

2018

APPALACHIAN MOUNTAINS JOINT VENTURE

YEAR IN REVIEW



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.



Dear AMJV Partners,

I'm excited to bring you this edition of our AMJV Year in Review. As many of you know, 2018 was the 10-year anniversary of the AMJV, and our partnership has seen tremendous growth and success over those 10 years. Just a few of the highlights include:

- Development of science-based forest management guidelines for both Golden-winged Warblers (released in 2011) and Cerulean Warblers (released in 2013)
- Building a partnership with NRCS to help with implementing their Working Lands for Wildlife effort targeting Golden-winged Warblers that they launched in 2012, resulting in over 16,000 acres of improved nesting habitat.
- Initiating our Cerulean Warbler Appalachian Forestland Enhancement Project in 2015 with an \$8 million RCPP award from NRCS matched by \$8 million from our partners
- Growth of our management board, with 5 organizations joining the original suite of 18 that formed the board at the AMJV's inception.

Not only have we had a successful 10 years, but 2018 was one of our biggest years of growth.

- We continued to enhance our partnership with the National Fish and Wildlife Foundation (NFWF) and the development of their Central Appalachia Habitat Stewardship Program, which has provided over \$1.8 million to partners over the last two years for projects enhancing forest habitat.
- Addition of American Forest Foundation to the AMJV Management Board
- Launch of two new full-time positions, a Habitat Delivery Coordinator and a Communications Specialist, thanks to additional investments being made by our partners

This year also saw the passing of David Pashley, one of the greatest champions of bird conservation and a mentor of myself and many others in the Joint Venture world. To commemorate David's contribution to the AMJV and bird conservation, we've included a special tribute to him in this Year in Review.

Thank you again for another great year!

A handwritten signature in black ink, appearing to read "Todd Fearer".

Todd Fearer, Appalachian Mountains Joint Venture Coordinator

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Editor's note: The following is a summary of "talking points" about David's bird conservation accomplishments, as contributed by his close colleagues and friends and compiled by Dr. Judith Scarl, NABCI Coordinator and Bird Conservation Program Manager for the Association of Fish and Wildlife Agencies. These accomplishments were then recognized by Gordon Meyers, NABCI Co-Chair and Director of the North Carolina Wildlife Resources Commission, as he honored David, upon retirement, with a NABCI award presentation during the February 2017 meeting. Ken Rosenberg and Todd Fearer accepted the award on behalf of David, who was unable to attend due to his advancing illness.

Bird Conservation Leadership and Partnership

For many, **David Pashley is synonymous with "bird conservation."** He was a leader in almost every **Partners in Flight** initiative since it was formed in 1990 and in almost every major NABCI initiative since its formation in 1999. His partners and friends say that **David played a key role in the transformation of the way we do bird conservation** through his leadership with Partners in Flight, NABCI, and the Joint Ventures.

David **embodied the NABCI principle of building strong partnerships**; he built partnerships with countless traditional and previously unrecognized partners that share common interests benefiting birds, including forest products companies and other corporate entities, state and federal agencies, NFWF and other foundations, foreign governments, and U.S. and international NGOs. Furthermore, David **was involved in almost every Joint Venture partnership** in the U.S. and interacted with JVs and similar alliances in Canada and Mexico. In fact, he was an active and consistent member of at least seven JV management boards.



NABCI and All-Bird Conservation

One of the partnerships that David helped to develop was NABCI; he worked with other key leaders nationally and internationally to create the North American Bird Conservation Initiative with a **goal of developing "Regionally based, biologically driven, landscape-oriented partnerships delivering the full-spectrum of bird conservation across the entirety of North America."**

To provide core funding for NABCI, David **built a tri-national team that convinced the leaders of the environmental arm of NAFTA to consider birds** as a shared tri-national priority. David was also a leader in **engaging senior level officials from each country** to participate in tri-national bird conservation talks. David helped in conceiving and delineating Bird Conservation Regions (BCRs) as the shared geographical reference for all bird groups and helped to initiate and co-author the State of the Birds reports. Moreover, he served as the Co-chair of the NABCI Monitoring Subcommittee and contributed to numerous monitoring efforts.

Personality and Mentorship

David's accomplishments undoubtedly helped to ensure a bright future for bird conservation. According to his friends and colleagues, the **key to his success was his long-term, relentless, unwavering interest in improving bird conservation.** His **hallmark style** was known well by those close to him - when discussing an important issue, David always tried to summarize, or cut to the chase, or even, in classic David style, **dismiss the centerpiece in a long discussion and replace it with his own novel idea.**

More seriously, **David was a master of inclusion and encouragement**, and many who currently work in the field of bird conservation feel that they would not be nearly as involved in bird conservation if not for David's willingness to bring them into the flock and mentor them. He never took credit - he was more interested in meaningful conservation for birds than in seeing his name attached to the work.



David Pashley (April 6, 1950 - October 31, 2018)

"And in the Marsh, the Meadows and on the Mountain Tops, Along the Rivers and Shores, Across the Prairies and Rolling Plains - the birds went silent - as they felt the loss of one of their greatest Champions! But with renewed spirit and great vigor they picked up their tempo pressing on with their great migration knowing their lost Champion had set the course for a brighter tomorrow for them and the rest of life."

~ Bill Uihlein, USFWS



"Tenets of Bird Conservation, Inspired by the Life and Work of David Pashley"

- 1. Listen patiently (and pause) before you speak; resting your chin between your thumb and two fingers while you listen seems to help.**
- 2. Be a mover and a shaker; be strong in your convictions and not afraid to speak up, but share your opinions in a tactful way.**
- 3. Maintain a lifelong passion for your work; never miss an opportunity to "talk shop."**
- 4. Leave your ego at home and be humble. Let your accomplishments and your impacts on the lives of others speak for themselves; they will keep speaking long after you are gone from this world.**
- 5. Always focus on the positive in any situation or person; look for "nuggets" of good in people - build people up.**
- 6. Realize that differences in individuals increase diversity in groups, which leads to organizations that are strong, nimble, and adaptive to changes.**
- 7. Smile. Be friendly and leave a positive impression wherever you go and with whomever you meet.**
- 8. Never pass up the chance to enjoy a good flan, especially if you can enjoy it with friends.**

As a new employee of American Bird Conservancy, I never had the pleasure of meeting or working with David, so I hesitated to attend the gathering held in his honor and memory in Memphis, TN on the evening of December 11, 2018. When I voiced this hesitation during the National Joint Venture Coordinator Meeting that morning, I was told, "Please join us. You will know him by the end of the memorial service." I can honestly say that I felt as though I did. The shared stories and loving comments of those who gathered in David's memory that evening painted a vivid picture of a kind, patient, generous, humorous man who was a passionate advocate for birds and people, carrying the badges of both friend and mentor for many of those who knew him. The imprint that David left on the bird conservation community struck me as akin to the legacy left upon the field of conservation by Aldo Leopold. Thus, I was moved to summarize what I learned that evening about David's character traits and work ethic into the above words of wisdom, "Bird Conservation Tenets, Inspired by the Life and Work of David Pashley." My hope is that these tenets will serve as a heart-warming reminder of David for those of you who knew and loved him and that they will serve to inspire all of us, even if we didn't get the chance to meet David, as we carry out the bird conservation work that was so dear to him.

~Jesse Wise, Appalachian Mountains Joint Venture Communications Specialist

AMJV Mission and 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

AMJV Regional Partnerships & Initiatives

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. **A list of partners can be found at the end of this report**

The **AMJV Focal Landscape Initiative** is a holistic conservation management approach that enhances the diversity and health of habitat in the landscape by considering the entire system, versus individual species or habitat types, over a long timespan. Our Focal Landscape Initiative strategically targets our capacity and resources to high-priority regions established by our partners within the AMJV geography, thus maximizing our conservation impacts and making concrete steps towards improving habitat for our priority species.



AMJV Staff



Todd Fearer
Coordinator



Becky Keller
Science Coordinator



Amanda Duren
Habitat Delivery
Coordinator



Jesse Wise
Communications
Specialist

To Save Migratory Birds, American Bird Conservancy (ABC) Goes Where the Birds Go

By Andrew Rothman, Migratory Bird Program Director, American Bird Conservancy

Editor's note: A previous version of the first section of this article first appeared in the fall 2016 edition of Bird Conservation magazine. An additional previous version can be found on the ABC website: <https://abcbirds.org/abc-goes-where-the-birds-go/>

Spring bird migration is well underway in the Western Hemisphere. Much of American Bird Conservancy's international work focuses on the areas from which these birds are returning (and where they will head again this fall): their wintering grounds in Latin America and the Caribbean.

Bay-breasted Warblers - such as this one photographed on its wintering grounds in Colombia's El Paujil Reserve - require healthy habitat on both their wintering grounds and summer breeding grounds in order to thrive.

Photo by Fundacion ProAves



Imagine embarking on a 3,000-mile journey. What will be there this fall when these birds arrive in their wintering grounds? Will the forest in Honduras that was there last year await them again this year, or will the trees have been torn down to make way for a palm oil plantation? Will they find cover in a healthy mix of trees and coffee bushes or cacao trees in Costa Rica, or encounter a monoculture of pineapple?

The forests and farms of Central and South America can seem distant. But the goods produced there have a direct link to the birds that are just arriving this spring in your area. The global economy plays out on a local level in places like Guatemala, Honduras, Costa Rica, and Colombia, affecting how land - bird habitat - is used. Coffee, chocolate, rubber, black pepper, beef, pineapple, palm oil, bananas, and more - they all impact the availability and quality of habitat for migratory birds during their nonbreeding season.



Blackburnian Warblers breed in North America's eastern coniferous forests; this winter bird was photographed in the montane forests of northern South America.

Photo by Joe Tobias

To make sure our colorful visitors have a place to go in winter, we have to make production methods of these goods friendlier for birds. This is where [ABC's Migratory Bird Program](#) is headed. [We go where the birds go](#). We identify the land-use changes and challenges birds face, and we put solutions into action where they will make the most impact in new and creative ways.

In Nicaragua, for instance, we have worked with more than 200 landowners to plant additional trees in their coffee plantations and in their cattle pastures to make better winter homes for birds. In the Dominican Republic, we are using environmental payment incentives to support the protection of remnant habitat on small family-owned farms near protected areas.

In every case, to influence land use within targeted geographies, we need to know not just how birds use certain habitats - we need to understand the economics, management, and market chains of products as well.



Shade-grown coffee offers migratory birds the shelter and habitat they require while providing a necessary income for Latin American coffee farmers. Photo by Georges Duriaux

Migration - of the human kind - and the economy are hot topics in our current geopolitical landscape. Despite this, and the fact that geopolitics and the global economy directly affect their survival, migratory birds ignore borders. It's up to us to pay attention to our role in the global economy and make bird-friendly consumer choices if we want to help them.

Perhaps these natural gems offer us an opportunity to do more than simply admire their beauty. Maybe in the effort to conserve birds, we can find a harmony between our economy and the natural world. Not only do migratory birds depend on it, but our own survival might just depend on it too.

Following are summaries of a few of ABC's 2018 international migratory bird conservation efforts, carried out through a partnership with Southern Wings, a partnership of state fish and wildlife agencies created in 2009 by Association of Fish and Wildlife Agencies' (AFWA) Bird Conservation Committee and approved by the AFWA Business meeting to provide a mechanism for state wildlife agencies to partner in conservation projects for shared priority species with partners in Mexico, Central America, South America, and the Caribbean. Southern Wings is coordinated by AFWA but led by the state fish and wildlife agencies. Southern Wings facilitates state fish and wildlife agency participation in the conservation of priority migratory birds across their annual life cycle (breeding, migration, and non-breeding sites). As of 2019, 32 state fish and wildlife agencies have contributed almost \$2.9 million to the conservation of migratory bird species on stop-over sites and wintering grounds through 19 different projects in 12 countries.

More information about Southern Wings can be found at: <https://www.fishwildlife.org/afwa-inspires/southern-wings>

Expanding Migratory Bird Conservation in the Most Threatened Lowland Rainforest in Caribbean Guatemala

The Izabal region of Caribbean Guatemala is home to over 150 species of neotropical migratory birds. ABC and Foundation for Eco-Development and Conservation (FUNDAECO) are implementing a long-term conservation strategy of preserving stopover and wintering habitats along Guatemala's Caribbean migratory funnel. ABC and FUNDAECO call this region the Conservation Coast and include it in ABC's BirdScape initiative. BirdScapes are priority habitat areas large enough to increase the numbers of target species, but small enough to facilitate measurement of results. This strategy helps identify key landscapes for migratory birds and then target conservation actions within these prioritized landscapes. In Guatemala, our work is now focused within the Conservation Coast BirdScape.



To support their entire life cycle, Palm Warblers require healthy bogs and coniferous forests in Canada and the northern United States - where they breed each summer - and open, grassy habitat in Florida, the Caribbean, and Central America during the winter months. Photo by Mark Johnson

Our conservation efforts focus on acquiring and managing a series of reserves that protect key habitat for migratory birds of conservation concern, promoting the zoning of lands outside of the reserves as buffer zones, and promulgating the use of bird-friendly agriculture throughout the area. To date, this project has helped support the creation of a series of protected areas: Sierra Caral, Punta Manabique, Cerro San Gil, Tapon Creek, and Sierra Santa Cruz.

Sierra Caral is a unique mountain that hosts Alliance for Zero Extinction species of amphibians while also providing important wintering and stop-over habitat for migratory birds. Punta Manabique has been identified as the single most threatened lowland forest in the Izabal department of Guatemala and attracts shorebirds and other migrants to its mangroves, beaches and forests. Cerro San Gil is a registered Important Bird Area for Guatemala and is a key stopover and wintering site for more than 100 migratory birds. Many of the species present show population declines and are considered endangered locally. Tapon Creek is a large, lowland rainforest remnant that provides both wintering habitat for Kentucky Warbler and Wood Thrush and connectivity between two of the region's largest protected areas. The most recent land that FUNDAECO has targeted for protection is the Finca Perdomo property in the Sierra Santa Cruz. This property provides pristine tropical submontane forest important for wintering warblers and, in particular, it provides spring stopover habitat for Cerulean Warblers.

Our primary focus currently in the region is on promoting bird-friendly agriculture with private landowners in the buffer zones of these protected areas. To help educate landowners on farming practices that will benefit birds, ABC and FUNDAECO are looking to acquire properties that can serve as outreach and training centers, living classrooms where we will actively produce shade-grown products such as black pepper, rubber, cacao, and cardamom. These areas are called BioCenters.



The Golden-winged Warbler is just one species of interest identified within the Conservation Coast in Guatemala.

Photo by Ray Hennessy/Shutterstock

The BioCenter properties protect important forest patches while also facilitating restoration of former pastures through the production of the aforementioned bird-friendly products. Over time this improves the property for migratory birds and also creates a mechanism for sustainably financing the management needs of all the reserves in the Conservation Coast.

Birds of interest identified within the Conservation Coast include the following species: Broad-winged Hawk, Wood Thrush, Cerulean Warbler, Blue-winged Warbler, Golden-winged Warbler, Prothonotary Warbler, Kentucky Warbler, Northern Waterthrush, Worm-

eating Warbler, Yellow-billed Cuckoo, Painted Bunting, Wilson's Plover, American Oystercatcher, Red Knot, Sanderling, Western Sandpiper, White-rumped Sandpiper, and Buff-breasted Sandpiper. Read more about this project here: <https://abcbirds.org/migratory-birds-gain-protection-winter-habitat-guatemala/>

Wood Thrush Conservation in Honduras

Partnering with Universidad Nacional de Agricultura de Honduras (UNA); La Asociación de Investigación para el Desarrollo Ecológico y Socio Económico (ASIDE); Wildlife Conservation Society (WCS); Meso-American Development Institute (MDI); US Forest Service; and University of Massachusetts- Lowell, our work has focused on two areas: the Agalta Valley and the Yoro Corridor in west-central Honduras. The Yoro Corridor connects four national protected areas (Pico Pijol, Maria Auxiliadora Central, Montaña de Yoro National Parks, and Texiguat National Wildlife Refuge).

We have since expanded our work to the Sierra de Agalta and with our new partner, Wildlife Conservation Society, expanded to the Tawahka and Rio Platano Biosphere Reserves of La Moskitia. ABC has since identified two focal landscapes, or BirdScapes, that encompass these project areas.

Each of these areas presents unique circumstances - however, unsustainable land use practices threaten the continued existence of Wood Thrush and Golden-winged Warbler habitat across these areas. In the Agalta Valley and in the Rio Platano regions, ranching activities threaten habitat, while in the Sierra de Agalta and Yoro Corridor, clearing forest for agricultural production is the main threat. While these economic activities are necessary to sustain local economies, it is imperative that we reduce the impact of these activities and ensure habitat is protected. While the bird species of principal interest is the Wood Thrush, the areas targeted for conservation action within this proposal are also important for Golden-winged Warbler, as identified by the Alianza Alas Doradas.

Other migratory bird species of interest that are found in these regions include Magnolia Warbler, Blue-winged Warbler, Kentucky Warbler, Worm-eating Warbler, Louisiana Waterthrush, Eastern Wood-Pewee, Yellow-throated Vireo and White-eyed Vireo. The endemic and endangered Honduran Emerald is also present within a portion of the project areas.

In the mid-term, we aim to reduce the rate of forest habitat loss in multiple locations in Central America to sustain the current population of Wood Thrush. In the long-term, our goal is to reverse the annual rate of decline of the Wood Thrush through coordinated full-life cycle conservation efforts linking breeding and non-breeding ground efforts. Objectives of this project are to improve protection of the remaining forest and forest fragments and facilitate implementation of Integrated Open Canopy (IOC) coffee and other beneficial coffee and cacao production practices in the two identified BirdScapes. To this end we have identified key producer groups to work with and have started outreach programs with them to identify targeted landowners to invest in for conservation purposes.



The Wood Thrush – like the one photographed above on a log – and its flutelike song is a beloved feature of eastern forests. Sadly, Wood Thrush populations are declining, which is why ABC is working to promote conservation on their wintering grounds in Honduras.

Photo by Paul Reeves Photography/Shutterstock

Conservation of High Priority Land Birds at Reserva El Jaguar, Nicaragua

The cloud forests of northern Nicaragua are fragmented by agriculture, including sun-coffee production, potatoes, cabbage, and other annual crops. Adding shade to coffee plantations and using native species reforestation to create habitat corridors and protect water sources can improve habitat quality for migratory birds. The northern highlands of Nicaragua in the Departments of Jinotega, Matagalpa and Atlantico Norte are important wintering areas for species like the Golden-winged Warbler (GWWA) and stopover areas for many species such as Bay-breasted Warbler and Canada Warbler among other migratory birds. Almost all of the Golden-winged Warbler Focal Areas identified for Nicaragua are in this region. ABC has established two BirdScapes in Northern Nicaragua, the Northern Highlands and Bosawas. Here a host of partners are identifying conservation opportunities, developing creative solutions, protecting existing forest and increasing connectivity in the region through native species reforestation and agroforestry projects.

ABC and our in-country partners began this project with reforestation and habitat protection efforts within the El Jaguar –Volcán Yalí Biological Corridor. The project has since grown and expanded and will work to implement actions in at least three GWWA Focal Areas (El Jaguar – Yali, Peñas Blancas, and Saslaya) as outlined within the GWWA Wintering Grounds Conservation Plan (Bennett, Rodriguez, Rothman 2016). The work here focuses on protecting remaining forest, connecting and increasing forest fragments using shade agriculture and silvipasture, and increasing local understanding of natural resources to reduce threats to remaining habitat for wintering migrants including the GWWA, Wood Thrush (WOTH) and others. We have also installing the first MOTUS tower in Nicaragua and are conducting migratory species monitoring across the GWWA Focal Areas, to improve our understanding of the migratory behavior of several priority species. Read more about this project here: <https://abcbirds.org/quest-to-save-wood-thrush/>

NFWF Central Appalachia Habitat Stewardship Program Update

By Todd Fearer, Coordinator, Appalachian Mountains Joint Venture

THE GRANTS WILL GENERATE \$2.1
MILLION IN MATCHING CONTRIBUTIONS
FOR A TOTAL CONSERVATION IMPACT OF
MORE THAN \$3.5 MILLION.

The National Fish and Wildlife Foundation (NFWF) awarded more than \$1.4 million in funding in November to restore the quality of forest and freshwater habitats in the Central Appalachian-Allegheny Plateau landscape, including the Appalachian regions of New York, Pennsylvania, Ohio, Maryland, West Virginia, and Virginia through the use of on-the-ground restoration and planning. The grants were awarded through the

[Central Appalachia Habitat Stewardship Program](#), a partnership between NFWF, USDA's Natural Resources Conservation Service, the American Forest Foundation, and, in western Pennsylvania, the Richard King Mellon Foundation. Additional funding is provided by Shell Oil Company, the U.S. Forest Service, and U.S. Fish and Wildlife Service. This is the second year of the program.

Four of the selected projects, totaling over \$649,000 in funds from NFWF and matched with over \$905,000 from grantees, are focused on enhancing forest age and structural diversity and will benefit the suite of our AMJV priority forest birds. Todd Fearer, AMJV Coordinator, is part of the advisory team for this program. The AMJV collaborated on and provided letters of support for three of these projects and will 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. Three of the projects are in Pennsylvania, and the remaining project is in West Virginia. The next request for proposals for the Central Appalachia Program is expected late spring or early summer of 2019.

Cerulean Warbler Appalachian Forestland Enhancement Project

By Amanda Duren, Habitat Delivery Coordinator, Appalachian Mountains Joint Venture

For the last three years, the Cerulean Warbler Appalachian Forestland Enhancement project, funded through the USDA Regional Conservation Partnership Program (RCPP), has been the cornerstone of the AMJV's work with private landowners in the region. The AMJV partnership was awarded this 5-year, \$8 million grant in January 2015 to enhance private forests by implementing active forest management to improve 12,500 acres of forest habitat and 1,000 acres of reclaimed mine lands for Cerulean Warblers and other wildlife in West Virginia, Pennsylvania, Kentucky, Ohio, and Maryland. The RCPP promotes coordination between the Natural Resources Conservation Service (NRCS) and its partners to deliver high-impact conservation assistance to producers and landowners. The project also utilizes an additional \$8 million in direct, in-kind, and logistical support from more than twenty AMJV partners, demonstrating the strength of our partnership model to deliver bird conservation at scale in the Appalachians.



Cerulean Warbler. Photo by Mike Parr/ABC

The Cerulean Warbler Appalachian Forestland Enhancement Project is an important step toward advancing the AMJV partnership's vision of a dynamic forest landscape, with a balance of forest age and size classes, on privately owned lands. By aligning with programs such as Working Lands for Wildlife and other regional and local efforts, the AMJV is improving forest health and resiliency, and creating habitat for multiple bird and wildlife species.

Pennsylvania

Although a limited round of new landowner contracts is planned for this fiscal year, 2018 was largely the final year of contracting under the RCPP in Pennsylvania.

Overwhelming landowner interest and great partner involvement in the program allowed for the complete distribution of the financial assistance budgeted for PA under the RCPP in 3 years. In collaboration with PA NRCS, PA Department of Conservation and Natural Resources, and other partners, our staff provided technical assistance for active forest management on 1,653 acres and distributed more than \$950,000 in financial assistance to 49 private landowners. Across all years of the RCPP, 133 contracts have been awarded in PA, offering more than \$3.1 million in financial assistance and improving habitat for Cerulean Warblers on more than 5,600 acres in 25 counties.

Monitoring vegetation and bird community response to management is an important component of the RCPP. In 2018, a monitoring team led by Dr. Jeffrey Larkin (Indiana University of Pennsylvania and American Bird Conservancy) conducted point count surveys on private lands enrolled in the RCPP through an NRCS Conservation Effects Assessment Project grant.






A shelterwood harvest (stages of which are pictured above) is a forest management practice that can improve the health of a forest stand, provide revenue for landowners and products for local pulp mills, and create young forest habitat, which is crucial to many neo-tropical migratory birds that spend part of their lives each year in the Appalachian Mountains.

Photos by Kevin Yoder/ABC

Surveys assessed both pre-treatment (i.e. baseline community) treatment conditions (n=38), as well as post-treatment avian communities (n=39). These locations will continue to be monitored in future years of the study. Once shelterwood treatments have been implemented, post-treatment surveys at these same locations will provide an opportunity to examine avian community response (pre- vs. post-treatment data). A total of 63 locations were monitored in PA (35 treated, 28 untreated). Naïve occupancy for Cerulean Warblers within Pennsylvania was 9% on treated sites (3/35), 7% on untreated sites (2/28).

As RCPP efforts in Pennsylvania are wrapping up, 2018 was a year of transition for our AMJV staff in the state. I served as the PA Cerulean Warbler RCPP Coordinator for about 3 years and began a new position as the AMJV Habitat Delivery Coordinator in December 2018. As I begin my new role, I will continue to be involved with the completion of the RCPP in PA to ensure a smooth transition of contract maintenance to PA NRCS staff. Slater Hafer, who joined the Joint Venture in 2015 as a Field Forester, left his position in August to work with Allegany Soil Conservation District in Maryland. Kevin Yoder, who also joined the AMJV in 2015 as a Field Forester, accepted a position with the PA Chapter of The Nature Conservancy in early 2019. We thank them for their hard work on the RCPP and wish them the best of luck in their new positions!



	Numbers for Green Forests Work in 2018 on LEGACY MINES are as follows:
	<p> Number of projects/events = 35 Acreage planted (total) = 664.75 Acreage planted by volunteers = 62.7 Acreage planted by professionals = 602.05 Number of trees planted (total) = 401,728 Number of trees planted by volunteers = 44,837 Number of trees planted by professionals = 356,891 Number of participants = 1,952 Number of volunteer participants = 1,679 Number of professional participants = 273 Volunteer hours = 6,194 Volunteers 24 years old or under = 1,004 Number of public land projects/events = 18 Number of private land projects/events = 17 Number of partners = 218 </p>
	<p> ARRI's estimated numbers of trees planted in 2018 on ACTIVE MINING OPERATIONS = 3,583,205 Total number of ARRI/GFW trees planted in 2018 = 3,984,933 <i>Data provided by Patrick Angel, Office of Surface Mining Reclamation and Enforcement Senior Forester / Appalachian Regional Reforestation Initiative (ARRI) Co-Liaison</i> </p>

Creating Future Habitat for Cerulean Warblers Through Mined Land Reforestation

By Kylie Schmidt, Reforestation Coordinator, Green Forests Work

The American Bird Conservancy partnered with Green Forests Work (GFW), The American Chestnut Foundation (TACF), the Appalachian Regional Reforestation Initiative (ARRI), and numerous other NGOs, state and federal agencies, and other entities for the Cerulean Warbler Appalachian Forestland Enhancement Project. This project is a Regional Conservation Partnership Program (RCPP) grant, which is administered USDA-Natural Resources Conservation Service through their Environmental Quality Incentives Program (EQIP). The project aims to enhance 12,500 acres of existing forest habitat (PA, WV, and MD) and create 1,000 acres of future habitat on mined lands (KY and OH) for Cerulean Warblers in the Appalachian region.

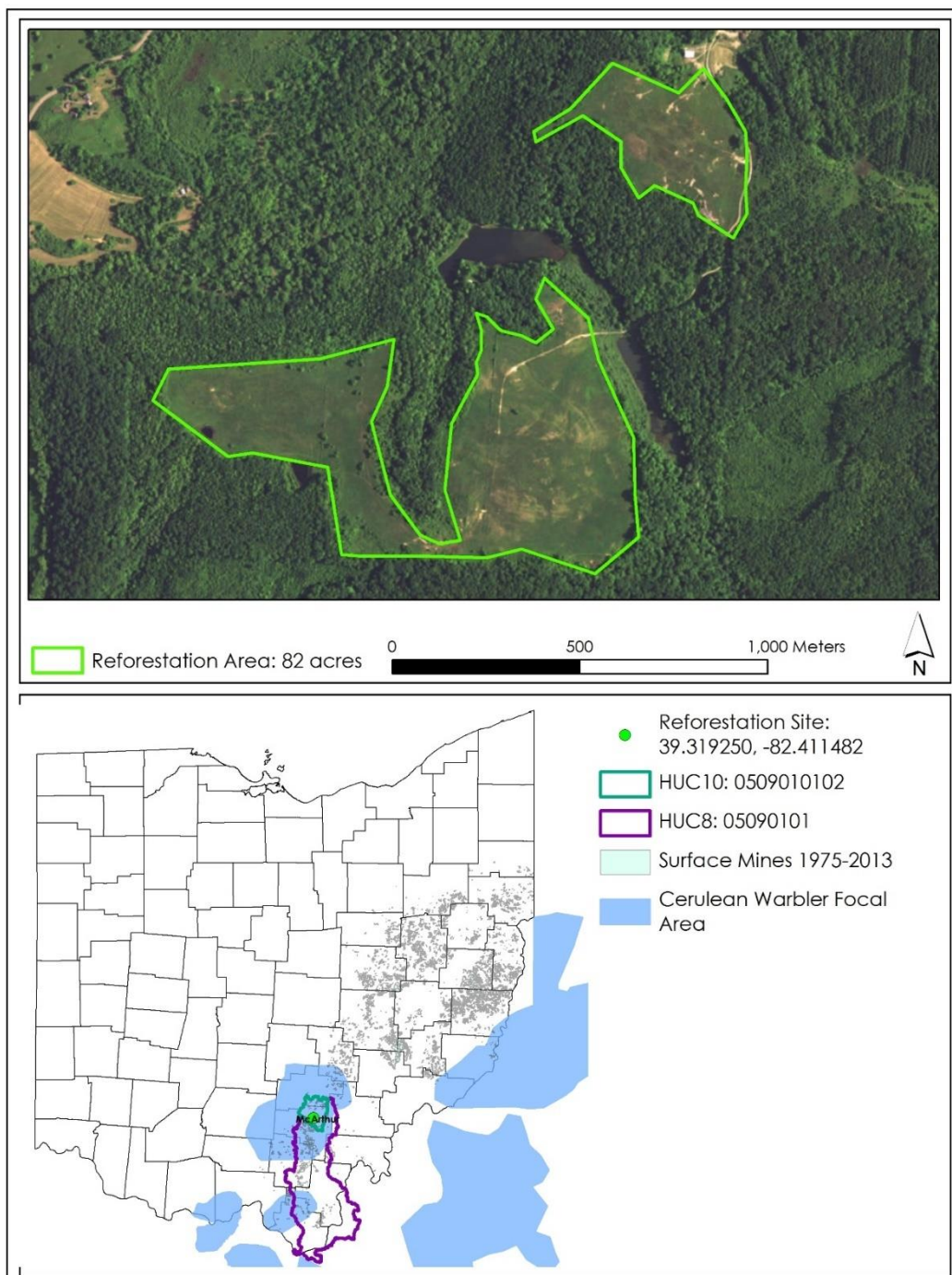


Figure 1. Two adjacent privately-owned tracts in Ohio, totaling 86 acres, adjoining state forest land were reforested in 2018.

In 2018, five Ohio landowners enrolled a combined 355 acres in the program, resulting in the planting of more than 240,000 seedlings. Conservation Practices were implemented in 2017/2018 and these lands were put on a trajectory toward becoming young forest habitat in the near future. Eventually, these lands will blend with surrounding forests, creating conditions suitable for Cerulean Warblers and other forest-dependent species. Large tracts (>25 acres) of formerly surface mined land in predominately forested landscapes near or around the Cerulean Warbler focal areas were prioritized (Figure 1, above).



Figure 2. Typical landcover on mined lands, as seen on a 31.4-acre project in Kentucky (planted 2017).

Photo by Green Forests Work



Figure 3. A nearly 20-acre autumn olive thicket was windrowed by a bulldozer to the perimeter of a 98-acre site in Ohio (planted 2018). These brush piles also provide wildlife habitat. This project was planted adjacent to an 86-acre reforestation project on the Egypt Valley Wildlife Area that was installed by GFW and other partners in 2016.

Photo by Green Forests Work



Figure 4. Cross-ripping at the 31.4-acre, Kentucky site. Note the intact forest in the background.

Photo by Green Forests Work

Given the overlap of the Appalachian coal basin and the Cerulean Warbler's focal area, mined land reforestation offers an excellent opportunity to address two of the three most significant threats facing Cerulean Warblers in its breeding range: the loss of mature deciduous forest and forest fragmentation. It is estimated that 750,000-1,000,000 acres of Appalachian forest have been converted to other vegetative cover types, namely grasslands and shrublands, due to mining (Zipper et al., 2007).

Cerulean Warblers require contiguous forest for breeding, and the creation of extensive grasslands and shrublands due to surface mining has significantly reduced suitable breeding habitat. This long-term approach to addressing Cerulean Warbler habitat loss will also benefit Golden-winged Warblers and other species in the short term by creating patches of young forest habitat that are required for nesting and breeding. By working with the Appalachian Regional Reforestation Initiative, numerous federal and state agencies, NGOs, and other partners, GFW also assisted in the reforestation of an additional (non-RCPP) 295 acres with 159,000 seedlings in eight states during 2018.



Figure 5. Professionals plant along the rips at a 35-acre site in Ohio (2018).

Photo by Green Forests Work

Soil compaction is often the main reason that these sites cannot naturally regenerate to forestland and instead, persist in a state of arrested natural succession. To alleviate the compaction, a large bulldozer equipped with a 3-4' ripping shank cross-rips the site on an 8'x8' spacing (Figure 4). Native hardwoods, including oaks, black cherry, The American Chestnut Foundation's potentially blight-resistant American chestnuts, and wildlife shrubs are then planted along the rips (Figures 5-6).

A 140-acre, 2018 RCPP project is being expanded in 2019, which will result in the reforestation of an additional 181 acres. This will bring the total acreage completed under the project to 567 acres. Efforts are currently being focused on identifying suitable project sites and enrolling landowners in the program in Kentucky.

Work Cited:

Zipper, C. E., J. A. Burger, J. M. McGrath, and B. Amichev. "Carbon Accumulation Potentials of Post-SMCRA Coal-Mined Lands." American Society of Mining and Reclamation (2007): 962-80. Web.

Conventional reclamation and revegetation practices often resulted in the creation of vegetative communities that are largely composed of exotic and/or invasive or uncharacteristic for the site (Figure 2, previous page). To convert these grass- and shrub-lands back into native forests, a modified version of the Appalachian Regional Reforestation Initiative's Forestry Reclamation Approach is used. This approach involves unwanted vegetation removal, soil decompaction, and native tree and shrub planting. The existing vegetation is removed by chemical or mechanical means or a combination of both (Figure 3, previous page). Soil



Figure 6. An American chestnut is found flourishing in the former autumn olive tract shown in Figure 2.

Photo by Green Forests Work

Cerulean Warbler Appalachian Forestland Enhancement Project: West Virginia Highlights

By Lincoln Oliver, Graduate Assistant in Wildlife and Fisheries Resources, West Virginia University; Jessie Reese, Partner Biologist, WV Division of Natural Resources & USDA Natural Resources Conservation Service; Josh Vance, Wildlife Manager, WV Division of Natural Resources; and Kyle Aldinger, Natural Resource Specialist, USDA Natural Resources Conservation Service

2018 marked the third full year of implementing the Cerulean Warbler Appalachian Forestland Enhancement Project in West Virginia. West Virginia is one of five states involved in this Regional Conservation Partnership Program (RCP) project, along with Kentucky, Maryland, Ohio, and Pennsylvania. AMJV has partnered with the WV Division of Forestry (WVDOF), WV Division of Natural Resources (WVDNR), National Wild Turkey Federation (NWTf), USDA Natural Resources Conservation Service (NRCS), West Virginia University (WVU), and private forest owners in the mountain state to enhance 551 acres of forest habitat across 23 financial assistance contracts during 2018. Forty-eight conservationists representing nine conservation entities provided technical assistance to 47 landowners across 94 farm visits en route to the achievement. Last year's projects will be supported by over \$50,000 in estimated investment by participating private landowners and \$167,997.42 in financial assistance from NRCS. This brings the three-year statewide total to 1,600 acres to be enhanced and \$379,491.40 in financial assistance obligated.

Some West Virginia landowners have been so pleased with the initial results that they have decided to enroll additional acres in the Cerulean Warbler Appalachian Forestland Enhancement Project. Loren Smith is an avid bird lover who owns 230 acres in Lincoln County, and first enrolled 10 acres of his forest in 2016. He controlled invasive autumn olive and thinned the forest to enhance nesting opportunities for Cerulean Warblers. In the spring of 2018, he signed up to create canopy gaps on 10 more acres by controlling less desirable tree species like red maple and American beech. For many landowners, the chance to promote



(Above) Timber harvest to enhance Cerulean Warbler habitat on private land in Hampshire County, WV.

(Below) Pre-commercial thinning creates openings in the canopy of an oak-hickory forest stand in Preston County, WV.

Photos by Kyle Aldinger



the overall health and timber quality of the forest in addition to creating wildlife habitat makes the project a win-win.

“While we’re excited to be involved in the Cerulean project there is much more to consider,” said Mr. Smith. “It’s an opportunity to assist in creating a more desirable forest.” Taking an active role in managing the land has also allowed Smith to deepen his sense of connection to the natural world he loves, saying “it gives me enjoyment to see the balance of nature and to see it to some extent restored...it helps me look outside to the simplicity of life, not to what is artificial but what is real and lasting.” Among the other benefits of participating in the project, Smith noted that he finds it encouraging to connect with professionals who share his desire to see the land improved.



(Above) Loren Smith (left) and Brian Shirley (right) created canopy gaps in Mr. Smith’s Lincoln County forest using the hack-and-squirt technique. This method creates standing dead trees beneficial to wildlife such as bats and woodpeckers and helps prevent undesirable tree species from regenerating via stump sprouts. Photo by Loren Smith



(Left) Mature northern red oak in Preston County, WV.

Photo by Kyle Aldinger

(Bottom Left) A forester collects pre-treatment inventory data in an overstocked sugar maple stand in Nicholas County, WV. Ten acres were enrolled to be thinned to meet the specifications of Cerulean Warbler habitat.

Photo by Jessie Reese



Among these professionals were biologists from the AMJV, NWTF, and WVDNR who began preliminary talks about a timber management project on the Sleepy Creek Wildlife Management Area (WMA) in Berkeley County, WV in November 2015. The project was designed to benefit Cerulean Warblers and other songbirds and wildlife species that prefer open-canopy oak-hickory forests. In June 2016, an ideal location for the 96-acre project area was identified along a main road through the WMA, which makes it a great demonstration area for private landowners and conservation professionals wishing to create similar habitat on property they

manage. About half of the area was marked under a shelterwood design and the other half under a group selection design. Residual basal area was targeted at 40 to 60 square feet per acre and consisted of residual trees preferred by Cerulean Warblers for nesting such as white oaks, chestnut oaks, and hickories. Cutting operations began in November 2017 and the unit is currently about 80% complete. This unique project, along with an adjacent active Ruffed Grouse management area initiated in the early 1990s, contributes toward the goal of a dynamic forest landscape on a large WMA that is predominantly even-aged mature forest. Initial response to the new timber harvest has been positive as numerous members of the general public, including hunters, non-hunters, birding groups, Shepherd University forest management students, and others, have voiced their approval and appreciation of the project in person and on social media.



Josh Vance, Wildlife Manager with WVDNR, discusses using timber management to benefit Cerulean Warblers with a forest management class from Shepherd University.

Photo by Josh Vance

We are excited about our partnerships and management of this unique songbird and hope that through our actions we can have a positive impact on a species of special need, improve the overall health of the forest, and provide quality assistance to private landowners. To ensure that our efforts



A sign describing the Cerulean Warbler demonstration area at Sleepy Creek WMA, Berkeley County, WV.

Photo by Josh Vance

are effective, a team of WVU graduate students and faculty began a multiyear monitoring effort in 2018 to assess the response of Cerulean Warbler (and Golden-winged Warbler) to conservation practices incorporated through each project. Specifically, the study will assess songbird occupancy and abundance following management by conducting point count surveys within areas managed using species-specific best management practices. Knowledge gained from these data should improve overall conservation efforts for Cerulean Warbler, Golden-winged Warbler, and other songbirds, while also providing valuable feedback on individual projects and enhancing the landowner experience.

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Golden-winged Warbler Habitat Management Along the Appalachian Trail

By Conner McBane, Natural Resource Specialist, and Matt Drury, Resource Management Coordinator, Appalachian Trail Conservancy

The Appalachian National Scenic Trail traverses the high elevation peaks, balds, and ridgelines of the Appalachian Mountains from George to Maine. This protected corridor of US Forest Service land, NPS land, state park land, and conservation easements has provided the protection of a suite of forest habitats used by Appalachian birds. These unique habitats and the priority birds that rely on them have become a stronger focus of the Appalachian Trail Conservancy over the last several years.

One such habitat type that is of increasing need for management along the A.T. is early-successional habitat. The Appalachian Trail Conservancy (ATC) has continued to strengthen its efforts to manage early-successional habitat for Golden-winged Warbler's across the states of North Carolina, Tennessee, and Virginia. Through these efforts the Appalachian Trail Conservancy secured a \$50,000 grant from the Appalachian National Scenic Trail NPS office in 2018 to manage GWWA habitat at 6 focal areas. In partnership with the US Forest Service, A.T. Trail Clubs, North Carolina Wildlife Resource Commission, Southern Appalachian Highlands Conservancy, and Blue Ridge Discovery Center, the ATC managed 80.9 acres of young forest and maintained 289.5 acres of existing GWWA habitat. Management involved thinning treatments, feathering forest edges, and strip mowing. In conjunction with this work, ATC in partnership with the US Forest Service also maintained 373 acres of early-successional habitat.



GWWA at the Tilson Tract 2016.

Photo by Jay Martin



NCCC Crew Working on non-native invasive species management at the Tilson Tract.

Photo by Conner McBane/The ATC

In addition to the partnerships mentioned previously, this work was also supported by organizations such as Celanese, NCCC, Kubota Corporation, and RU Outdoors. In Virginia, work was accomplished in partnership with Dr. Carol Croy, Forest Wildlife Biologist with the George Washington and Jefferson National Forest (GWJ). Carol has long championed GWWA conservation and helped coordinate and identify habitat projects along the A.T. corridor, in close collaboration with district level GWJ biologists equally dedicated to

GWWA conservation: Tom Blevins, Jay Martin (former GWJ biologist), Jesse Overcash, Danny Wright, and George Annis, biological technician and heavy equipment operator extraordinaire Chris Kelly from the North Carolina Wildlife Resource Commission has provided valuable technical guidance to ATC GWWA projects at Siler Bald, Stecoah Gap, and other projects in the works. Joe McGuinness from Cherokee National Forest has been an outstanding partner on multiple projects, including ATC's 25-acre thinning on the Upper Laurel Fork.

ATC will be continuing to focus management efforts around protecting unique forest habitats for Appalachian birds. An upcoming focus for 2019 will be on restoring spruce-fir habitats in North Carolina, Tennessee, and Virginia in conjunction with the Southern Appalachia Spruce Restoration Initiative. ATC has also created a new campaign called Wild East intended to elevate conservation issues and partner successes along the Appalachian Mountain landscape. The first quarter of 2019 will be focused around bird conservation and we look forward to elevating the ongoing partnerships in the AMJV that make bird conservation so successful in the Appalachian Mountains. To see more about this new campaign please visit:

<https://wildeast.appalachiantrail.org/stories/>



Richard Sanders (Wildwood Consulting), Chris Kelly (NC Wildlife Resources Commission) Matt Drury (Appalachian Trail Conservancy), and Johnny Wills (U.S. Forest Service) plan an edge thinning for Golden-winged Warblers at Siler Bald.

Photo by Clifton Avery



Rubus thinning for GWWA habitat on the Tilson Tract (left) and GWWA habitat maintenance on the Burrus Tract (right). Photos by Conner McBane/The ATC

Forest Habitat Protection and Management for Climate Resilience

By Donnelle Keech, Resilient Forests Program Director, The Nature Conservancy

The Central Appalachians are a key stronghold for climate resilience. The Nature Conservancy (TNC) prioritizes land protection and wildlife habitat enhancement across state lines within a connected and resilient network of sites. Project in Pennsylvania, Maryland, and West Virginia all contribute to the goal of climate adaptation for forests.

Our Working Woodlands program protects forested land and ensures improved forest management by helping private land owners enter carbon markets. Three recent Working Woodlands projects have protected 12,420 acres on the Kittatinny Ridge, a globally significant flyway in eastern Pennsylvania, including 2,600 acres for the Hawk Mountain Sanctuary. Moving south along the ridgelines from the Kittatinny Ridge, a new Family Forest Stewardship Project is improving forest condition on private lands (see article below under Maryland Highlights). TNC's West Virginia Chapter and the Central Appalachians program acquired new



The Nature Conservancy's Allegheny Front Preserve in WV.

Photo by Kent Mason

land last year for the Allegheny Front Preserve on the high elevation Dolly Sods plateau. The Allegheny Front Preserve protects a contiguous 1143 acres for habitat conservation in a region at risk of improperly sited wind energy and resource development. The Dolly Sods Wilderness in the Monongahela National Forest (MNF) of eastern West Virginia is part of the historical range of the once dominant high elevation red spruce forests an important habitat for 24 spruce-affiliated bird species, including the Yellow-bellied Sapsucker and the Northern Goshawk, both critically imperiled in West Virginia. Last year, TNC along with partners in the Central Appalachian Spruce Restoration Initiative network restored red spruce forest ecosystems on over 130 acres of mined land and released red spruce trees from competing hardwood in over 300 acres of the MNF.

Private Landowner Participation in NRCS Young Forest Habitat Programs (Update)

By Seth Lutter, M.S. Student, and Dr. Ashley Dayer, Assistant Professor, Department of Fish and Wildlife Conservation at Virginia Tech

Researchers at Virginia Tech conducted a study of private landowner participants in NRCS young forest habitat programs. The study assessed the social effectiveness of the programs in terms of private landowner program experiences and post-program management. Study results have been published in PLOS One (<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0194740>) and Environmental Management (<https://link.springer.com/article/10.1007/s00267-018-1127-1>). An NRCS Conservation Insight document summarizing the study findings is also now publicly available (https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1433817.pdf).

Connecting People, Places and Trees: SHR Shares Red Spruce Restoration Best Management Practices at High Elevation Forest Restoration Workshop

By: Southern Highlands Reserve

Editor's note: A previous version of this article first appeared in December 2017 on the SHR website: <https://southernhighlandsreserve.org/connecting-people-places-trees-shr-shares-red-spruce-restoration-best-management-practices-high-elevation-forest-restoration-workshop/>

When people aligned in the same mission gather together and work cooperatively towards a common goal, an interconnectivity emerges. Linking pieces of information, relationships and people together begins to form one larger, more valuable picture. Each individual piece of the puzzle is important alone, but when connected, as the great philosopher Aristotle observed, “the whole is greater than the sum of its parts.”

Demonstrating this philosophical adage, scientists dedicated to the restoration of red spruce in the Central and Southern Appalachian Mountains gathered on November 14-16 in Gatlinburg, Tennessee. Sponsored by the Tennessee Valley Authority and the Southern Appalachian Man and Biosphere Program, the 2017 High Elevation Forest Restoration Workshop brought together members of the Central and Southern Appalachian Spruce Restoration Initiatives (CASRI and SASRI, respectively) to learn from one other’s experiences, strengthen their professional connections, and build momentum towards the ultimate goal of restoring high elevation spruce-fir ecosystems to health and vitality. This was the first joint meeting of CASRI and SASRI, marking a new era in cooperation and partnership towards red spruce restoration in the Appalachian Mountains.

During the workshop, Southern Highlands Reserve Executive Director Kelly Holdbrooks shared SHR’s expertise on red spruce propagation with colleagues in forest restoration. Director of



Horticulture Eric Kimbrel also attended the workshop. In turn, Kelly and Eric learned best management practices shared by soil scientists, botanists, forest ecologists and others. The sessions spanned a variety of topics, including a history of 30 years of spruce restoration, soil conditions of the spruce-fir ecosystems, forest hydrologic conditions that increase

Scientists dedicated to the restoration of red spruce in the Central and Southern Appalachian Mountains gathered on November 14-16 in Gatlinburg, Tennessee.

Photo by Southern Highlands Reserve

interconnectivity of microorganisms to increase red spruce resilience, red spruce adaptive traits to stresses like climate change, endangered species and fragmentation of habitat.

Throughout the sessions, a common theme emerged: disconnected fragments of populations result in a decline in the health and resilience of an ecosystem. Red spruce populations in the Southern Appalachian Mountains were once connected to larger populations in the northeast. Following the stresses of heavy logging and wildfires in the early 20th century, spruce-fir forest populations decreased by 90%, leaving the remaining spruce-fir populations fragmented and relegated to only higher elevations. According to SASRI, spruce-fir ecosystems are considered the second most endangered forested ecosystem in the United States.

Due to fragmentation, these few existing populations are likely maladapted to stressors such as pests and changes in climate. Given their preference for higher elevations and predicted weakened resistance to stressors, fluctuations in temperature and climate could threaten the health of spruce-fir ecosystems more dramatically than other species, as red spruce simply have nowhere else to migrate: they're already at the top of the mountains here in the Southern Appalachians.

The dangers of disconnection affect not only the trees; within the spruce-fir forest ecosystem many species are considered threatened or endangered. The federally-threatened Cheat Mountain Salamander's spruce-fir habitat was divided by the Three Mile Trail in Canaan Valley National Wildlife Refuge, potentially exposing the salamander to dry, hot conditions should it wish to cross. The trail is thought to separate two populations, each remaining on their respective sides to remain in the cool, moist conditions essential to the salamander's ability to breathe through its skin and mouth. Thanks to the efforts of an organization called Friends of the 500th, in 2016 an underpass was created to promote a connection between the two populations. Scientists are assessing the salamander's movements through the region this fall to determine the effect the bridge is making for the populations.

Throughout all life systems on this small, blue planet, we find countless examples of symbiotic and mutualist relationships where plants and animals work together to increase their likelihood of survival. Nature has perfected "co-evolution," fostering mutual benefit to species that work together. These relationships occur within the boundaries of the same species, between one or more species in the same kingdom, and even between species belonging to different kingdoms. The innate intelligence of nature orders life to work together.

Within the human realm, when we connect with our cohorts to build bridges between individuals and organizations and remove barriers to cooperation, we increase the likelihood our visions will survive and our goals will be achieved. SHR is honored to be a part of the cooperative efforts to restore spruce-fir ecosystems to the mountains of the Southern Appalachian region through SASRI, CASRI and other partnerships that are emerging around this cause. After all, working together is the only way our planet will survive, be the forest, or the trees, or its people.

If you would like to join the many hands working to restore red spruce in our region, there are many ways you can help. Donations to SHR's red spruce restoration program helps to raise spruce from seed to tree. A gift of \$100 fosters the germination of 500 native seeds, a gift of \$500 fosters the propagation of 10 red spruce trees from cone to seedling, and a gift of \$1,000 nurtures 20 mature red spruce trees planted on public land. As a 501(c)3 non-profit organization, 100% of your donation to SHR is tax deductible. Learn more about SHR's activities on our website at

www.southernhighlandsreserve.org/southern-appalachian-spruce-restoration-initiative. Learn more about SASRI at www.restoreredspruce.org.

Kentucky Nightjar Survey

By Kate Slankard, Avian Biologist, Nongame Branch, KY Department of Fish and Wildlife Resources

In 2016, The Kentucky Department of Fish and Wildlife Resources initiated a statewide nightjar survey, utilizing methods set forth by the [Center for Conservation Biology, College of William and Mary](#). The surveys are part of a national effort, the [Nightjar Survey Network](#). The purpose of the study is to investigate abundance and population trends for nightjars in Kentucky and to measure their

response to forest management in selected areas. In 2018, we continued 16 nightjar survey routes—both in areas that will be managed in the near future and in some areas which we assume will not be managed anytime soon. Counts of species observed are presented in the map above and table below.

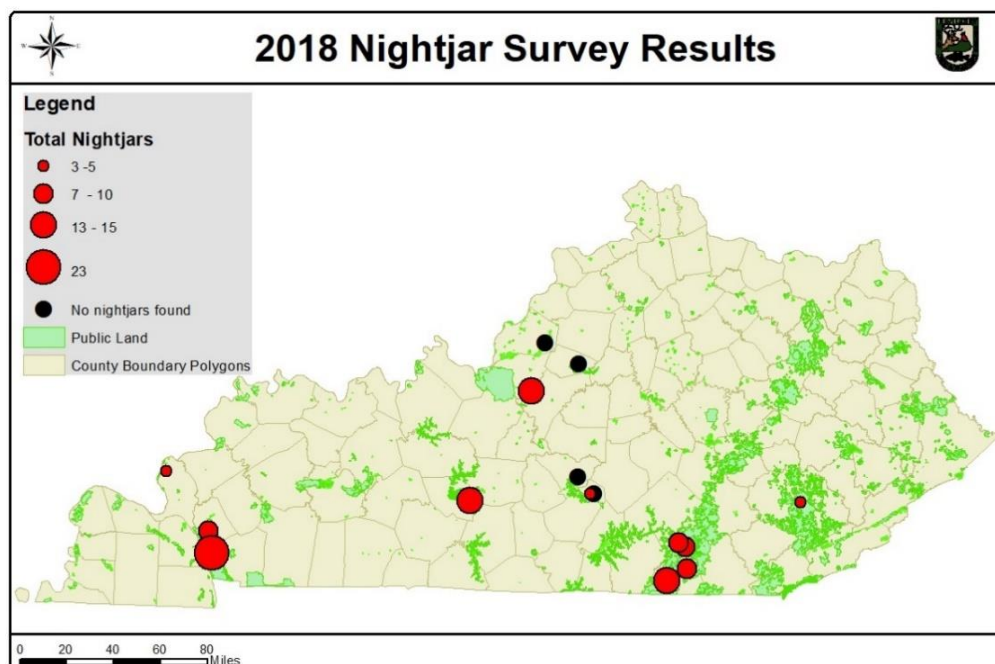


Figure 1. Total nightjars detected on 2018 nightjar surveys in Kentucky. Species detected included Chuck-will's-widow and Eastern Whip-poor-will.

Table 1. Counts during surveys where nightjars were detected in 2018.

Location	Chuck-will's-widow	Eastern Whip-poor-will	Grand Total
Adair County		5	5
DBNF- Redbird		3	3
DBNF- Stearns Control SE		8	8
DBNF- Stearns Control SW		14	14
DBNF- Stearns Treatment East		10	10
DBNF- Stearns Treatment West		8	8
Land Between the Lakes- North	1	6	7
Land Between the Lakes- South	1	22	23
Lebanon Junction	3	12	15
Livingston County		3	3
Mammoth Cave NP		13	13
Grand Total	5	104	109

Family Forest Stewardship Project Launched in Maryland

By Donnelle Keech, Resilient Forests Program Director, The Nature Conservancy

In January of 2018, The Nature Conservancy launched a Family Forest Stewardship Project in Maryland. With project partners including Maryland Forest Service, Maryland Wildlife and Heritage Service, NRCS, and the American Forests Foundation we are using targeted social marketing (for example [Tools for Engaging Landowners Effectively](#)) and an improved customer service model to increase the number of landowners utilizing existing state and federal programs. This project is funded by NFWF's [Central Appalachia Habitat Stewardship Program](#), which is a partnership between NFWF, USDA's Natural Resources Conservation Service and the American Forest Foundation.

Families and individuals own 70% of the forests in western Maryland, so woodland owners play a critical role in conserving forest habitat for birds and other wildlife. Threats such as invasive species, insect pests, and the legacy of high grading are damaging forests and degrading wildlife habitat, but addressing these threats can be challenging. During the first year of our project, we distributed a mail survey to 2000 landowners with 10+ acre woodland and received a 17.2% response rate. Survey data allowed us to identify prime prospects for immediate follow up -- more than half the survey respondents reported interest in wildlife habitat on their land, but do not have a forest stewardship plan -- and we hired a Family Forest Outreach Specialist to provide enhanced customer service to landowners who seek help from existing technical service providers and programs. In the coming year, we will use the survey data to develop a targeted social marketing campaign. Project partners will also use grant funding to accelerate implementation of invasive species management to benefit bird habitat and forest health on private lands in western Maryland.



Family Forest Outreach Specialist Kate Livengood is helping woodland owners in Maryland increase use of state and federal programs.

Photo by Matt Kane @ TNC

New Jersey Highlights

Updates from New Jersey Division of Fish and Wildlife

By Sharon Petzinger, Senior Zoologist, New Jersey Division of Fish & Wildlife's Endangered and Nongame Species Program

The proposed revision to an existing forest stewardship plan for the Sparta Mountain Wildlife Management Area in New Jersey has been a hot topic of debate the past few years and has even made its way into forestry discussions out west. The main goal of this 10-year plan is to balance the age classes of forest through a mixture of silvicultural treatments, such as shelterwood and modified seed tree to increase young forests, and single tree selections and group selection to enhance existing mature forests. The plan was approved in March 2017 and implementation was set to begin on February 2018 but was halted prior to implementation by the new administration due to public outcry. This debate has created a unique opportunity for the state and its partners to work alongside the opposition to minimize concerns while still meeting the plan's objectives. We have since been

permitted to continue with the project and anticipate implementation of year 1 of the plan to be completed in 2019. That said, the groups we worked with have turned and are trying to stop implementation again, despite knowing how well birds respond to the treatment (Fig. 1).

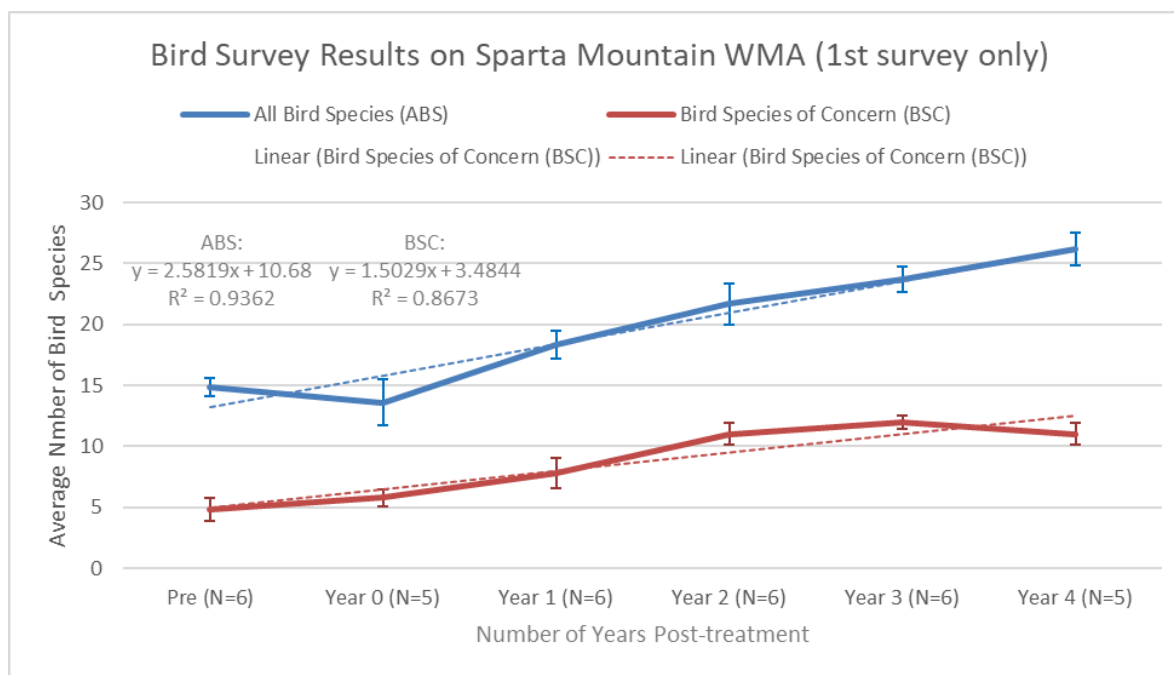


Figure 1. Average (\pm SE) number of bird species (ABS, blue) and bird species of concern (BSC, red) observed during breeding bird surveys on Sparta Mountain WMA. Pre-treatment surveys were conducted in 2004 and/or 2008 and selected based on proximity to treatment sites (conducted 2012-2018) within the same forest stand.

Working Lands for Wildlife has been a huge success in NJ. Our team held two outreach events for private landowners in 2018, which resulted in about six applications. Furthermore, bird monitoring results showed an increase in number of bird species occupying WLFW sites in 2018, which was significantly ($P=0.001$) greater than control sites in shrubby wetlands (Fig. 2).

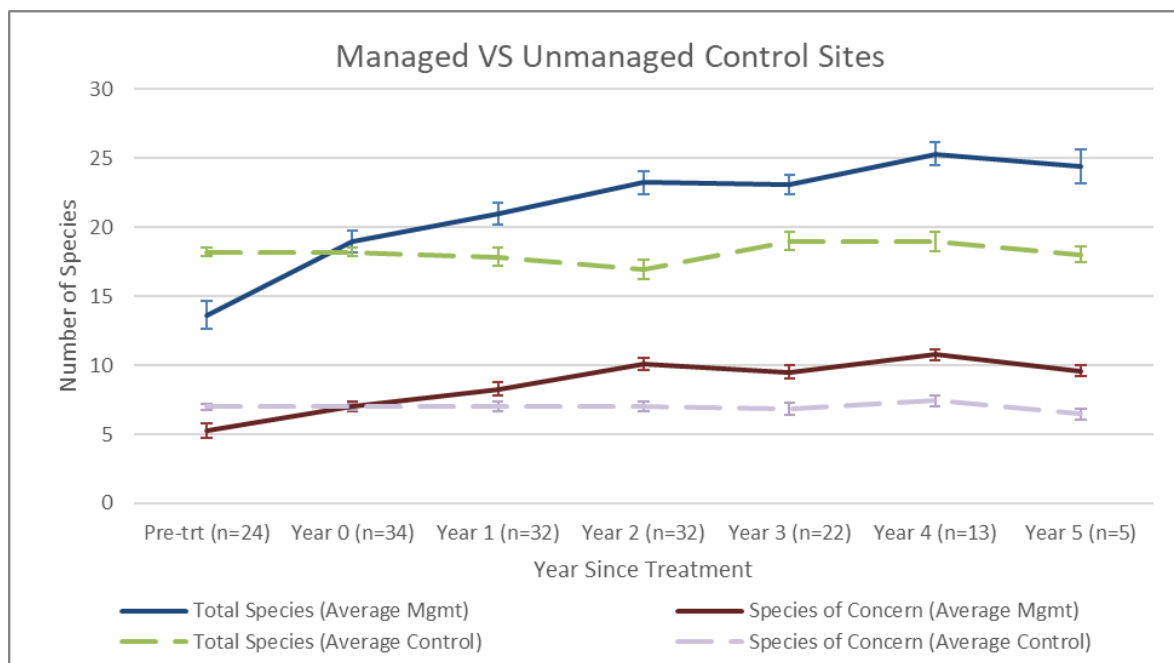


Figure 2. Average (\pm SE) number of bird species (blue, green) and bird species of concern (red, violet) observed during breeding bird surveys on Managed (WLFW & public lands treated to create or enhance habitat for GWWAs) and Unmanaged (Natural Control) sites.

Unfortunately, the same cannot be said about Golden-winged Warbler (GWWA) trends in NJ – they have shown a consistent decline of 5% per year since 2012. This decline is slightly less severe thanks to more than 60% of the GWWAs utilizing high-tension powerline rights-of-way specifically managed to retain and possibly recruit GWWAs (Fig. 3). This management is meant to slow the risk of extirpation while waiting for the WLFW and public lands sites to become suitable breeding habitat. Nevertheless, if nothing is done to increase GWWA recruitment or productivity in NJ and this rate of decline continues, there is a 97% chance (Vortex 10.2.14.0) that NJ's breeding population of GWWAs will be extirpated within the next 20 years. The good news is that if we can increase recruitment, reduce post-fledging mortality, and increase productivity by 10%, the probability of extirpation is reduced to 10%. There is still hope.

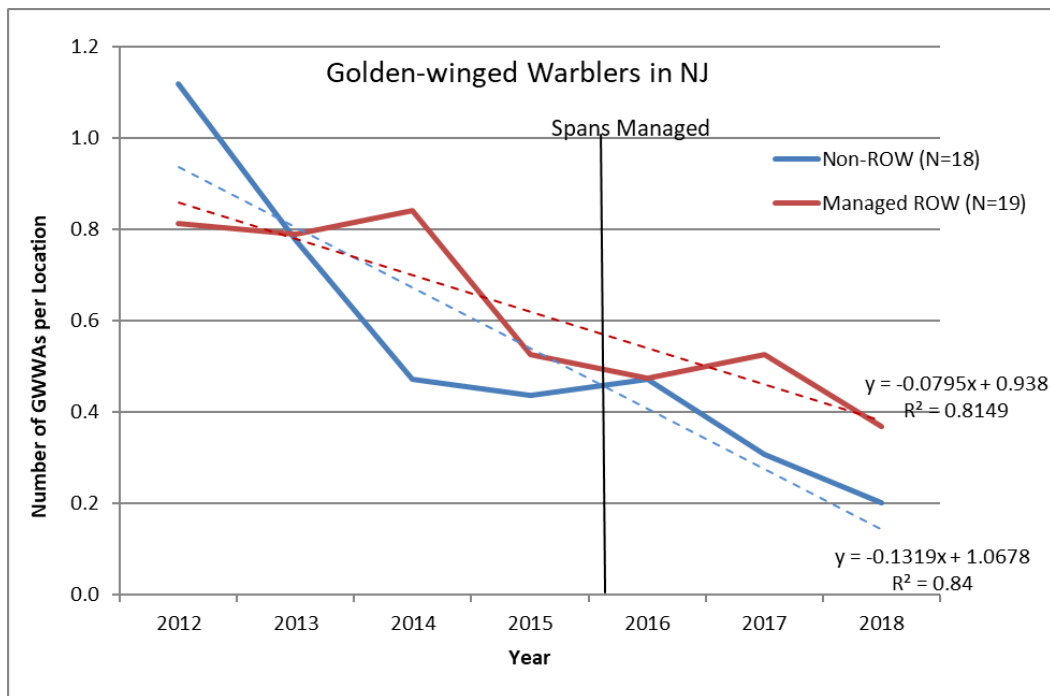


Figure 3. Number of Golden-winged Warblers observed per survey location from 2012 – 2018 (data from ENSP and NJ Audubon). The managed ROW (red) represents the 19 spans chosen for GWWA management, where the span-specific prescriptions were implemented winter of 2015/16. The Non-ROW (blue) represents known GWWA locations in 2012/13 that are not within a utility right-of-way. The dotted lines are linear trends.

New York Highlights

Audubon NY

By Suzanne Treyger, Forest Program Manager, Audubon, NY

Audubon NY is partnering with Watershed Agricultural Council and NY Tree Farm Program to work with family forest owners, loggers, and foresters to improve habitat for Wood Thrush and Cerulean Warbler, with funding received from the NFWF Delaware River Restoration Fund 2018 Grant Slate. From NFWF's award announcement: Project partners will provide technical assistance to family forest owners and loggers to develop bird-friendly management strategies to be integrated during timber harvests, as well as provide loggers financial assistance to offset any monetary losses, which will further help the efficiency of on-the-ground implementation of the habitat management strategies. Work began in November 2018 and will run through November 2020.

Young Forest Initiative on Wildlife Management Areas

By Katherine Yard, Wildlife Biologist, New York State Department of Environmental Conservation

New York State DEC's Young Forest Initiative is a forest management program that creates wildlife habitat on over 90 Wildlife Management Areas (WMA) throughout New York. We create and improve thickets of tree seedlings and saplings, shrubs, grasses, and wildflowers to provide food, cover, and nesting places for Woodcock, Grouse, Turkey, Whip-poor-will, Golden-winged Warbler, and other young forest-dependent wildlife. Our goal is to manage over 10,000 acres of young forest throughout the WMA system.



A seed tree project on Rattlesnake Hill WMA was completed in 2018. Photo by Mike Palermo/DEC



A seed tree project at Mongaup Valley WMA, two years post-treatment. Photo by Malcolm Grant/DEC

One of our top priorities is developing Habitat Management Plans (HMP) to describe existing habitat, articulate forest management objectives, and identify areas to create young forest. Of the 24 WMAs located within the AMJV region, we have completed HMPs for 14 WMAs. For each of these, we held a public meeting to discuss the management direction for the WMA. We are currently preparing HMPs for another 7 WMAs in the AMJV region.

Since 2015, we have planned and implemented several projects on WMAs within the AMJV region. We completed 16 young forest projects (397 acres) on 8 WMAs; these include clearcuts, seed tree cuts, shelterwood cuts, and several apple tree releases. Currently, 12 projects (561 acres) on 10 WMAs are under contract and are expected to be completed within about 3 years. An additional 15 projects (1,154 acres) on 10 WMAs are currently in the planning stages. Beyond even-aged management for young forest, we have also completed 3 timber stand improvement (TSI) projects (194 acres) on 2 WMAs and 1 plantation conversion project (42 acres) on 1 WMA. An additional 74 acres of TSI are planned on 3 WMAs.

For more information about our program, please visit <http://www.dec.ny.gov/outdoor/104218.html>.

Decline Documented in Western North Carolina Whip-poor-will Population

By Chris Kelly, Wildlife Diversity Biologist, North Carolina Wildlife Resources Commission

In 2007, NCWRC launched a nightjar monitoring project in the North Carolina mountains and foothills using the Nightjar Survey Network protocols. The goal was to examine population trends and distribution, which was best done with a survey technique customized to these nocturnal birds. Prior to this, trend data were limited to the daytime Breeding Bird Surveys, anecdotal reports of declines and unoccupied habitat, and a frequently heard sentiment by North Carolinians that they “never hear Whip-poor-wills anymore”. Dedicated volunteers reported silent spots on the map, numerous Eastern Whip-poor-wills, scattered Chuck-will’s-widows, and one Common Nighthawk.

Dr. Scott Pearson of Mars Hill University worked with NCWRC to analyze Eastern Whip-poor-will data collected between 2007 and 2016 to assess their population trends in western North Carolina. Multiple variables were included in a multi-season occupancy model to assess important covariates for detection and landscape characteristics associated with distribution. Detection variables included moon visibility, sky and wind conditions, noise, and Julian date. Occupancy covariates included longitude, latitude, elevation, terrain shape, and land cover, and was examined at multiple spatial scales around each survey point. Preliminary interpretation of models indicates detection was more likely on nights with clear skies, no or light winds, and earlier in the breeding season. Occupancy correlated with low elevation sites having a mixture of forest types including successional or xerophytic pines, pointing to the Whip-poor-will’s association with edge (Figure 1). The proportion of stops occupied dropped by 0.26 between the five-year period of 2007-2011 and 2012-2016, providing the first quantitative evidence of a decline. Dr. Pearson presented preliminary findings at the conference of the Association of Field Ornithologists in Chattanooga, TN in April 2018.

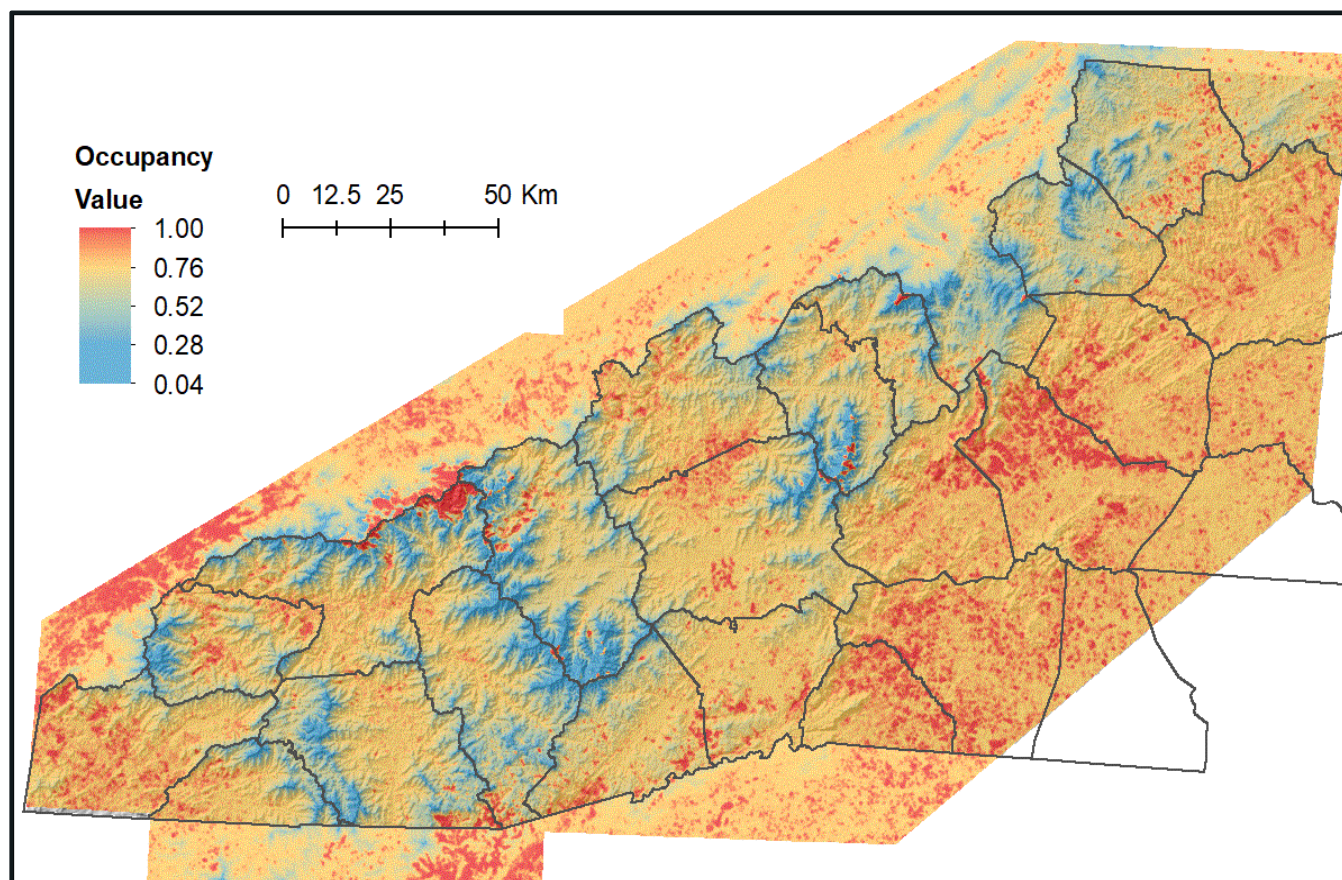


Figure 1. Preliminary occupancy model for Eastern Whip-poor-will showing correlation with low elevation sites having a mixture of forest types.

Southeast Golden-winged Warbler Partners Collaborate to Restore Habitat and Train Land Managers on the Pisgah and Nantahala National Forests

By Chris Kelly, Wildlife Diversity Biologist, North Carolina Wildlife Resources Commission

NCWRC biologists provided technical guidance to partners for golden-winged warbler habitat management on the Pisgah and Nantahala National Forest, both in fields and timber management areas. Collaborating with the U.S. Forest Service, Appalachian Trail Conservancy, and the National Wild Turkey Federation, NCWRC biologists helped develop prescriptions to improve Warbler habitat at Old Bald, Siler Bald, and openings in the Cheoah Mountains. Timber management for golden-winged warblers was a focus of the September 2018 meeting of the Southeast Golden-winged Warbler Partners group in Asheville. Silviculturists, district

rangers, and biologists from the U.S. Forest Service in attendance heard examples of how timber management projects can be evaluated for opportunities to incorporate Golden-winged Warbler Best



A Golden-winged Warbler nest on edge of log landing in the Cheoah Mountains of NC.

Photo by Chris Kelly



A recent two-age timber harvest unit on the Nantahala National Forest occupied by a pair of GWWAs in 2018.

Photo by Chris Kelly

Management Practices. This was followed by a question and answer session. U.S. forest Service staff are incorporating these design recommendations into upcoming forest management projects. These efforts are intended to bolster the warbler's habitat in the southern Nantahala Mountains, just north of the Georgia mountains where the population has experienced a significant decline in recent years.

Highlights from Audubon North Carolina

By Aimee Tomcho, Conservation Biologist, Audubon North Carolina

Private Lands Conservation

Audubon North Carolina's outreach to private landowners highlights the importance of considering bird-friendly forestry in both young and mature eastern hardwood forests. The efforts are guided by Golden-winged Warbler conservation as well as increased attention on interior-dwelling forest birds like the Wood Thrush. We offer technical planning assistance and connection to financial assistance programs such as Working Lands for Wildlife and the Forest Landbird Legacy Program, our unique internal cost-share initiative. Here are three regional stories illustrating this work:

- A. <http://nc.audubon.org/news/old-homestead-seeds-change>
- B. <http://nc.audubon.org/news/steward-it-and-they-will-come>
- C. <https://www.facebook.com/audubonnc/photos/a.99790776344/10155306520801345/?type=3&theatre>

Community/Citizen Science

Audubon North Carolina follows habitat restoration recommendations to private forestland with bird surveys to gauge local Golden-winged Warbler and forest bird responses. Surveys are entered in eBird so landowners may learn about "their" bird diversity and monitor responses based upon land stewardship actions. Audubon also conducts biannual Climate Watch survey routes throughout the Appalachian region that are compiled for national analysis.

Public Lands Partnership

Audubon North Carolina is an active member of the Pisgah-Nantahala National Forests in North Carolina public lands steering committee partnership. In 2018, we moved closer to the release of the new draft plan for the 1.1 million acres, which together with a number of stakeholder groups, insures management that protects the forest interior birds while supporting targets for high priority species like Golden-winged Warbler and Cerulean Warbler and Ruffed Grouse represented in the plan. Draft Environmental Impact Statment due out sometime in mid-2019.

Membership Outreach and Advocacy

Audubon North Carolina increased our number of state chapters with two new student chapters in 2018 at Appalachian State University and University of North Carolina at Asheville. Together with established local chapters High Country and Elisha Mitchell Audubon, these groups are multiplying advocacy work for birds across the Appalachian region.



Pictured above are members of one of the two new Audubon North Carolina student chapters.

Photo by Kim Brand

Forest Bird Studies from Ohio State University Researchers

By Steve Matthews, Associate Professor, The Ohio State University



Eastern Whip-poor-will

Photo by Heather L. Hubbard/Shutterstock

With continued support from the Ohio Department of Natural Resources-Division of Wildlife, Ohio State University graduate student James Wright along with his advisors Drs. Chris Tonra and Steve Matthews were able to recapture 11 of 21 Eastern Whip-poor-wills that were fitted with GPS archival tags in 2017. The over 50% recapture rate is providing critical information regarding the full annual cycle of this declining aerial insectivorous nightjar species. For example, wintering home ranges were located from Costa Rica to southern Texas and detailed data on migratory timing are currently being processed. Additionally, this team from Ohio State University is expanding on research in

Vinton State Experimental Forest with support from OARDC and The American Chestnut Foundation to explore the important links between acorn and American chestnut dispersal by studying blue jay overwinter survival along with dispersal and seed selection of these iconic central Appalachian trees. Finally, research in southeastern Ohio, supported by ODNR-Division of Wildlife, has been the focus of landscape-scale bird and forest monitoring research to more formally link healthy and heterogeneous forests in sustaining the diversity of birds across the region. In 2018, two new papers, one in *Natural Areas Journal* and the other in *Forest Ecology and Management*, by Drs. Bryce Adams and Steve Matthews, establish important methodological advances that combine field and remote sensing data to more fully quantify habitat. These data are essential pieces that are integrated with our bird species specific and community analyses to quantify patterns of avian diversity across broader landscapes in forthcoming research.

Updates from Ohio Department of Natural Resources-Division of Wildlife

By Laura Kearns, Wildlife Biologist, ODNR-Division of Wildlife

Forest Breeding Bird Outreach at “A Day in the Woods”

Forest bird researchers in Ohio coordinated a breeding bird workshop at the Vinton State Experimental Forest in early June as part of “A Day in the Woods”, a monthly series of workshops directed at private forestland owners. Dr. Steve Matthews of The Ohio State University, Dr. Kelly Williams of Ohio University, Mark Wiley and Dr. Laura Kearns of the Ohio Department of Natural Resources-Division of Wildlife guided a group of approximately 40 participants through finding birds in the woods and how to better manage forests for birds. Scarlet Tanagers, Prairie Warblers, and Yellow-breasted Chats were among the birds that made showy appearances. “A Day in the Woods” workshop series is coordinated by Dave Apsley at the Ohio State University Extension in Jackson, Ohio. For more information, including this year’s events, check out: <https://u.osu.edu/apsley.1/2019/01/22/mark-your-calendars-a-day-in-the-woods-2019-tentative-agenda/>.

Update on Cerulean Warbler Migration Project in Ohio

University of Tennessee researcher Doug Raybuck and crew returned to Ohio in the spring of 2018 to relocate Cerulean Warblers tagged in the spring of 2017. The one individual that was resighted and recaptured was found to have wintered in the vicinity of northeastern Colombia, near the Venezuelan border. While return rates were low, this project was still able to contribute greatly to our understanding of migratory connectivity for this species. The researchers will return in Spring 2019 to determine if any other birds can be resighted.

Wildlife Energy Symposium Held at The Wildlife Society's Annual Conference in Cleveland

The AMJV Energy Working Group organized a wildlife-energy symposium at The Wildlife Society's Annual Meeting held in Cleveland Ohio in October. Drs. Petra Wood (University of West Virginia), Gabe Karns (The Ohio State University), and Laura Kearns (ODNR-Division of Wildlife) coordinated the full-day agenda of 13 speakers covering topics ranging from impacts of shale gas on breeding birds, aquatic organisms, and other wildlife, to advice on how to collaborate with industry.

Public Land Additions in Southeast Ohio

The Ohio Department of Natural Resources purchased a 5,735-acre tract in Morgan County, Ohio from the American Electric Power (AEP) company in 2018. The land, now known as the Jesse Owens State Park and Wildlife Area, is reclaimed strip-mined habitat, which was originally part of a 60,000-acre parcel known as the AEP ReCreation Lands.

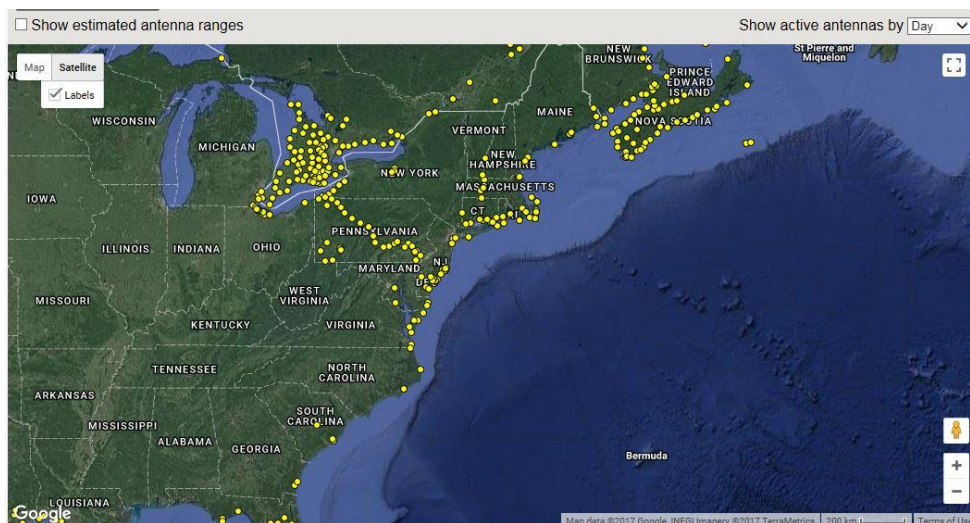
Pennsylvania Highlights

PA is the Host State of a Competitive State Wildlife Grant (SWG) Awarded in 2018

By Daniel Brauning, Wildlife Diversity Chief, Pennsylvania Game Commission

Expanding technology is providing new tools for monitoring a wider range of wildlife species than ever before to address critical conservation issues involving animal movement. One of these mechanisms involves a collaborative network of radio receiver stations tuned to detect very small radio tags deployed on a wide range of animals, from dragonflies to bats and birds such as Rusty Blackbird. That network, the Motus Wildlife Tracking System (Motus), was established in 2013 by Bird Studies Canada and currently maintains 600 monitoring stations across 27 countries supporting more than 230 projects that tagged more than 16,000 animals of 180+ species (birds, bats, and insects). The Pennsylvania Game Commission and Maryland Department of Natural Resources are sponsoring the expansion of those monitoring stations across the mid-Atlantic states with recent grants from the Pennsylvania Wild Resource Conservation Program and a USFWS Competitive State Wildlife Grant, in cooperation with the Williston Conservation Trust of Bucks County, PA and Carnegie Institute of Pittsburgh. The 2017 project closed the gap in Motus towers across the Appalachian Mountain chain in Pennsylvania.

Figure (right) shows MOTUS receiver stations in the Eastern US.



Allegheny Bird Conservation Alliance

By David Yeany, Conservation Planning Specialist/Ornithologist, Pennsylvania Natural Heritage Program/Western Pennsylvania Conservancy

The Natural Heritage Program at the Western Pennsylvania Conservancy teamed up with seven regional conservation organizations in 2015 to form a new coalition fostering collaboration in bird conservation throughout western Pennsylvania – the Allegheny Bird Conservation Alliance (ABCA). Members include Allegheny Land Trust, American Bird Conservancy, Audubon Society of Western Pennsylvania, Carnegie Museum of Natural History (CMNH), Humane Animal Rescue and Wildlife Center, National Aviary, Pittsburgh Parks Conservancy, and Western Pennsylvania Conservancy. This year PNHP and CMNH began a collaboration using nanotags and the Motus Wildlife Tracking system to study winter and migration movements of irruptive Evening Grosbeaks in the Allegheny National Forest region. So far, we have deployed nanotag transmitters on 18 birds and color-banded 41, while partners in the Northeast Motus Collaboration established five tracking stations in the area.



Evening Grosbeaks are being studied in the Allegheny National Forest region using nanotags and the Motus Wildlife Tracking system.

Photos by David Yeany

Past conservation successes of the partnership:

- Pittsburgh recognized as an [Urban Bird Treaty City](#)
- Forest habitat restoration at [Dead Man's Hollow Conservation Area](#)
- Finding solutions to bird window collisions through [BirdSafe Pittsburgh](#)
- Public outreach via [The Messenger](#) documentary
- Engaging youth through environmental education related to bird conservation issues

Grassland Breeding Bird Conservation

By David Yeany, Conservation Planning Specialist/Ornithologist, Pennsylvania Natural Heritage Program/Western Pennsylvania Conservancy

One-third of North American grassland birds are at-risk and declining from habitat loss, changing agriculture, and insecticides. Pennsylvania has 14 grassland breeding bird Species of Greatest Conservation Need (SGCN), including six state Threatened or Endangered species. Working with our Natural Heritage Program partner, the Pennsylvania Game Commission, this year we began a project to prioritize sites statewide for grassland bird conservation, prioritize and inventory the best sites for grassland birds, and bolster grassland habitat management across the landscape.



Upland Sandpiper in Clarion, PA.

Photo by David Yeany

We evaluated more than 5,000 grassland sites in GIS where grassland bird SGCN were documented and prioritized these sites for conservation into three tiers. The highest priority sites, Tier 1 and Tier 2, included just 55 sites statewide. We conducted bird surveys and habitat assessments at 517 point locations across 38 of those sites in 2018, documenting populations for 11 grassland bird SGCN.

We found that some grassland birds are faring better than others, but most are rapidly declining based on surveys of all recent historic sites occupied over the past 15 years:

- Short-eared Owl (Endangered in PA) – 9% of all historic sites
- Upland Sandpiper (Endangered in PA) – 25% of all historic sites
- Northern Harrier (Threatened in PA) – 38% of historic sites surveyed + one new site
- Dickcissel (Endangered in PA) – 13% of survey sites
- Henslow's Sparrow – 82% of historic sites surveyed + 4 new sites

This project will provide guidance to land managers and help identify potential conservation targets statewide to protect grassland birds.



Grassland in Washington County, PA. Photo by David Yeany

Furthermore, the Peatland and Rare Mountain Bird Survey Projects (as reported on in the 2017 AMJV Year in Review by Doug Gross of the Pennsylvania Game Commission) continued in 2018 with additional Pennsylvania Natural Heritage Program surveys.

Tennessee Highlights

Tennessee River Gorge Trust (TRGT) Updates

By Eliot Berz, Business & Community Access Director / Avian Technician, Tennessee River Gorge Trust

The Tennessee River Gorge Trust (TRGT) has had a busy year. At our Bird Observatory, we hosted an advanced bird banding workshop for professionals and volunteers interested in improving their skills and abilities aging birds with molt strategies. Over the course of the season, we captured 164 birds comprising 23 species while engaging the public in the process. An additional 153 acres of habitat in the Gorge were also protected by TRGT through fee-simple land acquisition. Much of our spring and summer was devoted to a collaborative project to attach 120 light-level geolocator tracking units to male Louisiana Waterthrush and Worm-eating Warblers. This project is a collaboration between the Tennessee River Gorge Trust, the University of Toledo, Harding University, and the



The TRGT had a busy year, capturing 164 birds over the course of the season and hosting an advanced bird banding workshop for professionals and volunteers at their Bird Observatory. Photos by Eliot Berz



TRGT and La Paz staff visited classrooms in Guatemala to discuss neotropical bird migration. Photo by Eliot Berz

University of Tennessee Chattanooga which aims to uncover information about the migration ecology of the two species and address questions regarding population trends. In the spring and summer of 2018, a total of 120 male birds (60 of each species) were successfully marked with geolocators across 4 geographically distinct sites. We will complete an exhaustive search for returning birds at each site from March-June of 2019 to reveal the fascinating data enclosed in the geolocators. For more information about the TRGT Bird Observatory, please visit www.trgt.org/birdlab.

With data from our 2016-2017 pilot study and forthcoming migration information in 2019, TRGT initiated a novel project to connect the human communities and cultures between the birds' migratory destinations. Alongside La Paz Chattanooga (a local nonprofit that provides social services for Latino families), this exciting project will develop a cultural exchange between the communities of the greater Chattanooga area and Peten, Guatemala, connecting the two communities through the nexus of Neotropical bird migration. Many of the same birds that migrate every spring to Tennessee to breed, such as the Louisiana Waterthrush and Worm-eating Warbler, come from the same Central American countries that are the former homes to many of our community members here in Chattanooga. TRGT and La Paz took their initial trip to Guatemala in 2018 in which the group connected with bird researchers, educators, and eco-tourism guides. TRGT and La Paz staff also

traveled to multiple classrooms to discuss the project and share letters, artwork, and videos from students in Chattanooga. Now that we have established working relationships and initiated educational programs, the group plans to bring the Guatemalan partners to Chattanooga to take part in a scientific and cultural exchange within our local community. The visiting Guatemalan partners will take part in multiple lecture series to share their work and engage in a community dialogue



exposing the ecological connection and shared responsibilities between the two areas pertaining to wildlife migration. These birds and people demonstrate how we are all much more connected than we often think! For more information about the TRGT cultural exchange project, visit www.trgt.org/guatemala.

(Left) TRGT and La Paz staff visited classrooms in Guatemala to discuss neotropical bird migration. Photo by Eliot Berz

Virginia Highlights

Cerulean Warbler Geolocator Project in Virginia

By Sergio Harding, Nongame Bird Conservation Biologist, Virginia Department of Game & Inland Fisheries

In 2017, the Virginia Department of Game and Inland Fisheries partnered with Virginia Commonwealth University (VCU), The Nature Conservancy, and the Virginia Society of Ornithology to participate with nine other states in a migratory connectivity study of Cerulean Warbler (CERW) led by the University of Tennessee at Knoxville. Thirteen geolocator units were deployed by VCU on male CERWs breeding at Gathright Wildlife Management Area in Bath County, and an additional 14 males were banded to serve as control birds. Despite extensive searching by VCU in 2018, only one bird with a geolocator was found, and the unit retrieved; an additional two control birds were resighted. Other participating states reported similarly low return rates. Data are in the process of being analyzed.



Cerulean Warbler outfitted with light-level geolocator unit.

Photo by Lesley Bulluck

Virginia Tech Carries Out NFWF Private Lands Conservation Project

By Rebecca O'Brien, PhD Candidate, Dr. Ashley Dayer, Assistant Professor, and Dr. Bill Hopkins, Professor, Department of Fish and Wildlife Conservation at Virginia Tech

In September of 2018, Virginia Tech, with funding from The National Fish and Wildlife Foundation (NFWF) and support from AMJV, initiated a multi-year project working on private lands conservation. The project focuses on hellbender salamanders in western Virginia and includes both social and ecological components. The ecological component will assess the impacts of human activities on hellbender parental care behaviors, while the social component will determine the effect that involving landowners in research has on their attitudes, cognitions, and behaviors regarding conservation. We hope that the results of this research will have broad applicability across a variety of private lands systems.

All landowners in the Copper Creek watershed with stream access (a total of 899 landowners) received a survey this fall asking about their attitudes regarding hellbenders and conservation as well as their trust in science. We received 231 responses. Although there was variation, landowners on average reported relatively high trust in science, strong support for conservation, and neutral attitudes towards hellbenders. We will begin engaging a subset of these landowners in hellbender research as our field season begins this summer.

West Virginia Highlights

Annual highlights 2018 – WV DNR

By Richard Bailey, State Ornithologist, West Virginia Department of Natural Resources

Loggerhead Shrike

The Loggerhead shrike is West Virginia's most-threatened breeding grassland/shrubland bird species. This species is generally only found in pastures with a thorny shrub component, short grass and an abundance of natural and artificial hunting perches. The estimated current breeding population in West Virginia is no more than 20-30 pairs. The Loggerhead Shrike is declining across its range, and the drivers of this negative trend are poorly understood.

Staff monitored 20+ historical/recently-active Loggerhead Shrike sites during the reporting period in Berkeley, Grant, Greenbrier, Hardy, Jefferson, Monroe, Pendleton, and Pocahontas counties. Game cameras were placed at five nests and provided valuable data. Staff monitored nests, conducted hundreds of point counts, and sampled vegetation plots. Seven shrikes were trapped and banded in the spring of 2018.



Shrike banded April 2018 in Monroe County.

Photo by Richard Bailey

Staff continued to work with partners from nearby states and Ontario, CA in the coordination of a Loggerhead Shrike Working Group. Staff worked with partners to refine drafts of a conservation action plan and guide work among partners. In winter 2018, staff co-led a formal working group meeting as part of the Loggerhead Shrike Working Group meeting in Nashville, TN.

Finally, staff coordinated with West Virginia University, VADGIF, and the Loggerhead Shrike Working Group to continue a MS research project on shrike detectability, occupancy, and habitat in VA and WV. WVDNR supported this project by hiring a field technician for a second field season that conducted hundreds of point counts in the Greenbrier, Monroe, and Pocahontas counties of WV. These surveys revealed a new breeding site in Monroe County.

Private Lands Program

- ABC, AMJV, NWTF, WVDNR, and WVDOP received a \$100,000 NFWF grant to assist with Working Lands for Wildlife projects targeting Golden-winged Warbler in the Great Greenbrier Conservation Focus Area in southeastern WV. Funds will provide for a 2-year full-time position assisting with private landowner outreach. Matching contributions include two forestry demonstration areas on state WMAs.
- WVDNR staff supervised two partner biologists working on Cerulean and Golden-winged Warbler farm bill programs.
- 551 acres and 128 acres were contracted for Cerulean Warbler and Golden-winged Warbler habitat enhancement, respectively, in 2018.
- AMJV and WVDNR staff toured industrial forestlands owned by Weyerhaeuser in Greenbrier County, and discussions focused on future collaboration within the focal area.

WV Breeding Bird Atlas 2

The final field season of the 6-year atlas project was successfully completed in 2014. Staff coordinated agency activities, volunteer efforts and contracts and grants to assist the project and completed numerous days of field work to gather atlas data for breeding confirmations and abundance counts. Priorities have now shifted to outlining and writing chapters and species accounts for the forthcoming book.

Final atlas summary:

- Project duration of 6 years
- Abundance sampling completed on over 400 priority blocks
- Total bird observations for the entire atlas period now stand at 106,816.
- Over 20,000 hours of volunteer effort logged by 378 participants
- 179 species reported, 164 species confirmed breeding

Work completed in 2018:

Drafts at various stages of review now completed for all book components, including:

- Introduction
- Physiography and climate of West Virginia
- Habitats in a Changing Landscape
- Survey Design and Field Methods
- Analytical Methods
- Summary of Results
- Guide to Interpreting Species Accounts
- Accounts for 170 species
- Bird Conservation in West Virginia
- Appendix: hypothetical and incidental species
- Appendix: estimates for change in occupancy
- Appendix: habitat and elevation associations

- Appendix: Phenology and safe date tables
- Appendix: population estimates and trend statistics
- Appendix: priority block richness summaries
- Appendix: referenced names of flora and fauna

Maps, graphs, tables, photographs, cover artwork:

- Drafts of 99% of maps, graphs and tables now complete; tweaks and revisions ongoing
- “Home grown” photographs obtained for 80% of species; review for quality ongoing
- Coordination re: cover artwork ongoing and concept approved; vendor faced unavoidable delays

Publishing and follow-up:

- WVU Press demurred, written interest received from Penn State Press
- New draft contract received, pending internal review, approval, and final signing
- Matching grant of \$20k awarded by the Brooks Bird Club for subsidy of book cost
- Private donation of \$5k awarded for photo acquisition and other needs

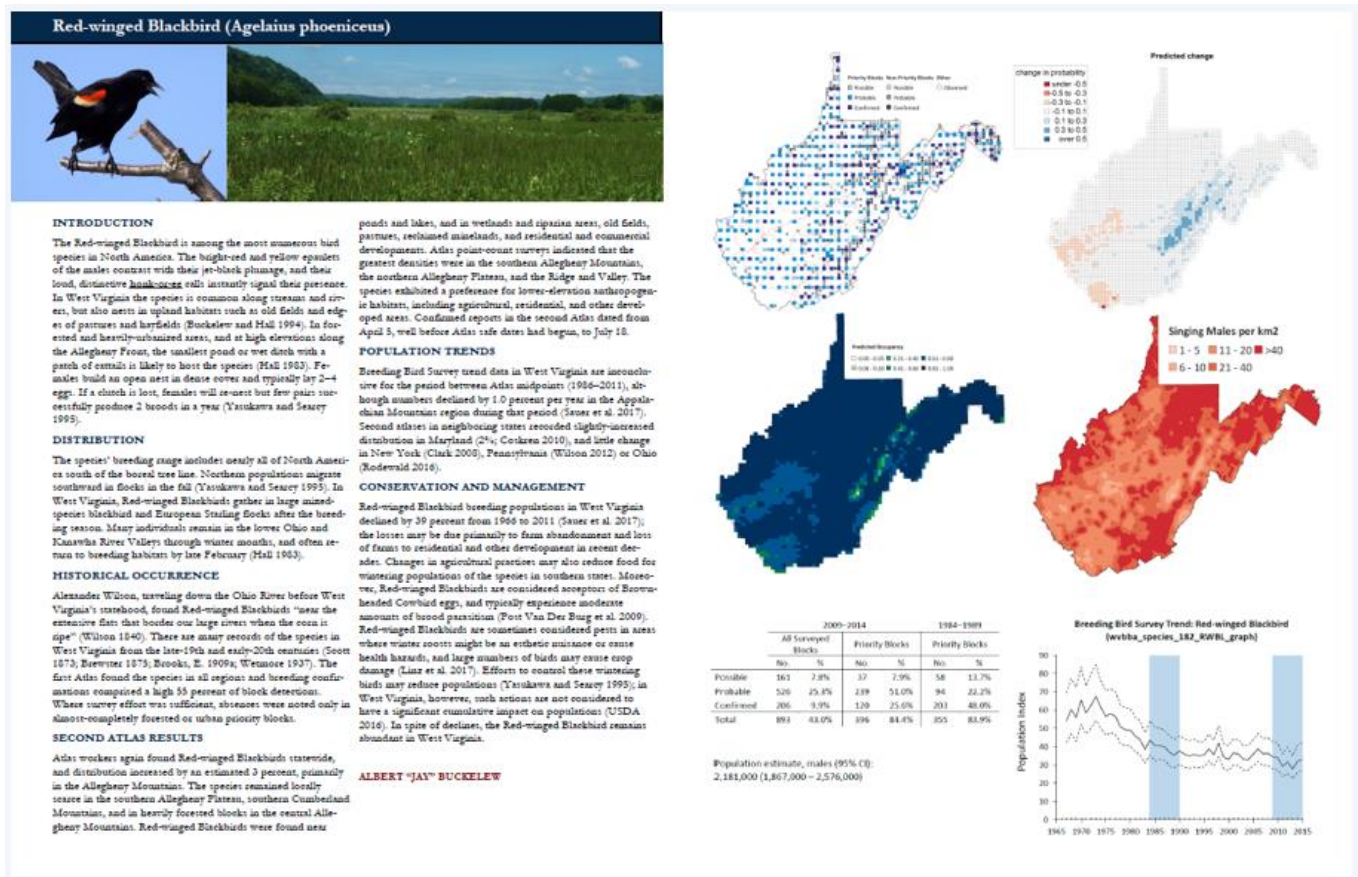


Figure 1. Example of WVBBAA2 species account.

Monongahela National Forest Updates

By Rachel Arrick, Natural Resource Specialist for Special Projects, US Forest Service

Migratory Bird Habitat Management: Planning Ahead for Species of Conservation Concern

The Monongahela National Forest, in coordination with the WVDNR, Ruffed Grouse Society, National Wild Turkey Federation, and the Appalachian Mountain Joint Venture, is in the final stage of the NEPA process for the Panther Ridge Wildlife Habitat Enhancement Project. This project is designed to create more heterogeneous habitat in a landscape dominated by mature forests, providing a variety of early successional habitat types that are generally not



Cerulean Warbler being processed for banding on the Monongahela National Forest.

Photo by Matt Schumar

represented on the Forest without the aid of active management. The use of prescribed burns to restore oak-hickory communities across the landscape, timber harvests to create wildlife openings and savannahs, and targeted herbicide applications to remove harmful non-native invasive plant species are some of the few management techniques that the Monongahela National Forest will employ to help improve wildlife habitat. The Forest hopes to begin implementation of this ~12,600 - acre project in 2019.

Although the benefits of this project are intended to reach across a variety of taxa, the Monongahela National Forest expects the Panther Ridge project will be particularly helpful to birds of conservation concern, such as the Cerulean Warbler, American Woodcock, Blue-winged Warbler, Red-headed Woodpecker, Yellow-bellied Sapsucker, Prairie Warbler, and Eastern Whip-poor-will. The Forest focused on two of the bird species that have been identified by the AMJV as species in greatest need of conservation concern when designing the Panther Ridge project: the Cerulean Warbler and the American woodcock.

Creation of habitat designed specifically for Cerulean Warbler conservation will span 450 acres. Although cerulean warblers use large blocks of mature forest, which currently dominates the proposed project area, a more complex forest structure with early successional habitats will be beneficial to cerulean warblers. The proposed project area presently has a basal area of 120- to 130 square feet and needs to be thinned down to 40-90 square feet residual basal area.

Long-term Monitoring Efforts Led by Allegheny Front Migration Observatory Continue on the Monongahela National Forest

The Allegheny Front Migration Observatory (AFMO) is a bird-banding project that is located in Dolly Sods in the Monongahela National Forest, WV and is run entirely by volunteers. Founded by Ralph K. Bell, the AFMO is one of the oldest, long-term monitoring projects of its kind in the nation. Banding birds annually since 1958, the AFMO has processed 273,524 birds and 125 species to date. In 2018 alone, the AFMO operated from August 19th to October 16th and banded 3,259 birds of 74 species.

The bird banding site encompasses an approximately 4.9-acre site on top of Allegheny Front Mountain across from the Red Creek Campground. The Monongahela NF is proud to support the AFMO and their important efforts for bird conservation and will continue to work with the group to ensure that the banding station is able to effectively use this location for netting and banding well into the future.

The AFMO collects and provides important long-term monitoring information to state and federal agencies to assess trends in avian populations and inform management and research. The AMFO is also broadly engaged in public outreach and education, and prioritizes reaching a wide audience, which is crucial for avian conservation efforts. They have hosted groups, ranging from bird clubs to schools and they typically see volunteers visit from across the United States. This year, they even welcomed some volunteers from overseas, including Germany, Israel, and France.



Photo of AFMO mist-netting site at Dolly Sods, Monongahela National Forest, West Virginia.

Photo by USFS



Pollinator garden outside the Gauley Ranger District Office on the Monongahela National Forest, Richwood, WV.

Photo by Cheryl Tanner

[Pollinator Habitat Improvements on the Monongahela National Forest](#)

The availability of pollinating plants across the Appalachian landscape has declined due to agricultural and land-use practices. The reduction in habitat and foraging opportunities, along with a variety of other factors, has led to a decline in many invertebrate populations that rely on pollinating plants. The loss of invertebrate abundance, diversity, and biomass across the landscape can limit foraging opportunities for insectivorous birds and influence avian population dynamics. Efforts on the Monongahela National Forest to improve habitat and increase resource availability for pollinators species is also expected to have positive consequences for birds through the creation of additional foraging opportunities.

In 2018, many projects have included the improvement or creation of pollinator habitat across the Forest. For example, approximately 9 acres on the Gauley Ranger District were planted with flowering native plants. Additionally, native pollinator fields and gardens were planted outside district offices and other Forest Service buildings. Plants were strategically selected to include species that flower at different

times and will provide continuous resources for animal species that rely on pollinator plants for food resources and included species like red bud, basswood, and sourwood. Future projects across the MNF, such as the Panther Ridge wildlife habitat enhancement project, will plant wildlife openings and riparian areas with native pollinator species after conducting timber or habitat restoration activities.

*Planting of native trees
and shrubs at Nursery
Bottom outside of the Cheat-
Potomac Ranger District
Office in the Monongahela
National Forest, Parsons,
WV.*

Photo by Kristy Jeros





WILDLIFE RESOURCES DIVISION

Exploring and Conserving Nature



LOGGERHEAD SHRIKE
WORKING GROUP





Pennsylvania Natural Heritage Program



SOUTHERN HIGHLANDS RESERVE

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Western Pennsylvania
Conservancy



AMJV Partners not represented on previous pages with logos:

Eastern Golden Eagle Working Group
Gettysburg College
National Park Service
New York Parks, Recreation, & Historic Preservation
Ohio Bird Conservation Initiative
Ohio Department of Natural Resources – Division of Forestry
Southeast Golden-winged Warbler Partner Group
University of Kentucky
University of Tennessee Knoxville – Department of Forestry, Wildlife, and Fisheries
VA Golden-winged Warbler Partners