The Nature Conservancy

Appalachian Impact Report

2024



Believing in a Better Future



Surveying Paulina Dam removal, New Jersey. © Bill Amos Photography
Front cover: Sunrise at TNC's Bear Rocks Preserve in West Virginia. © Kent Mason



Heather Furman

Appalachians Director, The Nature Conservancy

The Nature Conservancy was born in part from the audacity to believe in what might be possible.

In our early days, placing 300 acres of land under permanent conservation protection was almost unthinkable. Removing dams and reconnecting rivers was inconceivable. Reintroducing prescribed fire to neglected forests was unheard of.

Those who believed that it was all possible faced strong headwinds. Funding was scarce and not many people shared these ambitious dreams.

Today, thankfully, all these years later, those dreams seem relatively small. This past year alone, The Nature Conservancy (TNC) and our partners across the Appalachians have placed thousands of acres into permanent protection. They have leveraged millions of dollars of private and public funds to bolster conservation efforts in 18 Appalachian states and three Canadian provinces. And they are on the cusp of reconnecting thousands of miles of freshwater habitat that has been obstructed since well before our predecessors dreamed up TNC.

Looking back on 2024 I am grateful for all our colleagues, past and present, who believed and believe in what is possible. Across the Appalachians, our teams and our partners are setting ambitious, audacious goals, just like our predecessors.

Together, by 2030 we are aiming to:

- **Put 3.5 million forest acres under improved management.**
- **Protect 22,000 miles of river and 215,000 acres of lakes and wetlands.**
- **Implement more than 30 wildlife passage projects and protect 2.2 million acres of lands.**
- **Sequester an additional 250 million metric tons of carbon and support the transition to renewable energy.**
- **And help more than 1 million people becoming less vulnerable to floods and wildfires and have greater access to the outdoors, economic opportunities, and decision-making roles.**

These goals are certainly ambitious, but they are no more ambitious than establishing the first TNC natural areas and reconnecting the first rivers. Together, with the extraordinary people who care—our teams, our partners, and our supporters, TNC is harnessing the power of collective action, guided by science, and sharing a vision for a healthy, thriving planet. This is the only way we will realize our ambition.

Today more than ever, the Appalachians need this collective ambition to connect and restore the forested mountains, valleys, wetlands, and rivers that nurture its wildlife, cultures, and communities—the places we call home.

Together, with your support, we can make this vision a reality.

A bull elk stopping in the Oconaluftee River, Great Smoky Mountains National Park.
© Alan Taylor/TNC Photo Contest 2023

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Aerial view of the Connecticut River in Pittsburg, New Hampshire. © Jerry and Marcy Monkman/ EcoPhotography

How We Work

We achieve impact in the Appalachians by prioritizing and investing together.

This includes on-the-ground projects and larger-scale efforts across our states. Each project, partner, staff member, river, dam removal, or prescribed fire is part of a larger whole that connects the entire landscape.

In short, our work is greater than the sum of our parts.

Our success flows from our commitment to working in deep collaboration with partners and colleagues from across the Appalachians. We learn from each other, bring our best assets to the table, prioritize across the geography, and consider the impact we can have beyond a single project in a particular location.

Working together, our teams and our partners bring leverage and transformation at larger scales than we ever thought possible. This is continental scale conservation, and it is possible here in the Appalachians.

DID YOU KNOW?

- The Appalachians **INCLUDES A (TEMPERATE) RAINFOREST.**
- The Appalachian mountain range is **OLDER THAN THE RINGS OF SATURN.**
- TNC's Appalachian focal area includes **198 MILLION ACRES.**
- Ancient runoff from the Appalachians can be found **AS FAR AWAY AS NEVADA.**
- Current research suggests that the rise of the Appalachians led to so much carbon absorption that it resulted in an ice age that drove **NEARLY TWO THIRDS OF ALL LIVING SPECIES EXTINCT.**
- The region has its own dinosaur, **THE APPALACHIOSAURUS.**
- The Appalachian range includes **18 STATES AND FIVE CANADIAN PROVINCES.**
- **OVER 3,000 TYPES** of flowering plants grow in the mountains.
- **MORE THAN 392,000 STREAM/RIVER MILES** flow through the Appalachians.
- **MORE THAN 70,000 MAPPED DAMS** impede streams in the U.S. portion of the Appalachians and associated watersheds.

Appalachian Rivers: Reconnected

More than half of all North American aquatic species—our trout and bass, darters, shiners, mussels, and salamanders—call Appalachian rivers and streams home.

Appalachian waters provide refuge for fish species as the climate warms, supply drinking water for 33 million people across the eastern United States, and are important to many Indigenous and local communities for cultural connection and recreational and economic opportunities.

Conserving Appalachian rivers means reconnecting high-quality stream habitats and floodplains, which enables aquatic and terrestrial wildlife to move between habitats and reduces downstream flood risk. The Nature Conservancy is safeguarding the health of freshwater ecosystems in the Appalachians by removing barriers like obsolete dams and culverts, protecting and restoring floodplains, and addressing the impacts of aging infrastructure and flooding on human communities.



The male Trispot Darter
© Alan Cressler



SARP Culvert Assessment training in the Coosawattee River watershed.
© Tiffany Penland/Georgia Department of Natural Resources

Case Study: A Fund for Restoration

The Reconnecting Appalachian Rivers Small Grants Fund, now in its third year, funds early stages of freshwater restoration projects as part of a strategy to reconnect over 10,000 miles of Appalachian rivers by 2030. To date, the program has awarded more than $540,000 to advance 15 projects in 12 states across the Appalachians.

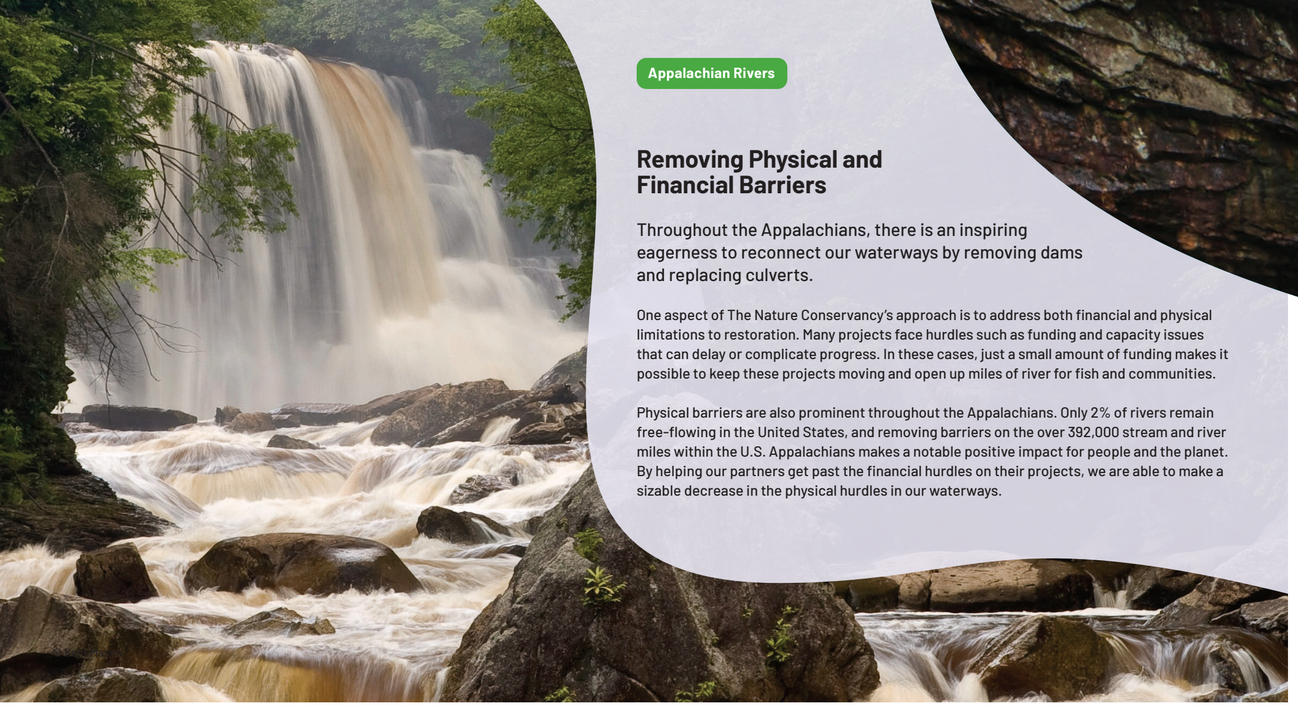
These grants leverage public funding to advance barrier replacement and dam removal projects in key watersheds, supporting phases of project development such as assessments, engineering, and design that can be difficult to fund, yet are crucial for getting projects shovel-ready for public funding applications.

Supporting this work is the Reconnecting America's Waterways (RAW) Web Tool, developed by TNC to guide watershed restoration prioritization based on biodiversity, flood risk, and community vulnerability. The tool has been shared widely with federal agencies, and its adoption by partners has helped to direct historic levels of public funding to the freshwater connectivity projects that bring the greatest benefit to both nature and people. The RAW web tool and small grants fund have been made possible, in part, by funding from the **Enterprise Mobility Foundation,** which supports TNC's work for healthy rivers, freshwater ecosystems, and communities.

Case Study: Roads to Recovery for the Trispot Darter

The federally threatened trispot darter spawns in ephemeral streams in just a few watersheds in Alabama and Georgia. These streams can be fleeting and are dry for most of the year.

Barriers to fish migration in these habitats are all too common. In Georgia, TNC funded the purchase of equipment to assess and prioritize the replacement of more than 300 road crossings in high-priority watersheds that are known to be home to the darter, as part of a partnership with the state natural resources agency. By 2028, TNC and our partners will replace 6–10 barriers to small fish passage in the Conasauga and Coosawattee river basins.



Appalachian Rivers

Removing Physical and Financial Barriers

Throughout the Appalachians, there is an inspiring eagerness to reconnect our waterways by removing dams and replacing culverts.

One aspect of The Nature Conservancy's approach is to address both financial and physical limitations to restoration. Many projects face hurdles such as funding and capacity issues that can delay or complicate progress. In these cases, just a small amount of funding makes it possible to keep these projects moving and open up miles of river for fish and communities.

Physical barriers are also prominent throughout the Appalachians. Only 2% of rivers remain free-flowing in the United States, and removing barriers on the over 392,000 stream and river miles within the U.S. Appalachians makes a notable positive impact for people and the planet. By helping our partners get past the financial hurdles on their projects, we are able to make a sizable decrease in the physical hurdles in our waterways.

2024 Highlights



West Virginia assessed and prioritized replacement of approximately 300 culverts in cold-water refugia critical to Eastern brook trout and other native species.



New Jersey completed surveys for endangered and threatened mussels, along with design and permitting, for dam removals on the Pequest River and removed the first of a series of four dams. Removal of all four dams will reconnect about 60 miles of river.



In Maine, TNC helped replace 19 culverts across the state. These projects opened access to critical habitat for aquatic species, including endangered Atlantic salmon, and safeguarded local Maine roads from increasingly unpredictable storm flows.

Appalachian Rivers

BY THE NUMBERS

314 MI. — **314 miles of river to be restored** through Reconnected Appalachian Rivers grants awarded in 2024.

$35.5 M — **$35.5M in public funding** leveraged by freshwater projects across the Appalachians.

36 M — **36 million people** get drinking water from sources in the Appalachians.

Left: Water cascades from the falls at Blackwater Falls State Park, West Virginia. © Kent Mason
Right: Little Stony Falls, Jefferson National Forest, Virginia. © Steven David Johnson





Appalachian Lands: Connected

The yellow warblers, common nighthawks, black bears, elk, and thousands of other species that migrate through the Appalachians need a network of connected lands through which to move so that they can sustain their populations and adapt to a changing climate.

The Nature Conservancy is ensuring that the network of Appalachian lands and waters, including large strongholds and climate corridors, are permanently protected and effectively connected to achieve continental-scale connectivity and biodiversity outcomes, maximizing benefits to nature and people.

Case Study: Dobbins Slashing, West Virginia

Forested peaty swamps. Seepage fens. Southern rock voles. Ruffed grouse. Not much about the 1,392-acre Dobbins Slashing Preserve sounds real, including its name.

But with more than 400 priority plant and animal species of greatest conservation need calling the preserve home, TNC has long recognized it as a priority landscape.

In 2024, TNC completed the purchase of Dobbins Slashing, an important connector between the Monongahela National Forest's Dolly Sods Wilderness Area and the Canaan Valley National Wildlife Refuge. Dobbins Slashing adds to the iconic Bear Rocks Preserve and the Allegheny Front Preserve, playing an important role in slowing climate change and preventing biodiversity loss.



Case Study: Habitats & Highways Partnership, New York

New York is a critical connector in the Appalachian region, linking central and northern landscapes into one thriving ecological corridor. Without it, the movement of wildlife and the flow of natural systems would be severely disrupted.

That's why TNC is leading bold efforts to reconnect forests, wetlands, and streams across the state. From upgrading outdated infrastructure to protecting vital habitats, we're working to ensure wildlife can move freely—not just within New York, but across the entire Appalachian corridor.

At the heart of this work is collaboration. TNC is partnering with transportation and wildlife agencies across eight Appalachian states to launch a new, in-depth training series on road ecology best practices, wildlife-friendly infrastructure, and project monitoring and evaluation. The goal is to equip professionals with the tools to champion connectivity, spark innovation, and inspire interagency teamwork across the Northeast Appalachians.

Case Study: Headwaters Forest, New Hampshire

Blanketing the western slope of Moose Mountain in Hanover, New Hampshire, the newly established Headwaters Forest joins a network of 3,000 connected acres of conserved land in New Hampshire.

Protected in partnership with the Hanover Conservancy, Headwaters Forest will protect woodcock, bobcat, black bears, and yes, moose, for generations to come.

"Protecting the Headwaters Forest on Moose Mountain, the Hanover Conservancy's most ambitious project to date, achieved so many climate resiliency goals, from assuring connectivity of high-quality habitat to securing the source of Hanover's largest stream. We're grateful for the chance to work with TNC to ensure the success of this complex project and appreciated the helpful engagement of TNC staff."

— Adair Mulligan
Executive Director, Hanover Conservancy

Far left: An Eastern Newt, sometimes called the Red-spotted Newt, at Bear Rocks Preserve, West Virginia. © Kent Mason

Left: A young bobcat explores an open field. © Larry Master, www.masterimages.org

Top: Rain, fog, and forest on Merrill Mountain in Maine's Boundary Mountains. © Jerry and Marcy Monkman/EcoPhotography

A Great Start for a New Grant Program

Continental-scale conservation means connecting important lands over extraordinarily large landscapes. In 2024, the pilot year of TNC's Resilient and Connected Appalachians Grant Program (RCAGP), more than 10,000 acres were protected across seven states.

Nearly $1.3 million in grants, which in turn leveraged more than $28 million in public funding, supported 27 land conservation projects in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, and Vermont.

The program distributed grants of up to $50,000 to land trusts, nonprofits, and municipalities to protect lands, address community needs, and provide connected habitat across the Appalachians. In 2025, the program has been extended to include all 18 Appalachian states.

2024 Highlights

KY

In January, TNC in Kentucky finalized the largest conservation easement in the state's history, permanently conserving nearly 55,000 acres on the Cumberland Forest Wildlife Management Area in Bell, Knox, and Leslie counties.

PA

With support from TNC, Pennsylvania's Kittatinny Ridge was recognized as one of the nation's newest Sentinel Landscapes. This rare designation is bestowed by the U.S. Departments of Defense, Interior, and Agriculture on areas of unique significance where conservation and national defense interests converge. The Kittatinny Ridge Sentinel Landscape will connect private landowners with voluntary state and federal assistance programs that provide tax reductions, agricultural loans, disaster relief, educational opportunities, technical aid, and funding for conservation easements.

ME

In Maine, 2,706 acres were added to the Mount Abraham Public Reserve Land through a partnership between The Maine Appalachian Trail Land Trust, TNC, and the Department of Agriculture, Conservation and Forestry's Maine Bureau of Parks and Lands. Created through the acquisition of multiple properties, the Keystones project builds on recent conservation successes and contributes to a contiguous landscape of over 100,000 acres that have been gradually and permanently conserved over 20 years. This project plays a critical role in preventing development and fragmentation while ensuring public access to nature.

BY THE NUMBERS

20:1	**20:1 return on investment** through TNC's Resilient and Connected Appalachians Grant Program.
12.8 K	53 projects closed within the Appalachians footprint in calendar year 2024, **totaling 12,800 acres** (not including the properties protected through the RCAGP).
$28 M	**$28M in public funding** leveraged for 27 land conservation projects in the Appalachians.



A hiker enjoys the scenic view of Bad Branch State Nature Preserve in Kentucky. © Devan King/TNC

Appalachian Forests: Resilient

Oaks, pines, hickories, and other trees threaded throughout the Appalachians in a diverse mix serve as nature's pathway for countless species to migrate and adapt to climate change.

These forest pathways are also tremendously vulnerable to climate impacts. In many cases, Appalachian forests are unable to reach their full potential for carbon sequestration or habitat diversity and are in need of active management.

The Nature Conservancy's goal is to improve forest health by restoring and reforesting degraded lands, applying prescribed fire to restore the natural cycle of disturbance, and influencing and incentivizing sustainable, climate-adapted forest management on public and private lands. Restoring Appalachian forests will support climate-adapted biodiversity, buffer Appalachian communities from climate vulnerabilities, and provide jobs.



TNC's Panther Knob Preserve in West Virginia. © Kent Mason



Case Study: Sprucing Up the Appalachians

In West Virginia, the third most forested state, TNC is partnering with the U.S. Forest Service to restore rare and threatened habitats. TNC is planting red spruce trees to connect critical high-elevation forests for the plants and animals of this region, easing the burden of climate change and ensuring their resilience for decades to come.

Healthy and diverse forests in the Monongahela National Forest in West Virginia contribute to the resiliency of the entire Appalachian landscape and our planet. The red spruce planting site on the Monongahela is important for restoration of the entire ecosystem, as its high-elevation limestone landscape with frost-pocket wetlands and high-elevation aquatic systems provide a home to many rare species now moving in response to climate change.

Case Study: Partners in Fire

With the capacity, skills, and trust built through the Fire Learning Network over the past 18 years, fire practitioners tackled one of the largest contiguous controlled burn projects to date in western Virginia, burning a total of 6,670 acres during seven operational days in March and April.

TNC and the U.S. Forest Service began collaborating on the Warm Springs Mountain Restoration Project in the Allegheny Highlands in 2008. Since then, the partners have tackled increasingly large, controlled burns by combining adjacent units for greater efficiency and ecological benefit.

Inset: Some TNC West Virginia staff take a break from tree planting in Cunningham Knob. © Understory Media
Top right: McKenzie Boyd using a drip torch during a controlled burn on North Saluda Reservoir. © Andrew Kornylak

Fire for Water

Half a million people in South Carolina's upstate region depend on Greenville Water Utility, which sources water from 30,000 acres in the Blue Ridge Escarpment. Over the years, TNC has developed a close relationship with the utility company, first helping them write forest management plans, then helping train utility staff in burning and leading burns for them. This year, TNC supplied planning, leadership, and staff to help the utility conduct three first-entry burns. But the big news is that the utility staff led their own first burn this year—proving the power of partnerships and the importance of fire and good forest management for the benefit of downstream water systems.

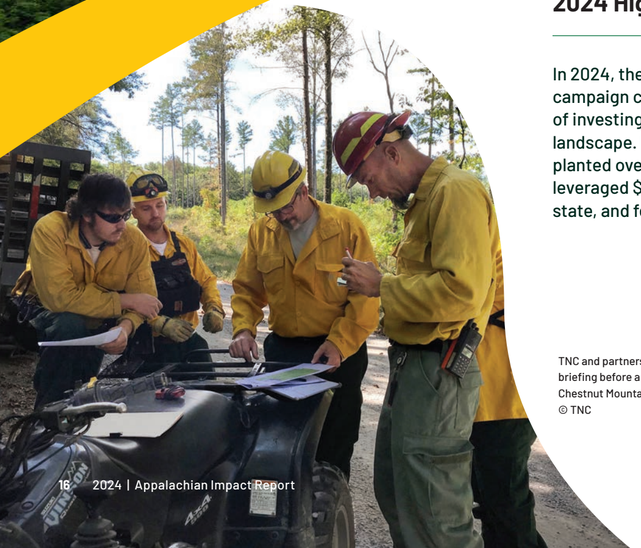


Appalachian Forests

A scenic overlook near Breaks Interstate Park in southwest Virginia.
© Steven David Johnson

2024 Highlights

In 2024, the Plant a Billion Trees campaign celebrated 5 years of investing in the Appalachian landscape. During that time, we planted over 800,000 trees and leveraged $1.8 million in private, state, and federal funding.



TNC and partners convene for a morning briefing before a prescribed burn at Chestnut Mountain in Tennessee.
© TNC



TNC stood up seven fire crews in 2024—two in Tennessee, four in Kentucky, and a roving crew that covered Kentucky, Tennessee, and Virginia during the peak fire season, resulting in 24,423 acres of fire on the ground.



TNC entered a Memorandum of Understanding with the Bureau of Indian Affairs for the Eastern United States. A previous agreement like this one allowed for a controlled burn at Qualla Boundary, the home of the Eastern Band of Cherokee Indians, highlighting the historic and positive outcomes of fostering partnerships with Indigenous communities.



For the first time in five years, controlled burns occurred on TNC preserves in Ohio, including 37 acres at our Edge of Appalachia Preserve.

BY THE NUMBERS

259 K

259,000 native trees planted across the Appalachian region.

100+ K

More than 100,000 acres of safely conducted prescribed burns with our partners.

$200 M

$200 million EPA grant awarded to allow for improved management of 67,647 acres of forests in the Appalachian regions of Maryland and Virginia.





Appalachian People

Centered: Appalachian People

Top: TNC Conservation Forester Kevin Yoder meets with a private landowner to create a management plan as a first step to enrolling in the program. © American Forest Foundation
Bottom: A family attending the Look3 Festival of the Photograph in Charlottesville, VA. © Daniel White

The Nature Conservancy is committed to ensuring that conservation practices are developed and deployed in partnership with communities.

Through relationship building, cross-boundary coordination, and unlocking capacity and capital, Appalachians conservation efforts can increase cultural competency, incorporate shared opportunities, and support the restoration of lands, waters, rights, cultural practices, and resources to Tribal Nations and Indigenous Communities.

Across the Appalachians, TNC is advancing policies in support of these goals.



Case Study: A Preserve at the Start of the Appalachian Range

Located in the heart of central Alabama, Flagg Mountain is the southernmost peak and the start of the nearly 2,000-mile-long Appalachian Mountain Range. In 2024, TNC purchased two tracts of land adjacent to Flagg Mountain to establish a 1,000-acre nature preserve.

The Fenvkvcēkv (pronounced finuh-guh-jee-guh) Creek Preserve at Flagg Mountain connects to existing protected lands, creates a key link in a migration corridor stretching from the Gulf waters to the Appalachian Mountains, and is home to rare mountain longleaf pine forest. The name Fenvkvcēkv honors the Muscogee People, the original caretakers of the land, and is the original Muscogee name for the nearby, ecologically rich Finikochicka Creek, which borders the land.

TNC is working with the local Indigenous community and other partners to reintroduce fire to this rare and valuable habitat to continue the long history of stewardship on this land.

Case Study: Boosting Recreation and Tourism with Conservation

TNC received $400,000 from the Appalachian Regional Commission to advance outdoor recreation and conservation in the Cumberland-Pine Mountain corridor of Virginia, Tennessee and Kentucky.

Along with nine federal, state, and local partners, TNC will produce a nature-based tourism asset inventory and prioritized list of outdoor recreation infrastructure upgrades on core public lands across the tri-state Cumberland-Pine Mountain corridor to advance outdoor recreation-based economic development.

A key part of the effort will be to complement current state-level tourism goals and engage local communities in identifying the type of investments needed to improve access at individual sites. This work will support a tri-state vision for enhanced outdoor recreation opportunities for residents and visitors.

Top: TNC in Alabama celebrates Earth Day 2024 with a dedication ceremony at its new 1,000-acre preserve at Flagg Mountain, Fenvkvcēkv Creek Preserve. © TNC

Connecting People Across Borders

A major milestone for conserving and restoring landscape connectivity occurred in Boston when the New England Governors and Eastern Canadian Premiers (NEG-ECP) adopted a new resolution reaffirming their commitment to collaborate across borders on ecological connectivity, adaptation to climate change, and biodiversity conservation.

In 2016, the Governors and Premiers in office at the time adopted NEG-ECP Resolution with a 40-3 vote, a visionary statement that called for their agencies to work together to conserve and restore terrestrial and aquatic ecological connectivity, including through land protection and stewardship, land use planning, and siting and designing of transportation infrastructure to improve wildlife passage, habitat connectivity, and climate resilience.

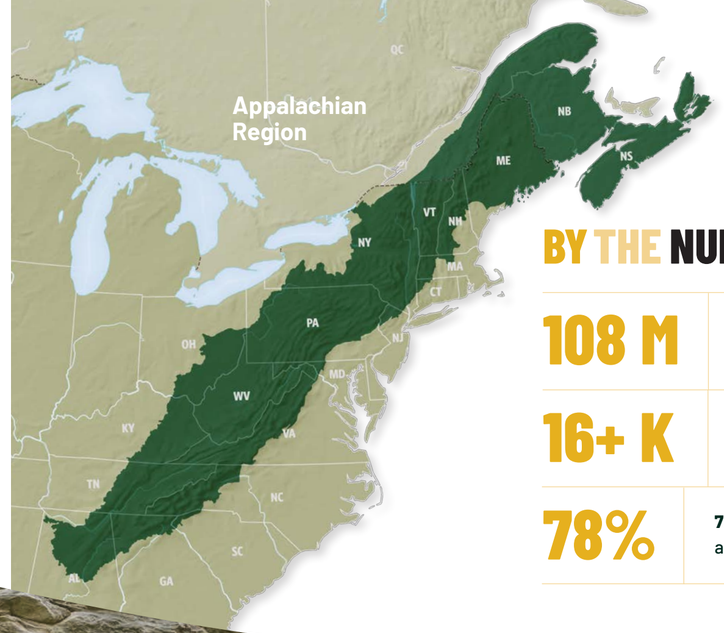
The current Governors and Premiers adopted the new NEG-ECP Resolution with a 45-2 vote following the Northeast North America/Turtle Island Landscape Connectivity Summit, a cross-border gathering of conservation leaders and practitioners convened in June 2024. The summit was hosted in Montreal/Tiohtià:ke, Québec by the Staying Connected Initiative, a transboundary, public-private partnership coordinated by TNC.



2024 Highlights

TNC, The University of Virginia, the Cumberland Forest Limited Partnership, and the Anne and Gene Worrell Foundation awarded a total of $100,000 to partners through the Cumberland Forest Community Fund. The competitive program supports nature-based economic and community development projects in seven southwestern Virginia counties.

Appalachians Region-wide: The Family Forest Carbon Program, created by TNC and the American Forest Foundation, reached a milestone with over 10,000 acres of forest and 66 owners enrolled in the program. An additional 21,000 acres have been identified as eligible for the program with a new focal landscape mapping tool that was recently developed by the Appalachians program.



BY THE NUMBERS

108 M — **108 million people**, nearly 1/3 of the US population, live within a 2-hour drive of the Appalachians.

16+ K — Indigenous people have lived in the region for more than **16,000 years.**

78% — **78% of Appalachians forests** are privately owned.

Top: A man drives a tractor down the street through town in Lebanon, Virginia. © Travis Dove

Rock climbing at Hidden Valley near Abingdon, Virginia. © Travis Dove

Gratitude for the Appalachians

The rivers, streams, marshes, forests, mountains, valleys, and human and natural communities of the Appalachians are the beating heart of a biologically diverse landscape like no other on Earth.

It is a landscape that knows no boundaries. From the waters stretching across state lines to the birds flying through forests stretching the length of a continent, the Appalachians are defined by what lives there, and what flows and flies and travels through.

The splendor of the Appalachians is unique and exists because this landscape is connected to itself and to this spectacular Earth.

We are grateful for this remarkable system of mountains, rivers, forests, and people. We give thanks for our partners who guide us through diverse communities, relationships, and goals across the entire range. For our colleagues who shape what we do and push us to make sure we are as effective and impactful as possible. And for our supporters who make sure we have the resources to reach our goal of transformative change across the Appalachians.

We are grateful to all of those who are with us and who help to guide us on this remarkable journey. It is only possible with each and every one of you.

And these tend inward to me, and I tend outward to them,
And such as it is to be of these more or less I am.

– WALT WHITMAN, SONG OF MYSELF

Sunrise near the border of Tennessee and Kentucky, overlooking land protected by the Conservancy's Cumberland Forest Project. © Cameron Davidson

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Cowee Mountains Overlook on the Blue Ridge Parkway, North Carolina. © Dennis Oakley