

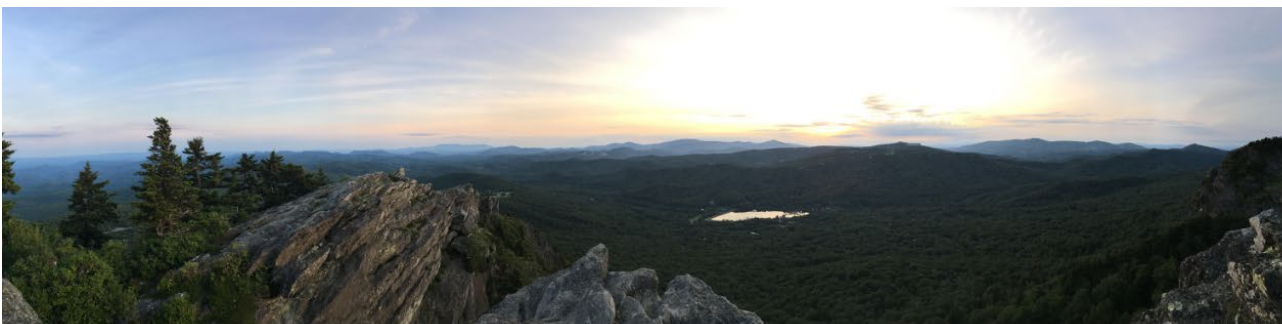
2020

# APPALACHIAN MOUNTAINS JOINT VENTURE

YEAR IN REVIEW







Dear AMJV Partners,

We're excited to present our 2020 AMJV Year in Review.

I believe we will all agree that 2020 was a year unlike any other. Starting with the COVID-19 pandemic and subsequent lockdowns in March, it felt like we spent many days thinking “It can’t get worse than this”, only to be faced yet again with another challenge. What we initially anticipated to be a temporary inconvenience turned into a new way of life, and then was compounded by the continued and growing political polarization and the social unrest in response to racism. Zoom, social distancing, and quarantine are now a common part of our vernacular, and virtual meetings, often way too many in a given day, are how we get things done.

In spite of these challenges, we have adapted, and there have been tremendous opportunities that have developed in what have otherwise been uncertain times. Our virtual work format, while exhausting at times, facilitates greater engagement by a broader group of stakeholders and partners that wasn’t always possible with in-person events. We have seen a dramatic increase in outdoor activities and citizen science, followed by a growing awareness of the importance of conservation and environmental health. We’ve become keenly aware of the need for and are taking steps to advance greater diversity, equity, and inclusion, not only because it’s a necessity to advance and achieve bird conservation goals, but because it is a long overdue social priority.

Finally, the momentum and urgency generated by the [3 Billion Birds](#) publication in 2019 was thrust into a whole new light with the events of 2020. Not only did the last year emphasize the need to do bird conservation differently, it forced the issue and gave us no choice but to start thinking outside the box. The 3 Billion Birds paper told us business as usual wasn’t working, and then the events of 2020 pushed us to abandon business as usual. As we are hopefully seeing the light at the end of the COVID tunnel, I hope that bird conservation uses the opportunity not to return to business as usual.

Many thanks to the AMJV staff, board members, and partners for not only persevering in 2020, but also taking steps to reimagine how we do bird conservation.

Thank you!

Todd Fearer  
Coordinator, Appalachian Mountains Joint Venture

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## AMJV STAFF



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## AMJV MISSION & VISION

Our [mission](#) is to restore and sustain viable populations of native birds and their habitats in the Appalachian Mountains Joint Venture region through effective, collaborative partnerships.

[Vision](#) - Partners working together for conservation of native bird species in the Appalachian Mountains region to attain:

- Fully-functioning ecosystems with sustainable populations of the region's native avifauna, guided by state, regional, national, and international bird plans
- Effective delivery of habitat conservation through adaptive management and guided by a conservation approach consisting of biological planning, conservation design, delivery of conservation actions, evaluation, and research
- Success in capitalizing on funding opportunities relevant to partnership priorities
- An engaged Management Board, representative of the diverse landscape and effective partnerships in the Appalachian Mountains

## INTRODUCTION

The [AMJV Partnership](#) - which consists of over 50 state and federal agencies, conservation organizations, and universities throughout 12 states in the Appalachian Region - is focused on preserving, managing, and restoring diverse, healthy forest habitats in the region to benefit not only birds, but the diversity of Appalachian plants and wildlife.

This Year in Review is organized to reflect the two overarching themes of the current [AMJV Strategic Plan \(2018-2023\)](#). [Theme 1](#) goals, which focus on creating a dynamic, healthy forest landscape in the Appalachian Region, are supported by projects within the [six focal landscapes](#): Allegheny Highlands (PA/NY); Greenbrier/Alleghenies (WV); Southeastern Ohio; Cumberlands (KY/TN); Southern Appalachian High Country (NC/TN/VA); and Virginia Highlands as part of the [AMJV Focal Landscape Initiative](#) and also by state and regional projects that occur outside of those boundaries. [Theme 2](#) goals, which focus on full annual cycle conservation of birds, are supported by international projects completed by various AMJV partners.



## KENTUCKY

### Rockcastle River Wildlife Management Area (WMA) Reforestation Project

Mike Strunk, Southeast Regional Coordinator, KDFWR

*\*This work overlaps the Cumberland (KY/TN) Focal Landscape\**

This project was made possible by a partnership between the Kentucky Department of Fish and Wildlife Resources (KDFWR) and Green Forests Works. The project entailed the reforestation of 59.6 acres of heavily impacted surface-mined ground on Rockcastle River Wildlife Management Area (WMA) in southeast Kentucky. Green Forests Works, a non-profit agency, enlisted many additional partners to conduct site preparation, provide materials, and ensure project completion. The site was previously dominated by *Sericea*, Fescue, and Autumn Olive. The project resulted in 41,400 hard/soft mast trees/shrubs planted on the WMA. The project was completed with no cost to the KDFWR, outside of staff members' time to assist.

To learn more, [follow this link](#) to a publication Green Forest Works developed on the project.

*(Right) Cover of Green Forests Work's report about the reforestation project.*



### Daniel Boone National Forest, Stearns District - Pollinator Project

Mike Strunk, Southeast Regional Coordinator, KDFWR

Eastern Kentucky Power approached the US Forest Service (USFS) with interest in a project to establish pollinator habitat, including native grasses, within woodland openings on the Stearns District of the Daniel Boone National Forest (DBNF). The USFS then approached KDFWR for assistance with site preparation and planting for this project. In the end, KDFWR Regional Staff were able to help establish 65 acres of high-quality pollinator habitat in various woodland openings found within the Stearns District of DBNF.

## NEW JERSEY

### Young Forest Management in New Jersey

Sharon Petzinger, Senior Zoologist, NJDEP DFW

Working Lands for Wildlife (WLFW) efforts in NJ were a bit different in 2020 compared to previous years. No WLFW outreach was done due to COVID-19 restrictions, and we had fewer landowners sign up to do habitat management on their properties. Local lumber mills also closed during the end of





*(Above) Working Lands for Wildlife site that contained a Golden-winged Warbler during the breeding season in 2020. (Below) Managed site that contained a Golden-winged Warbler during the breeding season in 2020.*

*Photos by Sharon Petzinger, NJDEP DFW*



*(Right) Nest in the first managed site to contain a Golden-winged Warbler during the breeding season. The nest was abandoned before we found out if it was a Golden-winged or Blue-winged Warbler nest.*

*Photo by Sharon Petzinger, NJDEP DFW*

In 2020, the number of bird species in control sites continued to decline while the number of bird species in managed sites varied depending on the length of

last winter, which made it more difficult to find contractors to complete forest management projects. Many of these projects are now scheduled to be managed in early 2021.

Monitoring of sites enrolled in WLFW for Golden-winged Warblers (GWWA) was in full swing in 2020, however, thanks to the selfless efforts of NJ Audubon providing full-time and part-time staff to help with the surveys. Out of those efforts, 133 locations were surveyed to evaluate the success of WLFW and other sites with similar forest management prescriptions. Initial success was evaluated in terms of the vegetation response as well as the number of bird species and number of bird species of concern (per the 2018 NJ SWAP and most recent NJ state listing). Presence of *Vermivora* species during the breeding season, especially GWWA, was also evaluated once a site was considered suitable for breeding.

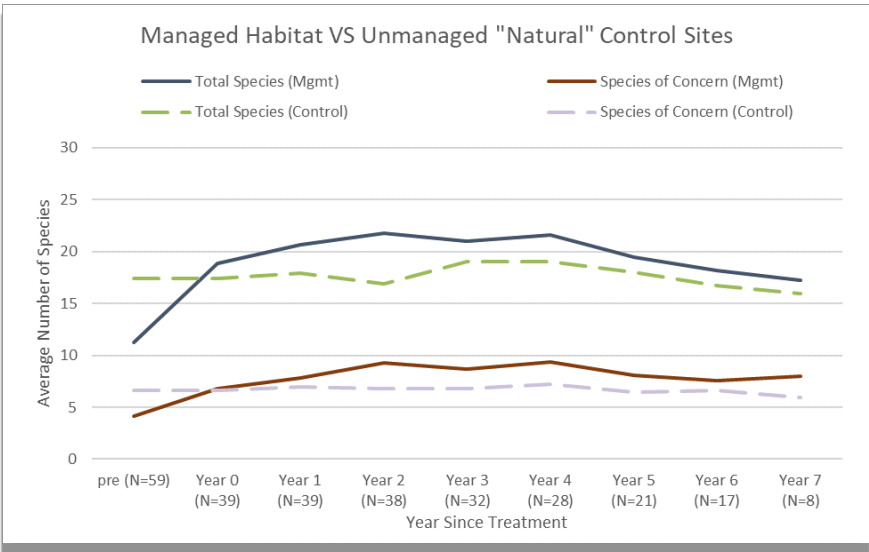
Each WLFW site was compared to a similar unmanaged “control” site, with the unmanaged sites representing “young forest” habitat naturally occurring within wetlands. Prior to management, as concluded by site surveys, most WLFW sites were closed-canopy deciduous forests with an average age between 70 and 100 years.





time since management occurred. We saw mostly increasing trends on managed sites surveyed in the spring immediately after treatment through about three or four growing seasons; we observed mostly decreasing trends on sites older than four growing seasons. Even so, sites that were managed continued to have a greater number of bird species and bird species of concern than control sites.

Even in its early stages, young forest management has benefited a number of early-successional songbird species and attracted a greater diversity of bird species compared to other managed and natural sites. Overall, opening the forest canopy to create young forest breeding habitat for GWWA resulted in a 50% increase in the number of bird species using the sites during the breeding season. While most of the managed forest sites are still too young to attract GWWAs, a greater proportion of sites that were



suitable in 2020 had GWWAs as compared to control sites.

*(Left) Average number of bird species (blue, green) and bird species of concern (red, violet) observed during breeding bird surveys on Managed (WLFW & other lands treated to create or enhance habitat for GWWAs) and Unmanaged (Natural Control) sites.*

*Proportion of Sites Occupied by Golden-winged Warblers in 2020*

	Managed Sites	Control Sites
Suitable Habitat	14%	6.6%
Suitable Habitat with > 70% Forest Cover	20%	8.3%

## NEW YORK

**US Forest Service Landscape Scale Restoration (LaSR) Grant awarded to Audubon NY**  
*Suzanne Treyger, Forest Program Manager, Audubon NY*

***\*This work overlaps the Allegheny Highlands (PA/NY) Focal Landscape\****

In 2020, Audubon NY received a US Forest Service LaSR grant. This grant will help deliver a new forester training and Audubon endorsement program throughout New York State and create two new forest demonstration sites (one of which might be located in an AMJV Focal Landscape) in state forests in partnership with New York State Department of Environmental Conservation. These demonstration sites will integrate bird-friendly forest management with other forest management objectives and climate adaptation strategies provided by the Northern Institute of Applied Climate Science.

## Audubon New York's Harvests for Habitat: Project Updates

*Suzanne Treyger, Forest Program Manager, Audubon NY*

Harvests for Habitat is a collaborative partnership between Audubon NY, Watershed Agricultural Council, and NY Tree Farm Program, that enables habitat improvements for Wood Thrush, Cerulean Warbler, and associated species, through active forest management and financial incentives in the Upper Delaware Watershed in NY. In an effort to mitigate the absence of markets for low grade wood material that often come from harvests that improve habitat quality, this project will provide financial assistance to loggers to offset any monetary losses they may incur. Financial assistance is also available to foresters to compensate their time in working with our field staff to plan and mark cuts that benefit target forest birds.

Funded through NFWF's Delaware River Restoration Program in 2018, and with funding from NFWF's Delaware Watershed Conservation Fund in 2020, Harvests for Habitat will continue for another two years with the addition of a new partner, the New York Forest Owners Association (NYFOA). The project will also expand into the East Branch Delaware Watershed. In 2020, we assessed and approved an additional 102 acres to be managed for Cerulean Warbler habitat.



*LaSR Grant funds (see article on previous page) will be used to help deliver a training for new foresters on creating habitat through bird-friendly forest management.*

*Photo by Amanda Duren, AMJV*



*(Left) A harvest to remove low-grade material that will improve habitat quality for Wood Thrush, Cerulean Warbler, and associated species.*

*Photo by Kevin Yoder, TNC*



## Young Forest Initiative on Wildlife Management Areas

Katherine Yard, Wildlife Biologist, NY DEC

Sandy Van Vranken, Wildlife Biologist, NY DEC

*\*This work overlaps the Allegheny Highlands (PA/NY) Focal Landscape\**



*(Above) A recently completed young forest project at Bear Spring Mountain Wildlife Management Area in the Catskill Region of New York.*

*Photo by N. Doig, DEC*

*(Below) New interpretive sign installed at a young forest demonstration area at Rattlesnake Hill Wildlife Management Area in central New York.*

*Photo by J. Mahoney, DEC*



New York State Department of Environmental Conservation's (DEC) Young Forest Initiative continues to improve habitat for woodcock, grouse, turkey, whip-poor-will, Golden-winged Warbler,

and other wildlife on Wildlife Management Areas (WMA) throughout New York. The following updates are for the 24 WMAs located within the AMJV region.

Over the past year, we completed a Habitat Management Plan (HMP) for Erwin WMA and prepared a draft HMP for Allegany Reservoir WMA. Overall, we've now completed 17 HMPs and are currently developing another five. We also continued outreach efforts, including holding a virtual public meeting about the Erwin HMP, summarizing the [first five years](#) of our program in a short fact sheet, and creating and installing new interpretive signs at demonstration areas on several WMAs.

In 2020, we completed five young forest projects (140 acres) on four WMAs, including clearcuts, patch cuts, and seed tree cuts. Since our program began in 2015, we've completed 27 projects (nearly 700 acres) on 13 WMAs. Currently, we have 17 projects on 12 WMAs (>900 acres) under contract; these are expected to be completed within about three years. An additional 11



projects (900 acres) on seven WMAs are currently in the planning stages. Beyond young forest management, we completed a small amount of timber stand improvement (~30 acres) and shrubland management (~15 acres) in 2020 and have an additional 300 acres currently in the planning stages. Please [click here](#) for more information about our program.

## NORTH CAROLINA

### **Audubon North Carolina: Forestry in Action** *Aimee Tomcho, Conservation Biologist, Audubon NC*



The beneficial role North Carolina's forests play for both birds and people continues to be a highlight of Audubon North Carolina's conservation outreach and delivery work. Landowners like Janet Montgomery and Louise Belk (see below) inspire us to elevate the forest stewardship message to female-identifying landowners. Though Louise's geography is outside the Appalachian Mountains, Audubon North Carolina's leadership in ForestHerNC extends across the state with targeted efforts underway to grow the program in Western North Carolina. For now, ForestHerNC is hosting statewide virtual monthly meetings as a part of the introductory workshop series until we can all safely meet together again. Stay tuned!

*Janet Warner Montgomery shows off signs that recognize her work to manage her land to benefit birds.*

*Photo by Aimee Tomcho, Audubon NC*

### **Horses and Flying Logs: Using Old and New Forestry Methods to Improve Bird Habitat:** **Audubon North Carolina's Internal Cost Share Initiative, the Forest Landbird Legacy Program,** **Helps Ashe County Landowner Restore Forested Property** *Aimee Tomcho, Conservation Biologist, Audubon NC*

***\*This work overlaps the Southern Appalachian High Country (NC/TN/VA) Focal Landscape\****

*The original (extended) version of this article appeared online [here](#).*

Janet Warner Montgomery has always taken care of her Ashe County property in ways that benefit wildlife, but this year she decided to make it official by creating a forest stewardship plan for her land, with help from Audubon and local foresters.

Montgomery made the decision after witnessing the mountain next to her home undergo heavy logging, a familiar sight in western North Carolina during times of economic hardship. She knew there were better ways to sustainably harvest timber while also creating new habitat for birds, so she reached out to local forester Ian Anderson of Anderson Precision Forestry. Anderson contacted Audubon and our Forest Landbird Legacy Program (that's me!), which helps foresters and many private landowners better manage their land for forest birds.



*Forester Ian Snider readies his horse for a short-distance log pull deep within Janet Warner's Appalachian hardwood forest.*

*Photo by Ian Anderson, Anderson Precision Forestry*

Approximately 80 percent of forested land in North Carolina is privately owned by people like Montgomery, but research shows that only 18 percent of woodland owners (people who own more than 10 acres) have active forest stewardship plans for their property. It's important that we reach these landowners, giving them the tools they need to restore and improve the ecological health of their forests. Audubon's Forest Landbird Legacy Program, which now includes a network of more than 100 landowners responsible for nearly 30,000 acres of forested land in the state, helps bridge this gap.

In Janet's case, the program funded about half of the \$14,000 cost of the conservation project and, just as importantly, the creation of a forest stewardship plan. Ian and I developed the plan after walking the fields and tree-covered hills of Janet's property, surveying the birds and the landscape. One of our first tasks was to find places in the forest that would benefit from creating new snags—or

standing dead trees—which are indispensable to birds (and some species of bats) but are often in low supply now that less of the landscape is old growth forest. Some species of birds build nests and raise young in the holes of the dead trees, while others specialize in gleaning insects from snag trunks.

We decided that the stand of white pines on the property needed to go, as there is no undergrowth in a pine plantation, which leaves few options for food or shelter for birds. We wanted to see the



*A Skyline Cable Log Yarder was used to minimize forest disturbance.*

*Photo by Ian Montgomery*



timber harvested in a way that would be effective in mountainous terrain but would cause the least damage to the land. Fortunately, Anderson's company specializes in low-impact cable logging, where logs are transported along a cable a yarder so heavy machinery doesn't have to plow through the forest or tear up steep hillsides.

Anderson teamed up with another forester, Ian Snider of Mountain Works Sustainable Development Inc., to come up with an innovative approach that mixed old and new methods of timber harvesting. The pair used [horses to move logs](#) a short distance to a place where they could be attached to a cable and then flown with the yarder for the longer distances.



*(Above) Sunlight promotes vegetation growth that could support Golden-winged Warblers following pine timber extraction.*

*Photo by Aimee Tomcho, Audubon NC*

*(Below) Though Hermit Thrushes are uncommon breeders in North Carolina, they sing in Janet Montgomery's woods.*

*Photo by Christina Spann*



Anderson teamed up with another forester, Ian Snider of Mountain Works Sustainable Development Inc., to come up with an innovative approach that mixed old and new methods of timber harvesting. The pair used [horses to move logs](#) a short distance to a place where they could be attached to a cable and then flown with the yarder for the longer distances. Anderson said he's never heard of another instance where a horse and yarder have been combined, and shared that they're hoping to find more projects to continue this yarder-horse combo to show how creative ideas can increase efficiency of low impact logging methods.

Janet, Ian, and I walked through her woods on a hot July afternoon and saw and heard 20 species of birds, reflecting the high bird diversity Montgomery's forest now attracts. We will continue to follow bird responses to this special forest restoration project for years to come.

Never underestimate that the power of one passionate landowner can make a big difference for birds.



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## Working Lands: Bridging the Gender Gap in Forest Stewardship

*Ben Graham, Communications Manager, Audubon North Carolina*

*This article originally appeared [here](#).*

*ForestHer NC has reached 1,000 people across the state, empowering landowners to better manage their land for birds and wildlife.*



*Louise Belk and her family at their Wayne County farm.*

*Photo by Louise Belk*

stewardship and is the result of a collaboration between Audubon North Carolina and many partners, including N.C. Wildlife Resource Commission and N.C. State Cooperative Extension.

To date, the program has reached 1,000 people. For participants like Louise, ForestHer is a chance to connect and learn from experts, most of them women foresters and biologists, including founding board member and Audubon Biologist Aimee Tomcho.

Louise remembers the first time she walked into a ForestHer workshop. “I was stunned to see so many women in the same situation as me,” she says. “We’ve all been soaking everything in. I’m learning so much about soils, invasive species, you name it. It’s really fun for me because I love nature and gardening, and it’s also laying the groundwork for the restoration of my farmland.”

When the pandemic struck, ForestHer NC organizers acted quickly to move programs online. Now the workshops are broadcasted live and available to an even wider audience.

When Louise Belk inherited her family’s 70-acre farm in Wayne County, her dream was to one day hear Northern Bobwhite on the property again. The fields have been cultivated for generations—Louise’s great great grandparents are buried on the property—so she knew any restoration would require in-depth habitat management expertise, but she didn’t know where to turn.

That changed at a Wake Audubon chapter meeting in Raleigh, where Louise heard about ForestHer NC. The workshop series aims to bridge the gender gap in forest



*Northern Bobwhites.*

*Photo by Cheryl Johnson, Audubon Photography Awards*

"The great thing about ForestHer NC is the comradery that we're building, even as things have moved virtual," says Tomcho. "So many women are looking for ways to connect and share expertise about the wildlife in their own backyards."

More women than ever before own forestland and are making decisions about its future. While ForestHer NC events are designed for women landowners, anyone interested in learning more about wildlife-friendly land management is welcome. For upcoming workshops, visit the [ForestHer NC Facebook page](#) or [Audubon North Carolina's event page](#).

## **Biologists Initiate a Long-term Monitoring Strategy for Buncombe County, North Carolina's Cerulean Warblers**

*Chris Kelly, Mountain Wildlife Diversity Biologist, NCWRC*

*\*This work overlaps the Southern Appalachian High Country (NC/TN/VA) Focal Landscape\**

In western North Carolina, the largest known population of Cerulean Warblers is found in the Elk Mountains and Bull Mountain of Buncombe County, northeast of Asheville. The birds use oak hickory forests along and in the vicinity of the Blue Ridge Parkway. Audubon North Carolina volunteer Charlotte Goedsche monitored the population from 1998 until 2018. Commission biologists strove to adapt past monitoring efforts to a user-friendly protocol that could enlist trained volunteers. In 2020, staff conducted a pilot survey consisting of 40 points over a six-mile stretch of the Blue Ridge Parkway. Surveys were repeated four times at approximately weekly intervals between April 30 and May 18. For a species that disappears in the tree canopy after leafout, conducting at least two repeat surveys improved estimates of the number of singing males. An estimate of over three dozen males along the Parkway plus adjacent roads and trails in 2020 is only slightly higher than previous estimates of abundance based on Goedsche's in-depth visits between 2014 and 2018.

*(Top Right) Female Cerulean Warbler preens in a tulip poplar.*

*(Bottom Right) Rich deciduous forest along the Blue Ridge Parkway where NCWRC staff observed a pair of Cerulean Warblers in courtship.*

*Photos by Chris Kelly, NCWRC*





## North Carolina Wildlife Resources Commission Examines 10 Years of Whip-poor-will Survey Data

Chris Kelly, Mountain Wildlife Diversity Biologist, NCWRC

*\*This work overlaps the Southern Appalachian High Country (NC/TN/VA) Focal Landscape\**



*Whip-poor-will and 3-4 day old nestling hidden in the leaves.*

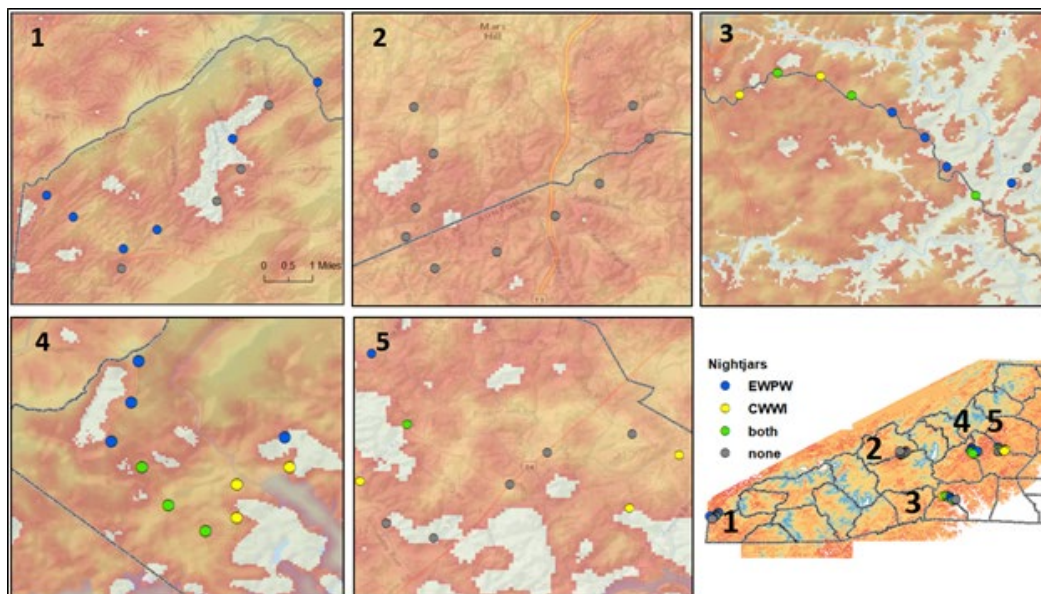
*Photo by Chris Kelly, NCWRC*

with conifers indicates a preference for a landscape-level combination of conifer, mixed hardwood-conifer, and non-forest habitats. Region-wide distribution of whip-poor-wills did not change during the study, but site-level occupancy (i.e., the percentage of roadside sites where a “whip” was detected) declined by 28%. Sites with developed land, less coniferous forest, and higher elevation experienced the greatest decline in occupancy. Commission biologists began to evaluate the model in the field. Five survey routes were established using the same protocols as the monitoring program, but with routes selected from among predicted “hot spots” and “cool spots”. The model performed well for some of the predicted hot spots. Biologists will continue to evaluate the model in 2021 and will launch a nest

*In the western North Carolina foothills and mountains, data collected along driving routes by volunteers for 10 years were analyzed by Dr. Scott Pearson of Mars Hill University to develop a model predicting where Eastern Whip-poor-wills are likely to occur and to examine trends. The analysis found that whip-poor-wills were associated with lower elevations and rural landscapes (less developed) with conifer forest. In our study area, conifer forests are patchily distributed among mixed and deciduous forest. We believe the association*

*monitoring study in one of the hot spots.*

*(Left) Whip-poor-will predictive model showing probability of occupancy from high (red) to low (blue) with results of field evaluations. EWPW = Eastern whip-poor-will; CWWI = chuck-will’s widow.*





## Restoration in Action – Demonstrating Low Impact Forestry Practices to Benefit High Priority Avian Species of Declining Conifer Forests in the Southern Appalachians

Marquette Crockett, Highlands of Roan Stewardship Director, SAHC

Sara Barker, Land Trust Bird Conservation Initiative Program Leader, Cornell Lab of Ornithology

*\*This work overlaps the Southern Appalachian High Country (NC/TN/VA) Focal Landscape\**

The Cornell Land Trust Bird Conservation Initiative's Small Grant Program provides funding opportunities to land trusts to facilitate impactful projects that accelerate and amplify bird conservation and land stewardship on land trust properties and easements. Awarded capacity and partnership projects build land trust capacity by teaching or demonstrating how birds can enhance strategic planning and mission fulfillment, as well as facilitate mutually beneficial collaborations and partnerships with the bird conservation community. Management and restoration projects actively manage, restore, and/or steward land in a way that enhances habitat and promotes bird conservation,

often with special emphasis on priority species or those identified in State Wildlife Action Plans. In 2019, the program awarded \$90,000 through six grants to land trusts in Florida, Oregon, North Carolina, South Carolina, and Wisconsin. During that cycle, the Southern Appalachian Highlands Conservancy (SAHC) received an award to restore declining conifer ecosystems in the mountains of NC.

*(Left) Mature shortleaf pine on SAHC Community Farm site.*

*Photo by SAHC*

*(Below) Chris Kelly, NCWRC and SAHC interns Cecelia Stokes and Sarah Jones install acoustic survey equipment for Carolina Northern Flying Squirrel on SAHC's Haw Orchard Ridge Preserve.*

*Photo by Marquette Crockett, SAHC*







*(Above) Red spruce over-topped by hardwood canopy.*

*Photo by Wildwood Consulting*

*(Below) Prescribed fire in shortleaf pine restoration site on SAHC Community Farm.*

*Photo by Jack Sorokin, Wildwood Consulting*



Southern Appalachian red spruce-Fraser fir forests are one of the most endangered ecosystems in the US. These habitats contain a multitude of endemic and rare species, including Northern Saw-whet Owl and the federally endangered Carolina Northern Flying Squirrel. Logging during the 19th and 20th centuries reduced the extent of spruce-fir by up to 60%, as cutover forests were replaced by hardwoods. After being outcompeted, spruce may “sit” in the understory for 50+ years, remaining small while waiting for light. If sunlight gaps are created around red spruce, it grows quickly and begins producing cones. Cones provide forage for conifer-dependent wildlife, and subsequent seedling establishment begins long-term restoration of this forest type. SAHC and our partners restored approximately 15 acres of red spruce-Fraser fir habitat on [Roan Mountain, NC](#) using release methods - a combination of girdling and herbicide to kill 2-3 canopy hardwoods surrounding an understory spruce. Hardwood snags were left standing, creating valuable nesting habitat.

Shortleaf pine forests are found on lower elevations in our region and provide forage for Red Crossbill and nesting sites for Red-headed Woodpecker. Shortleaf pine stands are open woodlands, important for Northern Bobwhite and other ground-nesting birds.

Much of North Carolina’s shortleaf pine was cut in the early 1900s, and forests were further damaged by fire suppression, which allowed hardwoods to dominate the canopy. In the 1990s, many remaining shortleaf pine were killed by southern pine beetle. In 2020, SAHC and our partners used two restoration techniques – prescribed fire and tree “release” to restore roughly 18 acres of shortleaf pine habitat in Buncombe County, NC.

On both spruce and pine sites, SAHC was thrilled to find multiple conifer dependent bird species and look forward to monitoring as restored habitats grow into maturity. SAHC will continue to use these sites as teaching tools for partners, landowners, and other land trusts. By sharing our work,





*Immature shortleaf pine on SAHC Community Farm.*

*Photo by SAHC*



we hope to generate excitement about conifer restoration that may stretch the impact of these small projects into the larger landscape. We are deeply grateful to the [Cornell Land Trust Bird Conservation Initiative](#) for their support of this project.

## OHIO

### **Managing Small Forest Patches for Birds: A Guide for Ohio Landowners**

*Laura Kearns, Wildlife Biologist, ODNR-DOW*

The [Ohio Bird Conservation Initiative \(OBCI\)](#) released “[Managing Small Forest Patches for Birds: A Guide for Ohio Landowners](#)” in 2020. While intended more for landowners in the more open and patchy forested landscape of western Ohio, some of the suggested approaches and the emphasis on the full life-cycle ecology of birds may still be useful for landowners with smaller woodlots within the AMJV boundary. In addition, OBCI will be holding virtual workshops for the public in 2021.

## PENNSYLVANIA

### **Secretive Marshbirds of Pennsylvania**

*Sean Murphy, State Ornithologist, PGC*

***\*This work overlaps the Allegheny Highlands (PA/NY) Focal Landscape\****

*(Left) A state endangered Least Bittern nest with 6 eggs discovered in a cattail stand at State Game Lands 252 in Lycoming County, PA as a result of the 2020 Secretive Marshbird Survey.*

*Photo by Dan Brauning, PGC*

Secretive marshbirds are some of the most inconspicuous birds in the world. These species (bitterns, rails, grebes, and gallinules) are rarely identified because they call infrequently, can be reluctant to flush, and inhabit dense - often inaccessible - emergent

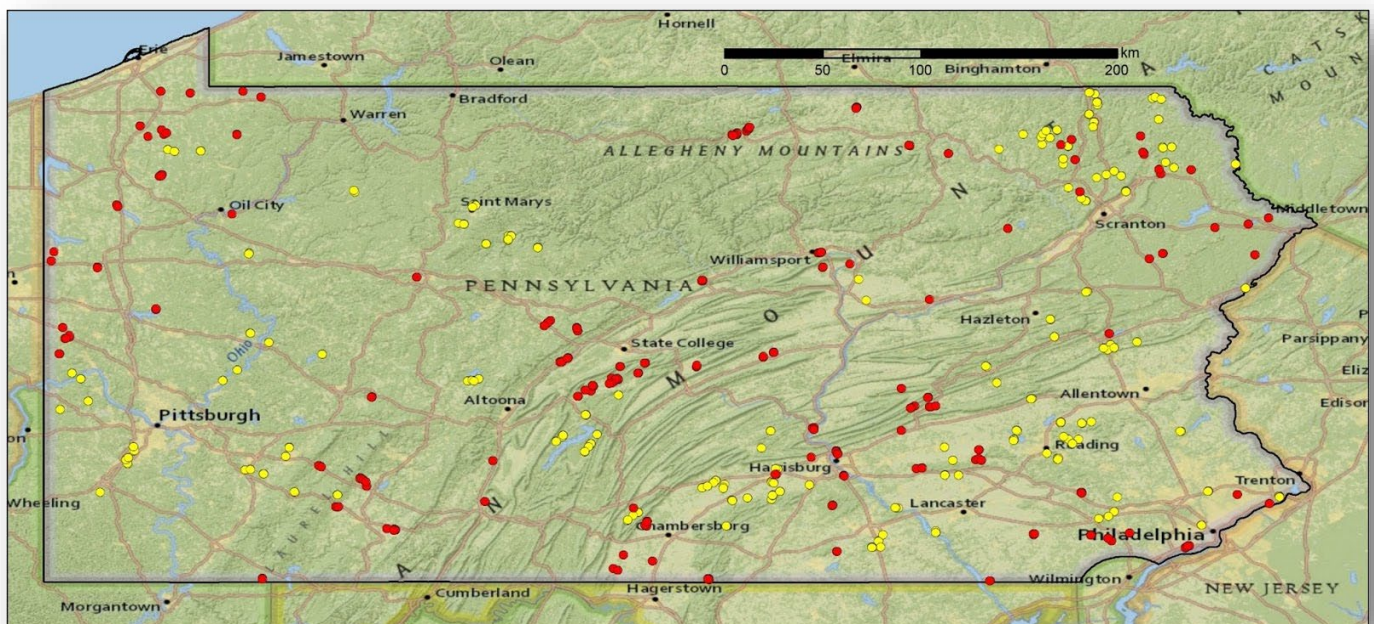


wetlands. In the spring of 2020, the Pennsylvania **Game Commission (PGC)** coordinated an **extensive statewide secretive marshbird survey** conducted by the PGC's Bureau of Wildlife Management, Regional biologists, and volunteers. The survey targeted a group of nine species—of which eight are Species of Greatest Conservation Need (SGCN), three are state-endangered, one is federally threatened, and three are game birds.

The PGC's Bureau of Automated Technology Services played a significant role in the survey effort by developing a smartphone application to distribute locations, locate points, collect detections, and store survey data from all observers quickly and effectively. The new technology coupled with terrific volunteer participation resulted in 507 surveys conducted by agency personnel and an additional 482 surveys reported by volunteers — nearly 1,000 surveys altogether. Preliminary data reveals at least seven of the secretive marshbird species were found, with Virginia Rail being the most frequently observed.

One survey already resulted in a conservation advancement. A survey detection of a least bittern, a state endangered species, at a survey point on State Game Lands (SGL) 252 (northcentral PA) sparked a follow-up visit. As the crew entered the marsh, two bitterns flushed. With a walk to the flush location and parting a thicket of cattails, a nest containing six eggs was discovered! Documentation of this nest will help protect and possibly lead to enhancement of the wetlands at SGL 252. Like the least bittern at SGL 252, the survey data will improve our understanding of species abundance and distribution and benefit marshbirds, other wetland-dependent species, and their habitats.

As a continuation of a statewide assessment, a focused effort will be conducted in 2021 to inventory the state's largest critical wetland complexes in northwestern PA, Conneaut Marsh and the Pymatuning Complex (both SGLs). The project will provide an analysis of secretive marshbird survey data and associated habitat vegetation data to inform wetland management at these priority sites and marshbird conservation across Pennsylvania. The 2021 work is in collaboration with the Western Pennsylvania Conservancy.



*Of the 989 secretive marshbird surveys visited during the 2020 nesting season, 507 surveys were conducted by Pennsylvania Game Commission biologists (red) and 482 surveyed by volunteers (yellow).*



## Finch Superflight: Tracking Winter Movements of Evening Grosbeaks

David Yeany, Avian Ecologist, PNHP & WPC

Ornithologists in the [Pennsylvania Natural Heritage Program](#) at the [Western Pennsylvania Conservancy](#) and from the Powdermill Avian Research Center at the Carnegie Museum of Natural History in partnership with the Finch Research Network continued their study of winter irruptive movements of Evening Grosbeaks in western PA begun in the winter season of 2017-18. They are using the Motus Wildlife Tracking System and deploying nanotag transmitters, including some of the first ever solar Lotek nanotags, on a historically consistent population of wintering grosbeaks in the Allegheny National Forest Region.

Since 1970, Evening Grosbeak populations have declined by 92% due to suspected habitat loss, pesticide use, climate change, and car/building collisions. This project took advantage of this past winter season's (2020-2021) "Finch Superflight" irruption by deploying tags on 56 grosbeaks in western PA.



*(Left) Male Evening Grosbeak with solar Lotek nanotag transmitter and (Above) female Evening Grosbeak with solar Lotek nanotag transmitter just before release.*

*Photos by David Yeany II, PNHP & WPC*

This is the first known study using tracking devices on Evening Grosbeaks, and it aims to provide more information on migration routes and timing, regional habitat use, and links between winter populations and breeding areas to help develop conservation strategies for this rapidly declining nomadic boreal finch.

Learn more about "Finch Superflight: Tracking Winter Movements of Evening Grosbeaks" via a recorded webinar hosted by the Western Pennsylvania Conservancy: <https://youtu.be/jDqDFTI6eb0>



## TENNESSEE

### Tennessee River Gorge Trust 2020 Updates

*Eliot Berz, Access Director, TRGT*

The past year entailed typical Tennessee River Gorge Trust (TRGT) work along with new opportunities to adjust to the curveballs of 2020. In partnership with the Tennessee Wildlife Resources Agency, TRGT field staff deployed 16 geolocator tracking devices on Louisiana Waterthrushes and Worm-eating Warblers. This geolocator project marked the third year in which a local population of Waterthrushes and Worm-eating Warblers would be tracked throughout their full annual cycle. The planning was also laid out for a 2021 project that will track Belted Kingfisher's with GPS tracking units. The feasibility of tracking this species as well as their seasonal movements will be investigated.

TRGT's environmental education and community engagement efforts turned virtual. From live bird banding events to panel discussions on birding and conservation, TRGT was able to reach a larger and diverse audience. After a series of land acquisitions in prior years, TRGT also devoted much of 2020 to finding and marking the boundaries of recently acquired



*(Top Right) A Blackburnian Warbler banded in the Tennessee River Gorge.*



*(Bottom Right) TRGT's Angie Langevin marking boundary lines.*

*Photos by Eliot Berz, TRGT*



properties. This has been an early step in becoming a steward of a 7-mile contiguous tract of land along the Tennessee River. Lastly, TRGT has been expanding public access opportunities in order to facilitate low-impact use that gets the community outside enjoying and learning about the River Gorge's ecosystem.

*(Left) The Tennessee River Gorge from Snooper's Rock.*

*Photo by Petra & Gunter Porzer*



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## VIRGINIA

### The 2nd Virginia Breeding Bird Atlas – 2020 Summary

Sergio Harding, Nongame Bird Conservation Biologist, VA DWR

*\*This work overlaps the Virginia Highlands and Southern Appalachian High Country (NC/TN/VA) Focal Landscapes\**



*Ruby-throated Hummingbird Nestlings.*

*Photo by Bob Schamerhorn.*

efficiently adapted strategies related to communications, messaging, and her organization of volunteer survey effort to address potential survey challenges posed by the pandemic. This included hosting a virtual kick-off meeting in March in lieu of a planned in-person meeting; messaging to volunteers on conducting Atlas surveys while complying with state COVID-19 guidelines; holding two in-person blockbusting rallies in a responsible, socially distanced manner; and organizing a small group of highly engaged volunteers into an email discussion group. This allowed for effective coordination of 'blockbusting' efforts, a blitz-style survey approach to collect data in high-value blocks via day trips or brief overnight trips from their homes. Blockbusting effort through paid field technicians was also coordinated in concert with volunteer efforts. Collectively, these activities generated over 160,000 breeding bird records in 2020 (the second highest annual number within the five year period). This contributed to a cumulative total of nearly 700,000 bird records with breeding codes reported by over 1,400 volunteers through over 70,000 field hours over the course of the entire project. Over 200 breeding species were reported, of which 198 were confirmed as breeders.

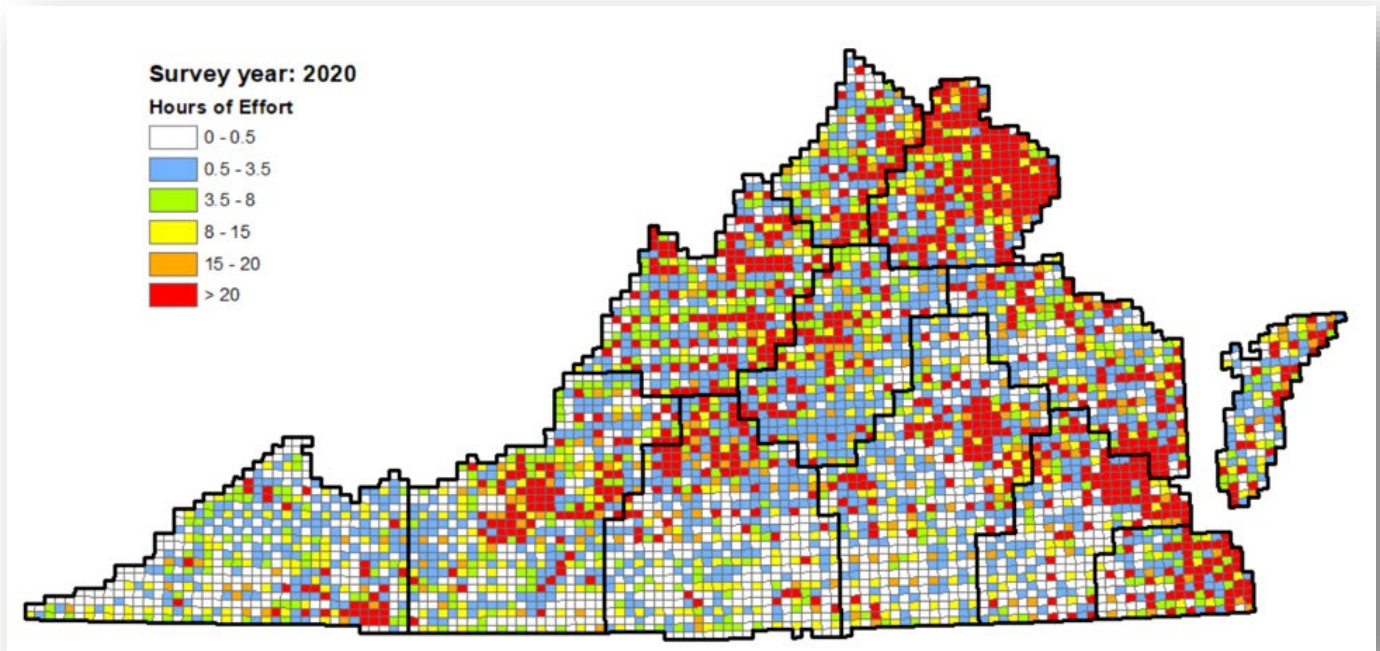
A quantitative assessment of Virginia's breeding birds, designed to supplement the VABBA2 with systematically collected abundance data, was likewise completed in 2020. This four-year project used paid technicians to conduct point counts along secondary roads across the Commonwealth, following a block-based sampling design. Additionally, in the final field season a subset of field technicians conducted point counts along US Forest Service roads and trails in areas of southwest Virginia. Specifically, these surveys focused on large sections of contiguous, montane forest in Jefferson and George Washington National Forests. From 2017-2020, an estimated 15,533 points

With 2020 marking its final year of data collection, Virginia's 2<sup>nd</sup> Breeding Bird Atlas (VABBA2) finished strong, despite initial concerns that the COVID-19 pandemic would hamper survey efforts in this critical last year. The Atlas was a five-year project (2016-2020) of the Virginia Department of Wildlife Resources (DWR), Virginia Society of Ornithology, and the Conservation Management Institute (CMI) at Virginia Tech.

Atlas Coordinator Dr. Ashley Peele of CMI quickly and

were surveyed, resulting in a cumulative count of over 230,000 individual birds. These data will be used to model the abundance of species with sufficient observations, deriving population estimates and maps of population density for those same species.

With data collection officially completed, the VABBA2 now embarks on its second phase, an estimated 5-year project that will culminate in the publication of Atlas results. Data review and analysis will be conducted by CMI over the next 2.5 years via a contract with DWR. An Atlas Final Products Committee, consisting of representatives from the three major partner organizations, will decide on the content and format of the publication, as well as plan and guide its execution.



*Cumulative VABBA2 Effort Map – cumulative effort shown as hours of survey time per Atlas block from 2017-2020*

\*See [Golden-winged Warbler Wintering Grounds Surveys in Colombia](#) in the International Section to read about how Virginia Department of Wildlife Resources partnered with various organizations to fund Golden-winged Warbler surveys in Colombia in an effort to track the species throughout its full annual life cycle.

## WEST VIRGINIA

### West Virginia EQIP and RCPP Projects Maintain Steady Growth Through 2020

*Elizabeth Brewer, Outreach Forester, AMJV, ABC, and NWTf*

*Tiffany Beachy, Golden-winged Warbler Partner Biologist, WVDNR & NRCS*

*Matthew Aberle, Cerulean Warbler Partner Biologist, WVDNR & NRCS*

*\*This work overlaps the Greenbrier (WV) Focal Landscape\**

The Working Lands for Wildlife - Golden-winged Warbler (GWWA) Initiative and Cerulean Warbler (CERW) Appalachian Forestland Enhancement Project both experienced steady growth in 2020 despite the limitations caused by COVID-19. The GWWA initiative had 16 new contracts and 26 new



applications in 2020 thanks to an increased focus on outreach. The CERW Forestland Enhancement Project had 12 new contracts in the southern region of West Virginia. West Virginia Division of Natural Resources and USDA Natural Resources Conservation Service also hired a new joint Partner Avian Biologist, Jane Capozzelli, to manage CERW and GWWA projects in the northern region of the state. Additionally, partner biologists for both projects have assisted with the implementation of demonstration areas to showcase GWWA and CERW habitat management on state wildlife management areas. These demonstration areas will provide a space on public land to show and discuss how to sustainably manage forests for birds and other wildlife.



*Cerulean Warbler.*

*Photo by Frode Jacobsen, courtesy of ABC*

Outreach through newspapers and mailings were the focus of 2020 due to limitations on meeting in-person. To promote the GWWA initiative, there were 11 news articles published and a bulk mailing to 1,424 forest landowners in the Greenbrier Valley and Mercer County. Tiffany Beachy, GWWA partner biologist, credits “a combination of increased outreach efforts and people spending more time on their property during the quarantine” for the significant increase in interest in 2020. CERW projects did not see a significant increase or decrease, but interest stayed steady throughout the year.



*Golden-winged Warbler Partner Biologist, Tiffany Beachy, speaks to a group of professionals and landowners on a socially distanced hike.*

*Photo by Liz Brewer, AMJV*

New guidelines were put in place that restricted the amount of time partner biologists could be in the office and limited their ability to meet with landowners. Moreover, COVID-19 presented personal challenges for both our landowners and the partner biologists.

“Initially, I had to cancel several site visits, but I was able to reschedule them later using social distancing,” Beachy shared. “I performed several certification visits on my own, asking the landowner to stay home. That was sad but prevented unnecessary meetings.”

Landowners were understanding of the challenges and just as quick to adapt as the biologists.

“Just about every landowner I worked with was very understanding and accepting of the new restrictions, especially with them not being able to enter NRCS service centers. For example, when it came to signing contract documents, they were all fine with meeting in the parking lot with masks on to go over and sign things instead of coming inside,” Matt Aberle, CERW partner biologist, explained. He also shared that landowners faced their own challenges due to COVID-19, stating, “A couple of landowners who were planning to have contractors help complete some of their practices had a little bit of trouble due to delays related to COVID-19.”

Overall, the partner biologists, the landowners they work with, and the many partners who support CERW and GWWA management were quick to adapt to new guidelines and lessen the impact COVID-19 could have had on their work.

Aberle shared that, “Despite all of the challenges facing us, the fact that we were able to keep everything running was amazing and is a huge credit to everyone in NRCS, DNR, and the landowners. There was a lot of trial and error in trying to navigate new restrictions and hurdles, but I’m really

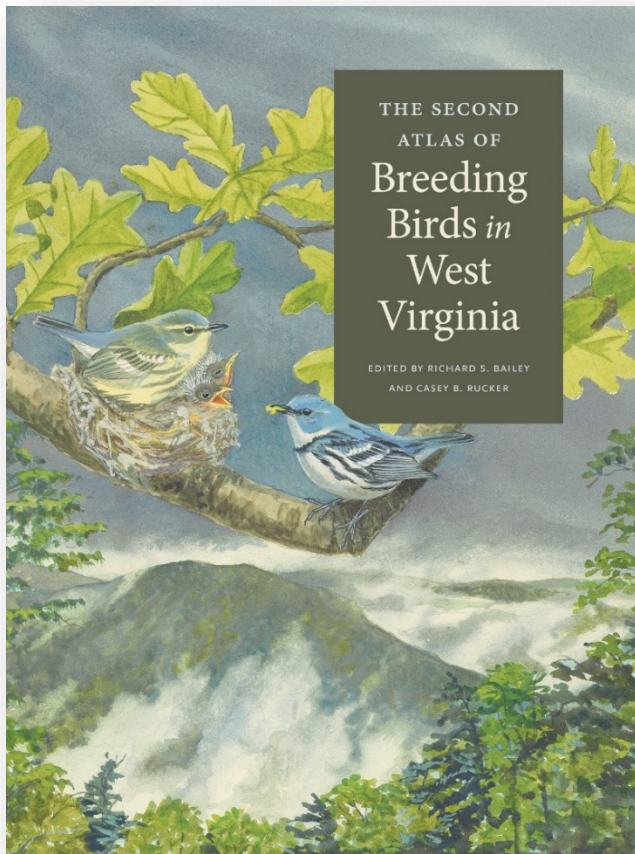
glad that we were still able to continue this important work of creating habitat for warblers.”

Beachy agreed, “I am grateful to be part of two hard-working agencies! Everybody pulled together and supported each other to help our landowners help the land.”

## 2nd West Virginia Breeding Bird Atlas Completed

Casey Rucker, Avian Biologist, WVDNR

*\*This work overlaps the Greenbrier (WV) Focal Landscape\**



Cover of the recently completed 2<sup>nd</sup> West Virginia Breeding Bird Atlas.

Cover art by Julie Zickefoose

Richard Bailey, West Virginia Division of Natural Resources (WVDNR) State Ornithologist, and co-editor Casey Rucker have completed work on *The Second Atlas of Breeding Birds in West Virginia*. The book was published by the Pennsylvania State University Press in a large-format, full-color edition and is [now available online for purchase](#). The volume includes detailed information on 170 breeding species and two hybrids as well as land use and ornithological history, habitats, and conservation issues.

Publication of the atlas represents the culmination of 14 years of work by volunteers and WVDNR staff. The field period for the atlas was 2009–2014, during which more than 100,000 records were obtained, including the results of point-count surveys conducted on 2,121 locations. Since 2015, effort has been focused on analysis of atlas data and writing the book.



In contrast to other recently completed atlases in neighboring states, direct comparison of results from the prior West Virginia atlas, 1984–1989, was not possible due to the loss of effort information from that project. Instead, estimated statewide occurrence maps were produced for both atlases, enabling estimated change maps to be produced for 116 species.

Atlas data also enabled estimates of state population and density for 62 species. In some cases, the results were both surprising and encouraging. Hooded Warblers, for instance, were estimated to number 3,290,000 singing males, with densities greater than 80 per square kilometer over much of the state. Even a declining species such as Wood Thrush was found to number an estimated 1,976,000 singing males, with densities in excess of 40 per square kilometer in most areas west of the Allegheny Mountains. Estimated density maps have already assisted efforts such as the Cerulean Warbler Appalachian Forestland Enhancement Project to select the most promising locations for conservation work.



*Wood Thrush perched on a branch.*

*Photo by Paul Reeves Photography, courtesy of Shutterstock & ABC*

Although the atlas conforms to standard presentation of breeding evidence in blocks, each representing one-sixth of a USGS 7.5-minute topographic map, surveyors using GPS devices logged specific locations of many sightings, including all observations of certain species flagged for rarity or conservation importance. Location data is available to researchers upon request and should prove to be another valuable resource to conservationists.

Atlas results have already informed the 2015 revision of West Virginia’s State Wildlife Action Plan and will remain relevant through the next atlas period, scheduled to begin in 2034. Presenting the most comprehensive information yet on the state’s bird life, the atlas represents a milestone in avian conservation in the Mountain State.

## REGIONAL

### NFWF Regional Updates

*Todd Fearer, Coordinator, AMJV*

*\*This work overlaps the Allegheny Highlands (PA/NY), Greenbrier (WV), and Virginia Highlands AMJV Focal Landscapes\**

In 2020 the National Fish and Wildlife Foundation’s [Central Appalachia Habitat Stewardship Program](#) awarded \$1.9 million to 12 new or continuing projects that will improve the quality and connectivity of forest and freshwater habitat and increase the distribution and abundance of fish, birds, and other wildlife. The [12 awards announced](#) were matched by over \$3 million from the



*Cerulean Warbler perched on a branch.*

*Photo by Agnieszka Bacal, courtesy of Shutterstock & ABC*

also conduct bird surveys within the project areas to monitor bird population responses to management activities and will produce a management guide and training workshop for forestry professionals on enhancing wildlife habitat in oak-hickory forests.

The AMJV is also a partner on a project led by the Sustainable Forestry Initiative (SFI) for work in our West Virginia Greenbrier Focal Landscape. The project will directly involve multiple additional partners, including West Virginia University, West Virginia Division of Natural Resources, SFI-certified company Weyerhaeuser, and family landowners. The project centers on the management of both public and private forestlands to create mixed-age forest landscapes to support a diversity of bird and other wildlife species. The inclusion of Weyerhaeuser is vital to provide the necessary scale for an effective study area, therefore benefitting all involved parties.

The AMJV collaborated on and provided letters of support for three additional proposals that were selected for funding, and we continue to work with NFWF and all grantees to facilitate coordination and collaboration across all forestry projects to maximize their collective impact across the Central Appalachia region. Todd Fearer, AMJV Coordinator, and Amanda Duren, AMJV Habitat Delivery Coordinator, are part of the advisory team for this program.

The Central Appalachia Habitat Stewardship Program is a partnership initiative involving the U.S. Department of Agriculture's Natural Resources Conservation Service, the U.S. Fish and Wildlife

grantees, providing a total conservation impact of over \$4.9 million. Six of the selected projects, totaling over \$1,060,000 in funds from NFWF and matched with over \$1,231,000 from grantees, are focused on enhancing forest age and structural diversity and will benefit the suite of our AMJV priority forest birds.

The AMJV, working through American Bird Conservancy, is the lead on one of the proposals selected for this round of funding. This three-year project will focus on improving habitat in our Virginia Highlands Focal Landscape for Golden-winged Warbler, Cerulean Warbler, and Wood Thrush. Partners contributing forest management, coordination, landowner outreach, practitioner training and other activities for this project include Virginia Department of Wildlife Resources, University of Maryland Center for Environmental Science Appalachian Laboratory (UMCES), The Nature Conservancy in Virginia, Alliance for the Chesapeake Bay, USDA Natural Resources Conservation Service (NRCS), and USDA Forest Service. Project partners will produce comprehensive forest management plans for more than 5,000 acres and active forest management on 130 acres of public and private land in Bath and Rockbridge counties. They will



Service, the U.S. Forest Service, the U.S. Fish and Wildlife Service, the Richard King Mellon Foundation, Shell Oil Company, and the American Forest Foundation. It was established in 2017 and through 2020 has awarded more than \$6.7 million in funding to 47 projects in portions of the Appalachian region of New York, Pennsylvania, Ohio, Maryland, Virginia, and West Virginia.

*(Right) Golden-winged Warbler.*

*Photo by Mike Parr, ABC*



### **Mine Land Reforestation by the Appalachian Regional Reforestation Initiative continued in 2020** *Scott Eggerud, Forester, ARRI & OSMRE*

*\*This work overlaps the Greenbrier (WV) Focal Landscape\**

The Appalachian Regional Reforestation Initiative (ARRI) is a cooperative effort between the Office of Surface Mining Reclamation and Enforcement (OSMRE), the state coal regulatory authorities in Appalachia, and a coalition of organizations including the coal industry, other state and federal government agencies, conservation and environmental groups, school groups, and private citizens dedicated to restoring forests on coal mined lands in the Eastern United States. ARRI promotes a set of best management practices coined the Forestry Reclamation Approach (FRA) to plant trees on

active mining operations, abandoned mine lands and bond released legacy mine sites. The FRA is a set of best management practices for mine land reforestation and is recognized as the best technology currently available for mine land reforestation.



*Volunteers and PABAMR staff plant a freshly ripped AML project in PA.*

*Photo by Eric Oliver, PADEP*

The FRA consists of five simple steps: 1) create the best possible growth medium with materials on the permit area, 2) loosely place this material to prevent compaction, 3) use a tree compatible ground cover, 4) plant native tree species with emphasis on later successional species, and 5) use proper tree planting techniques.

ARRI and its partners plant trees on abandoned mine lands and bond released legacy mine sites. The coal industry plants trees on active operations under ARRI's guidance. In 2020, the coal industry in Appalachia planted approximately 1,650,272 tree seedlings across 2,750 acres. Approximately 96%



*Professional tree planters planting red spruce on a freshly ripped legacy mine site on the Monongahela National Forest.*

*Photo by Michael French, GFW*

of these seedlings were planted using the benefit of the FRA. Despite the downturn in the coal industry, coal operators are adopting the FRA and ultimately restoring native forest habitat on coal mined lands. Green Forests Work (GFW) ARRI's fiduciary for legacy sites, planted 328,350 tree seedlings across 515 acres in 2020. The State AML programs planted approximately 30,000 seedlings across 30 acres of AML sites. The volunteer components of these plantings in 2020 were limited due to the COVID-19 pandemic. To meet climate change executive orders, ARRI has been asked to ramp up its tree planting efforts.

## **Managing Forests in the Allegheny Highlands of New York and Pennsylvania for Birds and Diversity**

*Suzanne Treyger, Forest Program Manager, Audubon NY*

*Ron Rohrbaugh, Director, Conservation Science and Forest Programs, Audubon Mid-Atlantic*

***\*This work overlaps the Allegheny Highlands (PA/NY) Focal Landscape\****

Audubon Mid-Atlantic and NY received a National Fish and Wildlife Foundations (NFWF) Central Appalachia Habitat Stewardship grant in 2018 to improve forest habitat for priority birds in a geography that overlaps with AMJV's Allegheny Highlands Focal Landscape. As part of this work, Audubon Mid-Atlantic successfully held multiple training and education programs for professional foresters and other land managers, including two live [Penn State Extension training webinars](#) titled *The Power of Birds: A Multiscale Approach to Managing Forests for Birds, Other Wildlife, and Sustainability*, bringing in 216 participants. In addition, Audubon Mid-Atlantic recently completed a new publication, titled [Healthy Forests: A Bird-based Silvicultural Guide for Forestry Professionals](#). *Healthy Forests* and its companion [Pocket Guide](#) are intended for consulting and agency foresters, natural resource professionals, and decision makers. Together, they focus on:

- 1) Teaching the basic natural history of priority forest birds and describing their habitat needs.
- 2) Reviewing the stand- and landscape-scale forest management practices that can create desired habitat conditions while meeting timber, recreation, and other goals.



3) Working with landowners interested in birds and finding ways to financially support non-commercial management actions.

4) Providing scenarios of bird-friendly forest management.

This project also identified three large forest blocks (called Forest Bird Conservation Centers (FBCC)) to focus forest management actions, landowner outreach, and forester training. Two forest blocks are located in PA, and one in NY. Each FBCC includes at least one large “anchor property” (> 1,000 acre) that is controlled by a willing partner to ensure some minimum level of opportunity for management and demonstration. Collectively, these forest blocks cover more than 30,000 forested acres of both public and private land and has brought more than 2,300 acres of forest under improved management for priority birds. Multiple partners are involved in this effort, including Ruffed Grouse Society, Generations Forestry, U.S. Forest Service, Collins Pine, Trout Unlimited, Lyme Timber, Domtar, PA Department of Conservation and Natural Resources, PA Game Commission, and New York State Department of Environmental Conservation.

Audubon PA and NY were recently awarded another NFWF Central Appalachia Habitat Stewardship grant to continue this work in the Allegheny Highlands region.

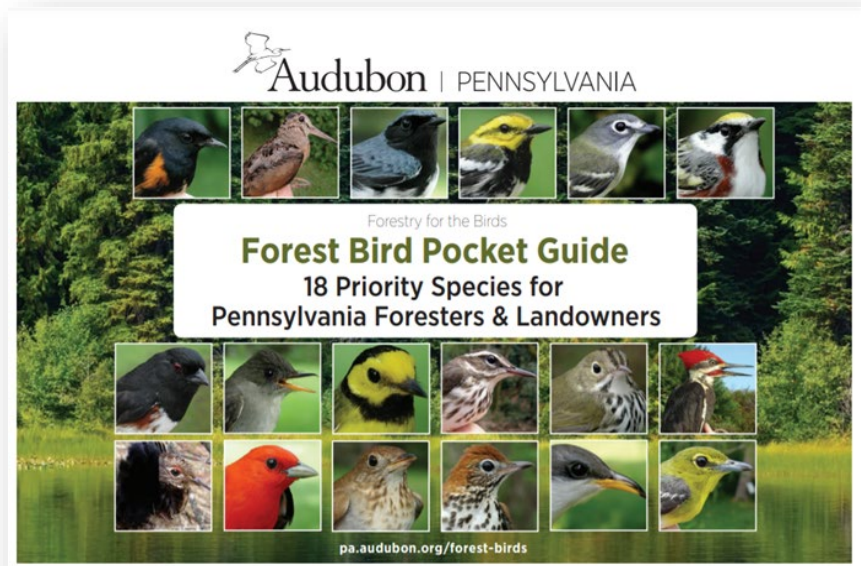
## Surface Mined Land Reforestation Efforts in the Appalachian Region

*Michael French, Director of Operations, GFW*

*\*This work overlaps the Greenbrier (WV) Focal Landscape\**

In 2020, Green Forests Work (GFW) continued our mission of restoring lands that have been impacted by coal surface mining in the Appalachian region to healthy, productive, native forest types. In 2020, we restored approximately 515 acres through the planting of 328,350 trees in West Virginia, Kentucky, and Pennsylvania. Projects were undertaken in full cooperation with the Appalachian Regional Reforestation Initiative (ARRI), AMJV, and many other partners. Due to precautionary measures to prevent the spread of COVID-19, a few of our projects were cancelled or postponed, but we were able to work within CDC guidelines and state executive orders to complete the majority of our planned projects. We actually exceeded the number of acres restored and trees planted compared to 2019. Considering all of the complications of 2020, we consider this a major success!

While all of our reforestation projects will create patches of young forest habitat in the short-term, several of the projects aimed to reduce forest fragmentation and benefit forest-interior dependent



*Cover of Audubon Pennsylvania Forestry for the Birds: Forest Pocket Guide*

*Photo by PA Audubon*





species in the long-term. In 2020, we installed two projects for the Cerulean Warbler Appalachian Forestland Enhancement Regional Conservation Partnership Program (RCPP) grant that was awarded to American Bird Conservancy (ABC) in 2015. The two 2020 RCPP projects were located in Martin and Pulaski Counties in eastern Kentucky. For the two RCPP projects, we planted a diverse mix of native high-value hardwoods, wildlife shrubs, and shortleaf pine seedlings across a total of 94 acres, in an effort to restore shortleaf-pine, upland oak habitat that would benefit not only Cerulean Warblers, but many other Neotropical and resident songbirds as well (Fig 1 & 2).

*(Top Left) The 2020 Pulaski County RCPP project after unwanted vegetation removal but prior to ripping. The few pines that had been planted by the landowner were retained to provide thermal cover and vertical gradients.*

*(Middle Left) Professional tree planters plant a diverse mix of native trees and shrubs after unwanted vegetation had been removed and soil decompaction had occurred.*

*(Bottom Left) A series of wetlands created on the Monongahela National Forest. Newly planted red spruce and other seedlings can be seen in the restoration area and red spruce influenced forests can be seen the background.*

*Photos by Green Forests Work*

We also continued our efforts to restore red spruce-dominated forest to surface mined areas in the Greenbrier and Marlinton Ranger Districts of the Monongahela National Forest in West Virginia.



The surface mined areas were converted to grasslands dominated by non-native species and non-native conifer plantations (primarily Norway spruce and red pine) during revegetation after mining in the 1970s and 1980s. Over the past decade, GFW has worked with the US Forest Service and many other partners in a holistic ecological restoration effort that has included non-native conifer removal, deep ripping to mitigate soil compaction, wetland creation, native tree planting, and the sowing of native grass and wildflower seeds. Through these efforts, we've restored approximately 1,100 acres through the planting of more than 500,000 trees and shrubs, approximately half of which were red spruce. Many of the areas that have been restored are above 4,000 ft. in elevation and should provide ideal habitat for Golden-winged Warblers in the coming years. We have also created more than 1,300 wetlands as a part of this effort to provide habitat for waterfowl, amphibians, and other fauna (Fig 3). In 2020, 265 acres were reforested, 84 wetlands were created, and an additional 248 acres have been prepared for planting in the spring of 2021. GFW, AMJV, University of Kentucky, and other collaborators were awarded an Applied Science grant from the Office of Surface Mining Reclamation and Enforcement (OSMRE) to monitor surface mined land reforestation projects on the Monongahela National Forest and the University of Kentucky's Robinson Forest for species of concern, such as Golden-winged Warblers.

### **Highlands of Roan (NC/TN) Land Protection and the Wiles Creek Preserve**

*Marquette Crockett, Highlands of Roan Stewardship Director, SAHC*

*\*This work overlaps the Southern Appalachian High Country (NC/TN/VA) Focal Landscape\**



*Meadow habitat protected by the Wiles Creek Preserve.*

*Photo by Michelle Pugliese, SAHC*

In 2020, the Southern Appalachian Highlands Conservancy (SAHC) protected more than 428 acres in our Highlands of Roan Focal area – an area encompassing Mitchell and Avery, NC and Carter County, TN. The Highlands of Roan are one of the most biodiverse and fragile landscapes in the nation, and our land protection projects this year conserved a variety of habitats for priority bird species, including the Hampton Creek Homestead (Deyoung) Preserve which is 98 acres of exceptional, occupied Golden-winged Warbler habitat and the 150-acre Wiles Creek Preserve.

The Wiles Creek Preserve is in Mitchell County, NC adjoining [Pisgah National Forest](#), and lying within the [Audubon Society's Roan Mountain Important Bird Area](#). Part of a landscape of protected lands, Wiles Creek is incredibly diverse in elevation and habitat types. Elevations on the property



reach 4,700 ft., and it contains northern hardwood forest habitat and two meadows that provide excellent early successional habitat. It's rare that one property could be so valuable for pollinators and early successional species, such as Golden-winged Warbler, Field Sparrow, and Chestnut-sided Warbler, while also providing exceptional habitat for forest interior birds such as Veery, Black-throated Blue Warblers, Canada Warbler, Brown Creeper, and Saw-whet Owl. The property also contains six streams including Wiles Creek, three tributaries of Wiles Creek, and two headwater tributaries of Big Rock Creek. Wiles Creek and Big

Rock Creek are both designated as trout waters. The preserve will be owned by SAHC in the long term as a nature preserve and will be managed for priority bird habitats, water quality, and other natural features. It will also be used as part of SAHC's "Connecting People with Land" program, and we are excited about the potential for birding field trips and other excursions to the property in the future.

SAHC is very grateful for donations from conservation-minded individuals, as well as a grant from the Carolina Bird Club – who made protection of this beautiful sanctuary possible. "The Carolina Bird Club is especially excited to make this donation of \$65,550 to the Southern Appalachian Highlands Conservancy for the protection and management of the Wiles Creek Project in Mitchell County, North Carolina," said Craig Watson, South Carolina Vice President of the Carolina Bird Club. "We have

interests from the mountains to the sea in both Carolinas, and to be able to contribute to the conservation of this area is extremely important to our membership for the conservation of early successional species such as the Golden-winged Warbler and for other high-priority high-elevation species."

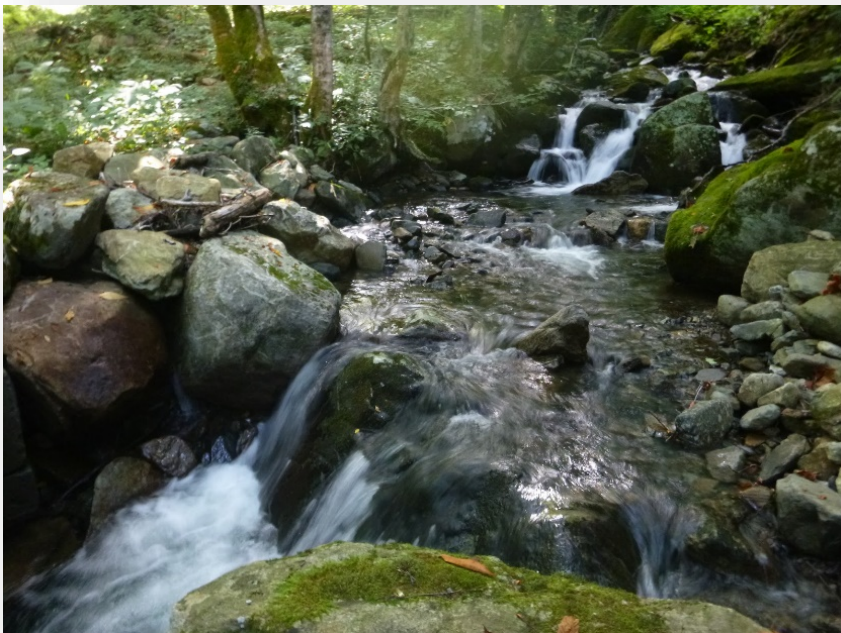
*(Left) Stream habitat corridor protected by the Wiles Creek Preserve.*

*Photo by Michelle Pugliese, SAHC*



*Members of the Carolina Bird Club and SAHC Roan Stewardship Director Marquette Crockett survey seep habitat on the Wiles Creek Preserve.*

*Photo by Travis Bordley, SAHC*





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**2020 Accomplishments for the George Washington and Jefferson National Forests**  
*Carol Croy, Forest Wildlife Biologist, USFS George Washington and Jefferson National Forests*

*\*This work overlaps the Greenbrier (WV), Virginia Highlands, and Southern Appalachian High Country (NC/TN/VA) Focal Landscapes\**



Last year, the George Washington and Jefferson National Forests, in partnership with VA Department of Wildlife Resources, WV Division of Natural Resources, Appalachian Trail Conservancy, National Wild Turkey Federation, and others, enhanced 2,766 acres of grassland/shrubland habitat to benefit species relying on old field and early successional habitat. Additional habitat management that occurred on the George Washington and Jefferson National Forests included using prescribed fire to maintain open woodland and savannah habitat on 6,421 acres and using silviculture to create open woodland and early successional woody habitat on 2,560 acres.

*(Top Left) Early successional woody habitat created by a silvicultural treatment and (Below Left) open woodland restoration created by prescribed fire on the George Washington National Forests. Both photos were taken a year or more after treatments.*

*Photos by Carol Croy, USFS*



### INTERNATIONAL

#### **American Bird Conservancy Continues the Development of Agroforestry Efforts in Wintering BirdScapes**

*Andrew Rothman, Director of Wintering Grounds Conservation, ABC*

In 2020, despite COVID-19 slowing the ability for American Bird Conservancy (ABC) to coordinate efforts on the wintering grounds (no travel, of course), ABC was able to continue to restore degraded pastures and increase connectivity of forest patches through native tree plantings in multiple BirdScapes where a variety of Neotropical migratory birds over-winter.

BirdScapes are landscape-scale areas of breeding, stopover, and wintering habitat where ABC works together with our partners to stabilize populations and reverse declines of migratory birds in the Western Hemisphere to maintain the phenomenon of bird migration. The stage is being set for scaling up our conservation efforts to meet the greater need for migratory birds.

The Southern Wings program helps state wildlife agencies route funding to activities that support the conservation of wintering ground habitat for Neotropical migratory birds identified as priority species within State Wildlife Action Plans. Within the AMJV, Pennsylvania, Tennessee, Virginia, and North Carolina have contributed to Southern Wings programs focused on AMJV priority species.

ABC has furthered the use of funds from Pennsylvania and Tennessee by combining them with funds from other states participating in Southern Wings, private donors and foundations, Audubon groups, and government funds to develop and implement projects that protect, restore and improve habitat quality for wintering migrants. These pilot efforts are now hubs from which ABC is developing our BirdScape approach.

In the last year ABC was able to support efforts in the following BirdScapes:

- Conservation Coast BirdScape – Guatemala
- Agalta-Lost City Birdscape – Honduras
- Bosawas BirdScape – Nicaragua
- Northern Highlands BirdScape – Nicaragua
- Central Andes East and Central Andes West Birdscapes – Colombia
- Choco – Canande BirdScape – Ecuador
- Coastal Mountains BirdScape – Venezuela

The following is a brief overview of results from work in those BirdScapes and the species of focus for the AMJV in each BirdScape:

#### **Guatemala**

Together with our partner FUNDAECO we were able to complete the following activities in 2020:

- Established 12 ha of cardamom and rubber tree production with 36 community members.
- Secured forestry incentives payments for four properties who have conducted reforestation on 33 ha near the Tapon Creek Reserve.



- Hosted multiple training programs on agroforestry management for: 53 people from the Jaras community participated, including 40 men and 13 women.
- Implemented agroforestry system over 24.16 hectares at Las Jaras BioCenter that will include cardamom production and 32,000 hardwoods trees.
- Planted 17,000 native trees of five 5 species across 15 ha at the Santa Marta Biocenter. This area will be used for future agroforestry production. The planting of these trees now helps provide shade for future plantings.



*Tree nursery at Santa Marta prior to planting. All trees have been planted.*

*Photo by FUNDAECO*

- Maintenance activities were carried out for 57,02 ha of agroforestry production at the Guaytan Biocenter. This included removal of overgrowth, pruning, and fertilizing. Unfortunately, these same areas were later impacted by the back-to-back hurricanes, Eta and Iota, that hit Central America. Nearly 40% of the black pepper and 10% of the cinnamon production was lost demonstrating the fragility of agricultural systems that is the basic sustenance for many rural households in the area.

Species we are working to conserve in the Birdscape include: Wood Thrush, Blue-winged Warbler, Kentucky Warbler, Northern Waterthrush, Worm-eating Warbler, and Hooded Warbler.

## Honduras

ABC has been working with multiple partners in the Agalta – Lost City BirdScape that stretches from dry forests of the Agalta Valley across the Sierra de Agalta to the Rio Platano and Tawhka Biosphere Reserve. With CATIE, Wildlife Conservation Society, and the National Agricultural University we:

- Established five “demonstration farms” for highlighting cacao production practices for others to learn from. We have planted cacao (5299 plants), native trees (1917 trees) and fruit trees (577 trees) across 37.37 ha on five farms.
- Held numerous workshops to promote agroforestry, cacao plantation disease control, appropriate fertilizing plants, and harvesting techniques. In total 54 workshops, including 17 in which were virtual due to COVID-19 for 907 people. This included 680 men and 227 women. This group represents 635 ha of area that could become involved in agroforestry or silvipasture projects.
- In addition to habitat restoration, WCS also conducted four SMART protocol trainings in 2020. The trainings included indigenous park rangers who patrol indigenous territories of the Río





*Participants of one of the SMART trainings around Sierra de Agalta National Park. The participants are practicing using both the Cyber tracker app on a mobile device and a printed format.*

*Photo by the Wildlife Conservation Society*

(local University) to advance our conservation and restoration efforts around Saslaya National Park. In 2020, some of our project accomplishments here include:

- Establishing a second model farm to provide examples of cacao production and reforestation with native species. As part of the project, 3.98 additional hectares of cacao were established on the farm of Don Cosme, one of the longest tenured residents, having lived on his property for over 60 years.
- We also engaged 25 landowners who entered into conservation agreements with WCS and URACCAN. These agreements helped secure commitments to protect 419 ha in the BirdScape. Twenty-two of the 25 landowners engaged in cacao management and native species



*Preparing delivery of cacao plants as part of work with CATIE.*

*Photo by CATIE*

Plátano Biosphere Reserve. The Instituto Nacional para Conservación y Manejo Forestal (ICF), the institution that oversees the Tawahka Biosphere Reserve, also participated and were trained. Another SMART workshop was conducted in Catacamas, with ICF and Municipal staff that are in charge of managing Sierra de Agalta National Park.

Species we are working to conserve in the Birdscape include; Wood Thrush, Golden-winged Warbler, Kentucky Warbler, Blue-winged Warbler, Magnolia Warbler, Worm-eating Warbler, Louisiana Waterthrush, Eastern Wood-pewee, Yellow-throated Vireo and White-eyed Vireo.

#### Nicaragua

With counterpart funding via NMBCA, ABC worked with Wildlife Conservation Society and URACCAN





*A local landowner who signed a conservation agreement gets his project certificate and cacao maintenance equipment from URACCAN Vice Rector Leonora Ruiz and Fabricio Diaz of WCS.*

*Photo by the Wildlife Conservation Society*

reforestation. A total of 7418 trees were planted on 22 properties near Saslaya National Park. The landowners that received trees participated in multiple workshops and also received technical assistance on cacao management as well as new pruning shears to help in the healthy management of their cacao production. Keeping shade cacao production viable is a key factor in limiting deforestation. URACCAN published [an article about some of the workshop on their website \(in Spanish\)](#).

Species we are working to conserve in the Birdscape include; Golden-winged Warbler,

Wood Thrush, Louisiana Waterthrush, Chestnut-sided Warbler, and Wilson's Warbler.

## Colombia

With support from Southern Wings and counterpart contributions including from NMBCA and multiple Audubon group, in 2020, ABC supported our partner Vivo Cuenca in:

- Using aerial images to identify key areas for reforestation, landscape planning, and connectivity.
- Conducted workshops with 483 people local coffee growers representing 210 farms. So far, 67 of these farms have signed conservation agreements, which establish the kind of conservation actions that will occur on the property. These properties have received 19,317 native trees of 69 species for restoration activities. To date, 5,641 trees have been planted, representing 25.5 hectares of reforestation. Another 6,398 trees have been planted to create 9.3 km of living fences within the project area. In addition, two farms have committed to help protect patches of forest and 2.2 ha of intact forest have been fenced off from cattle by 1.2 km of fencing.
- To aid the restoration effort, Vivo Cuenca developed guidelines and protocols for the planting of native species and their Forestry Technicians are recording geospatial information for each of the trees planted. A web-based platform has been developed that allows mobile data entry and facilitates the scheduling of maintenance and monitoring the trees after planting.
- Some of the trees for the project were provided by a local group called “Mujeres Cafeteras,” or “Women Coffee-Growers” that oversee two nurseries that produced 3,000 plants of at least 13 of the 60 identified tree species Three training workshops on nursery management and maintenance were conducted with 16 representatives from the women’s group as part of the project.
- Vivo Cuenca has conducted workshops with school children about birds and conservation. They are also training local guides to identify birds, which have been very successful in garnering attention for, and participation in, conservation project as the efforts have been featured in



(Above and Below) “Mujeres cafeteras” workshop and nursery.

Photos by Federacion Ecologica Cafetera



fences around active pastures, fruit trees in fallow lands, and cacao monocultures.

- Established six nurseries in five communities to produce 20,000 seedlings. Each nursery has the capacity to produce ~5,000 seedlings of native trees, including fruit trees visited by birds (e.g., ‘Guaba’ (*Inga* sp), Madroño (*Garcinia madruno*), Uva de monte (*Pouruma chocoana*)).
- In addition to teaching community members how to establish their own nursery, 35 community members visited an existing nursery in the Tesoro Escondido Reserve to learn about best management and maintenance practices.

Species we are working to conserve in the Birdscape include Cerulean Warbler, Acadian Flycatcher, Summer Tanager.

the local news and newspapers. A video on the project (in Spanish) can be found by [following this link](#).

Species we are working to conserve in the Birdscape include; Cerulean Warbler, Golden-winged Warbler, Canada Warbler, Eastern Wood-Pewee, Yellow-billed Cuckoo, Summer Tanager

### Ecuador

Working with long-time ABC partner Jocotoco, we had been working in eight communities around the Jocotoco Canande and Tesoro Escondido Reserves to restore degraded lands and pastures. This year we:

- Engaged more to restore 75 acres (30 ha) with assisted regeneration or agroforestry practices, including silvopasture. People in these communities are mainly interested in restoring the deforested areas near their springs since these are the only sources of clean water. Because of previous deforestation, the communities no longer have water all year long. The water of nearby rivers has been polluted by the oil palm farms upstream. Similarly, community members have been planting trees as live



## Venezuela

For the last few years ABC has been working with ProVita and Smithsonian to support conversion of sun-coffee farm to bird-friendly coffee farms which can facilitate higher prices for certified coffee. The work supports the restoration of migratory bird habitat a region of interest for the conservation of the endangered Red Siskin.

- This year we helped 39 farmers become Organic Certified and 11 become Bird-friendly Certified.
- These farmers helped produce the first batches of a Specialty Coffee from the BirdScape

More information can be found in the [Red Siskin Initiative Newsletter](#).

Species we are working to conserve in the Birdscape include; Cerulean Warbler, Northern Waterthrush, Tennessee Warbler, and Swainson's Hawk.

*(Right) The Special Edition coffee produced from the Coastal Mountain BirdScape of Venezuela (only available in Venezuela at the moment).*

*Photo by Provita*



## Motus Tags Deployed at El Jaguar Reserve in Nicaragua Demonstrate Connectivity to AMJV

*Andrew Rothman, Director of Wintering Grounds Conservation, ABC*



In January and February of 2020, with support from the Pennsylvania Game Commission, ABC and the staff of the El Jaguar Reserve deployed 20 Motus system based nano tags at their private reserve in Nicaragua. Ten of the tags were placed on Wood Thrush and 10 were deployed on Louisiana Waterthrush. Initial analysis of spring and summer data from 2020 show detections of five Wood Thrush (WOTH) and three Louisiana Waterthrush (LOWA) in the US during migration and the breeding season. This includes one LOWA in PA, and multiple hits of WOTH in PA, MD, NY, OH and NC. The data still need to be further vetted to ensure accurate data, but preliminary data shows the potential of a connection between forests in the AMJV and northern Nicaragua highlands for these species.

*(Left) LOWA with nano-tag #184 recaptured at El Jaguar in 2021.*

*Photo by Georges Duriaux*

Fall and Winter data have yet to be analyzed. However, one LOWA that was tagged in 2020 was recaptured at EL Jaguar in February of 2021. While this bird completed its





annual migration north successfully, unfortunately this bird was not a bird that was detected during migration nor breeding. The battery is now deceased so we cannot get additional on this bird, but we hope we will have more information on the return of other birds tagged at El Jaguar in 2020 once we upload and process the rest of the 2020 data.

*(Left) Moises Siles of the El Jaguar Reserve with a Wood Thrush captured and fit with a nano-tag in January of 2020.*

*Photo by Andrew Rothman, ABC*

### **New Research in Costa Rica Guides Management and Conservation for Wintering Migrants**

*Dave King, Research Wildlife Biologist, USFS Northern Research Station*

*Jeff Ritterson, Field Biologist, Massachusetts Audubon Society*

We are excited to share some recently published research from Costa Rica that should contribute to the conservation of Neotropical migrants during the winter season. Tropical forests are imperiled by agricultural expansion, and while some birds are able to winter in shade coffee plantations, other species need undisturbed native forests.

The question is, how to conserve forest in countries where the protection of parks and preserves is weakly enforced? Our recent work, published in the journal *Agroforestry Systems*, presents guidelines for farmers to implement a new kind of coffee cultivation, titled “Integrated Open Canopy”, where actual forest is conserved adjacent to areas cultivated in coffee, and farmers are compensated by the sale of carbon sequestered in conserved forest patches.

We showed that forest patches in the range of 3-4 acres are sufficient to conserve forest dependent birds, including wintering Wood Thrushes that use shade coffee, but are subject to greater predation from hawks and owls than when they are in larger forest patches.

[Other exciting work](#) from this same study area came out in the *Journal of Avian Biology*, in which our team color banded Golden-winged Warblers and used a novel



*Coffee grown under shade trees support many bird species, including both Neotropical migrants as well as resident species.*

*Photo by Dave King, USFS*



resight methodology to analyze the relationship between habitat features and warbler survival.

This is important because wintering migrants are sometimes forced by dominant birds to use suboptimal habitats - habitats which have lower food resources or higher predator numbers that can lower overwinter survival. So, just the presence of a bird in a habitat isn't necessarily an indication of whether birds using that habitat can survive through the winter or survive their northward migration and have a successful breeding season.

*(Top Right) Wood Thrush select shade coffee during the winter season, but site persistence and overwinter survival are lower for birds that use coffee compared to birds that use forest.*

*(Middle Right) The Slate-throated Redstart is a Neotropical resident species that occurs in IOC and forest in Honduras, but not shade coffee farms.*

*Photos by Dave King, USFS*

*(Bottom Right) Uniquely marked Golden-winged Warblers were resighted to estimate survival associated with habitat covariates, as well as within and among season survival rates.*

*Photo by Jeff Ritterson, Mass Audubon*

One way to address this question is to track birds with radio telemetry, but for birds like the Golden-winged Warblers that weigh only as much as a few pennies, radio tags simply aren't light enough to generate good survival rates. Golden-winged Warblers also have large territories, so the habitat where they are captured isn't necessarily representative of their entire territory. For this reason, we came up with a system where we repeatedly resighted uniquely color banded birds at random points, 50 m from where they were previously seen.



This method enabled us to characterize the habitat of wintering Golden-winged Warbler territories and estimate survival rates. We found that survival was highest in habitat conditions that they are known to select, suggesting that, unlike other species, simple point count data may reflect actual habitat quality. This information will help conservationists plan and implement strategies to conserve migrants during the winter season, which is good news for birds and birders!

### **Golden-winged Warbler Wintering Grounds Surveys in Colombia**

*Sergio Harding, Nongame Bird Conservation Biologist, VA DWR*

The Virginia Department of Wildlife Resources (DWR) and the Tennessee Wildlife Resources Agency funded point count surveys for Golden-winged Warbler (GWWA) on its Colombian wintering grounds between November 2019 and February 2020. The surveys were designed and implemented by [SELVA](#), with input from DWR and Virginia Commonwealth University. Personnel from the North Carolina Wildlife Resources Commission also participated in the surveys. Playback of GWWA song and of neotropical owls was used in order to increase GWWA detection. The primary goal of the surveys was to identify areas with GWWA concentrations for future monitoring and conservation action by including the wintering grounds in a full life cycle approach to the species.

A total of 400 points were surveyed at 31 individual sites in 18 regions along the Colombian Andes and the Santa Marta mountains. A total of 16 individual GWWA (12 males and 4 females) and 1 hybrid male were detected. An additional male GWWA was detected incidentally and not in conjunction with the surveys. Twenty-seven other



*Male Golden-winged Warbler near Carmen del Atrato, Colombia.*

*Photo by SELVA*

migratory landbird species were detected on the surveys, including high numbers of Blackburnian, Tennessee, and Canada Warblers.

Multiple GWWA were detected in three of the regions, including the Santa Marta mountains and the mountains close to Bucaramanga and Manizales; in the latter two regions, approximately 10% of the points had GWWA detections, suggesting potentially higher relative densities there than in other areas. More intensive surveys in these two particular regions are to take place in the winter of 2020-2021. Other project partners include the AMJV and the Cornell Lab of Ornithology.





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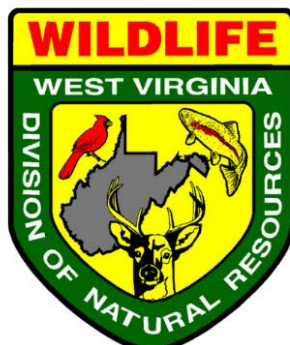
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## REGIONAL PARTNERSHIPS

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AMJV partners and regional partnerships not represented on previous pages with logos:

Eastern Golden Eagle Working Group  
National Park Service  
Southern Appalachian Spruce Restoration Initiative (SASRI)