THE ECOFORESTER

SPRING 2024 NEWSLETTER

EcoForesters.org

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EcoForesters forest restoration technichian, Gabe Boortz, holding a turkey tail mushroom they found at a worksite.

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**Newsletter photography by Pat Barcas*

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WHAT IS OUR FUTURE "ECOLOGICAL SITUATION"?

By: Lang Hornthal

EcoForesters Director of Development

I recently read the term "ecological situation" that acknowledges humans as an ecologically embedded species and inextricably linked to matters of ecology. Climate change is the ultimate reminder that no matter what science shows us in a laboratory or natural environment, we must consider human behavior as part of the problem and more importantly, the solution. Our latest newsletter discusses what it means to practice climate smart forestry and how we can empower private landowners and land managers to positively influence future conditions.

The practice of managing forests is evolving with the climate. Past forestry models focused on productivity and profitability to better serve the demand for forest products. Now, productivity might be referring to carbon storage, and profitability a landowners ability to generate enough income to not have to sell their land to developers. Foresters now manage for a suite of ecosystem services, and their actions can influence species survival. Both tree and animal species are adapting to temperature increases, loss of habitat, and migration by other species. As their habitat changes, so must they. Those species that do not leave to search for cooler climates will seek out habitat most suitable for their survival. You can read on for more about how EcoForesters and partners are actively restoring habitat for the Golden Winged Warbler and other animals that rely on a diversity of structure in important wildlife corridors.

Humans are adapting too. As our forest product industry (as we know it) exits Western NC, what comes next? The resource is not leaving and continues to grow. There will be other markets that utilize this renewable resource. Whether biochar, biofuels, or cross-laminated timbers, new markets are coming, but so are markets that promote carbon sequestration and help offset the costs of forest stewardship. One of the biggest challenges facing landowners will be how to pay for the things that make forests healthier. Increasing development tempts landowners to cashout, often at the expense of intact forests. Read more inside about new markets.

This newsletter is full of good information from our partners and our staff that help break down what Climate Smart Forestry looks like in practice. As always, please reach out to any of us if you need more information about forestry or supporting our organization. We accomplish more through our partners and through your active engagement in ecological forestry. Thank you for reading our newsletter.

WHAT IS CLIMATE SMART FORESTRY?

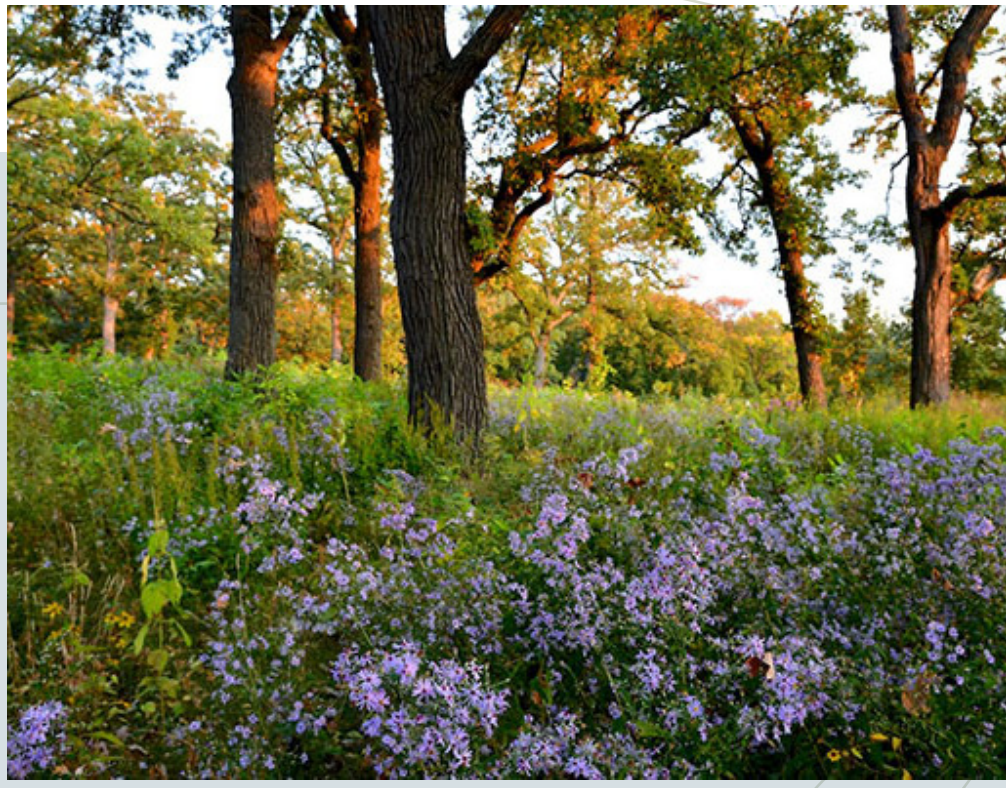
By: Andy Tait

EcoForesters Director of Forestry

Climate change is predicted to increase drought, heat-waves, wildfires, pest outbreaks, as well as floods. We must prepare our forests to be more resilient to these threats so the carbon, and other benefits, stored in them is sustained. Forests sequester about 16% of the carbon we emit in the US, so we also need to steward forests to store as much carbon as reasonable.

Ecological forestry already addresses all forest values: water, wildlife, timber, carbon, biodiversity, forest health/resilience, and even aesthetics & recreation. Climate Smart Forestry just puts more focus on using forests to mitigate climate change and manage forests so they are better prepared to withstand climate change. Like most forest values, you often can't maximize both the amount of carbon a forest stores and its resilience to climate change. But we can try to optimize our forests to sustainably store large amounts of carbon long term by conserving them and preparing them for climate change.

For example, dense plantations of fast growing pine trees sequester the most carbon per acre per year. However, to make forests more resilient we want less-dense stands to reduce fire risk and competition so they can withstand droughts, reduce fire risk/severity, and be more resistant to pest outbreaks. Also, diverse forests (both in terms of species and structure) are more resilient to all kinds of disturbance, including severe weather.



Open oak "woodland" with well spaced trees creating a different uncommon habitat which is also resilient to climate change, but needs ongoing management to sustain it. Photo Credit: Frank Hassler

Forests also provide essential habitat to many species of wildlife, but different wildlife like different forest structures. Many species of wildlife need uncommon more open woodlands for their habitat, which are also climate resilient though they store less carbon per acre. There are also wildlife species that depend on currently under-represented young regrowing (i.e. recently harvested) forests - so harvesting climate-friendly timber products can also create needed wildlife habitat.

Sustainably-produced durable wood products are climate friendly building materials. Wood is the only

renewable raw material we have and it is much less carbon intensive than cement, steel, or plastic. And wood products (e.g. 2x4s) still store the carbon the tree sequestered, as long as they are in use. So using sustainably harvested wood instead of these negative climate impacting materials helps reduce global warming. Reducing the overall demand or raw materials is also essential to lowering our carbon footprint.

The key to sustainable timber harvests is that any trees cut must grow back (or be replanted) at least as good as they were before. Deforestation due to converting forests to other uses is one of the greatest drivers of climate change, so we also need to keep our forests forested. If they can provide sustainable amounts of timber, wildlife habitat, and high quality water , then we are seeing many co-benefits on top of mitigating climate change through ongoing carbon sequestration.

There are many forest stand improvement practices that can be implemented to make forests more resilient to climate change. Thinning or controlled burning in dense dry forests to reduce competition can create a healthier forest to withstand climate change, and produce needed differently structured high-quality wildlife habitat. Some of these practices may reduce carbon stocking in the near term, but will provide durable long term storage of carbon through well climate-adapted forests. These practices also favor drought-tolerant and fire-tolerant species (like oak) that are long-lived, great for wildlife, and will persist in hotter drier climates. Invasive plants are predicted to expand their ranges and grow faster, so controlling these plants before they get worse than they already are is essential. Many of these practices were already good forest stewardship.

There are many relatively new and expanding markets to pay forestland owners to manage their forests for carbon sequestration. If you defer timber harvesting on 40+ acres for 20-50 years, and after that only harvest sustainably for another 20-100 years, companies like Core Carbon, Forest Carbon Works, and AFF/TNC's Family Forest Carbon Program will pay you for the additional carbon you are storing on your land to help companies offset their carbon emissions. If you are interested in exploring these, please contact EcoForesters.

There are also many emerging markets and technologies like biochar, biofuels, and biomass that may provide more climate friendly options for wood products in the future.

Dead eastern hemlocks in the appalachain mountains. Photo credit: Will Blozan

MODERN FORESTRY REVISITED: ECOFORESTERS HOSTS PANEL DISCUSSION ON CLIMATE SMART FORESTRY

By: Pat Barcas

There will be nearly 10 billion people on the planet by 2050, according to estimates. With that many people comes consumption and carbon emissions that can further contribute to climate change. On March 21, EcoForesters hosted a panel of forestry-related experts who shed light on climate smart forestry, practices that can mitigate the effects of climate change through responsible and sustainable forestry.

EcoForesters Lang Hornthal served as emcee of the second annual event and explained that change is coming. "Tonight's topic is going to consider a future where change is inevitable. The decisions made today in today's forests must consider this change that is coming," he said.

Panel speakers were a diverse set of professionals and included Tommy Cabe, Forest Research Specialist, Eastern Band of Cherokee Indians, Aimee Tomcho, Senior Forestry Manager, American Forest Foundation, Wesley Sketo, Wildfire Mitigation Forester, NC Forest Service, and Andy Tait, Director of Forestry, EcoForesters.

Steve McNulty, director of the USDA's Southeast Climate Hub, took the stage first to introduce the panel, and summarized

> *"THE NEXT FRONTIER IS CARBON SMART FORESTRY; TO HAVE A RESILIENT FOREST THAT WILL STILL BE THERE 100 YEARS DOWN THE LINE."*

> *CLIMATE SMART FORESTRY PRACTICES INCLUDE ADAPTIVE FOREST MANAGEMENT THAT FOSTERS FOREST RESILIENCE, SUSTAINABLE FOREST MANAGEMENT THAT SUPPORTS PRODUCTIVITY OF ALL FOREST-BASED BENEFITS, AND REDUCTION AND REMOVAL OF GREENHOUSE GAS EMISSIONS.*

Panelist (left to right): Tommy Cabe, Amiee Tomcho, Wesley Sketo, Andy Tait, and Steve McNulty answer questions regarding climate smart forestry.

that climate smart forestry is not a new concept. He spoke of Germany in 1713, where engineers were concerned they were going to run out of trees to shore up their underground mines. The idea of forest conservation was born. Fast forward to the industrialized United States. As resources dwindled around 1900, European forestry practices were adopted here to conserve the forest- regrow and improve it.

Climate smart forestry practices include adaptive forest management that fosters forest resilience, sustainable forest management that supports productivity of all forest-based benefits, and reduction and removal of greenhouse gas emissions. It's the last one that needs to be pioneered, said McNulty.

Modern forestry practices have perfected getting the most carbon sequestration per acre, but as Tait pointed out, the next frontier is carbon smart forestry to have a resilient forest that will still be there 100 years down the line. The key is balance with wildlife, industry, and recreation, and having a forest that will meet those needs; not necessarily leak out every bit of carbon possible, but to do it more sustainably.

While prescribed burns release carbon, Sketo explained that the long-term plan is to reduce the red maples and poplars while preserving oaks and hickories, trees that use less water and provide more food for wildlife. "We're trying to use prescribed fire to have a montane oak hickory type forest, which uses a lot less water. Prescribed fire is the most efficient, and you're going to pick up a lot of those other benefits as well," he said.

Cabe said that for thousands of years, the Cherokee were burning the land regularly, allowing oaks and yellow pines to thrive. He said traditional practices are coming more back into focus and weaving their way into official forest management programs.

"We're in this shift, across the United States and up into Canada, in Indian country we're witnessing a renaissance where federal agencies are becoming more intimate with indigenous communities to learn these values of landscape and land; what you call management, we call relations," he said.

EcoForesters thanks New Belgium Brewing for hosting the event, and our other sponsors, Duke Energy and FedUp Foods, for helping make this event possible.

BUILDING CLIMATE RESILIENCE WITH FIRE IN THE SOUTHERN BLUE RIDGE

By: Zac O'Donnell

Southern Blue Ridge Prescribed Burn Association

Fire has been part of the natural order since the beginning of time. Regular disturbance by fire has forced plants and animals around the world to adapt and evolve, helping shape where and how certain species can thrive. The Southern Appalachian region is no different. Naturally occurring wildfire and intentional fire used by Native Americans have influenced a wide range of richly diverse ecosystems that are resilient to change, but not immune.

The Southern Blue Ridge region and the Southern Appalachian Mountains are well known for their ecological diversity, humid deciduous forests, and beautiful waterways. The natural mosaic of ridges and shady coves offer an array of plant and animal species with varying relationships to fire. Trees, shrubs, and herbaceous plants that favor ridges and sunny slopes are adapted to, or dependent on, fire for reproduction, while the opposite is normally true for plants in damp coves and shady slopes. Over thousands of years, large-scale disturbance created by wildfire and intentional fire maintained the old growth, virgin forests first encountered by European settlers. Humans indigenous to the American continent used the effects of fire to attract wildlife, clear cropland and travel routes, and encourage the growth of desirable plants.

However, since the arrival of Europeans on the East Coast, decreased fire on our landscape through wildfire suppression and lack of intentional fire has allowed less fire-tolerant, shade-loving trees such as poplar, maple, and rhododendron to monopolize the ecosystems where they would have been historically limited. Subsequently, through a process called mesophication, fire-adapted trees such as oak, hickory, and short-leaf pine are shaded out and struggle to grow. Decreased oak and hickory regeneration threatens the core of our native forests by reducing food availability for deer, squirrels, woodpeckers, insects, and mycelium. Fire-intolerant, shade-loving trees require more water than the fire-adapted trees they outcompete, drawing more of the available water table, and reducing total streamflow in watersheds. Climate change is altering the timing and temperatures of

our seasons, often encouraging growth of invasive plant species such as Chinese Privet, Multiflora Rose, and Oriental Bittersweet which thrive in mild, fire-suppressed climates. Without fire, naturally occurring pollinator meadows are slowly being overrun by plants that inadequately support wildlife, or are disappearing altogether. Changes to seasonal growth, forest types, and invasive-dominant landscapes are affecting the food and habitat available to pollinators, birds, and mammals. Insufficient food and habitat for pollinators, combined with other environmental fluctuation, adds strain to regional agriculture and business.

The southeastern US has more lightning strikes and individual wildfires per year than any other region, a trend exacerbated by climate change. High severity wildfire damages the forest floor and increases unwanted sediment, heavy metal, and bacterial runoff. High levels of pollutants from severe wildfire runoff put additional strain on water treatment plants, and threaten local infrastructure.

Prescribed fire, or controlled fire, is an excellent tool for improving the climate change resilience of our region. Prescribed fire reduces accumulated forest debris, decreasing the chance of high-severity wildfire, and harmful stormwater runoff. Regular prescribed fire can return mesophytic forest to its naturally resilient state, and increase the availability and quality of water. While controlled fire can still produce large amounts of smoke, the resulting pollution is typically far less than smoke emitted by wildfire, and is more easily cycled in the atmosphere and absorbed by plants.

While the amount of fire on the landscape is far below historic norms, government agencies, NGOs, and private landowners are bringing fire back to Appalachia. Careful implementation and public education is revitalizing this essential component of our natural environment. Around 90 percent of watersheds supplying municipal areas in the Blue Ridge are forested, so it is vitally important that as we experience the effects of climate change in real time, we work to improve the quality and availability of water, reduce the strain on public infrastructure, and actively improve neglected forestland for the benefit of all living things. *To learn more about the Southern Blue Ridge PBA visit: southernblueridgepba.org*

Right top photo: Michael RiCharde starting a burn to improve silvopasture and forest health.

Photo credit: Armin Weise

Left top and bottom, and right bottom: Fire being used by Wild East Farm in Marion to improve forest health, wildlife habitat, and reduce wildfire risk. Photo credit: Lyric East

FIRE IS FOR THE BIRDS:
BIRD ABUNDANCE DOUBLED IN SEVERELY BURNED AREAS OF SOUTHERN APPALACHIA

By: Sarah Farmer

Southern Research Station Science Communications

In 2016, drought, a history of fire exclusion, and human activity collided in the southern Appalachians. More than 30 wildfires burned at least 80,000 acres, and fourteen people lost their lives because of the wildfires.

However, the aftermath provided researchers a unique opportunity to explore the effects of fire on Appalachian ecosystems. A study in Forest Ecology and Management shows that the number of birds and bird species doubled in severely burned areas. Katie Greenberg, a USDA Forest Service research ecologist, led the study. The Camp Branch and Tellico wildfires burned in and around the Nantahala National Forest in western North Carolina. As they roared up steep, south-facing slopes and crept through coves, they left a mosaic of burn severities behind.

Greenberg and collaborators monitored birds and vegetation in both unburned and burned forests, studying areas of low, moderate, and high severity fires. In the high severity burn patches, 70% of trees died within five years, creating a pulse of light on the forest floor. Shrubs that thrive in high-light, disturbed forests – such as blackberries – re-sprouted swiftly, creating dense cover for birds.

After the fire, indigo buntings quickly came to the patches that had burned at high severity. Within two or three breeding seasons, chestnut-sided warblers, and eastern towhees had joined them. These three species are associated with a forest structure created by heavy disturbances.

Within five years of the wildfires, bird diversity in moderate- and high-severity burn patches was double that of unburned forest. Many other bird species – even those that are not considered disturbance-dependent – were also more abundant in higher severity burn areas. In contrast, low-severity fire had no detectable effect on bird communities.

To a human, this bird-friendly landscape is unfriendly. Imagine blackened snags poking up through a thorny thicket of interlocking blackberry canes and stump sprouts of trees. Any attempt to walk through this space will be rewarded with thorn pricks that can be felt through most clothing. But the

Indigo buntings are among the species that depend on early successional habitat, such as that created by fire or other disturbances, including timber harvest.

birds love it.

"The lush, new vegetation growth – shrubs and an abundance of sprouts from dead or injured trees – likely attracts insects that in turn attract birds," says Greenberg. Other studies show that adult birds bring their young fledglings into young forests where they can learn to forage under the dense cover of shrubs and tree sprouts.

Greenberg has contributed to several long-term, highly collaborative studies on fire and wildlife in the southern Appalachians. Some of them, like the Fire and Fire Surrogates research, were conducted nationally and funded by the Joint Fire Science Program.

In the southern Appalachians, fires that do not kill mature trees do not create habitat for birds that depend on young forests and early successional habitat. Photo Credit: USDA Forest Service

In the Southern Appalachians, fires that do not kill a lot of mature trees do not create habitat for disturbance-dependent birds. "Study after study shows that, including this recent one," says Greenberg.

An earlier study on the season of burn showed that low intensity burns – like most prescribed fires – don't have much impact on forest structure, whether they occur during the winter or early spring. That's likely because they don't usually kill mature trees. In the southern Appalachians, fires do not have much effect on wildlife habitat unless they are severe enough to kill large trees and substantially reduce the canopy cover.

"Other research shows that timber harvests benefit birds in similar ways, if they substantially reduce the tree canopy cover," says Greenberg. "In western North Carolina, we have a lot of mature upland hardwood forests – most trees are more than 100 years old. There are far fewer young forests today because of reduced timber harvesting over the past several decades."

In the past, Indigenous people, and then Euro-American settlers, intensively managed the landscape, creating woodlands, open forests, and young forests.

"Without human influence, there wouldn't be a huge amount of young forest in the Southern Appalachians," says Greenberg. "Lightning-caused wildfires are rare in this area because our forests are moist and productive, and we tend to get so much rain during the summer thunderstorm season, when lightning most often occurs. Landslides, windstorms, and southern pine beetle outbreaks happen occasionally. They kill trees which creates that young forest habitat that many wildlife species depend on."

This article was originally printed by the USDA on January 30, 2024.

THE FAMILY FOREST CARBON PROGRAM: COMING TO NORTH CAROLINA THIS SUMMER

By: Aimee Tomcho
American Forest Foundation

This summer, a new forest stewardship program for private forest owners comes to North Carolina, offering new income streams and resources to help improve forest health through the Family Forest Carbon Program (FFCP).

The Family Forest Carbon Program was created through a partnership between two nonprofits—the American Forest Foundation and The Nature Conservancy. The program enables private forest owners to access the voluntary carbon market, a growing market that has traditionally been inaccessible to smaller forest owners. Through annual payments and investment in improved forest management techniques, the Family Forest Carbon Program opens new pathways to generate income from forest land and bring economic stimulus to local communities.

Forests are a vital part of the global carbon cycle. Photo credit: Aimee Tomcho

Susan Benedict, the first-ever FFCP forest owner, says, "It's expensive to keep our land healthy and maintain the wildlife habitat. We have year-round maintenance and property taxes to pay. We enrolled in the Family Forest Carbon Program because it will provide us a revenue stream to make this work happen."

The Family Forest Carbon Program actively helps landowners implement "improved forest management" techniques that improve forest health and increase carbon sequestration and storage. The carbon benefit from this improved forest management is calculated by comparing enrolled properties with properties outside the program. These carbon benefits generate carbon credits, which are independently verified by a third-party regulator. The verified carbon credits are sold directly to organizations seeking to reduce their carbon footprint, allowing landowners with smaller forests to benefit from the sales. The Family Forest Carbon Program sells carbon credits to companies who have been vetted to ensure they are already working to confront climate change, allowing them to address their outstanding or residual emissions.

Landowners enrolling in the program retain full ownership and privacy of their property and all rights to the land, only leasing their carbon rights. They can continue to use their land for recreation, hunting, or non-timber commercial activities, like maple syrup production.

Enrolled landowners often find the expertise provided by FFCP's professional foresters helps them identify and manage invasive species to protect their forests.

Louise Hartman of Northumberland, Pennsylvania, says, "We are so glad to have found the Family Forest Carbon Program. The plan they created for us is so comprehensive in how it addresses the forest, invasive species, the quality and quantity of trees, the wildlife, water quality and how it helps the planet and climate change. I am so thankful that we were able to become a part of it."

Since its initiation in 2020, the Family Forest Carbon Program has enrolled more than 78,000 acres of forestland across the United States, creating a community of like-minded landowners who care about healthier forests, higher-quality timber, improved wildlife habitat, and making a positive impact on their land and the planet.

The Family Forest Carbon Program currently provides forest owners in 15 states across the U.S.—and will be expanding into North Carolina, South Carolina, Virginia, and Georgia this summer—with the forestry guidance, income and resources to improve the health of their forests.

Landowners interested in participating in the program can learn more and see if they may qualify for the Family Forest Carbon Program at familyforestcarbon.org. If you'd like to sign up to be notified when the program officially available your region, visit: www.familyforestcarbon.org/stay-up-to-date

FORESTRY STAKEHOLDER GROUP LOOKS FOR SOLUTIONS TO CANTON MILL CLOSURE

The reverberations of the Canton Paper Mill closing were felt long before the last whistle on May 24, 2023. When wood mills close, jobs are lost (direct and indirect) and sometimes they never return. This problem is being addressed through regional councils, agency partners, and economic development professionals that are gaining a better understanding of what losing a forest sector employer of this size does to rural communities and forests.

Land of Sky Regional Council is facilitating a group of stakeholders that are seeking sustainable solutions. While Canton moves on and awaits its revitalization, it is important to better understand the impacts to forest health and local economies. Regional and state leaders are exploring opportunities and partnerships with other states facing similar challenges.

Another challenge is in the absence of viable markets for pulp and other materials removed during forest restoration, how will landowners afford to do the work needed? The USFS has a similar concern and is experimenting with biochar as a solution and investing in the technology that will help keep needed restoration in motion. The stakeholder group is currently working towards a supply chain analysis and market analysis to identify innovative technologies for the region. Few expect the return of the pulp or any industry on the same scale as the Canton Paper Mill. A more realistic future includes multiple smaller industries, some in support of less traditional products tied to natural services.

WHAT WILL MY FOREST LOOK LIKE IN 50 YEARS?

Our forests are, and will be,
changing over the coming decades
due to climate change and other factors.

WITHOUT ACTIVE STEPS TO RESTORE AND CONSERVE FORESTS:

1. **Non-native invasive plants and pests will continue to increase in severity and range, threatening forest health.** Less native plants and trees will impact insect and wildlife populations.
2. **Oaks - which are the keystone species for wildlife and are well adapted to climate change - will continue to decline.** Faster growing trees (poplar, maple) that use 3x more water and are less adapted to drier conditions will dominate, impacting water and wildlife.
3. **Forest genetics will continue to decline due to high grading.** More poorly formed, less healthy, less resilient trees that are more susceptible to current and future threats.
4. **Forest structure and species composition will be less diverse.** Species that desire cooler climates will migrate north. Young forests and old growth systems will lag behind natural and historic levels. Biodiversity will decrease due to the loss and changes to forested ecosystems.
5. **Forests will be developed leading to canopy loss and fragmentation.** As populations increase, so will the pressure to develop existing forests.

EcoForesters is working hard to achieve a much different future. Active planning and Forest Stand Improvement (FSI) can restore and conserve a more resilient forest for you.

LANDSCAPE SCALE RESTORATION GRANT

The Landscape Scale Restoration (LSR) project is almost two years old and we continue to see positive results. This three year funding was provided by the USDA in support of the North Carolina Forest Action Plan. Through workshops, one on one consultations, and helping landowners in need fund forest management, we have engaged over 180 households covering over 24,000 acres in seven WNC counties.

Funding invasive plant control continues to be a large barrier for many landowners. In response, we are piloting a landowner sweat equity program that rewards a landowner's time spent controlling invasive plants with planning, training, and crew time. If successful, we plan to expand this program later in the year.

It is not too late to get involved in our LSR project. If you own forest (20+ acres) in Buncombe, Madison, McDowell, Burke, Haywood, Jackson, or Swain counties and would like to better prepare your forest for climate change, reach out to Brittany at bhoward@ecoforesters.org to find out more.

LANDOWNER TESTIMONIAL

My introduction to EcoForesters was a postcard in the mail last year about the Landscape Scale Forest Restoration Project. Through that project, Krishun did a site visit a year ago at my property which was an amazing gift of knowledge and guidance. Her keen observations and detailed records and teaching are very helpful on an ongoing basis.

This year I am participating in the sweat equity program. Trying to manage invasive plants is overwhelming at times. For a crew of 5 to come to my property and work on invasive plants is an incredible uplift.

Thank you for your top-notch professionalism. I am impressed with the standards you have in place for workplace safety. It made me feel that I was in good hands and also was excellent modeling for me. Thank you for your top-notch expertise. I have loved learning from you. Thank you for the time you have spent outlining for me pros/cons/alternatives of options. Thank you for your many kindnesses in communication and action. Thank you Krishun, Samantha, Charles, Max, Annabelle, and all the staff at EcoForesters who make the work happen. - *Jennie Barnhardt*

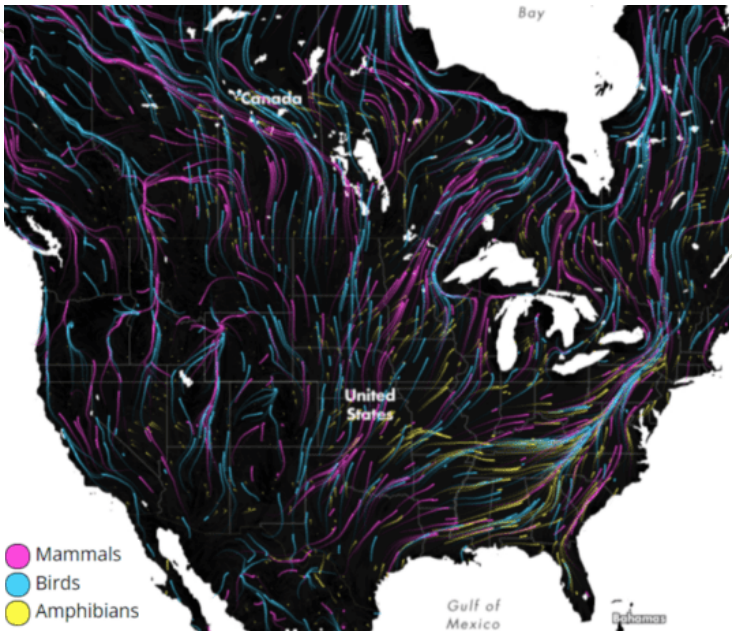
NATIONAL FISH AND WILDLIFE GRANT

Western North Carolina is an incredibly diverse region, home to nearly 10,000 species of plants, fungi, and animals. In the face of a changing climate, however, the scope of this diversity is expected to change. A study conducted by the National Audubon Society in 2019 concluded that two-thirds of North American birds are at an increased risk of extinction due to warming temperatures. Warming temperatures are pushing many species northward as they struggle to find sufficient habitat. As we work to mitigate the effects of climate change, we must make the conservation and creation of wildlife habitat a priority. For bird species such as the Golden-Winged Warbler, this often means the creation of early successional habitat, as a diverse stand of successional stages increases the amount of biodiversity our forests can support.

Forests continue to get older, creating and maintaining late stage successional habitats. Yet early successional habitat is often lost, unless we make an effort to create and maintain it. EcoForesters' project, "NFWF America the Beautiful Grant: Private Forestland Restoration in Support of Golden-Winged Warbler Corridors" has a focus on supporting private forestland restoration efforts to benefit the habitat of Golden-Winged Warblers, as well as the multitude of other species Western NC is home to. The first step in our project was to identify corridors that are important to wildlife. Now, we are working to restore these corridors by removing invasive plants and creating missing early successional habitat, helping to support a diversity of wildlife species. This project is still in its first year, but we have already actively engaged 57 landowners and impacted almost 8,000 acres. This project covers a 6 county region in Western North Carolina and stands to engage over 5,000 landowners, impacting over 100,000 acres of forestland.

WILDLIFE CORRIDORS: PLANNING FOR CLIMATE CHANGE AND HABITAT LOSS

The effect of habitat fragmentation significantly contributes to the decrease of wildlife populations, particularly those that require undisturbed habitat. Mitigation by establishing a linear habitat that connects two or more larger blocks of protected habit can be a life saver. Such a system of interconnected wildlife corridors ensures that a variety of species can more easily travel between their habitat hotspots with enough suitable habitat along the way. Though isolated natural areas in the middle of human society are better than none at all, their biodiversity and their ecological value would be much higher if connected to larger blocks of conserved natural areas such as national or state public lands. Mountain ranges too steep for development or farming often naturally provide such corridors but also human-made wildlife bridges across major roads and highways are suitable. Corridors will also help provide species a way to escape during increasingly severe natural disasters such as floods and fires. Learn more about how our Wildlife Corridor Restoration project is paying for forest planning and management that benefits wildlife corridors at www.ecoforesters.org



This map shows the average direction mammals, birds, and amphibians need to move to track hospitable climates as they shift across the landscape. Image credit: The Nature Conservancy

This article is a reprint from the Fall 2019 publication of The EcoForester.

CREATING RECREATIONAL ACCESS: ECOFORESTERS LENDS A HELPING HAND TO CAROLINA CLIMBERS COALITION

By: Pat Barcas

Anyone who has visited the Hickory Nut Gorge along NC 74 has surely marveled at the natural beauty of the valley and the meandering Rocky Broad River as it carves its way through the hamlets of Gerton and Bat Cave. The steep cliffs, massive boulders, and abrupt drop offs provide a rugged beauty that is ripe with outdoor recreation opportunities, but they are marred by a well-known invader.

Kudzu dots the landscape and is hard to miss in the area, draping itself through the gorge, choking trees and covering boulders. Starting spring of 2023 and continuing this year, EcoForesters has partnered with the Carolina Climbers Coalition to open up an easement to a bouldering area along the Rocky Broad River, creating a new recreation zone for climbers to utilize.

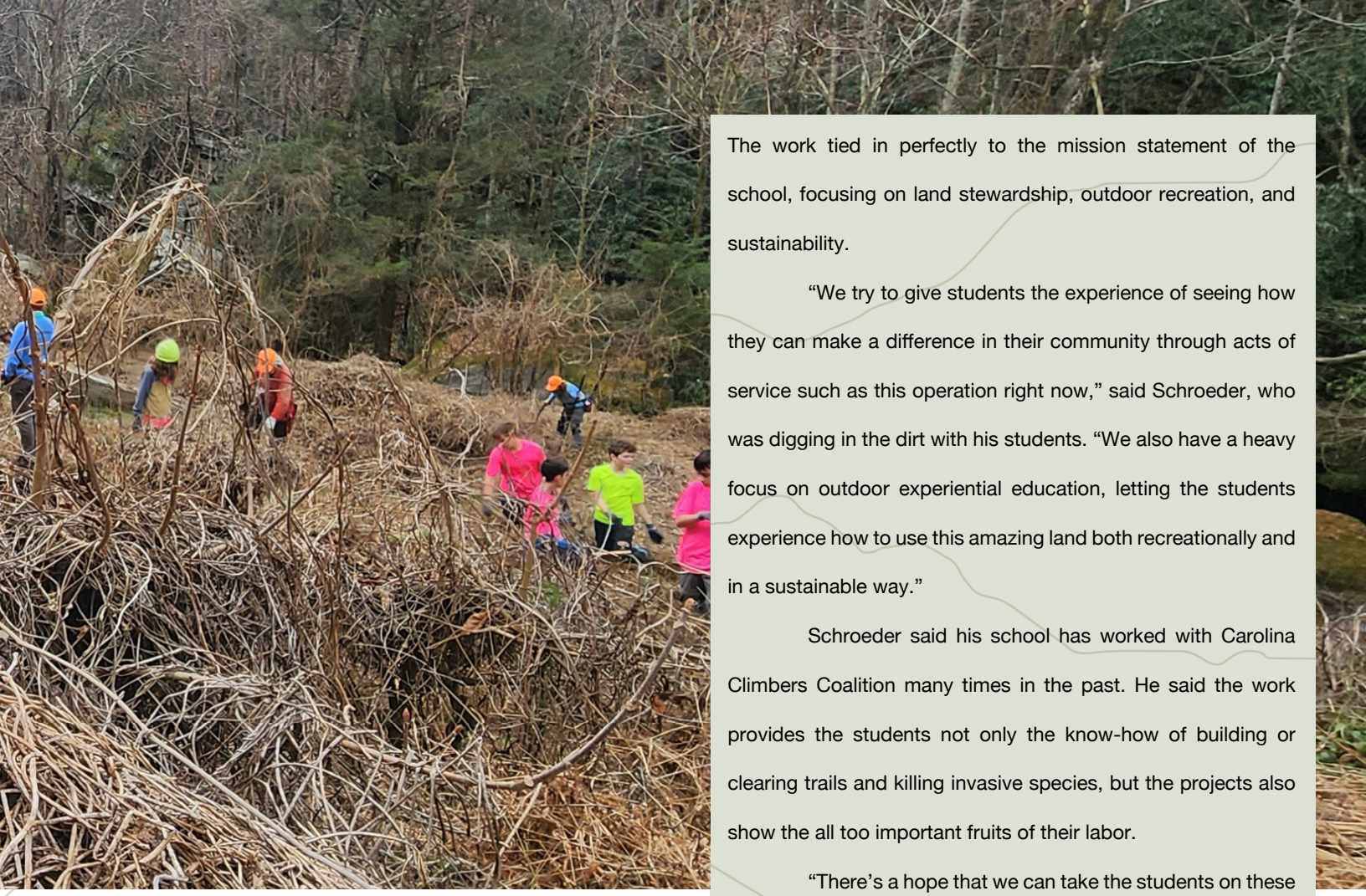
The project involved EcoForesters' expertise in clearing kudzu, helping Carolina Climbers Coalition clear about six acres adjacent to NC 74, leading to a trail down to the Rocky Broad River and a bouldering area. This area was previously impenetrable due to a sea of kudzu. EcoForesters also cleared a wide swath several hundred yards along the steep embankment of 74, as well as uncovering a climbing boulder and hillside across the river.

Dain Canter, Trail Crew Leader with Carolina Climbers Coalition, explained that Executive Director Mike Reardon has been campaigning for more bouldering access in the area for years, and this spot was generously allowed by landowner Lemuel Oates and family, as long as the kudzu was cleared.

"For the region, this is really easy access to some high-quality boulders," said Canter, who also pointed out the popular Raven Rock climbing site is up the mountain, but part of the same property. "It's a really beautiful place, with some great rock climbing on it. I'd love to give a shout out to the Oates family and Burntshirt vineyards, they have opened up legal access to some amazing climbing that we wouldn't have otherwise."

The work this year saw EcoForesters team up with members of the Carolina Climbers Coalition, along with some special guests: about a dozen middle school students at French Broad River Academy. Everyone attacked the subterranean kudzu crowns this February with hand tools- pick mattocks and shovels, digging the crowns out of the ground and killing the plants.

Jack Schroeder, instructor at French Broad River Academy, led the students in reducing the invasive species.



The work tied in perfectly to the mission statement of the school, focusing on land stewardship, outdoor recreation, and sustainability.

"We try to give students the experience of seeing how they can make a difference in their community through acts of service such as this operation right now," said Schroeder, who was digging in the dirt with his students. "We also have a heavy focus on outdoor experiential education, letting the students experience how to use this amazing land both recreationally and in a sustainable way."

Schroeder said his school has worked with Carolina Climbers Coalition many times in the past. He said the work provides the students not only the know-how of building or clearing trails and killing invasive species, but the projects also show the all too important fruits of their labor.

"There's a hope that we can take the students on these trails with later generations, and be able to tell our students, 'Hey, this class several years ago built this trail you're walking on,' and that's always a great experience," said Schroader.

Schroeder added that the work performed in Bat Cave perfectly fits into the ethos of the school: showing children how things are made and access is provided to our great natural world.

"Work like this is just so important, especially for young adults seeing how they can give back to the community; seeing how they can use a space and have a lot of fun. They need to see how that was created. Sometimes we go to a bouldering site or on trails and we take for granted that there's this perfect trail or perfect river access and it's important to see where that comes from and the work that goes into it, because it's not easy," *To learn more visit: carolinaclimbers.org*

> *"WE TRY TO GIVE STUDENTS THE EXPERIENCE OF SEEING HOW THEY CAN MAKE A DIFFERENCE IN THEIR COMMUNITY THROUGH ACTS OF SERVICE"*

TIME AND MONEY

By: Lang Hornthal

EcoForesters Director of Development

Money and time. That is usually what's needed to solve complex problems. Climate smart forestry is no different, but we are running out of time. The next five to ten years will be critical to prepare forests for the coming extremes. This means more workshops that reach more landowners. More forest management plans and more invasive species control. It means utilizing existing forestry infrastructure to share information and help landowners access funding.

Advocacy is needed, but is not enough. The human population is expected to grow to 10 billion people by 2050, putting further stress on the natural world. Today is the day to assess forest resilience and plan for changing ecosystems. We must honor the scientific research in our region that shows prescribed fire, invasive plant control, and oak regeneration thinnings are the right prescription in most hardwood forests. Our team is in the field daily, putting science into practice and helping landowners meet their forest legacy.

We must bring sound practices to rural communities while engaging new forestland owners as they migrate to WNC. The work we do in the forest is paying dividends, whether by storing more carbon or cleaning more water. The urgency facing our region due to climate change and development make the next 5 years extremely important in the world of conservation. More Climate Smart Forestry practices need to be implemented and shared with rural communities. Please help us reach more landowners and keep forests healthy and forested.

Your generosity is not just a donation; it is a declaration of faith in the power of conservation to effect positive change. With your continued support, we can amplify our impact, expanding our reach to shield endangered species, conserve and restore vital habitats, and empower communities to become stewards of their natural heritage. Please invest in future forests by supporting EcoForesters.

WHY DONATE RIGHT NOW?

ECOFORESTERS HAS OVER 2 YEARS OF FEDERAL FUNDING THAT REQUIRES A 1:1 MATCH

This means that the next two years offer the opportunity to double our impact while creating new mechanisms for more forest restoration.

The work we put in today means less damage from wildfire, more habitat for species on the move, and healthier forests that are better prepared for future conditions.

An army of model landowners are needed to lead the way through planning and practicing climate smart forestry.

Supporting conservation means active stewardship that offsets the heavy hands of humans.

An investment in our natural resources is needed now after generations of withdrawals.

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OUR MISSION

EcoForesters is a 501(c)(3) non-profit professional forestry organization dedicated to restoring and conseving our Appalachian forests through education and stewardship.

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ECOFORESTERS EXPANDS WITH NEW OFFICE IN SYLVA

EcoForesters officially has an office in Sylva to extend services into Southwestern North Carolina. The Jackson County Chamber of Commerce held a ribbon cutting ceremony in March with Jackson County officials as well as EcoForesters' Staff Forester, Andrew Danner, and Co-Director of Forestry, Andrew Tait. Danner is a WCU alumni and loves living in Jackson County. His passion is providing landowners with technical assistance and resources to maintain healthy forests. The new office is located at 569 Mill Street in Sylva, and office hours are by appointment.