024, nearly 300 hooded



Georgia Native Plant Society members and DNR staff with hooded pitcherplants in safeguarding (DNR)



pitcherplants were tucked into new homes at Alapaha River Wildlife Management Area near Ocilla after being rescued from a DOT construction site near Valdosta. This project was in the works for over a year as DNR and DOT coordinated with the Coastal Plain Chapter of the Georgia Native Plant Society to plan the relocation. Seven DOT biologists and consultants joined Native Plant Society volunteers and 10 DNR employees to plant the pitcherplants in select spots along recently restored savanna wetland edges at the WMA. Other plants were also saved, including butterworts, coreopsis, bog asphodel (*Narthecium ossifragum*) and hat pins, as well as sphagnum mosses that protect soil moisture for the pitcherplants.

DNR's formal partnership with the U.S. Fish and Wildlife Service, initiated in 1985, has enabled Wildlife Conservation to receive federal grants to conserve federally listed and at-risk species. The grants provide critical funding for plant conservation. In fiscal 2024, DNR botanists helped the Fish and Wildlife Service with surveys and status review of three at-risk species: sunfacing coneflower (*Rudbeckia heliopsisidis*), ciliate-leaf tickseed (*Coreopsis integrifolia*) and ten-lobe purple foxglove (*Agalinis decemloba*). Wildlife Conservation and GPCA botanists attended workshops at the Jones Center at Ichauway organized by Fish and Wildlife Service biologist Dr. Michele Elmore to form a consensus on status and threats to ciliate-leaf tickseed, a species petitioned for federal listing. For its part, Wildlife Conservation ensured the accuracy of population updates from the past several years of focused surveys. The information collated by workshop participants fed directly into models predicting the species' current and future status.

Partnerships for restoration and management are critical because managing for multiple species requires a range of experts. Conservation objectives are often species specific, but species needs are determined by how species fit into a larger landscape. Understanding how to restore and manage a habitat for multiple species is more cost effective and efficient. A collaboration planned with the National Park Service's Chattahoochee River National Recreation Area will feature multispecies management in creating a grassland habitat focused on grassland specialist plants, birds and mammals. In fiscal 2024, under the National Park Service's leadership, stakeholders completed planning for the restoration project. The partners

included Wildlife Conservation (managing for dwarf sumac and other grassland plants), Birds Georgia, the Fish and Wildlife Service, the State Botanical Garden of Georgia, Georgia Power Co. and Atlanta Gas Light (both companies have easements in the areas that must be kept open), and others. All have different conservation missions but are working together to build a functioning grassland habitat that benefits biodiversity at the park and improves visitor experiences.

In the realm of conservation on private lands, the federal Natural Resource Conservation Service is an important partner. Wildlife Conservation botanists are working with the federal agency to protect the wetland habitats of endangered Canby's dropwort. In the past decade, two wetlands were protected through this partnership under the agency's Wetland Reserve Easements program. Another project started in 2018 is still protecting and restoring 800 acres of privately owned wetlands around the state's Neyami Canby's Dropwort Tract, which the DOT bought in 2000 to protect the plant. Real estate issues halved the acreage first targeted, but closure on conservation easements is expected in fiscal 2025.

### ■ Ginseng Management

The export of American ginseng is regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, an international agreement administered in America by the U.S. Fish and Wildlife Service. In Georgia, ginseng exports are authorized by that agency in concert with the Georgia Ginseng Protection Act of 1979.

In order to have a legal ginseng trade in Georgia, the Fish and Wildlife Service requires the state to maintain a ginseng management program that ensures compliance with federal and state regulations. The objective is to prevent this perennial forest herb from becoming endangered because of trade. Demand for ginseng is high in natural medicinal markets and in Asian medicine. The Wildlife Conservation Section administers the Georgia Ginseng Management Program, which monitors the harvest and sale of ginseng. Staff work with ginseng dealers, growers, the DNR Wildlife Resources Division's Game Management Section and DNR's Law Enforcement Division to make ginseng regulations, and meeting those regulations, transparent and simple.

In calendar year 2023, the dealer-reported wild ginseng harvest in Georgia totaled slightly more than 158 pounds dry weight. This amount is nearly the same as in 2022, when 157 pounds were harvested. Dealers paid \$829 a pound on average for Georgia-harvested ginseng in 2023.

Populations of wild ginseng face pressures such as legal harvest, poaching, consumption by deer and habitat degradation. Knowing how these populations are faring will help determine the sustainability of Georgia's ginseng trade. Results indicate that ginseng is likely declining in the state.

Due to declining American ginseng populations across the Southeast, since 2023 the U.S. Forest Service has barred harvest of American ginseng on Forest Service lands in the Southeast. However, Native American tribes are still allowed to request a collection permit on national forests.

The cultivated ginseng trade is not significant in Georgia overall, but cultivated ginseng is encouraged in the state as one strategy to relieve pressure on wild populations. Most of the ginseng harvested in the U.S. is exported to China, although local interest in Georgia ginseng for personal use has increased. Georgia is at the southern edge of the plant's distribution. The trade is much smaller here than in states such as North Carolina and Kentucky, where annual ginseng exports total millions of dollars.

### ■ Habitat Monitoring

Wildlife Conservation Section botanists play a critical role in habitat conservation through habitat monitoring and mapping for land protection and management planning. The agency often provides guidance in prioritizing areas for conservation and establishing habitat management guidelines. Staff also monitor vegetation to track changes resulting from DNR habitat restoration projects.

Monitoring is key to gauging impacts on habitats and measuring biological diversity and habitat suitability for rare wildlife species. Quantifying the changes resulting from DNR's rare species and habitat restoration efforts helps measure their efficacy and guide future management.

Fire is a natural disturbance across many of Georgia's natural ecosystems and one that has been suppressed in the last several centuries.



Through the State Wildlife Action Plan, promoting the ecological value and safety of regular prescribed fire as a management tool has become a central priority in the state (for more, see the Prescribed Fire segment). In 2008, Wildlife Conservation began a fire photo monitoring project that uses a standardized protocol to document the long-term effects of DNR's prescribe fire program. As of fiscal year 2024, the project included 383 monitoring points on 46 conservation properties – state-owned and private.

With 16 years of data demonstrating the positive impacts that the reintroduction of prescribed fire has on habitats, the project has also shown that those impacts are not always the only component shaping habitats. At some sites, the plant community has changed so significantly, reintroducing fire will not restore the habitat to its previous state. In 2024, staff added another layer of data collection, recording habitat response to prescribed fire in conjunction with other restoration practices such as timber thinning, mowing and chemical control of woody shrubs. This additional data broadened the projects' long-

term goal to monitor habitat shifts in response to diverse restoration techniques.

On another monitoring front, Wildlife Conservation updated the vegetation monitoring protocol for the wetland restoration project to include more species-related data. Previously, that monitoring focused almost entirely on structural composition across the upland/wetland transition. The revised protocol still incorporates those structural measurements but also tracks species occupancy across the transects. The hope is to gather species accumulation data in response to restoration activities at these wetlands.

Strategies for restoring a natural community with prescribed fire vary based on the desired habitat, length of degradation and the long-term maintenance required following the restoration process. But strategies for restoring habitats at a landscape scale can overlook small, embedded communities. These communities often have different, more intense restoration needs than the surrounding landscape and can suffer further during the larger restoration process.

One such habitat involves the isolated depression wetlands scattered throughout south Georgia pinelands. Although small in size, these wetlands help maintain high levels of biodiversity in flora and fauna. When fire is suppressed, the encroachment of mesic hardwoods plagues most plant communities and alters fire effects and intensities. In response, restoration techniques have leaned heavily on reversing this encroachment and restoring a more natural fire regime. Yet in small wetlands, the rate of hardwood encroachment is greater and more intense methods are needed to stem and control hardwood encroachment. Fire combined with chemical treatment or mechanical removal of woody shrubs has proved more effective in opening these habitats to more diverse grasses and forbs.

As a result, how the restoration of isolated depression wetlands is tracked evolved from restoring structure to restoring biodiversity. The revised monitoring protocol will measure changes in vegetation structure while also documenting species diversity to compare among wetlands and across years. This will help inform managers about



Spring prescribed fire at Sandhills WMA West (Hal Massie/DNR)



Wiregrass being grown at Altama WMA greens up after a prescribed burn (Matthew Stoddard/DNR)



the best methods to restore vegetation structure and maximize floristic diversity, a critical combo in establishing a stable community as well as a robust diversity in fauna.

Monitoring can also be a long-term objective and power an adaptive management approach to land management. In a multistate ecological restoration project involving sandhills and upland longleaf pine habitats, Wildlife Conservation is evaluating the effectiveness of various restoration and management tools and methods over time. A diverse understory is critical in the restoration process: Herbaceous groundcover dominated by grasses, legumes and other forbs helps carry fire through this fire-maintained habitat, favors regeneration of pine seedlings and provides forage and structure beneficial for wildlife. With all properties at various stages of restoration, long-term monitoring helps tailor management decisions based on how individual properties respond and the speed of recovery.

### ■ Native Groundcover Restoration

While benefiting all wildlife, restoring native groundcover can be vital to recovering rare species and the habitats they require. However, access to locally adapted seed is a limiting factor. For the last several years, the Wildlife Conservation Section has focused on building capacity in-house to support producing the seed restoration projects need. Staff identified areas on state conservation lands to grow substantial acres of wiregrass and associated fall-producing groundcover species as a source of seed. Also, a 5-acre native plant nursery was created at Altama Plantation Wildlife Management Area to produce other native groundcover species that complement the wiregrass production at the Glynn County WMA.

In fiscal year 2024, Wildlife Conservation managed wiregrass donor sites totaling

about 35 acres and including Altama's former airstrip, old agricultural fields and a managed pine stand at Sansavilla Wildlife Management Area in Wayne County. Staff continued targeted treatments of weedy species such as Bahiagrass at Altama and prioritized growing-season burns to maximize seed production. Ceylon Wildlife Management Area in Camden County also has about 130 acres of high-quality, wiregrass-dominated groundcover. That acreage at Ceylon and about 27 acres at Altama were burned in the spring and should provide viable seed for harvest in fall 2024.

A part-time hourly was hired in fiscal 2024 to help manage the Altama nursery. Over 50 different native forbs, legumes and grasses collected locally are being grown. The mix of species flowers throughout the growing season and offers cover and food for northern bobwhites and gopher tortoises and nectar and host material for pollinators.



Once plants are established, seeds will be harvested and provided to DNR and partners for use on conservation lands in the Altamaha conservation corridor, where the diversity of groundcover is low.

Wildlife Conservation hosted a groundcover restoration strategy meeting in May 2024 with other DNR staff and partners including The Longleaf Alliance, Orianne Society, the U.S. Forest Service's National Seed Laboratory and The Nature Conservancy. The meeting at Altama was organized to help inform DNR's groundcover restoration program statewide, with a focus on the coast. The group toured the nursery and the former air strip and old fields converted into wiregrass seed donor sites. Attendees reviewed the list of groundcover species grown, suggesting that some be removed and others added. While most of the species will be grown in the Altama nursery, a recommended strategy of using rights of way, old fields and unused food plots as donor plots also will be pursued to better meet seed production goals for subsets of target species. The discussions will help Wildlife Conservation's native groundcover program be more effective in producing and using seeds. Staff plan to next work with DNR GIS staff on using data layers to pick and prioritize sites to plant native groundcover.

In southwest Georgia, Wildlife Conservation collected 250 seeds from a sundial lupine patch on Silver Lake Wildlife Management Area near Bainbridge. Sundial lupine (*Lupinus perennis*) is the host plant for the imperiled frosted elfin butterfly. Staff will plant the seeds in plots on the WMA, adding to plants established last year. The hope is to create substantial patches of sundial lupine so that frosted elfins can be reintroduced to Silver Lake.

Staff also collected seed from the native species lopsided Indiangrass (*Sorghastrum secundum*) and big bluestem (*Andropogon gerardi*) at Silver Lake and Doerun Pitcherplant Bog Wildlife Management Area in south Georgia. In addition, wiregrass seed was collected using Flail-Vac equipment at planted donor sites on the region's Albany Nursery and Elmodel wildlife management areas. This seed will be either grown into plugs or direct-seeded at other WMAs.

## Prescribed Fire

Prescribed fire is one of the best, most cost-effective tools for conserving and restoring fire-adapted habitats. Burns mimic lightning-set fires and help numerous species of conservation concern. Prescribed fire is used in conjunction with other land-management techniques – such as removing invasive species, planting native ones and thinning timber – to improve natural habitats on public and private lands. It is a safe way to apply a natural process, ensure ecosystem health and reduce the risk of wildfire. Prescribed fire also is key to managing wildlife diversity, building resilient ecosystems and even promoting cleaner air.

The U.S. Environmental Protection Agency's decision in February 2024 to strengthen the National Ambient Air Quality Standards for Particulate Matter fueled a coordinated response from prescribed fire managers. (EPA changed the primary annual standard for particulate or soot pollution – known as PM<sub>2.5</sub> – from 12 to 9 micrograms per cubic meter.) Stakeholders met that year at the Georgia

Tabletop Exercise to discuss the importance of prescribed burning, potential impacts of the new air quality standard with respect to fire-related emissions and possible solutions. DNR's Wildlife Conservation and Game Management sections were heavily involved, working closely with the EPA, DNR's Environmental Protection Division, the Georgia Prescribed Fire Council, the Interagency Burn Team, Georgia Forestry Commission and private landowners. There was strong support that prescribed fire is needed for managing wildlife, lowering the risk of wildfire and reducing the build-up of fuels that can lead to catastrophic wildfire and elevated levels of particulate matter.

The effort identified the “exceptional events” process as a potential solution. The EPA recognizes wildfire and prescribed fire as exceptional events. For a controlled burn, what's called an exceptional event demonstration can be used to request an exclusion that lowers air-quality monitor values for a day. Wildlife Conservation led a state and area task force on this issue. The group advocated for prescribed burning at meetings across the country, developed

DNR's Jude Castleberry and another staffer manage a prescribed fire at George L. Smith State Park (Shan Cammack/DNR)





standard language on prescribed fire as well as fire return intervals and wildfire mitigation maps to meet exceptional event demonstration requirements, increased public notifications regarding fire, smoke and health risks, and educated prescribed fire practitioners statewide about best smoke management practices. This information was included in the ongoing revision of Georgia's State Wildlife Action Plan and shared with other Southeastern states to support their creation of exceptional event demonstrations.

Staff also helped organize the two annual Georgia Prescribed Fire Council meetings, recorded presentations for posting online and gave a presentation on smoke management. Wildlife Conservation, working with Game Management's Private Lands Program, developed a brochure on prescribed fire liability.

In the field, DNR's Wildlife Resources Division – which includes the Wildlife Conservation, Game Management and Fisheries Management sections – recorded another significant year, burning 96,688 acres in fiscal 2024. The total shattered the previous year's 75,000 acres, also

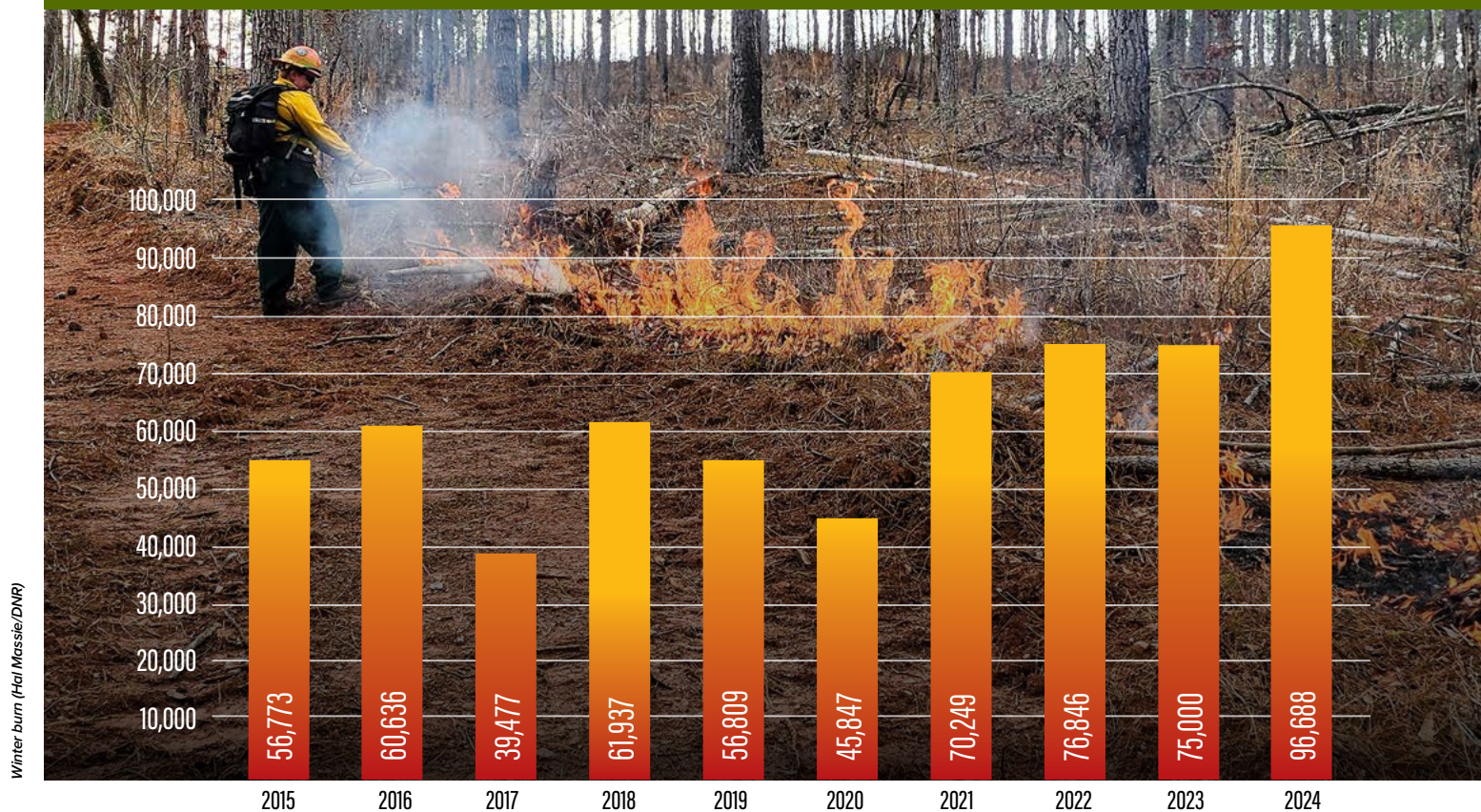
DNR's Paige Dykstra works an aerial burn at Big Lazer WMA (DNR)



a record. Yet the effort also raised a question: Is this enough? Land acquisitions have stretched the staff and resources available for burning. However, the division continues to make prescribed fire a priority and is working to meet the challenge.

Wildlife Conservation also supports the prescribed fire efforts of DNR's Georgia State Parks and Historic Sites Division, having helped develop that agency's burn program over the past two decades. In the wake of personnel changes in parks, Wildlife Conservation led prescribed

DNR-MANAGED ACRES BURNED 2015 - 2024 Totals by fiscal year



Winter burn (Hal Massie/DNR)



burning at a number of parks. In all, 2,369 acres were burned on 17 state parks, while parks staff also helped with fires covering 888 acres on partner lands, including sites managed by Wildlife Conservation and the National Park Service. Twenty-six parks employees helped. Notable partners included volunteers trained to National Wildlife Coordinating Group standards from Birds Georgia and members of the Southwest Georgia Prescribed Burn Association. Parks again proved a significant contributor to the Interagency Burn Team, providing meeting and fire training venues.

The Interagency Burn Team also had another strong year. And thanks to funding from the Georgia Outdoor Stewardship Program, seasonal fire crews from The Nature Conservancy and Orianne Society helped burn on priority wildlife management areas in southeast Georgia. Those WMAs included Alapaha River near Tifton, Alligator Creek just north of Lumber City, Ceylon in Camden County, Canoochee Sandhills near Pembroke, Flat Tub in Jeff Davis County, Moody Forest in Appling County, Ochoopee Dunes near Swainsboro and Sansavilla near Hortense. The Nature Conservancy helped burn 5,923 acres; the Orianne Society, 6,475 acres.

## ■ Seasonal Fire Crews

Since 2009, seasonal fire crews have conducted the bulk of the Wildlife Conservation Section's prescribed fires. In fiscal year 2024, the agency had four crews.

- The southeast Georgia crew worked out of Altama Plantation Wildlife Management Area near Brunswick. The team was funded by Pittman-Robertson Wildlife Restoration funds.
- The west-central Georgia crew, based at Sandhills Wildlife Management Area East near Butler, was also funded by Pittman-Robertson Wildlife Restoration funds.
- The Gopher Tortoise Conservation Initiative fire crew, supported by Wildlife Conservation's gopher tortoise State Wildlife Grant, was based at Alapaha River Wildlife Management Area near Tifton.
- The Ceylon Wildlife Management Area burn crew, the newest of the four groups, was based at the Camden County WMA. A U.S. Navy Readiness and Environmental Protection Integration Program grant funded the team.

These crews typically worked independently of each other, with the west-central crew focusing on the Fall Line sandhills and Pine Mountain regions, the southeast Georgia crew on the Fort Stewart and lower Altamaha River area and high-priority state parks in the region, the tortoise crew on properties across Georgia's Coastal Plain, and the Ceylon crew on the same-named WMA.

In fiscal 2024, the **southeast Georgia crew** conducted 43 burn operations on 6,036 acres. This total included 4,750 acres on wildlife management areas, 550 acres on state parks and historic sites, and 736 acres on private lands rated a high priority for conservation. The crew helped conduct burns on WMAs across the region, as well as at high-priority state parks in the Coastal Plain. Sites included Alligator Creek, Altama Plantation, Canoochee Sandhills, Ceylon, Moody Forest, Ochoopee Dunes, Sansavilla, Sapelo Island and Yuchi WMAs, as well as George L. Smith and Seminole state parks. Staff also took part in prescribed fires on key private lands such as The Nature Conservancy's Lewis Tract easement in Brantley County and Broxton Rocks Preserve in Coffee County, and the Orianne Society's Longleaf Stewardship Center (previously called the Indigo Snake Preserve) near Lumber City. Wildlife Conservation helped mentor Orianne Society's new fire crew, as well.

The southeast Georgia crew also took part in training and, when weather was not conducive for prescribed fire, other management activities. Members helped with a Basic Wildland Firefighter Academy and a Wildland Chainsaw course. They also participated in bird and plant surveys, outreach events, outplanting rare plants and removing invasive species.

Four of the crew's six members had worked for trail and fire crews in California. Their perspectives and hard work ethic inspired Wildlife Conservation to raise money for and begin filming a "Young Fires" documentary about diversity on the fireline and memorable wildland fire mentors.

In 27 burn days, the **west-central Georgia crew** burned 10,218 acres, including 1,039 on private lands, 2,191 working with Game Management and 1,085 helping state parks. Most of these units are burned on a two-year rotation, with other habitat management such as timber thins and hardwood control also increasing the amount of sunlight that reaches the forest floor.

As a result, many stands are becoming more open and grassier, and increases in rare species such as Bachman's sparrows, southeastern American kestrels, gopher tortoises and red-cockaded woodpeckers have been documented.

A unique aspect of the west-central Georgia crew is that they pursue many other ecological restoration activities besides prescribed fire. For example, members logged 20 days removing invasive species at Montezuma Bluffs Wildlife Management Area in Macon County. The work focused on Chinese privet, laurel cherry, musk thistle and English ivy, but also targeted feral hogs. (For more, see the Invasives Species segment.) An interpretive trail was largely completed as part of a hiking trail created on Montezuma Bluffs in 2022. Also, while scouting for ways to supply herbicide for a contractor treating Chinese privet deep in the WMA, senior wildlife biologist Nathan Klaus and technician Paige Dykstra found several remnant patches of old-growth swamp forest that had not been documented.

The west-central Georgia crew spent nearly 500 hours on other tasks, including picking up litter on Sprewell Bluff Wildlife Management Area campgrounds near Thomaston, planting native grasses at Panola Mountain State Park near Stockbridge, teaming with Georgia State Parks staff to restore a woodland at Panola Mountain, marking timber at Oak Woods Wildlife Management Area near Kathleen, and monitoring Sprewell Bluff's new red-cockaded woodpecker population.

In its fourth season of operation, the Gopher Tortoise Conservation Initiative crew had another great year, burning 5,767 acres in 46 operations across the Coastal Plain. Burns focused on wildlife management areas and state parks with high-priority gopher tortoise habitat. Those sites included the WMAs Alapaha River near Ocilla, Alligator Creek in Wheeler County, Bullard Creek near Hazlehurst, Chattahoochee Fall Line Hilliard Plantation Tract near Buena Vista, Doerun Pitcherplant Bog in Colquitt County and Ochoopee Dunes in Emanuel County, as well as state parks Reed Bingham, Seminole and Kolomoki Mounds, near Adel, Donalsonville and Blakely, respectively. Additionally, the crew continued to build and strengthen interagency partnerships by helping with prescribed fire operations on lands owned and managed by others, including The Nature Conservancy's Moody Forest, Broxton Rocks, Lewis



Tract easement and the Chattahoochee Fall Line Upper Pine Knot Tract, as well as the Oriante Society's Longleaf Stewardship Center and several other high-priority properties.

Wildlife Conservation cooperated with the Wildlife Resources Division's Game Management Section on more than 6,000 acres of controlled burns on southwest Georgia WMAs. Many of these fires were done during the growing season, April through June. They benefited red-cockaded woodpecker groups on Silver Lake and Lake Seminole WMAs near Bainbridge and at River Creek, the Rolf and Alexandra Kauka WMA near Thomasville. Growing-season fires maintain stands of native groundcover, which represent lands that never experienced significant soil disturbance and certainly have not been cleared for farming. These burns most closely replicate a natural, or pre-European settlement, fire regime, promoting the flowering of most native bunch grass species. This sets the stage for collecting native grass seed for habitat restoration projects across the region. Most growing-season burns in the region targeted longleaf pine stands with extensive native groundcover and high-priority plant and animal species. At Doerun Pitcherplant Bog WMA, 210 acres of longleaf forest were burned during the growing season, including several of the site's most significant bogs.

During its second year, the **Ceylon fire crew** burned 3,591 acres on Ceylon WMA alone. The total was nearly 2,000 acres more than the previous year and surpassed the goal of burning at least 30 percent of the uplands on Ceylon. Nearly 700 acres were burned during the growing season. The work targeted stands with a diversity of native groundcover and wiregrass. The crew prioritized burning longleaf pine habitats on Ceylon: 796 acres were young longleaf pine stands receiving their first fire since being planted.

A larger fire crew was hired this year to help in burning the 27,000-acre WMA. The crew included three seasonal fire technicians in addition to Ceylon's two full-time technicians and a full-time biologist. A workshop with bunk housing is planned on the WMA to house a larger burn crew. The workshop should be ready in 2026. For the coming year, the plan is to again house the Ceylon fire crew at Altama Plantation Wildlife Management Area near Brunswick.

## ■ Training and Outreach

The Wildlife Conservation Section continues to lead in fire training for the Interagency Burn Team. Staff developed training materials, revitalized traditional material and set up training across the state. These efforts included training staff from DNR Wildlife Resources Division's Wildlife Conservation and Game Management sections, DNR's State Parks and Historic Sites Division, and other Interagency Burn Team partners and volunteers.

Wildlife Conservation coordinated materials, groups and venues and led eight RT-130 Annual Fire Safety refreshers for the Interagency Burn Team, training 248 people in person and 18 virtually. Staff also led two Firefighter Type 2 academies, training 71 students. This effort included seasonal fire crews for Wildlife Conservation, Game Management, The Nature Conservancy, Oriante Society and DNR parks, as well as students from Ogeechee Technical College and Abraham Baldwin Agricultural College. Wildlife Conservation helped Tall

Timbers in Firefighter Type 2 training for Berry College, training over 30 students and two professors. Staff also ran nine pack tests for wildland firefighters with the Interagency Team, testing 120 people. Important topics covered included lessons learned from the fireline, contingency planning, Utility Task Vehicle fires and unique uses for drones.

Wildlife Conservation joined with the Wildlife Resources Division's Private Lands Program, Tall Timbers and The Longleaf Alliance to host Learn and Burns and burn workshops across the state. These included an all-women's Seasonality of Burning workshop and an advanced burn Beyond the Black workshop.

The agency conducted prescribed burning outreach through presentations, webinars, virtual meetings, college lectures, videos, posters and environmental education. One fiscal year highlight was the release of "[Longleaf Forever](#)," a 16-minute documentary on longleaf pine ecosystems that engaged audiences about the importance of prescribed burning

West-central Georgia crew member on the fire line at Jarrell Plantation State Historic Site (Hal Massie/DNR)







# INVASIVE SPECIES

Georgia's State Wildlife Action Plan emphasizes increasing efforts to detect, monitor and control invasive species to conserve native wildlife and their habitats. Invasive species are non-native animals and plants that cause environmental or economic harm after being introduced, intentionally or accidentally, into areas outside their natural ranges. Invasives have negative impacts on native wildlife and represent one of the greatest threats to biodiversity. Controlling and treating these species can yield positive, cascading effects for native wildlife and for the benefits people derive from ecosystems.

Following completion of the Georgia Invasive Species Strategy in 2009, the Wildlife Conservation Section sought State Wildlife Grants to implement invasive species assessment and management programs, with a focus on the coastal region. The current project

is aimed at enhancing methods for assessing and controlling invasive non-native species on public and other conservation lands. Objectives also include providing land managers with better technical and informational resources to help control invasives, along with promoting the appropriate use of native plant species by public and private land managers.

On a related front, in fiscal year 2024 Wildlife Conservation and DNR's Law Enforcement Division continued to raise awareness of the changes in 2022 to Georgia's list of wild animals regulated by state law. The rule changes, approved by the Board of Natural Resources in October 2022, added species that pose a threat to native wildlife or to people. The changes also synced species' scientific names with the latest versions. Georgians with pet reptiles newly added to the wild animal list were given until December 2023 to

register and tag their pets or find an appropriate home for them. Owners of aquarium species now regulated by law were given the same 12-month grace period to comply with the changes.

In addition to this and the following work, during fiscal 2024 staff gave talks to groups varying from garden clubs and Audubon chapters to forestry experts and local colleges about identifying invasive species, emerging threats and native plant alternatives. Staff also worked to control and eradicate sweet tanglehead, a non-native grass that is invasive in the Southeast, on River Creek, the Rolf and Alexandra Kauka Wildlife Management Area near Thomasville. Sweet tanglehead grows 6-8 feet tall and can take over forest stands and fields. It bears seeds with barbs and sharp bristles that can burrow into the skin and even the nasal passages of animals.



## ■ Coastal Georgia

During fiscal year 2024 in coastal Georgia, Wildlife Conservation Section staff:

- Continued a multiyear project to eradicate common reed in the Altamaha River delta, at a roadside site in Camden County and near DNR's Coastal Regional Headquarters in Brunswick.
- Led the Coastal Georgia Cooperative Invasive Species Management Area, as in years past. The alliance of federal, state, nonprofit and private groups formed in 2012. The group is focused on managing invasive species in the 11-county coastal area. The steering committee includes representatives from Wildlife Conservation, DNR's Fisheries Management Section and Coastal Resources and State Parks and Historic Sites divisions, The Nature Conservancy, U.S. Fish and Wildlife Service, National Park Service, Sapelo Island National Estuarine Research Reserve, Georgia Power, Georgia Department of Transportation, Georgia Ports Authority, Little St. Simons Island, Jekyll Island Authority, Georgia Forestry Commission, and the University of Georgia's Cooperative and Marine extensions.
- Coordinated a three-person Student Conservation Association crew in treating invasive species on state conservation lands. The crew, shared with staff in middle Georgia (details below), focused on a wide range of non-native invasive species management and habitat improvement projects. Targets included climbing fern, Chinese tallow, Asian wisteria, big-leaf lantana, sand pine, periwinkle vine, Cherokee rose, common reed and flathead catfish. The crew also helped DNR reach invasive species management goals not possible with current staffing. The capacity to revisit and re-treat infestations is key to achieving management goals and improving habitat.
- Worked with the Coastal Resources Division to conduct, via drone technology, an annual post-treatment assessment of areas in the mouth of the Altamaha River treated for salt cedar and common reed. Annual flights help track progress and show if other management is needed.
- Continued a multiyear effort to manage habitat for one of the world's two known

populations of Radford's mint through management of invasive sand pine. Wildlife Conservation staff and volunteers removed sand pine seedlings invading this site.

- During the 2024 National Invasive Species Awareness week, staff created daily educational content posted to the Coastal Cooperative Invasive Species Management Area Facebook page.
- Further improved a native plant pollinator garden in a restored 1930s-era formal garden at Altama WMA. The garden is treasured by many locals and helps promote native plants as alternatives to invasive species.
- Worked with the Cannon's Point Conservation Task Force to manage invasive species according to the management plan for the St. Simons Island preserve.
- Continued participating in the Coastal Georgia Pest Risk Committee, the Georgia Exotic Pest Plant Council and the Georgia Invasive Species Task Force.
- Coordinated with the First Coast Invasive Working Group in northeast Florida to stay abreast of novel invasive species in the north Florida and south Georgia coastal region.

In other updates regarding invasive species in south Georgia, DNR asked anglers on the Satilla River to [report catches of tagged blue catfish](#), part of an agency study assessing the impact of these big, non-native predators in a south Georgia river already coping with invasive flathead cats. And speaking of flatheads, these heavyweight catfish have [made their way into the Ogeechee River](#), where – as in the Satilla – they pose threats to the river's redbreast and other native fishes. DNR sampling netted more than a dozen flatheads in August 2023, spurring a call for Ogeechee anglers to harvest and report any flatheads caught to [georgiawildlife.com/ans](http://georgiawildlife.com/ans).

Also add [blue land crabs](#) to the lineup of non-native species invading Georgia. The large crustaceans with carapaces up to 6 inches and origins in the Caribbean and Central and South America have been reported along the South Atlantic coast, including in Georgia. The public is encouraged to take photos and [report sightings](#).

## ■ Middle and North Georgia

In summer 2024, a reproducing population of Chinese or Japanese mystery snails was [confirmed in north Georgia's Lake Lanier](#), the latest advance in the state for the invasive snails from Asia. Although popular for aquariums and in some food markets, live mystery snails are illegal in the state, and DNR is asking anglers and boaters to [help prevent their spread](#).

Invasive aquatic species can cause significant ecological and economic impacts, from damaging boats to disrupting ecosystems by displacing native wildlife. Mystery snails also can host internal parasites and present possible health risks if eaten raw or undercooked. A member of the genus *Cipangopaludina*, these snails have been found in some other waterbodies in the state. DNR Wildlife Resources Division staff doing routine sampling at Lanier discovered the population there, according to Jim Page, the agency's aquatic nuisance species coordinator.

"While we cannot say with absolute certainty how this invasive snail was introduced into Lake Lanier, its presence in various food markets within the U.S. and its popularity as a pet for some aquarium owners are at least two possible sources," Page said. "It should be noted that recent regulatory changes prohibit people from possessing live mystery snails in Georgia, regardless of their intended use."

DNR urged anglers and boaters to be aware and help prevent the spread of the non-native snails.

As for invasive species work in middle Georgia:

- The Wildlife Conservation Section's west-central Georgia prescribed fire crew staged 99 drums of herbicide deep in the swamps of Montezuma Bluffs Wildlife Management Area in Macon County, creating two herbicide supply "dumps" for use by a contract crew treating Chinese privet. Half of the drums were ferried in by boat on the Flint River, then hauled up the riverbank to be set up in an adjoining forest. This support played a key role in the contractor treating all of Montezuma Bluffs for Chinese privet, including remote areas deep in the swamp, some dense with the problematic exotic shrub. Privet threatened the WMA's large population of federally endangered relict





Staging herbicide drums at Montezuma Bluffs to treat Chinese privet (DNR)

trillium, the plant Montezuma Bluffs is best known for.

- Staff from DNR's Fisheries Management and Wildlife Conservation sections developed a comprehensive plan for combating invasive plants at Flat Creek Public Fishing Area near Perry. Georgia Outdoor Stewardship Program funds will be used to hire a contractor to treat thickets of Chinese privet, Chinaberry and other invasive plants. In addition to improving the public fishing area's conservation value, the property will be more accessible for hunters and other recreationists.
- Wildlife Conservation also joined with state parks staff to tackle musk thistle on Panola Mountain State Park near Stockbridge. At Joe Kurz Wildlife Management Area near Gay, they consulted with the Game Management Section about the invasive plant and began leading control measures at the WMA, designated by the National Audubon Society as an Important Bird Area.
- The Student Conservation Association crew shared with the coastal Wildlife Conservation office sprayed invasive

Vaseygrass and Johnsongrass in native grasslands at Panola Mountain State Park near Stockbridge, Flat Creek PFA and Sprewell Bluff Wildlife Management Area near Thomaston. Because no herbicide is highly effective against Vaseygrass, multiyear treatments are necessary. While Vaseygrass has been in Georgia for more than a century, it has become far more widespread in the last decade and spreads easily along roads.

- Staff spot-treated Japanese climbing fern and beefsteak plant on Sprewell Bluff. These efforts have stopped the invasive plants' spread, but eradication remains elusive. Japanese climbing fern is easily controlled if caught early. Once populations are established, eradication is nearly impossible.
- At Sandhills Wildlife Management Area near Butler, Wildlife Conservation finished the 11th year of herbicide work to control showy rattlebox. While hundreds of plants were found in previous years, in fiscal year 2024 none were seen, possibly indicating a rare victory over an invasive species. But monitoring continues.

## ■ Argentine Black and White Tegus

Argentine black and white tegus are an invasive species that poses threats to native Georgia wildlife, including gopher tortoises, Georgia's state reptile. Native to Brazil, Paraguay, Argentina and Uruguay, this largest of all tegu species has been documented eating young gopher tortoises and the eggs of alligators. The eggs of gopher tortoises and ground-nesting birds, including northern bobwhites and wild turkeys, are susceptible to predation. Tegus also eat fruit, vegetables, plants, pet food and chicken eggs. An additional concern is that tegus could cause bacterial contamination of crops and spread exotic parasites to native wildlife.

Since summer 2018, the Wildlife Resources Division has been working to assess and eradicate Argentine black and white tegus in the wild in eastern Toombs and western Tattnall counties. A partnership with the U.S. Geological Survey and Georgia Southern University resulted in the capture of nearly 20 adult tegus from the area, and the investigation or capture of numerous reported presumed escaped or released pet tegus across the



state. In 2024, as of late summer four Argentine black and white tegus had been killed or found dead and a handful more seen in Toombs and Tattnall counties that year. Although no hatchlings or nests have been found, the analysis of animals caught or provided and the number and distribution of credible reports point to a reproducing population of tegus in this rural area.

The tegu response grew from a Game Management wildlife technician supervisor trapping tegus in spring 2019 to the Geological Survey's Invasive Species Task Force teaming with DNR and Georgia Southern University on a large-scale trapping effort using contracted students from Georgia Southern in 2020 and 2021, all promoted by Wildlife Conservation outreach efforts. Funding changes in 2022 spurred coordinators to focus on engaging landowners to help with trapping following verified sightings and offering loaner traps. The region's wildlife tech supervisor serves as the primary local contact, with Wildlife Conservation's senior herpetologist providing coordination as needed and Georgia Southern continuing to offer support.

As part of this effort, Wildlife Conservation has raised awareness of tegus with residents by email, direct mail, flyers, news releases, social media and advertising campaigns. In fiscal 2024, outreach included:

- Conducting an email and social media ad campaign in April 2024 to inform local residents and encourage the reporting of sightings. Almost 10,500 people in the area saw one or both of the two Facebook ads at least once. More than half of the 32,000 recipients of an e-mail blast to area hunting/fishing license holders and boat registrants opened the email at least once.
- Supplying tegu flyers and cards to project partners and local outlets, including University of Georgia Extension offices. (A Lyons radio station also repeated a public service announcement.)
- Emailing an online survey invitation to about 15,300 residents in 15 ZIP codes in the Toombs/Tattnall area. Of the survey's 313 responses, nine-in-10 respondents who had seen DNR communications or news coverage about tegus said they were extremely to somewhat likely to contact DNR if they saw a tegu. More than 94 percent also said that after those communications and coverage,

they were more likely to agree that tegus pose a threat to native wildlife, DNR should work to eradicate or control tegus in the wild, and reporting tegus is crucial to that effort

- Coordinating media responses to the tegu situation.

Year-round, staff and project partners monitor and respond to sightings reported via [gainvasives@dnr.ga.gov](mailto:gainvasives@dnr.ga.gov) and [gainvasives.org/argentine-black-and-white-tegu](http://gainvasives.org/argentine-black-and-white-tegu), the EDDMapS system managed by UGA's Center for Invasive Species and Ecosystem Health.



Adult tegu killed this year in the wild in eastern Toombs County (Seth Edwards/Special to DNR)



# PRIVATE LANDS

With more than 90 percent of Georgia lands in private ownership, conservation on private land is crucial to wildlife and natural communities in the state. The Wildlife Conservation Section collaborated with landowners throughout Georgia in fiscal year 2024 (also see: Land Acquisitions and Conservation Easements).

Staff answered landowner questions and visited sites to share management advice, conduct surveys for high-priority species and help with other elements of conservation planning. Landowners were advised of cost-share, technical assistance and grant opportunities and guided through procedures for using programs such as the Natural Resources Conservation Service's Environmental Quality Incentives Program, Working Lands for Wildlife, Conservation Stewardship Program and Wetlands Reserve Easements Program. Landowners also received information about technical and financial assistance programs available through Georgia Forestry Commission, The Longleaf Alliance, the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife, and Regional Conservation Partnership Programs. Staff partnered with the Sustainable Forestry Initiative to develop new training programs and products for Master Timber Harvesters and independent forestry companies. These programs and tools will inform loggers and foresters about many of Georgia's high priority wildlife species and communities and provide guidance about protecting or enhancing habitat for rare and vulnerable species during timber harvests.

Staff also represented Georgia in the Association of Fish and Wildlife Agencies' Solar Wildlife Working Group, a collaborative effort by six state fish and wildlife agencies and the solar industry to create national-scale guidelines to assess, address and manage the impacts of solar energy development on wildlife and habitats.

Wildlife Conservation took part, as well, in several regional conservation planning efforts, including strategic plan development for the Fort Stewart/Altamaha Longleaf Restoration Partnership in southeast Georgia. In southwest Georgia, DNR's Wildlife Conservation staff collaborated with Florida Fish and Wildlife Conservation Commission, Tall Timbers





DNR Wildlife Resources Division Director Ted Willi, right, and Quail Country CCAA enrollees Helen and Tom Roth (Karl Efters/Tall Timbers)

While the program began as a way to recognize corporate Georgia landowners that exceeded Sustainable Forestry Initiative requirements, the number of companies with large forest landholdings in the state has declined, and the expansion of Sustainable Forestry Initiative conservation standards duplicated many Forestry for Wildlife measures. In response, DNR revamped the partnership. The revised requirements center on projects between potential partners and the agency. The focus is making wildlife improvements that sync with DNR's Bobwhite Quail Initiative and Georgia's State Wildlife Action Plan, two guiding strategies created with stakeholders.

The minimum property size for participating in Forestry for Wildlife also was lowered from 20,000 to 10,000 acres, increasing eligibility for more landowners, from individuals to organizations. Significant accomplishments are highlighted on social media and in DNR's hunting and fishing regulation guides. Partners that complete projects are recognized in an annual news release and photos with the governor.

Forest Investment Associates, PotlatchDeltic, Georgia Power and Weyerhaeuser were the Forestry for Wildlife Partners for calendar year 2024. These corporations are among the largest landowners and managers of private lands in Georgia, directly affecting wildlife habitat on nearly 1 million acres. In fiscal year 2024, DNR also solicited new partners and began work with one that will likely gain partner status.

Highlights of partner conservation efforts in 2024 include the following:

Forest Investment Associates, often simply called FIA, began working with Wildlife Conservation in 2021 and was first recognized as a Forestry for Wildlife partner in 2023. FIA supports surveys and management benefiting two populations of Chapman's fringed orchid on a large tract the company manages in Camden County. In Georgia, Chapman's fringed orchid is known from only a few small roadside populations in Camden and two other counties in the southeastern part of the state. This rare and beautiful orchid, a high-priority species in the State Wildlife Action Plan, is associated

Research Station and the Fish and Wildlife Service to roll out a conservation program for private landowners in southwest Georgia and the Florida Panhandle. The Quail Country Candidate Conservation with Assurances Agreement, a voluntary agreement, provides incentives for private landowners to implement management practices benefiting one or more of 12 at-risk focal species in the region.

Staff coordinated with The Longleaf Alliance, Georgia Conservancy and Wildlife Resource Division's Game Management staff to host landowner workshops, fire festivals and field days throughout the state, promoting prescribed fire and habitat management to private landowners. Staff were excited to showcase a growing collection of burn trailers that are now available for private landowners to rent through Georgia Forestry Commission or their area Resource Conservation and Development Council ([find a burn trailer near you](#)).

## Forestry for Wildlife Partnership

The Wildlife Conservation Section plays a strong role in the DNR Wildlife Resources Division's Forestry for Wildlife Partnership. This program has been a standard of excellence in combining forest management and wildlife conservation since 1996.

The Wildlife Resources Division strengthened the partnership in fiscal year 2022, making it project-focused and open to more landowners.

Forestry for Wildlife Partnership is a voluntary, flexible, non-competitive and participant-driven effort that:

- Enhances wildlife conservation on the holdings of large landowners.
- Helps deliver wildlife technical assistance, training and outreach.
- Recognizes partners for their wildlife conservation achievements.

Coordinated by Game Management and Wildlife Conservation biologists, this public-private partnership provides opportunities to enhance wildlife conservation on private lands. Companies are recognized for their achievements. Conservation targets include red-cockaded woodpecker habitat, bald eagle and swallow-tailed kite nests, isolated wetlands critical to protected reptiles and amphibians, and remnant Coosa Valley prairies, home to endangered plants. The partnership also provides the public with outdoor recreation opportunities such as wildlife viewing, hunting and fishing. Partners are committed to Sustainable Forestry Initiative goals.





2024 Forestry for Wildlife Partners with Gov. Brian and First Lady Marty Kemp at the Capitol (Office of the Governor)

with pine flatwoods wetlands, many of which have been converted for forestry in the region. Like many similar orchids, it requires moist soils and open sunny conditions to thrive.

In the summer and fall of 2023, Wildlife Conservation staff partnered with Jacksonville Zoo and Garden's horticultural staff and Atlanta Botanical Garden to collect seed for maternal line tracking and seed-banking of a Chapman's fringed orchid population discovered on the FIA-managed tract in 2021. During a monitoring visit in late 2023, staff also controlled invasive Chinese tallow at the site and shared additional habitat management recommendations with FIA and their forestry staff to promote a more robust population of Chapman's fringed orchid.

In a second population, a timber harvest was carefully planned in consultation with Wildlife Conservation to protect the roadside orchids. Logging was completed in early 2023, and FIA set aside a 2-acre area between the managed forest and the right of way where the orchids occurred. Since first documented in 2013, this population has continued to decline, with no more than

one to four flowering plants observed each year. However, increased sunlight following the harvest is expected to improve conditions for the plants following continued management such as mowing or burning to control competing vegetation.

Georgia Power is one of the largest private landowners in the state and manages its undeveloped land for multiple benefits, including public recreation, timber production and conservation of rare species. Prescribed fire is applied to more than 5,000 acres annually. More than 20,000 acres are open for public recreation through DNR's wildlife management areas program, including Blanton Creek, Rum Creek and Oconee wildlife management areas in middle Georgia. Sprewell Bluff Wildlife Management Area, part of more than 3,000 acres Georgia Power donated to DNR in 2009 received six translocated red-cockaded woodpeckers in spring 2024. This translocation is a key step in restoring this federally listed species to the Pine Mountain landscape near Thomaston. The woodpeckers had not been documented in that area for almost 50 years. Georgia Power is

also restoring longleaf pine habitat in support of conservation partner landscape goals and participates in DNR's Safe Harbor Program for red-cockaded woodpeckers.

More than 20 bald eagle nests were found, monitored and protected on company lands and lakes this past year. Through grants, Georgia Power provides ongoing support for long-term projects to restore longleaf pine habitats, protect populations of bats threatened by white-nose syndrome, conserve shorebirds and imperiled aquatic species, and improve water quality in impaired streams.

Georgia Power lands and transmission rights of way typically are managed with an integrated vegetation management approach. Developed to promote and establish a stable and diverse low-growing plant community on rights of way, this approach often provides significant benefits to wildlife communities adapted to open grass-and-forb-dominated landscapes. Many of Georgia Power's lands provide habitat for several species of rare plants, including 11 federally listed as threatened or endangered.



The company provided new No Mow/No Spray signage to protect hairy rattlesnake on a transmission right of way in southeastern Georgia. The distribution of this federally endangered plant is limited to two counties in the state. Populations of federally threatened Georgia rockcress also were monitored within designated critical habitat at Goat Rock Lake near Columbus.

At Plant Hatch, as a participant in the statewide Gopher Tortoise Conservation Initiative and the multistate Candidate Conservation Agreement for the eastern population of gopher tortoises, Georgia Power identified gopher tortoise burrows, stream buffers and other sensitive areas on a tract of loblolly pines scheduled for harvesting. The tract, which borders Moody Forest Wildlife Management Area near Baxley, will be replanted with longleaf pine and managed to enhance tortoise and red-cockaded woodpecker habitat. Georgia Power is also in the process of thinning 100 acres beside Moody Forest and plans to burn those tracts in fiscal 2025. The property was also included in a recent red-cockaded woodpecker Safe Harbor site review with DNR. Additional stands were identified for inclusion in the next version of the agreement.

Georgia Power partnered with DNR, Woodard & Curran, the Natural Resources Conservation Service, Jekyll Island Authority, Linwood Nature Preserve and the University of Georgia on research projects designed to enhance the value of rights of way as pollinator habitat. The project culminated in a workshop for vegetation managers.

In 2022, former longtime Forestry for Wildlife Partner CatchMark Timber merged with PotlatchDeltic, a forest products company based in Spokane, Wash., that owns 1.5 million forestland acres in the South. In 2023, Wildlife Conservation began collaborating with PotlatchDeltic on conservation activities at several of their Georgia tracts and welcomed the company as a Forestry for Wildlife Partner in 2024. PotlatchDeltic supports a conservation easement on its property near Townsend, protecting natural areas in the easement and making the 4,000 acres available for recreation and research within the 32,000-acre Townsend Wildlife Management Area. Another easement on a company site in Long County protects

high-priority habitats identified by Georgia's State Wildlife Action Plan and maintains open spaces adjacent to Fort Stewart Army base near Hinesville as part of the Army Compatible Use Buffer Program.

The company works with the U.S. Fish and Wildlife Service to protect habitat for endangered fringed campion on PotlatchDeltic lands in Talbot County and supports the work of DNR botanists and others to survey for the plant. On Pine Mountain in middle Georgia, PotlatchDeltic consulted with Wildlife Conservation about protecting a hog-plum glade and relict montane longleaf adjacent to Sprewell Bluff WMA before selling the two tracts to DNR.

Staff also updated the Natural Heritage data to ensure known locations of significant populations of threatened plant and animal species are protected and monitored on PotlatchDeltic lands.

The company continued to integrate a harvest planning system that considers landscape-level diversity, including robust thinning of pine

plantations that improves wildlife habitat and forest health. Prescribed fire is also used in site preparation and mid-rotation applications to the benefit of wildlife communities and forest health. About 1,800 acres were burned in 2024.

PotlatchDeltic sponsors and hosts hunting events with youth groups and organizations for the disabled to provide opportunities for these groups to learn about hunting and enjoy the outdoors. DNR bird surveys are also hosted, as well as ongoing studies investigating the response of grassland birds to different chemical and mechanical site preparation prescriptions.

DNR is provided access to company lands in Long, Brantley and McIntosh counties to conduct annual surveys of swallow-tailed kite nests. In fiscal 2023, scientists with the Avian Research and Conservation Institute, in coordination with American Bird Conservancy, captured two swallow-tailed kites on PotlatchDeltic properties to study their migratory movements and habitat use. Equipped with GPS transmitters, these birds provided valuable data for the past two seasons. In fiscal 2024, PotlatchDeltic met

Gina Kent from Avian Research and Conservation Institute releases a banded swallow-tailed kite on PotlatchDeltic property (Andy Day/DNR)





with Wildlife Conservation biologists to visit an important swallow-tailed kite nesting area on the company's property and learn more about how to protect these stands of trees.

As an original member of Forestry for Wildlife Partnership, Weyerhaeuser is committed to Sustainable Forestry Initiative standards and integrates conservation into its forests. A key initiative and one area the company has focused on in recent years is conserving gopher tortoises. Weyerhaeuser centers management for this iconic species on preferred soils with viable populations and helps Wildlife Conservation survey tortoises. The company also has worked with DNR, the University of Georgia, the Fish and Wildlife Service and others to better understand how tortoises respond to the changing mosaic of stand conditions in working pine forestlands, all in a larger effort to research tortoise ecology across company-managed lands in the Southeast.

In the Piedmont, Weyerhaeuser participated in a study initiated in 2016 and led by UGA and Auburn University researchers to explore the effects of forest thinning, prescribed fire and herbicides on plant communities and wildlife in general. This DNR-funded project, which concluded after eight years in early 2024, focused on conserving northern bobwhites. The findings will help inform managers about the ability of these pine plantation stands to maintain "open pine" conditions important to numerous species. Using the data, UGA researchers developed an economic decision-making tool to help private forestland owners balance forest economics with habitat management objectives.

Along Georgia's Fall Line, Weyerhaeuser coordinated with DNR to burn 204 acres of native montane longleaf habitat bordering Sprewell Bluff WMA. The company is also managing 84 acres for federally endangered fringed campion. This plant persists along moist slopes of mature hardwood forest and will be sheltered from adjacent forestry activities.

In the lower Coastal Plain, efforts with Wildlife Conservation included conserving wood stork rookeries and isolated wetlands and supporting DNR surveys for protected species, such as the federally threatened indigo snake and swallow-tailed kite.

## Community Wildlife Project

The Community Wildlife Project enhances native animal and plant populations and their habitats in urban, suburban and rural communities throughout the state. Goals for this award-winning initiative of the Wildlife Conservation Section and the Garden Club of Georgia include:

- Fostering wildlife conservation stewardship and education in Georgia communities.
- Promoting respect and appreciation for wildlife in combination with community beautification.
- Improving the quality of life for Georgians living in these communities.

More than 750 communities, cities and counties have been awarded full certification, with more than 600 in different stages of completing

certification standards. Since 2005, the Backyard Wildlife Certification survey has added about 4,700 certified backyards, 725 of which were certified with two or more adjoining neighboring yards for Neighborhood Backyard Certification.

In fiscal year 2024, a Container Gardening for Wildlife application was completed and released. The hope is this addition, geared to Georgians who have limited space outdoors to add wildlife habitat, will gain momentum in the next fiscal year.

As part of the Community Wildlife Project, a Garden Club district can win an award each quarter for the most participation per category, overall participation and "full" certifications (the number of yards meeting all requirements in each category). The program helps Wildlife Conservation build constituency through the 10,000-member club via habitat programs at local, state and regional levels.



Male Baltimore oriole (Linda May/DNR)



During fiscal year 2024, the DNR Law Enforcement Division enforced laws and regulations and conducted investigations involving rare and other native nongame species. That work included teaming with the National Oceanic and Atmospheric Administration to enforce federal measures – such as checking commercial trawlers for compliance with turtle excluder device, or TED, regulations – and raising awareness of marine mammals and the laws that protect them.

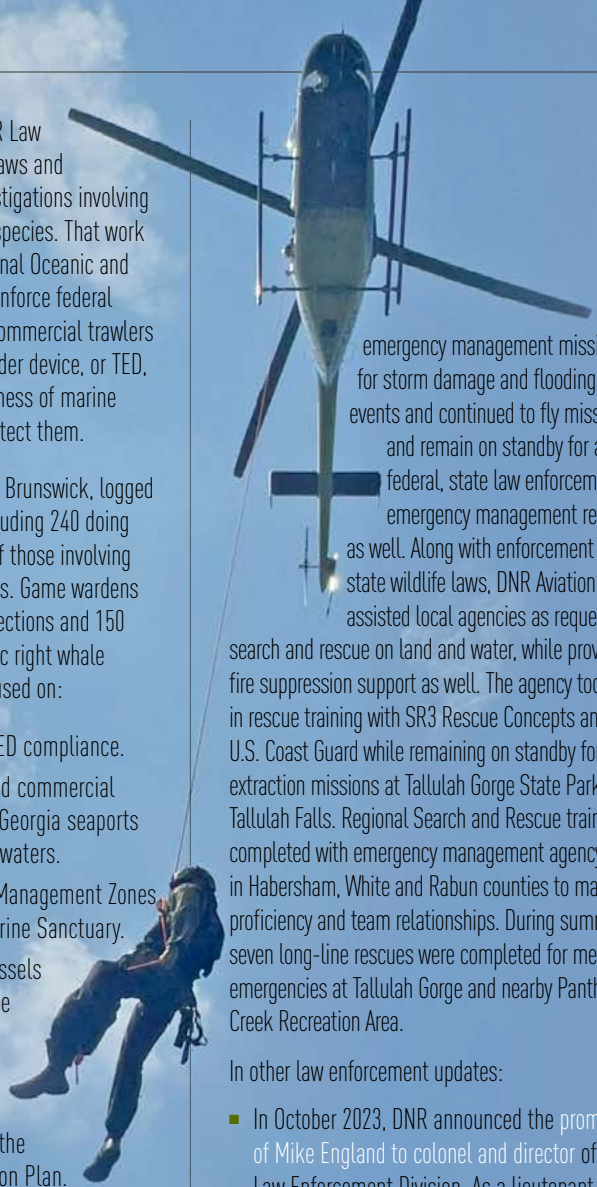
The division's Region 6, based in Brunswick, logged 680 personnel hours at sea, including 240 doing boat patrols, with the majority of those involving sea turtles and marine mammals. Game wardens recorded 190 hours on TED inspections and 150 hours dedicated to North Atlantic right whale patrols. Vessel patrol hours focused on:

- Shrimp trawler checks for TED compliance.
- Intercepts of recreational and commercial fishing vessels returning to Georgia seaports from fishing trips in federal waters.
- Offshore patrols to Special Management Zones and Gray's Reef National Marine Sanctuary.
- Concentrations of fishing vessels wherever they occurred in the Exclusive Economic Zone adjacent to the state.
- Offshore and nearshore patrols for compliance with the Atlantic Whale Take Reduction Plan.

Game wardens documented and forwarded to NOAA for prosecution 14 TED and other federal violations.

Region 4 staff, based in Metter, continued to help spread the word encouraging area residents to report sightings of Argentine black and white tegus. DNR's Wildlife Conservation Section worked this year with game wardens, the DNR Game Management Section and Georgia Southern University to assess and try to eradicate a wild population of these large, invasive South American lizards in southeast Georgia's Tattnall and Toombs counties.

Law Enforcement's Aviation Unit flew 530 hours supporting game wardens and the division's core mission of protecting natural resources. The flights included Wildlife Resources Division surveys of bald eagles, southeastern American kestrels, wood storks, wild turkeys, sandhill cranes, waterfowl, shorebirds, sea turtles, dolphins, manatees and bears. The unit also flew missions in support of local and state



emergency management missions for storm damage and flooding events and continued to fly missions and remain on standby for any federal, state law enforcement and emergency management requests as well. Along with enforcement of state wildlife laws, DNR Aviation also assisted local agencies as requested in search and rescue on land and water, while providing fire suppression support as well. The agency took part in rescue training with SR3 Rescue Concepts and the U.S. Coast Guard while remaining on standby for rescue extraction missions at Tallulah Gorge State Park in Tallulah Falls. Regional Search and Rescue training was completed with emergency management agency teams in Habersham, White and Rabun counties to maintain proficiency and team relationships. During summer 2024, seven long-line rescues were completed for medical emergencies at Tallulah Gorge and nearby Panther Creek Recreation Area.

In other law enforcement updates:

- In October 2023, DNR announced the promotion of Mike England to colonel and director of the Law Enforcement Division. As a lieutenant colonel, England had served as the division's assistant director. His appointment followed former Director and Col. Thomas Barnard being named a DNR deputy commissioner in September 2023. DNR Commissioner Walter Rabon said England's "wealth of knowledge derived from his decades of service with Georgia DNR, coupled with his leadership attributes, will greatly benefit the Law Enforcement Division and DNR as a whole." England has worked with the division for more than 30 years, beginning as a game warden in Richmond County in 1991. Barnard, also a DNR Law Enforcement veteran of over 30 years, had been director of the division since 2018.
- Lt. Col. James McLaughlin was promoted from captain and named assistant division director later in October 2023. As assistant director,

the 23-year DNR employee oversees all field operations for the Law Enforcement Division.

- In November 2023, U.S. Rep. Buddy Carter and the Coast Guard's 7th District Command presented Meritorious Service awards to the Law Enforcement's Sgt. Mark Carson, Cpls. Jay Bright and Thomas Shaske, and game warden Zac Griffis for their work as first responders when the MV Golden Ray capsized in St. Simons Sound in 2019.
- Game Warden Cory Bohannon was named both DNR's 2024 Game Warden of the Year and Georgia Boating Safety Officer of the Year. Bohannon is assigned to Lincoln County. Game Warden 1st Class Jared Wood from Fannin County received the James R. Darnell Award as Warden of the Year runner-up, plus the National Wild Turkey Federation Officer of the Year.
- Other 2024 honors included Matt Garthright of Columbia County being named Supervisor of the Year, Cpl. Eric White (Colquitt County) as Investigative Game Warden of the Year, Cpl. Ryan Locke (Hall County) as Operation Dry Water Officer of the Year, Game Warden 1st Class Phillip Nelson (Oglethorpe County) as recipient of the Rocky Wainwright Waterfowl Award; Game Warden 1st Class Ryan Buice (Upson County) as Hunter Education Instructor of the Year, and Game Warden Jaron Hollinshead (Baldwin County) as recipient of the Torch Award, which recognizes the work of recently appointed wardens.
- And in a glimpse of the everyday interactions between staff and the public, the division's Sgt. Carson (who has since retired) and Maj. Bob Holley helped an angler release a young loggerhead sea turtle inadvertently hooked while fishing from Tybee Island Pier in July 2023.

For more, see Law Enforcement's annual reports at [gadnrle.org](http://gadnrle.org). Report poaching and the violation of protected species laws and regulations by calling the Ranger Hotline at (800) 241-4113 (or \*DNR for AT&T mobility customers), emailing [rangerhotline@dnr.ga.gov](mailto:rangerhotline@dnr.ga.gov) or contacting a local game warden (search by county at [gadnrle.org/find-ranger](http://gadnrle.org/find-ranger)).

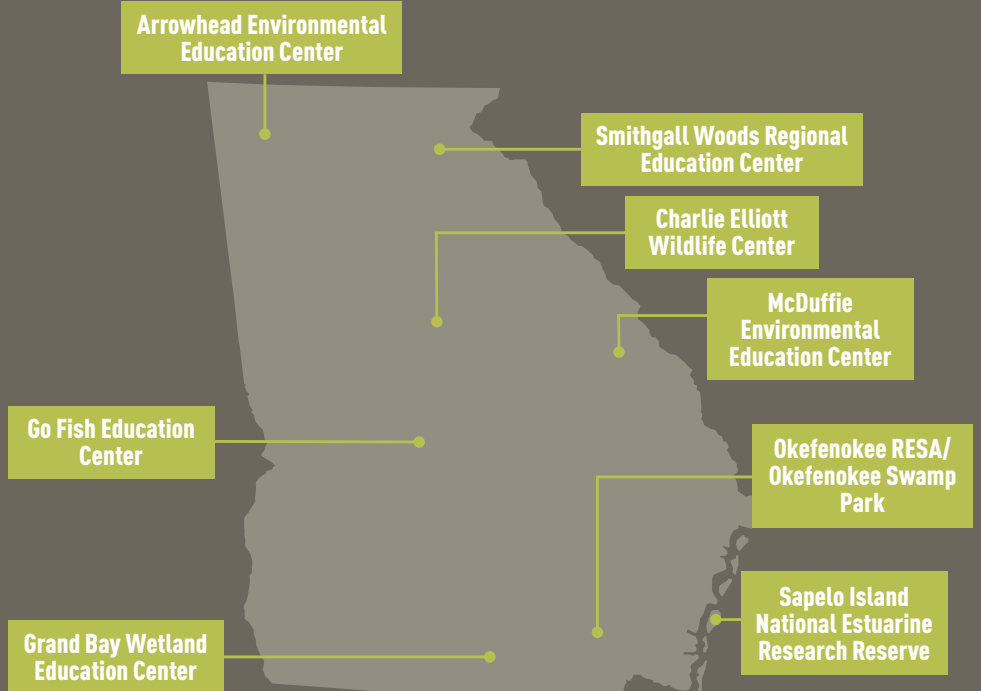
# LAW ENFORCEMENT



## Regional Education Centers

The DNR Wildlife Resources Division is charged with promoting the conservation and wise use of Georgia's natural resources. This educational mission involves cultivating an appreciation and understanding of wildlife resources, fostering wise stewardship and promoting safe and ethical natural resource-based recreation.

Throughout its history, the Wildlife Resources Division has educated youth and families to increase awareness, engagement and stewardship regarding the state's wildlife and other natural resources. These efforts began in 1940 when Charlie Elliott, the first director of what is now known as DNR, started the Junior Ranger Program. More than 25,000 children took part that year, conducting nature surveys, planting wildlife food plots and helping "senior rangers" – in short, learning and practicing conservation.



Outdoor Wildlife Leadership School participants in north Georgia. (Kim Morris-Sarnecki/DNR)



Elliott's vision of a conservation education program is reflected through Wildlife Resources' regional education centers and continuation of the Junior Ranger Program in the DNR State Parks and Historic Sites Division. In fiscal year 2024, the division expanded its reach through a partnership with the Okefenokee Regional Education Services Agency and Okefenokee Swamp Park to host a science educator at the Waycross park. The educator provides programming to K-12 students in the nine-county Okefenokee region.

The addition bumped the number of education centers from seven to eight. The others are Charlie Elliott Wildlife Center near Mansfield, the Go Fish Education Center in Perry, Smithgall Woods near Helen, Arrowhead Environmental Education Center near Armuchee, McDuffie Environmental Education Center in Dearing, Grand Bay Wetland Education Center near Valdosta and Sapelo Island National Estuarine Research Reserve. In fiscal 2024, the centers provided programming in person and virtually for over 123,000 youth and adults.

### ■ Charlie Elliott Wildlife Center

Since Charlie Elliott Wildlife Center opened more than 25 years ago, the focus has been creating opportunities for all audiences to explore the outdoors and instructing Georgia's youth and adults about wildlife and natural resources, equipping them as environmentally literate stewards of natural resources. The center does this through engaging, hands-on programming that allows participants to experience the subjects covered.

During the 2024 Keeping Georgia Wild Festival, over 1,000 participants, many of them in families, came to Charlie Elliott to take part in activities such as tree climbing, fishing, archery, shooting sports and arts and crafts. Visitors enjoyed live animal presentations by the DNR Law Enforcement Division's K-9 team, Georgia Falconry Association and Charlie Elliott's animal ambassadors. Festival partners included the Georgia Wildlife Federation, Fellowship of Christian Athletes and the Georgia Wild Turkey Federation.

Georgia's Becoming an Outdoors Woman program continued to grow in fiscal 2024. Staff held 12 in-person programs across the state, including new and popular repeated activities such as



Keeping Georgia Wild Day participants try animal stenciling (Kim Morris-Zarnecki/DNR)

Introduction to Handgun and Shotgun classes, No Fooling Just Fishing, Caving at Cloudland, Adult Summer Camp, and a Squirrel Hunt and Learn led by DNR Commissioner Walter Rabon. Several of the single-day programs were conducted with DNR's State Parks and Historic Sites Division. At the annual Becoming an Outdoors Woman workshop, 100 women took part in 33 fishing, shooting and wildlife-related activities. Minority Outdoor Alliance co-founder Ashley Smith helped inspire the group by discussing her organization's mission of cultivating a more inclusive world that supports the enjoyment and conservation of natural resources. Smith said the focus was inspired by the need for outdoor recreation she saw in her community and family during the COVID pandemic.

Charlie Elliott Wildlife Center reached approximately 21,700 school-aged participants through outreach and school programming last

year. As part of that effort, the center hosted Project WILD, a K-12 interdisciplinary conservation and environmental education program that emphasizes terrestrial and aquatic wildlife resources. Georgia Project WILD offers training workshops for pre-kindergarten, K-12 and environmental educators across the state. In fiscal 2024, 476 educators took part in 31 workshops.

Each summer, Project WILD also holds Advanced WILD workshops. These immersive experiences are designed to explore a single topic. This year, Charlie Elliott offered two weeklong versions: a Teacher Conservation Workshop on forestry and natural resources management and how the two are connected, and an Outdoor Wildlife Leadership School that examined flora and fauna in the north Georgia mountains. In the latter, participants learned about the Blue Ridge, Ridge and Valley, and Cumberland Plateau ecoregions



though hands-on activities involving research and conservation.

Charlie Elliott held seven weeklong summer camps during the fiscal year for a total of 135 campers. Two of the camps focused on shooting sports and wilderness survival skills for ages 11-16. The other five were geared to ages 6-13 and included Where the Wild Things Are (in which campers explore their love of nature), Gone Fishin' (where youth test their angling skills), Nature Heroes (train to become the next Earth superhero) and the center's popular Outdoor Team Challenge camp.

Charlie Elliott also hosts an Adventures in Conservation Education Camp annually. Sponsored by The Environmental Resources Network, or TERN, friends group of DNR's Wildlife Conservation Section, this summer camp is for middle-schoolers interested in wildlife conservation. During this year's camp, youth spent five days exploring the north Georgia mountains. Field experiences centered on trout production, bear management, regional flora and fauna, endemic species, and karst topography.

The center also continued to provide opportunities for youth and adults to add to their hunting knowledge and skills. Hunt and Learn programs allow people to try dove, deer, rabbit and turkey hunting, as well as falconry. In addition to these traditional programs led by staff on Clybel Wildlife Management Area, five hunters with mobility impairments participated in an Adaptive Hunting Retreat. The Safe Harvest and Responsible Practices, or SHARP, series also continued to grow, with 58 participants this year learning about turkey, deer, trapping and small game.

In calendar year 2023, the U.S. Department of Agriculture approved new rules and regulations for birds in captivity. Since Charlie Elliott has six birds of prey used as ambassador animals in programming, the center fell under the new rules and regulations. In August 2023, staff began reviewing and updating the center's animal care manual to meet standards for things such as husbandry care, emergency plans and record keeping. Working closely with a USDA inspector, Charlie Elliott passed inspection on the first try in April 2024 and earned its license to have birds of prey for educational programming.

## ■ Arrowhead Environmental Education Center

Arrowhead Environmental Education Center in Armuchee reopened in fiscal year 2024 and began rebuilding its educational programming with the hiring of a new educator in July 2023. New protocols were developed for animal care and new educational programs created to meet community needs. Staff at Smithgall Woods Regional Education Center and Charlie Elliott Wildlife Center proved generous and helpful in sharing their experience in these areas.

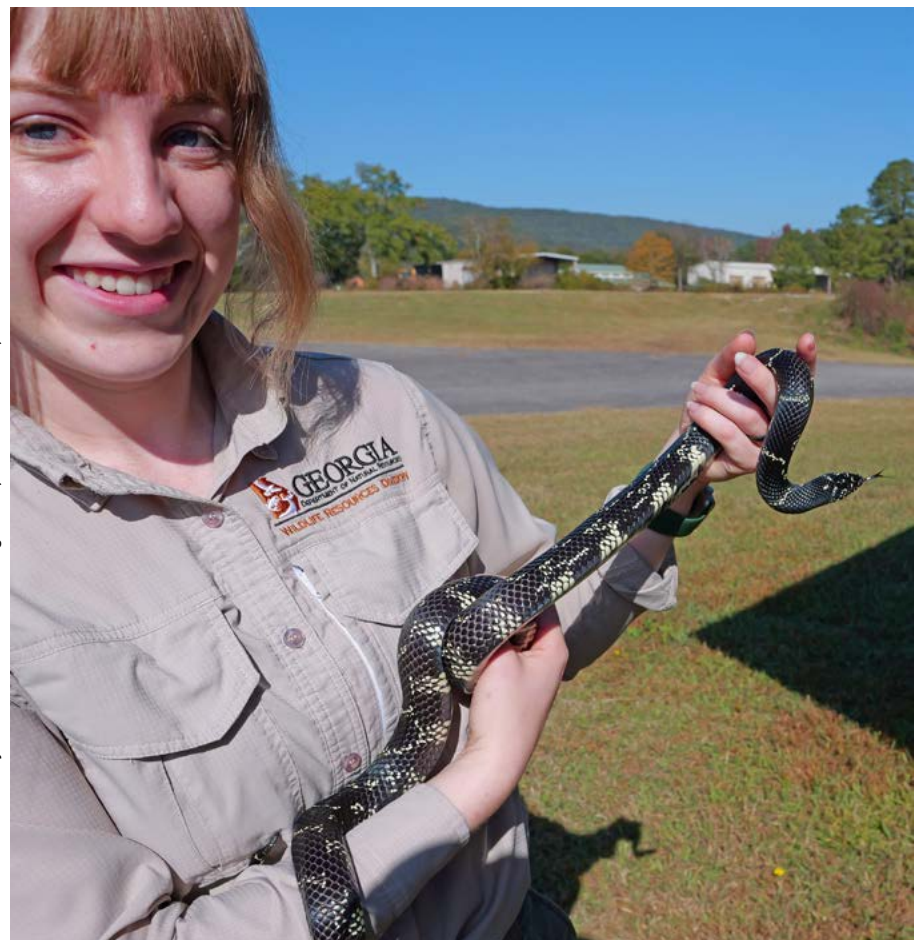
The number of programs Arrowhead conducted this year may appear modest: 34 programs reached about 2,800 students and adults. But that lineup is expected to grow as the public becomes more aware of the programs available at the center. The center, which is on Arrowhead Wildlife Management Area, is part of the Region 1 headquarters for the DNR Wildlife Resources Division's Game Management Section.

In addition to educational programs, Arrowhead coordinated with staff from the division's Fisheries

Management Section to host a beginner's fly-fishing workshop with Trout Unlimited, an introduction to fishing day during spring break for area schools and a kid's fishing rodeo with Georgia Highlands College in Rome. The center also formed partnerships with Berry College and Georgia Highlands. Berry students helped design signage and exhibit information and created a landscaping plan for grounds around the education center. In the coming years, students will continue to help install the landscaping and apply the plan to other areas at the center. Georgia Highlands students used the site for biodiversity studies. One student continued a research project on barn swallow nesting and hatching success rates.

Arrowhead's goals for fiscal 2025 include expanding quality programming on- and off-site, raising awareness of programming through the website and printed material, and growing the volunteer base to take advantage of local expertise and provide more programming support. Staff also hope to strengthen partnerships with area colleges and use the center to display results from student projects.

Arrowhead educator Emily Losasso with an eastern king snake (Natalie Andes/DNR)





## ■ Go Fish Education Center

Almost 20,000 people visited the Go Fish Education Center during fiscal year 2024, a total encompassing general admissions visitors and education participants. Visitation included self-guided tours (some involving more than 100 youth), birthday parties and over 200 people taking part in private meetings. As a bonus, visitors during October and March could catch and keep fish from the casting pond.

The center's education staff provided quality environmental education programs focused on fishing and aquatic resource conservation for over 4,700 youth and adults. Information and education efforts emphasized recruiting, retaining and reactivating anglers in Georgia. Guided field trips and tours offered to schools, youth groups, day care centers, churches and others contributed heavily to program participation. Field trips included an introduction to fishing (plus time to fish), an aquarium tour and an educational program.

Four sessions of summer fishing day camps were held for youth ages 7-15. Participants learned about fishing basics, regulations, fish identification and knot tying. Fish habitats and the need for clean water also were discussed. Campers gained experience in casting, baiting hooks and handling and measuring fish. Other programs included bass fishing workshops, fishing seminars, kids fishing events, hatchery tours and homeschool and toddler programs.

The 2024 Georgia Fish Art Contest attracted nearly 175 entries from K-12 students statewide. Georgia's winning entries, along with the Go Fish Georgia Award winners, were displayed for visitors to see.

## ■ Grand Bay Wetland Education Center

Grand Bay Wetland Education Center assumed regular program structure during the 2023-2024 school year. Approximately 8,500 students and 1,000 adults attended day classes at the center, a partnership between DNR and the Coastal Plains Regional Educational Services Agency and part of Grand Bay Wildlife Management Area near Valdosta. Primary and secondary education students took part in programs that focused on native wildlife and other area natural resources. Staff also used mobile classrooms during the school year. Participants in these field trips

included local public school systems and private learning institutions. All activities adhered to Georgia Standards of Excellence.

Grand Bay marked its fifth year of partnering with Valdosta State University's Biology Department. Supported by the Harley Langdale Jr. Foundation, Grand Bay staff and the university's Mass Media Department created video lessons for students. With continued support, more videos are planned over the next three years. The partnership also included new involvement on social media. During the year, about 6,000 students viewed these new video lessons either at home or with an instructor in class.

With the backing of superintendents, principals, teachers and parents across 12 school districts, Grand Bay began accepting reservations in August. Reservations continued through the following July. The final months of fiscal 2024 were reserved for Valdosta State's herpetology class, with Grand Bay facilities and staff simply hosting the college students as they used the site's extensive Carolina Bay ecosystem to explore and examine Georgia's biodiversity.

Visiting primary students were engaged with hands-on exercises in and out of the classroom. Children observed and learned about wildlife species, from apex carnivores like American alligators to unusual plants such as the hooded pitcher plant, and how these animals and plants interact within Grand Bay's unique habitats. Visits usually ended with a boardwalk hike and climbing the center's observation tower.

Secondary education students performed exercises involving water quality and wildlife identification and collection. The students were provided lab equipment and supplies for performing scientific methodology. Experiments included a turbidity test, pH readings, dissolved oxygen, nitrate level testing, and nomenclature usage with identification. Identifying nonendangered specimens is always a bonus for these students, who spend most of their day at Grand Bay on the boardwalk doing field tests and making observations. In fiscal 2024, staff also began the pilot stage of developing new programming.

Program attendance followed a more normal routine this year. Mobile field trips were periodic. People from area behavioral health and adult long-term care facilities visited Grand Bay. In public programming outreach, the center's largest

participant is Lowndes Advocacy Resource Center. Such opportunities allow Grand Bay to better serve the community beyond public school systems. Homeschool organizations are also a target audience. Classical Conversations, a Christian homeschool community, is the largest group taking part at Grand Bay.

## ■ McDuffie Environmental Education Center

In fiscal year 2024, McDuffie Environmental Education Center continued to provide a range of activities designed to immerse students, parents and teachers in the natural world and enhance development of a lifelong awareness of nature and conservation. Attendance at the center, part of McDuffie Public Fishing Area and McDuffie Warm Water Fish Hatchery in Dearing, totaled 10,124 children and adults, including 6,850 students. Most attendees came via school field trips or in response to public outreach. The fishing program, part of an R3 initiative started at McDuffie in 2022, also continued to grow, drawing 1,129 people, 326 who considered themselves first-time anglers. (R3 is a nationwide effort aimed at increasing participation in hunting, fishing, shooting sports and related outdoor recreation through recruitment, retention and reactivation.)

The center received an award for being part of the Fisheries Team of the Year from the American Fisheries Society and was given two \$500 grants to help support the fishing program. A grant of child-sized waders from Cabela's Outdoors also helped kickstart a new monthly home school program offered on site.

McDuffie took part in Eco-Meet, an environmental science competition for middle-schoolers in the central Savannah River area. Plans are to host the Eco Meet at the center in fall 2024. Staff also held the Georgia wildlife testing station for a second year in the Georgia Envirothon.

Goals for McDuffie in fiscal 2025 include continuing to provide quality programming to field-trip students (with a planned audit of all grade activities to make sure they meet current state standards), expanding the center's outreach and focusing on R3 for fisheries by offering educational family fishing events.



## ■ Okefenokee RESA/Okefenokee Swamp Park

The Okefenokee Regional Education Service Agency supports local school systems in building the capacity of teachers, leaders and staff through professional learning and technical services that lead to increased student achievement and college- and career-ready graduates. Okefenokee RESA has a long-standing partnership with Okefenokee Swamp Park Inc. in Waycross. The private nonprofit park is focused on fostering a deep connection with nature and conserving ecological health through stewardship, education and outdoor recreation in and around the Okefenokee.

Through a partnership between the RESA and the park, the RESA science specialist serves as the park's education director. Also, free and reduced-rate programming based on state science standards is provided and made available through outreach programs in the region's school districts, as are field trips and summer camps at the park.

During the 2023-2024 school year, the park education director reached over 4,200 students and 680 adults in outreach programs and field

trips. About 1,780 more people were engaged during public events such as the Whigham Rattlesnake Roundup, the annual Day in the Woods event at Gaskins Forest Education Center in Alapaha and a regional science fair.

Under the education director's guidance, Okefenokee Swamp Park received a \$5,000 Georgia Outdoor Learning Demonstration grant from the state Department of Education and the Environmental Education Alliance of Georgia in 2022. The funds were used to hold a free summer camp (Camp Monarch) for 50 second through fifth grade students in Ware County schools. Campers were taught the monarch butterfly's life history, including its life cycle, migration and feeding habits. Campers also learned about native plants and created habitat for pollinators. Later, during the 2023-2024 field trip season, Ware County third graders helped improve the habitat site by planting milkweed seeds for monarch butterflies and removing some of the invasive plants that had moved in.

In fiscal year 2024, the education director managed a project supported by a Five Star and Urban Waters grant from The National Fish and Wildlife Foundation to remove invasive species and

restore habitat at the park. The project involved over 30 students from Ware County High School's Future Farmers of America and Ware County 4-H, a University of Georgia Cooperative Extension program. Students helped weed out invasive plants and monitor the site for the return of such plants as part of a volunteer service commitment. Over 400 students have taken part in pollinator and habitat programs at the grant site.

The park also held a successful Camp OSCAR in 2024, with over 140 youth from pre-K through high school attending. The annual camp centers on sustainability, conservation, advocacy and respect regarding the Okefenokee Swamp. (OSCAR stands for Okefenokee Sustainability, Conservation, Advocacy and Respect.) A \$700 donation from the nonprofit Coastal WildScapes paid to enroll many children who otherwise would not have been able to attend. The number of public participants also increased this year, as did the number of students attending through a partnership with the Brantley County School system. Guest speakers varying from DNR to Quail Forever and graduate students from state schools talked about careers in conservation, native and non-native species, job-focused equipment and ways to sample and monitor wildlife and waterways.



Youth LEAD Georgia high schoolers on a canoe tour at Okefenokee Swamp Park (Special to DNR)



The Environmental Education Alliance of Georgia honored Okefenokee Swamp Park with the Outstanding Service to Environmental Education by an Organization award in 2024. The award recognized the park's efforts in including local students in environmental stewardship projects such as Camp Monarch and the National Fish and Wildlife Foundation invasive species and habitat project.

## ■ Sapelo Island National Estuarine Research Reserve

Sapelo Island National Estuarine Research Reserve offered a range of environmental education programming during the 2023-2024 school year. The nature trail being closed and intermittent ferry restrictions continued to hamper the education program. However, although on-island programming is always preferred as the optimal learning experience, the reserve offered more off-island programming to help compensate for the disruptions.

Sapelo hosted 40 school groups totaling 1,512 students, from college to elementary-school ages. Staff also conducted educational programs for 13 Road Scholar groups (307 participants) and 12 programs (268 people total) for special interest groups such as Sierra Club, Stewards of the Georgia Coast, the Glynn County Environmental Coalition, St. Simon Land Trust and Friends of Georgia State Parks. Staff also conducted three lectures that were open to the public.

The Sapelo education program conducted four professional development workshops for a total of 45 educators. One of the workshops, synced with National Oceanic and Atmospheric Administration Teachers on the Estuary standards, focused on Georgia's coastal ecology. The reserve also partnered with Gray's Reef National Marine Sanctuary and the Georgia Aquarium to hold a teacher workshop on the island. This partnership will continue into the fiscal year, and more teacher workshops are planned.

The reserve helped train seasonal staff for local environmental education centers, including Burton 4-H Center on Tybee Island and Camp Jekyll. The education coordinator helped teach the U.S. Army Corps of Engineers' barrier island class, which had 36 participants.

Sapelo's mainland visitor center reported 12,704 walk-in guests who were not associated with state education programs during the fiscal year. The public also was educated through the reserve's public tour program, held each Wednesday and Saturday. The 90 public tours involved 1,313 participants. The reserve took part in four outdoor education events, including Sapelo's Culture Day, Darien's Blessing of the Fleet, the College of Coastal Georgia Coastal Science Symposium and St. Simons Island Beach Week.

To expand the impact of Sapelo's education programs, the education staff served on committees and advisory groups, including the Georgia Association of Marine Educators (as a board member), Georgia Coastal Educator, Cannon's Point Education Task Force (as the chair), Golden Isles Career Academy Steering Committee, Georgia Sea Turtle Cooperative, Georgia Shorebird Alliance education advisory group and several National Estuarine Research Reserve working groups.

The reserve maintained its social media presence in fiscal 2024, posting on Facebook, YouTube and Instagram. The assistant education and coastal training program coordinators continued the coastal science [Sapelo NERRds podcast](#). The 23 episodes released to date have totaled 1,242 downloads.

## ■ Smithgall Woods Regional Education Center

Smithgall Woods Regional Education Center, on one of Georgia's largest state parks covering nearly 6,000 acres in the Appalachian foothills near Helen, provides high-quality and engaging environmental education to visitors and through off-site programming. This effort syncs with the vision of Smithgall Woods' previous owner, the late Charles Smithgall, who saw the property as being open to all and focused on natural resources conservation and education in the Blue Ridge.

2023-2024 proved another record-breaking school year for Smithgall Woods, thanks to the work of the programming coordinator, park naturalist, volunteers and DNR Game Management Section coworkers. Programming totals increased across the board. The number of programs rose by 15 percent, and the total

constituents reached increased by 38 percent. The mix included 657 outreach programs involving 37,117 attendees, 471 onsite programs for 2,965 attendees and 12 online programs for 197 attendees. All told, an astounding 1,140 programs engaged 40,279 participants.

Social media remained part of Smithgall Woods' programming. However, the focus shifted from providing online education to informing the public about opportunities. All videos are still accessible on the DNR Wildlife Resources Division's [YouTube page](#) and pre-recorded programming is available on request.

Goals for the center will also shift in fiscal 2025. The aim will no longer be getting information out to more constituents, but instead will trend toward professional development, updating existing popular programs, creating new programs to meet public needs and streamlining programming and scheduling.

## Youth Birding Competition

The 18th annual Youth Birding Competition ran from April 12-20. During that time, teams of kindergarteners through high-schoolers picked a 24-hour stretch and competed by age group to find the most bird species. The 2024 competition registered 32 teams and drew a large, excited group to the awards ceremony banquet at Charlie Elliott Wildlife Center in Mansfield.

The Wood Thrushes, a high school team, finished as the overall winner with 159 species, compared to a competition high of 144 last year. Ten other teams listed 70 species or more.

For the second straight year, the Pi-billed Grebes of Atlanta led in fundraising for conservation. The high-schoolers raised \$1,057 for Trees Atlanta. The total for the event, in which fundraising is a voluntary part, topped \$1,500. Mentor Award recipient Tom Painting spent over 30 hours prepping and mentoring the Pi-billed Grebes. Painting also encouraged other youth through bird walks and an online account for sharing photos of birds.

The related Youth Birding T-shirt Art Contest received artwork featuring native birds from 153 pre-K through 12th graders from 61 public,



private and home schools statewide. Aleena Huang, an eighth grader and student at SKA Academy of Art and Design in Duluth, won the grand prize for her barred owl artwork. Huang received a \$100 Amazon gift card and the honor of having her raptor featured on the 2024 Youth Birding Competition T-shirt.

The Youth Birding Competition is aimed at cultivating an interest in birds and conservation. Sponsors include The Environmental Resources Network, Georgia Ornithological Society and Birds Georgia. Volunteers also are vital, helping with the art contest and awards banquet.

## Camp TALON

The Wildlife Conservation Section's 14th annual Camp TALON took place June 1-6 in 2024. TALON, short for Teen Adventures Learning Ornithology and Nature, is an offshoot of the Youth Birding Competition. (The original goal of the camp was to provide a weeklong ornithology class for recruits from the competition.) TALON is designed to teach teens how to identify birds, but it has evolved into an ecology-rich education for teens from Georgia and across the nation. It is not unusual for 30-40 percent of participants each year to attend from other states, from Washington to Florida.

Among other subjects, students learn about habitats and their management, threatened and endangered species, bird survey methods and data collection, coastal plants, island geology, conducting avian research, beach invertebrates, and outdoor career opportunities. While birds are the star attractions, the conversations campers have with teachers and the insider's look provided by TALON into the work of biologists are invaluable. This impact is evidenced by the return of many teens to the camp in subsequent years and the numerous participants who have gone on to study wildlife, ornithology and biology in college.

Epworth by the Sea on St. Simons Island served as the 2024 camp base. Campers traveled by bus or boat to birding and outdoor classroom destinations. Sites included Andrews, Jekyll, Sapelo, St. Simons and Little St. Simons islands, Crooked River State Park, privately owned Gilman Pond and Fort Stewart Army base near Richmond Hill.

Camp leaders included a dozen teachers from state, federal and nonprofit agencies, as well as retired university faculty and professional naturalists. The 19 students and two interns came from five states, a sign of the camp's continuing national visibility. Students counted and learned about the biology of 130 bird species

observed during camp. They also learned how tides work; how birds fly, sing and migrate; how shorebirds find food on beaches; how invasive species compete with natives; how habitats are managed; and how biologists are working to recover sensitive species.

During the visit to Little St. Simons, campers learned from researchers banding painted buntings and saw four juvenile American flamingos, the first record of this species in Georgia. Students talked with biologists concerning research and management involving red-cockaded woodpeckers, least terns, Wilson's plovers and wood storks. Several gopher tortoises spotted at Crooked River State Park near St. Marys allowed for close observation of this Coastal Plain keystone species. Students also learned about prescribed fire, invasive species control and managing aquatic habitats for wading bird colonies.

In addition to the support of volunteers and biologists, the camp was made possible by a grant from The Environmental Resources Network, or TERN, and donations from DNR Weekend for Wildlife supporters, Georgia Ornithological Society and Birds Georgia. TERN is a friends group of the Wildlife Conservation Section.



Camp TALON birder checking a field guide (Linda May/DNR)



## Give Wildlife a Chance Poster Contest

Almost 3,500 kindergarten through fifth grade students took part in the 2023-24 Give Wildlife a Chance Poster Contest. This annual program has encouraged students to explore the wonders of Georgia's native plants and animals through art for 34 years.

Participation in fiscal year 2024 more than doubled over the previous year. Students from 24 public schools, private schools and homeschool groups created artwork based on that year's contest theme (What's That?

Habitat!). Entries were judged based on aspects such as adherence to the theme, originality, quality and impact.

Winners were showcased on the DNR Wildlife Resources Division's [SmugMug site](#) and [Facebook page](#). Each state winner received an award ribbon, a bandana featuring the 2023-24 artwork and other prizes. As in years past, parents and teachers of state winners were offered free DNR wildlife license plates.

The contest is organized and sponsored by DNR, the State Botanical Garden of Georgia and The Environmental Resources Network, or TERN.

## Wildlife Viewing

From 1999-2008, the DNR Wildlife Resources Division awarded grants for projects that provided public opportunities to see and learn about native animals and plants. Recession-era spending cuts canceled the program in 2009. But the Wildlife Conservation Section resurrected it in 2018, again engaging conservation partners to help meet a wildlife viewing interest in Georgia that involved 4.7 million people and billions in expenditures in 2022, according to survey findings by the U.S. Fish and Wildlife Service and NORC (National Opinion Research Center) at the University of Chicago.

About one-in-four Georgians view wildlife. This aspect of outdoor recreation also has been growing nationwide since the mid-1990s. According to the Fish and Wildlife Service, an estimated 148 million U.S. residents – 57 percent of Americans 16 or older – took part in wildlife viewing in 2022.

Other than a Georgia Natural Resources Foundation startup grant in 2018, funding for the Wildlife Viewing Grants Program has come from the Georgia Nongame Wildlife Conservation Fund. The grants program also emphasizes projects that reflect Georgia's State Wildlife Action Plan, raising awareness of priority species, habitats and conservation actions. For example, along with other work, the 2023 grants helped provide a bat call detector and other gear for viewing-based bat education programs in Forsyth County, create interpretive trail signs promoting self-guided exploration at the 1,000-acre Henry County Water Authority's Cubihatcha Center in Locust Grove, fund cameras capturing time-lapse imagery of Little St. Simons Island habitats and wildlife to reach people about conserving coastal ecosystems, and build a two-story bird observation platform at Wanderland Campground near Rising Fawn.

The 2024 cycle fielded 12 eligible proposals. Six were funded, totaling \$16,076 in grants. They included:

- Installing a free-standing, ADA-compliant canoe and kayak launch at 173-acre Big Haynes Creek Nature Center in Conyers. Recipient: City of Conyers; grant award \$3,000.
- Providing new binoculars for ornithology class participants and others at Burton 4-H Center on Tybee Island. Recipient: Georgia 4-H Club Foundation (\$3,000).



Winning Give Wildlife a Chance poster by kindergarten Bryson Rogers of Jonesboro

- Building five wildlife viewing blinds with benches and signage at the 220-acre Talking Rock Nature Park in Talking Rock. Recipient: Southeastern Trust for Public Lands (\$3,000).
- Creating a native plants “sensory” garden for pollinators that will be accessible to Summerville Middle School students and the public in Summerville. Recipient: Summerville Middle School (\$2,576).
- Developing more informational signage about wildlife and habitats at the 120-acre Nesmith Preserve near Starr’s Mill High School in Fayetteville. Recipient: Southern Conservation Trust (\$1,500).
- Building and expanding community-accessible habitat for monarch butterflies and other pollinators at The Learning Tree Academy in Toccoa. Recipient: The Learning Tree Academy (\$3,000).

The projects also involve work and spending by partners that will significantly amplify the grant funding provided. Final reports for fiscal year 2024 projects are due in December 2024. Considering

the importance of wildlife viewing in Georgia, the Wildlife Conservation Section offered the grants again in 2025 and increased the grant maximum to \$5,000 per recipient.

Underscoring the importance of wildlife viewing in Georgia and DNR’s role in engaging wildlife viewers, Wildlife Conservation contracted with Virginia Tech to survey 1,000 Georgians in 2021 to better inform the agency about wildlife viewers, including their perceptions of DNR and how best to serve them. According to this survey, a spinoff from a national and regional survey of wildlife viewers led by Virginia Tech and the Association of Fish and Wildlife Agencies’ Wildlife Viewing and Nature Tourism Working Group, most wildlife viewers in Georgia:

- Identify as beginners, novices or intermediate viewers.
- List top activities as visiting places to see wildlife, plus feeding and photographing wildlife.
- Rate distance to viewing sites and having time to take part as the leading barriers to watching wildlife.

- Consider themselves slightly to extremely familiar with DNR, although a third were “not familiar at all” with the agency.
- List litter cleanups as the conservation activity they’re most likely to participate in (56 percent), with buying products that benefit conservation finishing second (40 percent).
- Want DNR to provide more information on where to see wildlife, species and access to viewing opportunities.
- Made at least one form of a DNR-related purchase or contribution in the past five years (over two-thirds had), with a fishing license being the most common item bought.
- Hunted or fished in the past five years (51 percent) – respondents labeled “consumptive,” with survey data showing them generally more active and involved in the outdoors than “nonconsumptive” respondents.

This consumptive group also rated more familiar with and supportive of DNR, with 55 percent of nonconsumptive respondents saying they were not familiar with DNR.

Based on these findings, Virginia Tech recommended five actions DNR could take to better support wildlife viewers in the state:

- Provide more wildlife-viewing information and access.
- Promote around-the-home viewing opportunities.
- Develop social support networks for wildlife viewers.
- Focus on broadening DNR’s relevance to wildlife viewers who do not hunt or fish.
- Develop financial support opportunities for wildlife viewers.

Efforts continue to use these survey insights to reach and engage wildlife viewers in the state. The Georgia survey is posted in a flip-page format, explored in a webinar and available for download under the Research heading at [georgiawildlife.com/wildlifeviewing](https://georgiawildlife.com/wildlifeviewing). The webpage also includes the report, webinar and literature review for the national and regional survey.



Conyers Mayor Vince Evans tries a DNR grant-supported kayak launch at Big Haynes Creek Nature Center (City of Conyers)



## Social Media

The reach of the DNR Wildlife Resources Division's social media sites – primarily Facebook, Instagram, YouTube and a blog – continues to expand, engaging constituents and raising awareness of conservation efforts. The Facebook page recorded 197,470 followers through June 2024, the end of the fiscal year. Instagram had 27,657 followers, and Wildlife Resources' YouTube channel fielded 1.1 million views. All of these totals marked increases over the previous year. Although the division has an account on X, formerly Twitter, this platform is seldom used.

The top two performing posts on Wildlife Resources' Instagram account involved nongame wildlife. The video-based post profiling a Georgia survey for eastern hellbenders was seen by more than 66,000 people, logging 83,557 plays and 5,475 interactions (including 4,484 likes). Second went to a post about [pine savannas and their wildlife](#) – such as the eastern indigo snake featured in the post photo – with 13,687 accounts reached and 1,586 engaged.

The year's second-ranked post on Facebook was an update shared from the Georgia Sea Turtle Cooperative about the first loggerhead sea turtle hatchlings of the 2023 nesting season. That post reached more than 110,000 people, fielding 144 comments and 207 shares.

The 20 Wildlife Conservation Section-related posts on the division's blog logged just over 18,300 views during fiscal 2024. "[Calf Sighting Spurs Hope, and Concern](#)," which documented a North Atlantic right whale calf that had been severely injured in a vessel strike but was still swimming with its mother more than a month later, drew the most at 7,900 views. An update on invasive Argentine black and white tegus in southeast Georgia's Toombs and Tattnall counties, posted on July 2, 2024, had 3,200 views. Largely because of work by former Public Affairs assistant Ethan Hatchett, the number of nongame posts, including about plants and State Wildlife Action Plan species, remained strong following the initial surge from five in fiscal 2022 to 21 in fiscal 2023 and almost as many this year.

As in previous years, the Georgia Wild e-newsletter, which documents Wildlife Conservation's work, added readers and a wider reach in fiscal 2024. Circulation increased by 6

percent to more than 143,000 subscribers. Unique open rates averaged 38 percent (52,113 readers per issue), a healthy rate for government agency emails and up significantly over the previous year. The annual reader survey again provided insights showing the value of the content and format. According to the survey:

- Sixty percent of respondents did not know before receiving the newsletter that the Wildlife Conservation Section depends primarily on fundraising, grants and direct contributions for conserving Georgia's rare and other native animals, plants and habitats.
- Ninety-four percent agreed that Georgia Wild informs them about conservation in an easy-to-understand way.
- Sixty-nine percent had told someone at least once about an item they read in the newsletter.
- Eight out of 10 were spurred to learn more about a wildlife species or issue, and 17 percent to financially support wildlife conservation in Georgia.

The 17-year-old newsletter features a variety of contributors, from staff and TERN Executive Director Terry W. Johnson – who writes the popular "Out My Backdoor" column – to the Georgia Nature Photographers Association, many of whose members generously provide photos for use by the division.

Social media, the e-newsletter and other Public Affairs efforts are not only essential to broadening the reach of DNR communications, they are critical for interactivity, engagement and customer service for agency constituents.

## Other Outreach

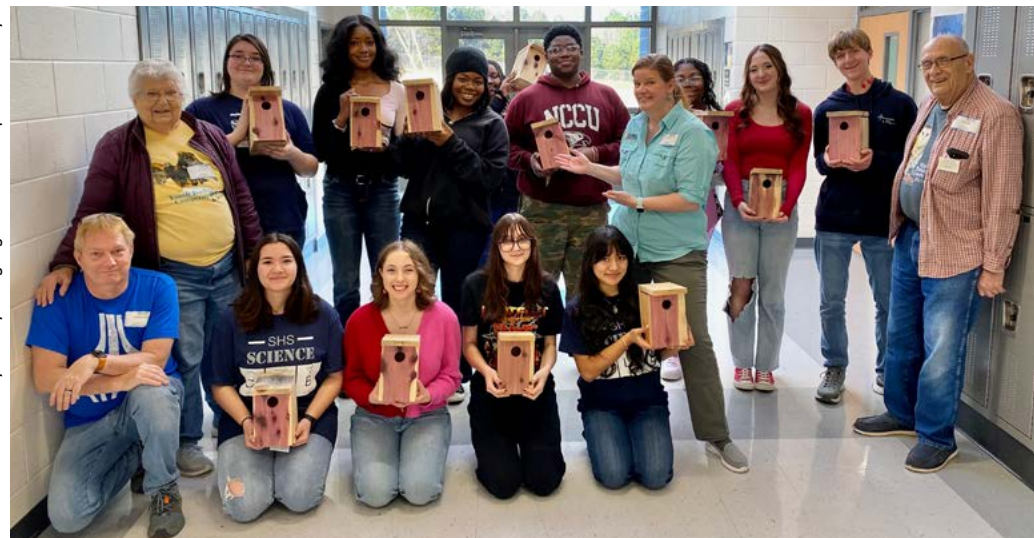
Beyond youth contests and social media, the Wildlife Conservation Section promotes awareness of Georgia wildlife and conservation in many ways, such as providing educational displays at festivals, speaking to civic, technical and special-interest groups, informing lawmakers about rare species, explaining research to journalists, and partnering with other conservation organizations.

Staff worked many events in fiscal year 2024, including both of Georgia's rattlesnake festivals, the Etowah Wildlife Expo in Canton, the 2023 CoastFest in Brunswick, the Boy Scouts of America Conservation Weekend in Blairsville and the Georgia Association of Tax Officials annual conference in Athens. Biologists and others provided scores of media interviews. Outlets varied from The Associated Press and Georgia Public Broadcasting to Atlanta's WSB-TV, Gainesville's The Times and state-based online news sites such as The Current and Georgia Recorder.

Outreach is mentioned throughout this report. However, other notable examples in 2024 included:

- In winter 2023-24, the dire state of North Atlantic right whales migrating to the Southeast fueled intense media interest. Attention centered on the season's first calf, born to right whale No. 1612 (Juno) and seen with injuries from a vessel strike that resulted in it stranding dead on Cumberland Island.

DNR nest box workshop with Spalding High Science Club (Jane Burke/Spalding High)





DNR's Bryant Bowen, left, and Brett Albanese check an Atlantic sturgeon on the Oconee River (Special to DNR)

and a year-old female found floating dead off Savannah. A necropsy done on Tybee Island showed the juvenile also had been hit by a vessel. Wildlife Conservation senior wildlife biologist Jessica Thompson led in interviews with media and organizing updates, images and video. Public Affairs communications specialist Rick Lavender coordinated media requests. DNR Coastal Resources Division public information officer Tyler Jones worked with Wildlife Conservation and the National Oceanic and Atmospheric Administration to handle media on-site during the necropsy on Tybee and provide photographs. Coverage ranged wide, from WABE-FM (Atlanta) and WSAV-TV (Savannah) to FOX Weather and National Public Radio.

- Senior wildlife biologist Nathan Klaus spearheaded the return of red-cockaded woodpeckers to Spirewell Bluff Wildlife Management. Klaus teamed with fellow biologist Joe Burnam, other staff and project partners to translocate six of the federally listed woodpeckers from Fort Stewart to the middle Georgia WMA in December 2023, an event marked by media in Georgia and nationally.
- Dr. Bob Sargent, a Wildlife Conservation program manager, did multiple interviews about the spring 2024 discovery of a common raven nest at Tallulah Gorge. The raven nest

was one of only two documented in Georgia that year, with the gorge site being the most visible for the public.

- As leader of DNR's bald eagle nesting surveys, Sargent also released the 2024 results showing bald eagles nesting and fledging at healthy rates.
- Wildlife technician Matt Moore's tale of catching an eastern indigo snake that regurgitated a live eastern diamond-backed rattlesnake went viral following a DNR social post in summer 2024, generating headlines in the *New York Post*, *IFL Science* and *National Geographic Spain*.
- The close of fiscal 2024 provided the first look at "Longleaf Forever," a short documentary about the longleaf ecosystem by Magic Kumquat Productions and The Longleaf Alliance. Wildlife Conservation Fire Safety Officer Shan Cammack helped produce the film. Support came in part from DNR's Wildlife Resources Division and The Environmental Resources Network, or TERN, friends group of Wildlife Conservation. "Longleaf Forever" was featured at film festivals and awarded Best North American Short at the Wildlife Conservation Film Festival in Naples, Fla.
- Wildlife biologist Thomas Floyd wrote, narrated and worked with Public Affairs assistant Ethan Hatchett to produce

"Georgia's Amazing Freshwater Turtles." The 3-minute video explores the state's rich turtle diversity and factors that make Georgia a world leader in freshwater turtles.

- Other videos with staff included sampling sicklefin redhorse, senior wildlife biologist Daniel Sollenberger discussing native snakes and Wildlife Conservation Assistant Chief Dr. Brett Albanese taking a break from rap to joking about mussels.
- Wildlife Conservation provided educational displays at rattlesnake festivals in Whigham and Claxton. In 2022, Whigham transitioned from a rattlesnake roundup – the last one in Georgia – to a one-day, no-kill, educational event. The response by Whigham Community Club organizers and visitors has been overwhelmingly positive. Claxton's weekend festival, which stopped accepting wild-caught rattlesnakes in 2011, also fielded thousands of people at its 56th annual event.
- The annual push to draw attention to invasive Argentine black and white tegus in southeast Georgia featured social media ads urging the public to report tegus in the wild, an online survey focused on the effectiveness of that effort and email blasts to area residents. Social postings and articles in DNR's *Georgia Wild e-newsletter* helped increase awareness and spark news coverage.
- Staff articles and posts on Atlantic sturgeon rescues, one on the *Oconee River in fall 2023* and another on a *Savannah River tributary near Augusta* in spring 2024, spotlighted work by DNR and partners to protect this ancient and endangered fish.
- News releases by Public Affairs varied from the season's first loggerhead sea turtle nests to results from the annual bald eagle nest surveys.
- Wildlife Resources blog posts served a similar role, sharing news about conserving endangered fringed campion and the 50th anniversary of Lewis Island – home to Georgia's largest virgin stand of tidal-swamp bald cypress and water tupelo trees – as a National Natural Landmark. Also, TERN's Patty Deveau posted her biologist-for-a-day experience surveying red knots, Public



Firefly survey crew near Lake Hartwell beaver pond (Special to DNR)



Affairs assistant Rylee Owens profiled wildlife biologist Tim Keyes and intern Caitlin Lyons wrote about firefly surveys and a Q&A with wildlife biologist Anna Yellin.

- Anna Yellin emphasized Wildlife Conservation's growing work with invertebrates through an e-newsletter article about the Southeast Bumble Bee Atlas and a release about documenting monarch butterflies overwintering in southeastern and Gulf of Mexico states. She also promoted DNR's use of iNaturalist to record species of conservation concern.
- Outreach coordinator Linda May and Yellin organized and awarded a \$1,000 grant to third-grade teacher Jina Harris at The Learning Tree Academy's Outdoor Learning School in Toccoa. The annual Conservation Teacher of the Year grant from TERN recognizes exceptional Georgia K-5 teachers in life sciences.
- May conducted outreach for audiences, including Master Gardeners, Master Naturalists, Georgia 4-H, Georgia Power, civic groups and the public at sessions in libraries, nature centers and schools. Topics included

Award-winning short documentary "Longleaf Forever"



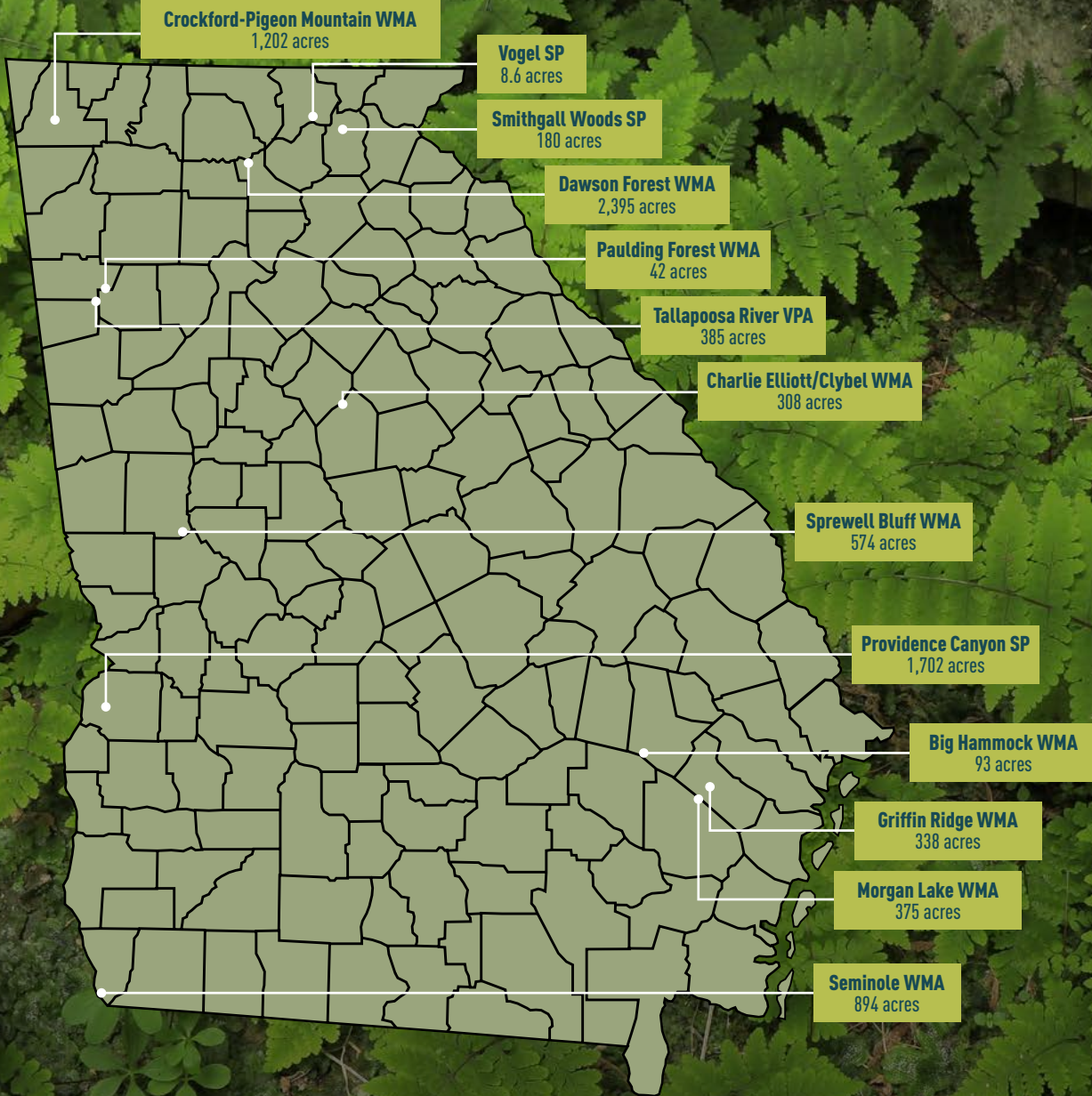
aquatic ecology, backyard wildlife habitats, birding, herpetology, plant identification and succession, DNR careers, and Georgia's State Wildlife Action Plan.

- Noting that the 2021 survey of Georgia wildlife viewers showed about a third also enjoy fishing, May teamed with DNR Gateway to Fishing staff at Chapel Hill Park in Decatur. Anglers of all ages learned about local wildlife as May shared live animals on loan from Panola Mountain State Park and provided binoculars and instruction to participants interested in birdwatching while fishing.

- In publications by staff, Bob Sargent co-authored a paper on the abundance and migration phenology of double-crested cormorants at DNR public fishing areas and hatcheries, as well as three published journal manuscripts – including this one in Landscape Ecology – about golden eagles' migration, distribution and habitat use. Sargent wrote other papers on the adaptability of nesting northern rough-winged swallows and how bald eagles in Georgia rebounded from the avian influenza outbreak in 2022. Wildlife Conservation biologist Todd Schneider collaborated with Sargent on a paper about common ravens nesting on human-made structures.



## LAND ACQUISITION AND CONSERVATION EASEMENTS



Through its Real Estate Office, DNR acquired fee ownership of several properties for public recreation and wildlife conservation in fiscal year 2024. The acquisitions added to 10 wildlife management or volunteer public access areas, ensured permanent protection of natural areas and included additions that added to the ecological value of three state parks. DNR also closed on one conservation easement. All of these tracts were targeted in Georgia's State Wildlife Action Plan to increase public recreation and expand conservation across the state. There were no conservation easements completed by the Real Estate Office in fiscal 2024.

### Acquisitions

Here are more details about each land purchase.

#### Big Hammock WMA: Matzen Tract

DNR expanded Big Hammock Wildlife Management Area in Tatnall County in December 2023 by purchasing 93 acres. The acreage, called the Matzen Tract, improves management of the WMA and adds opportunities for public recreation.

The land was acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant and The Nature Conservancy's Stone Mountain Industrial Park grant.

#### Charlie Elliot/Clybel WMA: Marben Farm Tract

DNR expanded the Charlie Elliot Wildlife Center site and Clybel Wildlife Management Area in Jasper County through a 308-acre purchase in December 2023. The Marben Farm Tract improves management of the WMA and adds public recreation opportunities, while also preventing future development in a location that had been considered desirable for residential housing.

The tracts were acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant and the Knobloch Family Foundation.



### **Crockford-Pigeon Mountain WMA: McCloud, Hice and Nabors Tracts**

DNR added three tracts to Crockford-Pigeon Mountain Wildlife Management Area in December 2023. The purchase of the 144-acre McCloud Tract, the 688-acre Hice Tract and the 370-acre Nabors Tract, all in Walker County, added access points to the northwest Georgia WMA, improved management and expanded recreation opportunities.

The tracts, totaling 1,202 acres, were acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant, the Open Space Institute Appalachian Landscapes Protection Fund and the Knobloch Family Foundation.

### **Dawson Forest WMA: Bill Elliott, Cochrans Creek and Elliott Brothers' Tracts**

Dawson Forest Wildlife Management Area in Dawson and Gilmer counties grew by 2,395 acres in November 2023 with the purchase of the 62-acre Bill Elliott Tract, the 2,057-acre Cochrans Creek Tract and the 276-acre Elliott Brothers' Tract. The Cochrans Creek tract will be managed as part of the WMA while also providing an additional buffer for Amicalola Falls State Park. All three properties equal more access, improved management and increase new recreation opportunities.

The acquisitions were made possible with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant, a U.S. Fish and Wildlife Service Recovery Land Acquisition grant, the Knobloch Family Foundation, the National Fish and Wildlife Foundation and a Georgia Outdoor Stewardship Program grant.

### **Griffin Ridge WMA: Chapman Tract**

DNR added 338 acres to Griffin Ridge Wildlife Management Area in Long County in December 2023. Called the Chapman Tract, the property will allow the expansion of a fire-managed longleaf pine ecosystem beneficial to gopher tortoises and other imperiled species. The addition also adds opportunities for public recreation and improves management at the WMA.

The tracts were acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant and the Knobloch Family Foundation.

### **Lake Seminole WMA: Featherfield Tract**

An 894-acre purchase in July 2023 expanded Lake Seminole Wildlife Management Area in Seminole County. The Featherfield Tract provides connectivity between the WMA and Lake Seminole State Park. The acquisition also protects longleaf pine and gopher tortoise habitats, improves DNR's management of the WMA and adds public recreation opportunities.

The tract was bought with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant, the Dobbs Foundation and the Knobloch Family Foundation.

### **Morgan Lake WMA: TNC Rayonier Connector Tract**

Morgan Lake Wildlife Management Area in Long and Wayne counties received a donation of 375 acres in July 2023. Dubbed the TNC Rayonier Connector Tract, the donation was made possible by a grant from the U.S. Marine Corps to help buffer Townsend Bombing Range. This property also expands a fire-managed longleaf pine ecosystem key to gopher tortoises and other rare wildlife species, improves management at the WMA and adds recreation opportunities for the public.

The tract was acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant, the Dobbs Foundation and the Knobloch Family Foundation.

### **Paulding Forest WMA: Corley Tract**

DNR added 42 acres to Paulding Forest Wildlife Management Area in July 2023. The purchase of the Corley Tract in Paulding County contains mature hardwood forest and also provides for the expansion of a fire-managed montane longleaf pine ecosystem on the WMA. The acquisition will also enhance management and public recreation at the WMA.

The tract was acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant and the National Wild Turkey Federation.

### **Providence Canyon State Park: Double Rails and Aurum Tracts**

DNR expanded Providence Canyon State Park in Stewart County in June 2023 by purchasing the 215-acre Double Rails Tract and, the next month, buying the 1,487-acre Aurum Tracts. These properties provide additional access for the public, improve management of the park, expand hiking trails, add camping sites and add public recreation opportunities.

The tracts were acquired with funding from a Georgia Outdoor Stewardship grant, DNR state parks revenue and the Knobloch Family Foundation.



Head-started gopher tortoise (James Hunt/DNR)



### **Smithgall Woods State Park: McConnell Tract**

DNR expanded Smithgall Woods State Park in White County in December 2023, buying the 180-acre McConnell Tract. The property provides additional public access and recreation opportunities and management options.

The tract was acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant and the Knobloch Family Foundation.

### **Sprewell Bluff WMA: Small Alexander and Timberlands II Tracts**

Sprewell Bluff Wildlife Management Area in Meriwether and Talbot counties is 574 acres larger following the purchases of the 234-acre Small Alexander Tracts in November 2023 and the 340-acre Timberlands II Tract in December 2023. Plans are to restore montane longleaf pine habitats on these upland properties. The tracts also provide for more public access, recreation opportunities and improved management on Sprewell Bluff.

The tracts were acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant, The Nature Conservancy's Stone Mountain Industrial Park grant and the Knobloch Family Foundation.

### **Tallapoosa River VPA: Jupiter Tracts**

DNR bought 385 acres of the Tallapoosa River Voluntary Public Access area in Polk and Haralson Counties in August 2023. Dubbed the Jupiter Tracts, this land was managed as part of the VPA but will become a wildlife management area. The property supports expanding a fire-managed montane longleaf pine ecosystem, safeguards against residential development of the property and adds options for recreation.

The acreage was acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant, the Knobloch Family Foundation and the National Wild Turkey Federation.

### **Vogel State Park: Munson Tract**

Vogel State Park in Union County grew slightly in January 2024 with the purchase of the 8.6-acre Munson Tract. The property includes

sections of two streams that originate on Vogel, while also offering options for improved access, management and recreation.

The tract was acquired with funding from a U.S. Fish and Wildlife Service Pittman-Robertson Wildlife Restoration grant and the Knobloch Family Foundation.

## **Georgia Conservation Tax Credit Program**

The Wildlife Conservation Section administers the Georgia Conservation Tax Credit Program in conjunction with the State Properties Commission. This program provides a tax credit for Georgia taxpayers who place conservation easements on their land or make fee-simple donations to qualified organizations. The original program expired in December 2021. However, state lawmakers extended the program in early 2022 to continue through Dec. 31, 2026.

One application was received in fiscal year 2024. It was approved by the State Properties Commission and received the tax credit. This certification protected 200 acres using conservation easements donated to qualified organizations.



Longleaf pine cone framed against prescribed fire smoke (Hal Massie/DNR)



## State Wildlife Action Plan

Georgia's State Wildlife Action Plan – a 10-year roadmap for conservation – focuses on species of greatest conservation need (known in conservation agency circles as SGCN) and the conservation actions that will protect and restore their populations and habitats. DNR must develop, revise and implement the plan to receive State Wildlife Grants. Georgia's apportionment of State Wildlife Grant funds for federal fiscal year 2024 was \$1,598,173.

As coordinator of the State Wildlife Action Plan in Georgia, the Wildlife Conservation Section completed and submitted a revision of the original 2005 plan for review by the U.S. Fish and Wildlife Service in 2015. The revised plan, created and updated with the help of DNR's conservation partners, was approved in September 2016. Staff applied for and received a competitive State Wildlife Action Plan enhancement grant in 2021. The funding, which began in fiscal 2022, supports development of a database that will be used by Georgia and other Southeastern states to identify, via a consistent framework, the status of and efforts targeting species of greatest conservation need. Georgia's Wildlife Action Plan includes 640 such species. The grant also supports

development of a conservation priority mapper to help DNR and partners implement the plan's conservation actions.

Wildlife Conservation staff officially began working on the next 10-year revision of the plan in October 2022. Staff developed a list of over 1,000 potential species of greatest conservation need and coordinated with species technical teams to assess the conservation status of each species and identify priority actions to conserve them. Other technical teams, focused on conservation topics such as habitat management, climate change, education and outreach, met during fiscal year 2024 to develop comprehensive recommendations that will benefit multiple species of greatest conservation need and their habitats.

The plan's advisory committee, made up of representatives from conservation organizations and other stakeholder groups, met in May 2024 to review draft plan data and comment on proposed conservation actions. As of the close of the fiscal year, the draft plan was being compiled. It will be available for public review in early 2025, with a final plan due to the U.S. Fish and Wildlife Service in 2025. More information on the effort to revise Georgia's Wildlife Action Plan is available in the [Georgia Biodiversity Portal](#).

## Regional Partnerships

Since 2010, the U.S. Fish and Wildlife Service has received three mega-petitions to list more than 500 species under the Endangered Species Act. The Fish and Wildlife Service's Southeast Region is responsible for roughly 60 percent of the workload to evaluate these species. More than 100 of the species are found in Georgia, amplifying the need for up-to-date status information to help inform the service's 90-day and 12-month findings to determine whether a listing is warranted. Current information on the status of petitioned species can be found on the [Fish and Wildlife Service's at-risk species finder](#).

Tackling emerging issues such as mega-petitions to list species under the Endangered Species Act requires innovative approaches. One of those approaches has been creating regional conservation partnerships to achieve success that could not be accomplished by individual states. For example, the Southeast At-risk Species Initiative is an effort led by the Southeastern Association of Fish and Wildlife Agencies in cooperation with the Fish and Wildlife Service. The goal is for states to work together to preclude the need to federally list species. A similar effort is underway in the northeastern U.S.

State agencies and the Fish and Wildlife Service have prioritized numerous and wide-ranging at-risk species for collaborative conservation efforts. One example is the gopher tortoise, which until October 2022 was considered a candidate for listing across its eastern range in parts of Alabama, Georgia, Florida and South Carolina. While Fish and Wildlife coordinated with states to provide federal Section 6 funding for surveys and to develop proactive conservation agreements, DNR worked with the agency and other partners in Georgia's Gopher Tortoise Conservation Initiative to preserve the species and its habitats. All of these efforts factored into the service's determination that federal listing was not needed for gopher tortoises west of the Mobile and Tombigbee rivers in Alabama.

The focus on regional collaboration includes the [Southeast Conservation Adaptation Strategy](#), called SECAS, an initiative of the Southeastern Association of Fish and Wildlife Agencies and other state, federal and private conservation organizations.



Monarch butterfly, a high-priority species in Georgia's State Wildlife Action Plan (Linda May/DNR)



The strategy's primary product is the Southeast Conservation Blueprint, which stitches together smaller, subregional conservation plans into a single map identifying important areas for protection and restoration. The Conservation Blueprint is updated regularly based on new data and partner feedback. A revised version was released in 2023 at the annual meeting of the Southeastern Association of Fish and Wildlife Agencies.

Dramatic landscape-scale changes such as urbanization, competition for water resources, extreme weather events, sea-level rise and climate change pose unprecedented challenges for sustaining natural and cultural resources in the Southeast. Through the Southeastern Conservation Adaptation Strategy, partners are working together to design and develop a connected network of lands and waters that can support thriving wildlife populations and improved quality of life for people throughout the region.

In support of regional conservation, state members of the Southeastern Association of Fish and Wildlife Agencies also worked together on a project to develop a regional species of greatest conservation need list. State Wildlife Action Plans in 15 Southeastern states collectively identified nearly 6,700 species of conservation concern. The goal of this project was to identify a core set of species that represent highest conservation priorities within the region. The priority-setting process involved more than 100 scientific experts. Species were evaluated and ranked based on criteria that included level of conservation concern, regional stewardship responsibility and biological or ecological significance. The regional

assessment focused on mammals, birds, reptiles, amphibians and fishes, as well as better-known invertebrate groups (freshwater mussels, crayfish and bumblebees).

Overall, 960 species were identified for this regional list. Three groups of aquatic organisms – freshwater fishes, mussels and crayfishes – comprise almost two-thirds of the lineup, highlighting both the impressive aquatic biodiversity of the Southeast and the imperiled status of many aquatic species. The final report and tables are posted on the [Georgia Biodiversity Portal](#).

In 2021, Wildlife Conservation Section staff worked with members of the Southeastern Association of Fish and Wildlife Agencies' Wildlife Diversity Committee, Atlanta Botanical Garden and NatureServe to develop a proposal to the Fish and Wildlife Service for funding a similar regional species of greatest conservation need project focused on plants in the Southeast. The proposal was approved for funding in 2022. Project partners, including Atlanta Botanical Garden, the Southeastern Plant Conservation Alliance and NatureServe, worked with experts throughout the Southeast to produce the report in May 2023. It was the nation's first regional species of greatest conservation need report specifically for plants. Visit the [Georgia Biodiversity Portal](#) for the final report and species list.

Data from the plant and animal regional species of conservation need assessments is being used to develop projects that address conservation needs across state lines. Both lists were also used to help prioritize species in the ongoing revision of Georgia's State Wildlife Action Plan.

Taxonomic Group	Tracked*	All	Records
Amphibians	32	95	877
Birds	52	393	1,279
Fishes	102	389	1,849
Invertebrates	368	2,184	2,494
Mammals	36	113	801
Natural Communities	200	348	1,356
Plants	783	6,361	7,830
Reptiles	38	106	1,673
<b>Totals</b>	<b>1,611</b>	<b>9,989</b>	<b>18,159</b>

Cutleaf bearhug (Brian Romm/DNR)

\*Species and habitats. Also tracked: Other (includes caves and wading bird colonies), 404 records.

## Biotics Database

The Wildlife Conservation Section manages the NatureServe Biotics database, the state's most comprehensive database of occurrences of rare species and natural communities. Data in Biotics are used for many purposes, including environmental site reviews, conservation planning, scientific research, habitat restoration and management plan development. About 1,620 rare species and natural communities are tracked in the database, represented by more than 20,400 element occurrence records (i.e., geographic locations of species and communities).

During fiscal year 2024, Wildlife Conservation updated 13,343 rare species or natural community location records and added another 902 such records. Users visited the agency's Biodiversity Portal, which houses more than 1,600 species profiles plus additional data on tracked species and habitats, about half a million times during the year.

Significant efforts were made to update information on species proposed for listing under the Endangered Species Act. Many are under federal review, and updating database records allows for a more accurate species-review process. Funded in part by an agreement with the Georgia Department of Transportation, staff also reviewed ecological reports and responded to 1,307 formal requests for site-specific data.

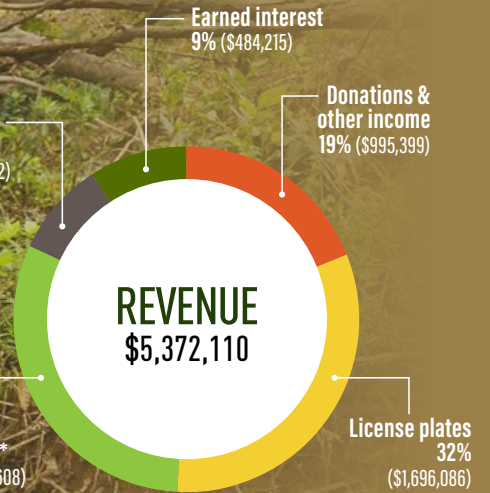


Conasauga logperch, a species of conservation concern in three Southeastern states (Robert Lamb/DNR)



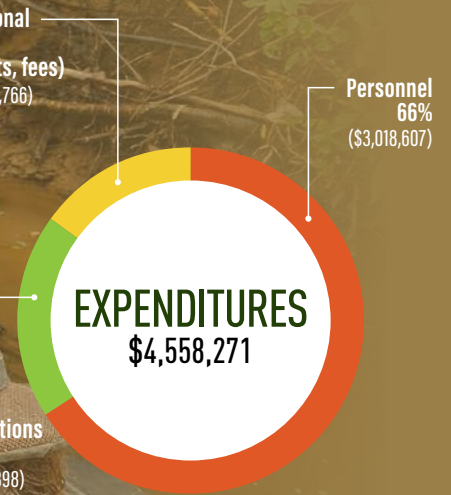


Crayfish survey on Lookout Creek in north Georgia (Tiffany Penland/DNR)



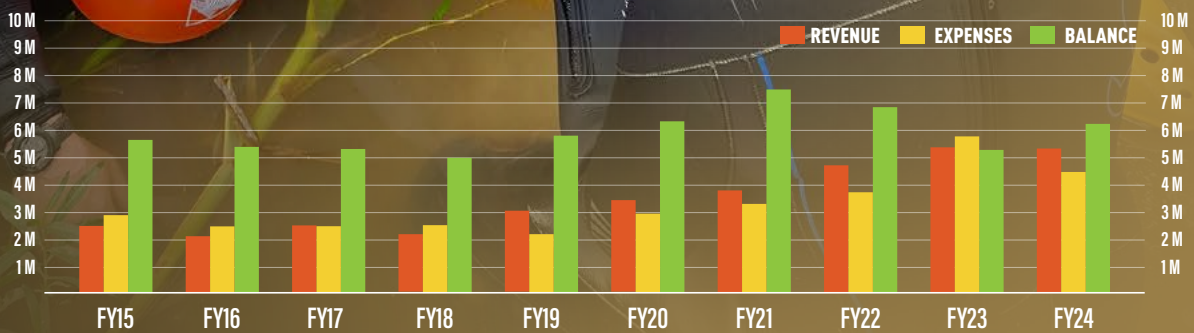
Revenue to the Nongame Wildlife Conservation Fund. Does not include grants or state appropriations for the Wildlife Conservation Section.

\*2024 Weekend for Wildlife revenue disbursed by the Georgia Natural Resources Foundation in fiscal 2025.



Expenditures paid through the Nongame Fund.

## NONGAME WILDLIFE CONSERVATION FUND Listed in millions per year





## Nongame Wildlife Conservation Fund

Fundraising remained a priority for the Wildlife Conservation Section in fiscal year 2024. Although the section received state appropriations this year, only \$60,136 of the \$842,851 was for general operations (the rest involved Charlie Elliott Wildlife Center expenses). That state funding represented less than half of 1 percent of Wildlife Conservation’s fiscal 2024 budget. Instead, the agency continued to depend largely on four fundraisers: “nongame” specialty license plates, Weekend for Wildlife, the Wildlife Conservation Fund state income tax checkoff and direct donations and other income.

Donations and contributions go to the Nongame Wildlife Conservation and Wildlife Habitat Acquisitions Fund, often referred to as the Nongame or Georgia Wildlife Conservation Fund. Created in 1989, this fund is dedicated by state law to support nongame wildlife conservation, wildlife habitat acquisition and related educational and promotional projects. The Environmental Resources Network, better known as TERN, also provides significant financial support to the agency.

Estimated revenue for the Nongame Wildlife Conservation Fund in fiscal 2024 was \$5,372,110. This included:

- \$1,696,086 in license plate sales and renewals.
- \$1,690,608 from the 2024 Weekend for Wildlife.
- \$995,399 in donations and other income.

- \$505,802 via the state income tax checkoff.
- \$484,215 in earned interest.

Total revenue increased 1 percent, or \$51,946, from 2023. Also of note, some license plate revenue reported in fiscal 2024 was disbursed by the state Department of Revenue after the year’s close. The 2024 Weekend for Wildlife revenue shown was distributed to the Wildlife Conservation Fund at the start of fiscal 2025. Fund revenues do not include federal and other grants or state appropriations.

Expenses totaling \$4,558,271 were paid from the fund in fiscal 2024. Personnel accounted for 66 percent, or \$3,018,607. Nineteen percent (\$843,898) went to operations. Professional services, a category that includes contracts and fees, accounted for the remaining 15 percent (\$695,766). Fund expenditures were down 21 percent, or \$1.2 million, compared to 2023. Spending factors of note in fiscal 2023 included Conserve Georgia grant expenditures paid through the fund and not reimbursed until after the year closed, and backlogged equipment purchases ordered in 2022 but delayed by supply chain issues until fiscal 2023. Annual fund expenditures averaged \$3.3 million over the last 10 years.

The closing fund balance exceeded \$6.2 million in fiscal 2024, up 15 percent from 2023. The average annual balance since fiscal 2015 has averaged about \$5.9 million.

## Nongame License Plates

Specialty license plates have been a standard of support for the Nongame Wildlife Conservation Fund for more than two decades. In fiscal year 2024, reported sales of the agency’s popular bald eagle plate and the monarch butterfly-wildflower plate, as well as renewals of those, the ruby-throated hummingbird and older tag designs, declined slightly from 2023. However, the fund recorded nearly \$1.7 million in tag revenue in 2024, about 19 percent more than the previous fiscal year.

The discordance between fewer tags and more revenue involves the two ways the Wildlife Conservation Section tracks license plate revenue: by sales and renewals during the fiscal year and by tag revenue the nongame fund receives that year from the Department of Revenue. Those totals – transactions reported and revenue received – can differ because some revenue from license plate sales and renewals may not be reflected in the fund until the next fiscal year. Also, 25 percent of net revenue from Jekyll Island’s Georgia Sea Turtle Center plate goes to DNR for conserving nongame and is reported as tag revenue. The fund received \$85,420 from the Jekyll plate in fiscal 2024.

Because of changes in tag data provided to DNR, a breakdown of plate sales versus renewals was not available. Yet based on plates issued and renewed in fiscal 2024, there were 74,264 eagle, monarch and hummingbird tags on the road at





the end of the year, according to Department of Revenue reports. That's about 1,390 fewer than in 2023. The number of nongame plates in circulation had increased slightly for three consecutive years previously.

License plates led all revenue sources for the Nongame Conservation Fund in fiscal 2024. At 32 percent, the tags edged Weekend for Wildlife (31 percent) and unseated last year's No. 1 source – donations and other income, which can fluctuate widely year to year. The continuing significance of the plates is largely due to state lawmakers' decision in 2014 to lower the cost of buying and renewing all DNR wildlife tags to only \$25 more than a standard plate and dedicate up to 80 percent of fees to programs the plates benefit. Since that change, \$19 for each nongame tag bought and \$20 for each renewed has gone to conserve wildlife and natural habitats.

Sales and renewals had spiraled downward after legislation in 2010 upped the price for most specialty plates, reduced sponsor groups' share to \$10 a tag and added an annual renewal fee. While the changes initially increased nongame revenue – peaking at \$1.88 million in 2011 – the higher price, reduced benefit and extra fee soon sapped sales and renewals. Revenue bottomed out at \$841,160 in fiscal 2014.

The challenge has been stemming the decline in renewals while increasing sales. DNR moves that helped included releasing a redesigned eagle and U.S. flag plate in 2016 and the vibrant-colored pollinator – or butterfly – plate in 2019. The latter design featuring a monarch on a Georgia aster replaced the hummingbird tag. In fiscal 2024, pollinator plates topped \$270,000 in reported sales and renewals. The eagle tags continued as the state's most popular specialty plates, raising more than \$1 million. The hummingbird design, retired but still renewable, totaled nearly \$143,300.

2010 proved the highpoint for nongame tags, with 347,401 eagle and hummingbird plates in circulation. Since then, the number and variety of specialty plate designs offered in Georgia has surged, increasing competition, while the 2010 change in tag fees cut sales and support. On a positive note, license plate revenue has exceeded \$1.4 million a year for the Nongame Conservation Fund since at least 2015.

## Weekend for Wildlife

Weekend for Wildlife is one of the country's most successful fundraisers for conserving rare and other native wildlife, raising millions since its start in 1989. Held each winter at the prestigious Cloister at Sea Island, the event draws 200 to 400 guests for a weekend of outdoor trips, auctions and dining.

After the Georgia Natural Resources Foundation returned the fundraiser to an in-person event in 2022, following a virtual version during the COVID-19 pandemic, Weekend for Wildlife has continued to grow in sponsors, popularity and money raised. Starting in 2022, each event has raised a record amount for the Nongame Wildlife Conservation Fund, starting with \$1.1 million in 2022, more than \$1.3 million in 2023 and just over \$1,690,000 in 2024. The fundraising totals exclude expenses, fees, directed giving for programs and money raised by TERN.

The 2025 Weekend for Wildlife will again be held at The Cloister.



## Georgia Wildlife Conservation Fund Checkoff

Created in 1989, the state income tax checkoff offers Georgians a convenient way to donate to the Nongame Wildlife Conservation Fund. Contributions to what is commonly called the Give Wildlife a Chance checkoff increased to \$505,802 in 2024. That total ranked close to the all-time high of \$510,910 donated in 1991 and marked the most contributions since at least 2007.

Over the last 10 years, checkoff contributions – collected by calendar year – averaged nearly \$271,000. Since revenue bottomed out at \$113,606 in 2017, the trend has been largely

positive, with support reaching \$401,668 in 2022 before slipping to \$388,459 in 2023. The Wildlife Conservation Section's promotion of the checkoff is consistent year-to-year, and it is not clear why contributions have surged.

Labeled the Georgia Wildlife Conservation Fund checkoff by the Department of Revenue, the checkoff is line 30 on the state's long income tax form (Form 500) and line 10 of the short form (Form 500-EZ).

## Online Donations

In 2018, the Wildlife Resources Division's License and Boat Registration Unit supervisor worked with division Public Affairs staff to create options for donating to the Nongame Wildlife Conservation Fund through [gooutdoorsgeorgia.com](http://gooutdoorsgeorgia.com), the agency's license and permit portal.

The additions allowed users to make a set donation or round up license purchases and renewals with the extra going to conservation. A promotion bundling a \$10 donation with a \$5 one-day hunting/fishing license is also available. Hunting and fishing license sales and renewals return to wildlife work in Georgia the license fees plus as much as \$45 in federal excise taxes on guns, fishing rods and other hunting and fishing gear.

Donations online – and in smaller amounts from other license venues such as DNR offices, private vendors and the Brandt Information Service help desk – grew annually from fiscal year 2018 (\$36,332, with the option added that March) until 2022, with \$236,351 donated. Giving declined to \$209,621 in fiscal 2023 but rebounded to a record \$244,611 in fiscal 2024.

The roundup remained by far the most popular option in 2024, with 68,969 users giving a total of \$208,156. Another 1,628 people gave \$5 each (\$8,140 total), 1,344 gave \$10 apiece (\$13,440), 253 donated \$25 (\$6,325), 59 contributed \$50 (\$2,950) and 56 people gave \$100 (\$5,600).

Donors new to [gooutdoorsgeorgia.com](http://gooutdoorsgeorgia.com) simply select "Licenses and Permits" and create a customer account. They are then only a click away from turning their appreciation for gopher tortoises, Georgia aster and other native wildlife into financial support for conserving these species and their habitats.



## The Environmental Resources Network

The Environmental Resources Network, or TERN, is a nonprofit organization founded in 1992 to support Wildlife Conservation Section activities. TERN, online at [tern.homestead.com](http://tern.homestead.com), raises most of its funds through membership dues as well as silent auction, raffle and sale items at Weekend for Wildlife.

In fiscal year 2024, TERN funded 12 Wildlife Conservation proposals totaling \$50,884. They included:

**“Young Fires” prescribed fire video**  
– \$7,000

**Videography equipment for promoting wildlife conservation on private lands**  
– \$2,750

**Marshbird research camera** – \$5,880

**“Spark” birds (purple martin nest structures)** – \$3,800

**Give Wildlife a Chance poster contest** – \$1,800

**ACE (Adventures in Conservation) Camp**  
– \$4,480

**OWLS (Outdoor Wildlife Leadership School)**  
– \$8,480

**Camp TALON (Teen Adventures Learning Ornithology and Nature)** – \$5,250

**Raptor nest survey camera lens** – \$1,056

**Red knot tracking** – \$8,000

**TERN Outstanding Conservation Teacher of the Year award** – \$1,300

**Habitat signs to benefit wildlife** – \$1,088

Since 1992, the nonprofit has paid or obligated nearly \$2 million to Wildlife Conservation. TERN officers in 2024 included President Jim Ozier, Vice President Patty Deveau, Secretary Kim Kilgore, Treasurer Jerry Booker, Executive Director Terry W. Johnson and Executive Secretary Wanda Granitz.

## Federal and Other Funding

The Wildlife Conservation Section received \$10.8 million in federal and other grants during fiscal year 2024. Land acquisition expenditures covered through federal and other funds totaled more than \$9.1 million.

Grant sources varied from the State and Tribal Wildlife Grants Program, the Cooperative Endangered Species Conservation Fund and the National Coastal Wetlands Conservation Grant Program – all administered by the U.S. Fish and Wildlife Service – to the National Oceanic and Atmospheric Administration, National Fish and Wildlife Foundation, the U.S. Department of Defense, the Georgia Outdoor Stewardship Program and Southern Co. Use of the grants, usually matched with funds from the Nongame Wildlife Conservation Fund, included acquiring habitat for conservation and research, conducting surveys, and collecting data on occurrences of at-risk species.

### State Wildlife Grants

Georgia’s fiscal year 2024 apportionment of federal State Wildlife Grants was \$1,598,173, up by 4 percent (\$68,417) from 2023 but down more than 20 percent from the program’s funding high-point in 2010. The State and Tribal Wildlife Grants program is one in a suite of federal conservation programs cut since 2010.

While there is bipartisan support for State Wildlife Grants in Congress, the funding is not sufficient for states to meet the conservation needs outlined in their State Wildlife Action Plans. Each state needs on average \$26 million a year to effectively implement those plans, according to a national survey.

State Wildlife Grants is the only federal program designed to prevent wildlife from becoming endangered through voluntary, proactive conservation. Via the Wildlife Conservation Section, DNR’s Wildlife Resources Division uses the funding to research and monitor species of greatest conservation need, restore habitat, acquire land, and accomplish other work identified in Georgia’s [State Wildlife Action Plan](#). This comprehensive wildlife conservation strategy is required to receive the grants.

Work spurred by the Wildlife Action Plan contributes to local and state economies. One way is through wildlife viewing. The nation’s some 148 million wildlife viewers generated an estimated \$250 billion a year in related expenditures in 2022, according to the U.S. Fish and Wildlife Service. A version of the survey estimated the number of wildlife viewers in Georgia at 4.8 million, with 57 percent of residents 16 or older taking part in 2022. State Wildlife Grants are critical to helping conserve Georgia wildlife and natural habitats, the species and places valued by wildlife viewers and other outdoor recreationists.

### Recovering America’s Wildlife Act

With State Wildlife Grants funding insufficient to meet the conservation needs in state Wildlife Action Plans, the push to secure dedicated funding to prevent more than 12,000 species from becoming endangered coalesced into the Alliance for America’s Fish and Wildlife in 2017. The alliance grew out of the partnership developed by the Blue Ribbon Panel on Sustaining America’s Diverse Fish and Wildlife Resources. Organized by the Association of Fish and Wildlife Agencies, the 26-member panel of national leaders representing outdoor recreation retail and manufacturing, energy and automotive industries, private landowners, schools, conservation organizations, sportsmen’s groups, and state agencies worked to identify funding to support state conservation efforts to ensure the sustainability of wildlife.

Legislation in 2017 was followed by later revisions of the [Recovering America’s Wildlife Act](#). Powered by bipartisan and public support – a 2022 survey found that [70 percent of adult Americans favored the legislation](#) – the bills outlined a funding model aimed at conserving the more than one-third of animal and plant species in the U.S. that face an elevated risk of extinction. From a Georgia perspective, the state’s General Assembly unanimously approved a resolution in 2021 urging Congress to pass the act.

In April 2022, the U.S. Senate Committee on Environment and Public Works approved Senate Bill 2372, steering the legislation toward a full Senate vote. That June, the House passed its companion bill, [House Resolution 2773](#). However, despite bipartisan support, S. 2372 was not brought to a vote in the Senate. And although later added to a larger government spending bill,



Eaglets peer from a bald eagle nest on a Georgia barrier island (Tom Sweeney)



Recovering America's Wildlife Act was not included in that final omnibus package, in part because of questions about funding.

Proponents remained hopeful. Following the March 2023 reintroduction of the legislation (S. 1149) in the Senate, the bill added co-sponsors. As of the close of fiscal year 2024, the 19 backers included 10 Republicans – most from southern states – seven Democrats and two independents.

However, another major and possibly competing wildlife bill was introduced in the House in 2024. America's Wildlife Habitat Conservation Act (House Resolution 7408), proposed by U.S. Rep. Bruce Westerman of Arkansas, would provide states \$320 million a year to conserve habitat, end after five years unless Congress approves, change some Endangered Species Act approaches and use unspent Inflation Reduction Act funds as approved annually in the House. By the end of the fiscal year, the bill had 22 cosponsors, all Republicans.

As proposed, Recovering America's Wildlife Act would provide \$1.4 billion annually for states and tribal nations to conserve species of greatest conservation need in a voluntary, non-regulatory manner. Funding to states would total \$1.3 billion

a year; tribal agencies would receive \$97.5 million. Most of the state funding would be dedicated to fully implementing each state's Wildlife Action Plan. These strategies, developed with partners and stakeholders, are focused on conserving populations of native wildlife species and the habitats they need before these animals, plants and places become rarer and more costly to conserve or restore. With the proposed changes completely phased in, Georgia would be eligible for an estimated \$27.4 million a year, according to the Association of Fish and Wildlife Agencies.

However, the bill faced questions about how to pay for it. Per the original legislation, funding would be allocated through the Wildlife Conservation and Restoration Program, established in 2000 under the Pittman-Robertson Wildlife Restoration Act. Pittman-Robertson, officially the Federal Aid in Wildlife Restoration Act, has provided critical support to states for wildlife management and conservation funding since 1937. Ten percent of the total funding available to states through Recovering America's Wildlife Act would be allocated via competitive grants.

DNR helped shape the effort to identify dedicated nongame funding for states. Former

Wildlife Resource Division directors Dan Forster and David Waller took part in the Blue Ribbon Panel's first meeting.

Georgia projects that could be achieved through Recovering America's Wildlife Act are included at [georgiawildlife.com/WildlifeActionPlan](https://georgiawildlife.com/WildlifeActionPlan). Learn more about the nationwide effort at the Alliance for America's Fish and Wildlife website, [ournatureusa.com](https://ournatureusa.com).

### Georgia Outdoor Stewardship Program

The Georgia General Assembly passed legislation establishing the Georgia Outdoor Stewardship Act in 2018. Later that year, 83 percent of voters approved amending the state's constitution to suit, and the change became effective in July 2019.

The [Conserve Georgia grants and loans program](#) provides a dedicated funding mechanism – at an estimated \$20 million a year from the Georgia Outdoor Stewardship Trust Fund – to support lands and outdoor projects critical for wildlife, clean water and outdoor recreation. In March 2024, a fifth round of projects were chosen for the final part of the application process. If all

12 projects are approved, they will provide \$20.6 million to benefit local parks and trails systems and state-owned lands. The grantees would leverage another \$26 million in matching funds from project partners.

The 2023-2024 projects include:

- City of St. Marys, \$1.73 million to build the 4-mile multi-use “Tabby Trail” as part of the East Coast Greenway, connecting to Crooked River State Park and the Gilman wood stork rookery.
- Glynn County, \$3 million for a park at St. Simons Island’s Coast Guard Beach, including an ADA-accessible viewing platform and boardwalk, play and picnic area, walkways and parking.
- Lanier County, \$1.49 million to create a full-feature campground and recreation facility serving visitors to Banks Lake National Wildlife Refuge.
- Pike County Parks and Recreation Authority, \$1.5 million to add 35 forested acres to the county’s sports complex, including adding nature-based recreation opportunities.
- Trust for Public Land, \$3 million to develop with Cobb County the Chattahoochee River Lands Regional Trailhead, connecting the Chattahoochee National Water Trail and RiverLands project.
- DNR Wildlife Resources Division, \$2.1 million to help acquire the 3,900-acre Mocama Tract and expand Ceylon Wildlife Management Area in Camden County, protect wildlife habitat and provide recreation. (Program grants helped purchase 27,000 acres at Ceylon in 2020 and 2021.)
- DNR Wildlife Resources Division, \$2.1 million toward acquiring 2,197 acres for Treat Mountain Wildlife Management Area in northwest Georgia’s Dugdown Mountain Corridor, an area rich in rare wildlife. (An adjacent 8,384 acres were targeted in the previous cycle.)
- DNR Wildlife Resources Division, \$550,000 toward adding the 183-acre Springbank Tract, which fronts the Conasauga River and features rare species, to Conasauga Wildlife Management Area.

- DNR Coastal Resources Division, \$1.32 million to complete a restoration project with the U.S. Army Corps of Engineers closing the humanmade Noyes Cut on the Satilla River. (A grant also partially funded phase 1 of the project.)
- DNR Wildlife Resources Division, \$629,500 for large-scale habitat management, such as reforestation and removing invasive plants, on targeted state lands in the Coastal Plain.
- DNR Wildlife Resources Division, \$1.6 million to upgrade Evans County and McDuffie public fishing areas, including boat facilities, new campsites and renovated wetlands boardwalk.
- Jekyll Island State Park Authority, \$1.6 million to raise a wildlife-focused corridor and park, restoring retired holes on a golf course to wildlife habitat and including trails and viewing decks.

The pre-application period for the 2024-2025 funding cycle was open Aug. 1-Oct. 15, 2024. The Georgia Outdoor Stewardship Program is managed by an 11-member board of trustees.

## Administration and Personnel

The Wildlife Conservation Section weathered less change in fiscal year 2024 compared to 2023, when retirements and promotions recast significant parts of the section’s leadership. Yet other areas in DNR that work closely with Wildlife Conservation saw significant shifts.

Real Estate Chief **Steve Friedman** retired in April 2024, closing a 19-year career in which Friedman helped negotiate deals and engage partners vital to acquiring more than 250,000 acres. All of the land is open for outdoor recreation; much of it is critical to preserving rare species and habitats. Highlights included building out a lower Altamaha River wildlife corridor, as well as helping acquire Alapaha River Wildlife Management Area near Ocilla, expand Ohoopsee Dunes, Pigeon Mountain and Dawson Forest WMAs, cobble together state ownership of Paulding Forest WMA near Rockmart, and connect tracts targeted by the Gopher Tortoise Conservation Initiative to keep Georgia’s state reptile off the Endangered Species Act list. “Georgia’s wildlife, habitat and outdoor recreation

are in a better place now thanks to Steve’s efforts with our department,” DNR Deputy Commissioner Trevor Santos said.

The DNR Commissioner’s Office promoted 18-year agency veteran **Brent Womack** to real estate chief. As regional Game Management Section supervisor in northwest Georgia, Womack had been the regional lead on acquisitions including Paulding Forest, Sheffield and Crockford-Pigeon Mountain WMAs, and the Tallapoosa River and Treat Mountain tracts in the Dugdown Mountain Corridor.

At Wildlife Resources Division headquarters, **Kaitlin Goode** was named chief of Communications, Education and Outreach. Goode, hired in 2019 to lead the agency’s Urban Wildlife Program, filled a new position that oversees efforts varying from communications to educational programs and initiatives such as Outdoors Beyond Barriers for people with impaired mobility. (Early in fiscal year 2025, Charlie Elliott Wildlife Center was moved from Wildlife Conservation to the new Communications, Education and Outreach Section.) The division also promoted **Lee Taylor** to Game Management Section chief following the retirement of **Alan Isler**. Taylor, a 13-year DNR employee, previously led Game Management’s east-central Georgia region. **Zack Brock**, a former fisheries technician with federal agencies, was announced as the division’s new training coordinator.

Just after the close of fiscal 2024, the National Fish, Wildlife, and Plants Climate Adaptation Network honored Program Manager **Jason Lee** with a Climate Adaptation Leadership Award for Natural Resources. The awards mark outstanding leadership by people, agencies, tribes and businesses to build resilience and advance adaptation of America’s natural resources in a changing climate. Lee, manager of Wildlife Conservation’s coastal staff, was recognized in the State/Local Government category.

The network **lauded his exceptional work** in “bringing together experts and partners throughout the state, facilitating productive discussion, and distilling all of the best and recent science on climate change impacts and adaptation into the state’s 2025 State Wildlife Action Plan revision.” Lee organized a three-day meeting of over 30 experts for the plan’s Climate Change Technical Team, coordinated



sessions to tackle key topics such as species vulnerability and adaptive conservation actions, and integrated the conversations, feedback and additional data and methods into a detailed section on climate change. His and the team's efforts "will ensure Georgia's plan contains the most state-of-the-art science on climate change impacts ... a huge step forward for climate-smart wildlife management that will surely reap immense benefits for unique wildlife of the state," according not the network's Climate Adaptation Leadership Awards Steering Committee.

In other recognition, Wildlife Conservation administration chose **Ani Escobar**, **Nathan Klaus**, **Linda May** and **Matt Rowe** as section champions in fiscal 2024. Escobar also joined **Emily Ferrall**, **Maggie Hunt** (a two-time nominee during the year) and **Katrina Morris** as We Are DNR recipients. Through the We Are DNR program, staff recognize fellow agency employees for their standout efforts.

In May 2024, southeast Georgia native and former Congressman **Lindsay Thomas** received the 2023 **Rock Howard Award** from the Georgia Board of Natural Resources. Named after the state's first Environmental Protection Division director, the award recognizes significant contributions in support of DNR's mission. Board Chair Joe Hatfield called Thomas' leadership in the U.S. House from 1983-1993 – including co-founding the Congressional Sportsmen's Caucus – and continued conservation work in the state "a source of pride for Georgia conservationists."

Also of note, the division's Public Affairs team received a second-place award at the 2024 Association for Conservation Information conference for the printed version of **Wildlife Conservation's fiscal 2023 report**. The brochure compiled by communications specialist **Rick Lavender** and staff and designed by **Omar Murcia** at **OM Graphic Design** in Marietta landed silver in the One-time Publication category.

Retirees in fiscal 2024 included **Lisa Boone**, administrative assistant 3 at Charlie Elliott Wildlife Center; **Douglas Samson**, marine biologist supervisor at Sapelo National Estuarine Research Reserve and Visitors' Center; and, **Catherine Shelter**, a food service specialist 2 at Charlie Elliott Wildlife Center.

Former Real Estate Chief Steve Friedman, third from left, with other DNR staff by a massive beech tree (DNR)



DNR's Jason Lee at Ceylon WMA (Mac Stone/Mac Stone Photography)







# GEORGIA

DEPARTMENT OF NATURAL RESOURCES

## WILDLIFE RESOURCES DIVISION

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