



North Carolina
**WILDLIFE
FEDERATION**

Journal

WILD LIVES □ WILD PLACES

Spring 2020



NATURE NEVER RESTS

At a time of challenge and
unease, backyards and wildlife
can provide healing.

.....
ONE COMMISSION NOW

.....
COLLEGE SCHOLARSHIPS AVAILABLE!
.....



Running the River

BY TIM GESTWICKI, NCWF CEO

I have always been attracted to water, and especially to moving water. From the creek in my childhood backyard, to large powerful rivers, water has shaped my life, my career, and my approach to the world. Some of my excursions were a bit on the reckless side, but the allure of challenge was always hard to resist. The rougher the water, the smarter you paddled. And I learned early on that it's better to steer a moving craft than to let it slow to an idle and lose momentum.

During these extremely challenging and unsettling times, the North Carolina Wildlife Federation is paddling as hard and as smartly as we can. We've survived, and even thrived, through national wars, terrorist attacks, and recessions. But this threat seems different. It cannot be seen. The road ahead seems unsure. We all are suffering due to this deadly virus. And just like businesses, families, and individuals, here at NCWF we are adjusting, strategizing, and paddling like crazy.

We've made adjustments to how we deliver educational platforms, programming, and communications with elected officials. My nature is somewhat frugal, and I've always preferred to push as many of our resources towards problem-solving as possible. There's no question that non-essential expenses are being delayed and creative cost reduction measures are in place. And there's no question that we continue to deliver impactful conservation. Our increased online programming and our new social marketing and communications are huge hits. Thanks to the planet's greatest membership our online giving is increasing by leaps and bounds. And these new creative tools will not go away once we are on the other side of this

pandemic. Instead, they will be fully incorporated as we evolve our programs and mission delivery. That's a silver lining.

**We are ever more aware
of our connections
to the environment,
and to each other.**

Another silver lining is the societal response to this pandemic. People are flocking the outdoors. Folks that haven't stepped off a sidewalk in years are hiking greenways and trails. They're listening to birdsong. They're biking and jogging, surrounded by wildlife and verdant forests. They getting a dose of something they didn't

even know they were missing: Vitamin N and the therapeutic qualities of nature. This underscores the need to keep investing in natural resource infrastructure and public lands. These investments are real durable goods, and they pay large dividends in perpetuity to local communities and our citizenry.

What we are learning during this pandemic are lessons about our vulnerability. We are reminded during the COVID-19 quarantine that food, shelter, and water are as important to us as they are to wildlife. We're planning trips to the grocery store like a white-tailed buck plans a visit to an oak grove: Only when necessary, and taking needed precautions. We're experiencing shortages. We are ever more aware of our connections to the environment, and to each other. Many wildlife species are social and need their pack, their flock, and their herd for safety and social structure. We're feeling disruption. We lack travel corridors. The stress mounts.

And yet we paddle. Hard and fast and smart, with whitewater and rocks all around. We survive and advance, as the late Jim Valvano was fond of saying. But we advance not to merely fight another day, or make it to the next river bend. But we fight to win the battle for wildlife, no matter the circumstances.

And habitat is the key. We are focusing this Journal issue on habitat and in particular on private lands management and how people can still make a difference in their own backyard and broader community even with coronavirus impacting our lives. We also hone in on actions taken to lessen the spread of wildlife disease, and how we are merging the noble pursuits of helping the less fortunate with making a difference for habitat.

I started this column with a remembrance of fast water. I'll end with the idea of a calm pond, and a pebble tossed out in the water. The pebble plops and the ripples expand. The habitat work we are doing together is the rippling outwards, and it doesn't stop just because a cold wind now blows. Our work—your work—leads to more and more habitat conserved, enhanced and restored. Our work—your work—will not end during these days. Because every acre matters, every nest box matters, and every milkweed planted counts. And none of this would happen without you. Let's all paddle together, now. The river bends, but the water flows. **NCWF**

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Cover photograph Great egrets cut a majestic figure whether in flight or on land. / © iStock.com / Tahir Abbas. *Contents photograph* Eastern fence lizard / © Can Stock Photo / epantha. Other photos, unless noted, courtesy of NCWF.

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NORTH CAROLINA WILDLIFE FEDERATION

MISSION To protect, conserve and restore North Carolina wildlife and habitat.

VISION Our stewardship will result in a North Carolina with bountiful and diverse wildlife, including all species of wild flora and fauna, that is valued by its citizens and elected officials, and sustainably managed for future generations.

Our strength is derived from values driven leadership – science-based decision making; non-partisan approach to policy; stewardship of North Carolina's natural resources; inclusivity of broad wildlife interests and perspectives; and partnering with organizations and individuals who share our vision and our passion for wildlife.

GOALS Toward that vision, we will:

POLICY AND PROTECTION – Strongly influence state and federal policy that affects wildlife and habitat in North Carolina using established conservation models to guide our positions.

NETWORK OF IMPACT AND INVOLVEMENT – Foster a diverse, robust network of chapters, members, affiliates and partners; a network fortified by a variety of wildlife and outdoor interests.

EXPERIENCE AND LEARN – Enhance and expand opportunities for youth and adults that foster awareness and appreciation of wildlife and the important role healthy habitat plays in sustaining wildlife and humanity.

SIGNATURE PROGRAMS – Sponsor and support programs for the enjoyment and conservation of wildlife and habitat, including ethical and sustainable outdoor recreation pursuits.



A Refuge in your own Backyard

CORAL HONEYSUCKLE

NCWF excels with programs to provide wildlife habitat just outside your door.

While North Carolina is blessed with fabulous public lands such as state parks, game lands, and wildlife refuges, approximately 85 percent of the state's land is privately owned. That makes it all the more important to ensure that our private lands work for wildlife. As urban sprawl and habitat loss continue, NCWF demonstrates its commitment to wildlife programs that support wildlife-friendly habitat in backyards, schools, workplaces, and places of worship. This network of suitable habitat creates the corridors that wildlife needs to safely migrate to new breeding areas or to travel to find other resources when their current homes become threatened by development.

While there are upfront costs to convert a lawn into a wildlife oasis, the simple act of adding trees to home landscapes can increase property values significantly. And several studies have shown that homes located closer to wildlife habitat, parks or community gardens are found to have a higher property value than those that are located farther away. The beneficial attributes that arise from increasing pollinator and wildlife habitat are due to the concept of "ecological services." These are the benefits provided by a healthy ecosystem, such as water filtration, removal of air pollutants, pollination of crops and other flora, and sequestration of carbon. When we choose to make our homes wildlife friendly, we are not only increasing the value of our property, but we are increasing our abilities to connect with nature and to rehabilitate our surrounding environment. Planting a few trees or native plants in our privately owned lands will go a long way in supporting native wildlife.

To start the process of changing your carpet of green grass to an oasis for wildlife, consider the four main ways you can attract wildlife to your garden: Providing food, water, cover and places to raise young. While there are several different ways to provide these necessary resources, the right native plants can help supply each of them. Here are a few ways that native plants can attract wildlife to your garden:

NATIVE PLANTS AS FOOD 🐛 Native plants provide food for our native insect populations, particularly caterpillars. Some caterpillars are specialists, only eating a certain genus or species of plants, while others are generalists and can eat from a variety of native plants. Monarch caterpillars, for example, are a specialist since they only eat native milkweeds. Tiger swallowtail caterpillars will feed on several different species of trees.

- Monarch larvae eat milkweed (*Asclepias* spp.)
- Zebra Swallowtail larvae eat pawpaw (*Asimina* spp.)
- Fritillary larvae eat violets (*Viola* spp.)

Flowers of native plants also provide nectar and pollen to adult insects and hummingbirds. Nectar is packed with sugars that are needed to maintain energy for daily tasks such as flying or mating. Bees also deliberately collect protein-rich pollen for their offspring. A selection of native plants that attract pollinators include:

- Goldenrod (*Solidago* spp.)
- Bee balm (*Monarda* spp.)
- Blazing Star (*Liatris* spp.)

After flowers have been pollinated, berries and seeds are produced. These support a broader population of wildlife from birds and chipmunks to deer and black bears. A selection of native plants that produce seeds or berries attractive to wildlife include:

- Black-eyed susan (*Rudbeckia* spp.)
- Native blueberries (*Vaccinium* spp.)
- American beautyberry (*Callicarpa americana*)

NATIVE PLANTS FOR WATER 🐸 Water is another essential resource and one that is bound to attract wildlife to your garden. Native plants can be used as great accents around a bird bath or a small wildlife pond. Some examples of native plants that would be good around a wet area in the garden are:

- Cardinal flower (*Lobelia* spp.)
- Native sedges (*Carex* spp.)
- Native mint (*Pycnanthemum* spp.)



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Ripening fruit or damp areas in the yard are a great source of nutrients and water for butterflies, with will gather—known as “puddling”—around fallen fruit or damp areas. To create puddling sites, leave over-ripened fruit or a bowl filled with sand and water in a protected area of your garden. For other pollinators, leave a shallow bowl of water filled with stones to provide a safe area for drinking. The stones will create a landing pad for larger insects and help them avoid getting trapped in the water bowl.

NATIVE PLANTS USED AS COVER 🦋 To create a healthy ecosystem in your backyard, include a few mature trees and shrubs near pollinator habitat. Mature trees create sturdy habitat that will allow small mammals, insects, and birds to hide in its branches. The large branches or bushy leaves provide a secure place for wildlife to hide from predators or to shelter from storms. Additionally, providing evergreen trees or shrubs is key to ensure that your wildlife residents have year-round cover. Evergreen natives that would be a great addition to the garden for cover include:

- American holly (*Ilex opaca*)
- Mountain laurel (*Kalmia spp.*)
- Wax myrtle (*Morella cerifera*)

Mature trees provide cover in higher places, but grasses, perennials, and vines can also provide necessary cover habitat on the ground. Ground-nesting birds such as grouse and bobwhite rely on ground cover for raising young and avoiding predators. Squirrels, chipmunks, and small amphibians may also search for cover in your garden oasis. Here are a few native plants that could provide cover for other ground dwelling wildlife:

- Grama grass (*Bouteloua spp.*)
- Ferns (*several native spp.*)
- Virginia creeper (*Parthenocissus quinquefolia*)

NATIVE PLANTS IN PROVIDING PLACES TO RAISE YOUNG 🦋

Many bird species and mammals nest in mature trees and dense shrubs. Their sturdy branches provide protection that is suitable for raising young or can act as a perch for hanging birdhouses. Cardinals typically nest in dense shrubs while squirrels and other birds can be seen nesting in the branches of larger trees. A few tree species that are recommended for nesting sites are:

- Tulip poplar (*Liriodendron tulipifera*)
- Oaks (*Quercus spp.*)
- Eastern redcedar (*Juniperus virginiana*)



THE BUTTERFLY HIGHWAY

A ROADMAP FOR POLLINATOR & WILDLIFE CONSERVATION

This property provides food and habitat for native insects and wildlife that help pollinate and protect North Carolina's plant and food sources. This site has been designated a Pollinator Friendly Habitat by the North Carolina Wildlife Federation and is part of *The Butterfly Highway* connecting green spaces and



pollinator gardens throughout our State.
North Carolina Wildlife Federation
ncwf.org

Highway to Ecological Health

With more than 2,000 registered pollinator pit stops equating to 30,000 acres of land in North Carolina, NCWF is committed to increasing pollinator habitat through our Butterfly Highway initiative. Pollinators are on the decline as green spaces and urban development continue to displace native populations. Pollinators such as bees and butterflies sustain North Carolina's \$91.8 billion agricultural industry by pollinating important crops such as watermelon, squash, and apple trees. With an estimated one-third of our crops being pollinated by insects, it's vital that pollinator habitat is included in our farms, cities, and communities. NCWF is working as a member of the North Carolina Pollinator Conservation Alliance to make a statewide beneficial impact on pollinator species.

JOYCE TRAFTON





EASTERN CHIPMUNK IN FERNS

ISTOCK.COM / NAJASHOTS

Native plants that have pithy or hollow stems provide excellent nesting habitat for native bees. These hollow stems are protected from the elements allowing for bees to nest in them and lay eggs. Leaving old stumps or brush piles can add additional habitat to wood-dwelling bees. A selection of native plants that provide potential nesting habitat for native bees include:

- Joe-pye weed (*Eutrochium* spp.)
- Elderberry (*Sambucus* spp.)
- Oak leaf hydrangea (*Hydrangea quercifolia*)

GARDENING WITH THE LONG VIEW 🌿 Sustainable gardening is another tool to help the average gardener combat climate change, improve the environment, and reduce carbon footprints. Water conservation is just the start, but sustainable gardening also includes composting, reducing turf, and minimizing the deleterious effects of nonnative plants and outside cats.



JOE-PYE WEED
© CAN STOCK PHOTO / SPLINE

USFWS / ROBERT ONDRISH



RED WOLF

Prey for the Pack

As an organization that values biodiversity and the benefits individual species provide to ecosystems, NCWF has prioritized the American red wolf as a species deserving of our resources and expertise. Today only an estimated 20 red wolves remain in the wild in North Carolina, and action is needed to combat population's continual decline. NCWF recognizes an opportunity to engage private landowners in programming that will result in impactful, on-the-ground habitat work in eastern North Carolina. This collaboration with the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program will provide what red wolves need most—support in local communities and improved habitat.

Prey for the Pack is a new habitat improvement program available in the five-county red wolf recovery area which consists of Beaufort, Dare, Hyde, Tyrell, and Washington counties. To be considered for enrollment, private landowners must be committed to improving wildlife habitat on their property while being tolerant of threatened and endangered species.

For private landowners, the program will provide both technical and financial support to promote and implement habitat improvement projects that benefit both the landowner and wildlife. Examples of project work may include creation or maintenance of early successional forested or riparian habitat, prescribed burning, native vegetation plantings, or wetland enhancement. Projects can reflect landowner objectives and will be implemented based on program agreements with the resulting habitat remaining in the improved condition for a minimum of 10 years. While the percentage of financial cost-share provided to the landowner varies depending on level of project involvement, Prey for the Pack provides a great opportunity for landowners to learn about wildlife while achieving their individual habitat and management objectives.



NEW HILL EDUCATIONAL MENTORING PROGRAM
VOLUNTEERS CREATE BRUSH PILES FOR WILDLIFE.

GUY GARDNER

New Hill's New Life

The N.C. Wildlife Federation has partnered with Duke Energy and the N.C. Wildlife Resources Commission to promote wildlife and habitat management through the New Hill Educational Mentoring Program. The program is led by an all-volunteer group of sportsmen and women who have designed a unique mentoring program to promote responsible stewardship of wildlife habitat through hands-on experiences, help to conserve and maintain North Carolina's rich hunting heritage by helping individuals develop the basic skills, values, techniques, and responsibilities of an ethical hunter, and share lessons learned with others who recognize the need to conserve North Carolina's wild places for the benefit of all.

Through partnership, the program has access to a 220-acre parcel of land near New Hill, North Carolina where habitat improvements and educational opportunities began in 2019. A major focus of the program has been to sustainably manage and improve wildlife habitat in pine plantations and early successional fields to promote native pollinators and wildlife diversity. Field events give enrolled participants opportunities to get their hands dirty while creating wildlife habitat specifically designed for the property. Educational activities include multiple types of wildlife observational surveys, forest thinning, prescribed burns, soil tillage, identification and removal of invasive plant species, documentation of native seed bank emergence, pollinator enhancement projects, planting mast trees and shrubs such as oak and plum as food sources, and planting perennials and annuals to promote wildlife diversity. In addition, efforts are currently underway to remove invasive privet and kudzu from the property.

In addition to habitat improvement, the New Hill Educational Mentoring Program participants develop hunting skills and learn how to monitor wildlife through use of field cameras, identify wildlife signs and predict movement patterns, install and maintain elevated stands, and learn how to safely use firearms. All participants are new to hunting and lack support or knowledge from family or friends. The mentees have actively engaged in habitat work, picked up trash, spent time in the woods getting better acquainted with wild places, helped to eradicate invasive plants, installed food plots, planted soft and hard mast species, and learned how to track and harvest wild game. Program materials are available to share with anyone interested in conducting an outdoor mentoring program.

Capturing rain water and making your own compost are two extremely effective sustainable gardening practices. Many cities give out rain barrels and compost bins at a reduced price or for free to encourage homeowners to adopt these practices. Reducing stormwater runoff will put less stress on the stormwater management systems of your town or city. Since nearly a quarter of all waste going to a landfill is compostable, putting your table scraps into a compost bin, not only creates great organic fertilizer but also helps prevent waste from entering the landfill.

Reducing turf grass is another clear winner, as turf grass is highly unsustainable due to its high demand for water, fertilizer, and maintenance. Reduce your area of turf by increasing your pollinator garden beds. If you are still interested in having a low-growing lawn, use native ornamental grasses and sedges for a trim, low lawn with a reduced need for mowing, fertilizer, and water. Cutting turf grass less often is another way to reduce your carbon footprint and to provide habitat for wildlife. Mowing less often will give wildflowers a chance to bloom and provide nectar to pollinators.

And there's no doubt that there's room for improvement in pesticide use. Misused pesticides can lead to environmental degradation by contaminating groundwater, contaminating runoff, or drifting to non-target plants. The overuse and mismanagement of pesticides is one reason why the Monarch butterfly continues to be endangered. Other vulnerable species include ground-nesting and solitary bees, so avoid using pesticides in the spring when these highly valuable pollinators are nesting. Additionally, avoid spraying during the day when most pollinators are flying and instead spray in the evening. If pesticides must be used, it is best to try and use an organic pesticide that will be less harmful to both our environment and to wildlife.

PFIZER SANFORD WILDLIFE TEAM



WILDLIFE MEADOW AND POLLINATOR HABITAT AT
CERTIFIED WILDLIFE AND INDUSTRY TOGETHER
PFIZER SITE IN SANFORD, NC. REDUCED MOWING
SAVES COMPANIES MONEY WHILE BEING GOOD
STEWARDS OF THE LAND.

“We will remove what doesn’t belong in the environment and replace it with what does.”



ISTOCK.COM / DCRANE08



NCWF's New Program

It's all too common to see online videos showing heroic people saving wildlife from being entangled, impaled, and strangled by plastic bags, six-pack rings, straws, and other trash. We've watched our streams and creeks collect debris and turn to sludge from development runoff. And we've witnessed wildlife lose habitat as forests and even urban acres are shorn of trees.

The Federation is tackling these critical conservation issues head-on with Trees4Trash (T4T), a new program launched in partnership with Plastic Ocean Project as part of the NCWF 75th anniversary. T4T will mobilize thousands of volunteers to remove trash from neighborhood open spaces, waterways, and public lands and then plant native trees and pollinator plants in their place. For every 25 pounds of trash collected, one tree will be planted. Ultimately, thousands of pounds of plastics and trash will be removed and replaced with hundreds to thousands of trees.

"Something needed to be done after recent hurricanes in Wilmington to inspire people to come out and do these very important clean-up efforts and replant trees, so we can get back the canopy we lost," explains Bonnie Monteleone,

executive director of Plastic Ocean Project and an NCWF board member. It's a straightforward premise, she explains. "We will remove what doesn't belong in the environment and replace it with what does."

NCWF has also signed on to federal legislation called the "Break Free from Plastic Pollution Act" in order to tackle the tidal wave of plastic pollution and chart a new course for the future.

Thanks to a grant from Duke Energy Foundation, T4T kicked off in partnership with Plastic Ocean Project in Wilmington and other coastal communities with plans to expand to Charlotte later this year and eventually statewide. Community Wildlife Chapters in Wilmington and New Bern will engage hundreds of conservation-minded individuals in caring for and taking action on behalf of wildlife and habitats in their own communities.

NCWF planted more than 350 trees in 2019 through T4T, equating to nearly 10,000 pounds of garbage removed from natural habitats. As severe weather events like hurricanes and flooding increase in North Carolina, it is critical to remove trash from terrestrial habitats before flooding and heavy rainfall deposits it into watersheds, threatening wildlife and humans.



BOB NUNNENKAMP

CERTIFIED WILDLIFE HABITAT



FEMALE RUBY-THROATED HUMMINGBIRD ON BEE BALM
© CAN STOCK PHOTO / MTRUCHON

Connect with NCWF and Connect with Wildlife

Our staff is here to help you connect with wildlife. So start by connecting with us. For information about any of our wildlife habitat programs, visit the North Carolina Wildlife Federation website at www.ncwf.org or email us at info@ncwf.org.

HOSTILE TAKEOVERS 🐾 According to the American Bird Conservancy, outdoor and feral cats are now considered an invasive species mainly due to their negative impact on native bird populations. It is estimated that cats are responsible for killing over 2 billion birds in the U.S. every year. Cats are the largest human-caused mortality to bird populations; however, we can help prevent their decline. By keeping our kitties inside, we can collectively prevent further decline of our beloved native birds.

Invasive plant species also pose a significant threat to our native ecosystems. Typically brought into the country

as horticultural species or for purposes such as erosion control, these invaders can quickly take over native habitats due to a lack of natural predators, disease, and competition. Unfortunately, any increase of disturbed areas and habitat degradation from urban development often contributes to suitable habitat for invasives. It is critical to identify and remove these invasive species, and replace them with native plants. The good news is there are great native alternatives in North Carolina that will turn back the exotics and provide critical wildlife habitat at the same time. **NCWF**

INVASIVE SPECIES	NATIVE ALTERNATIVES
Kudzu (<i>Pueraria montana</i>)	Passion Flower (<i>Passiflora incarnata</i>) or Muscadine Grape (<i>Vitis rotundifolia</i>)
English Ivy (<i>Hedera Helix</i>)	Virginia Creeper (<i>Parthenocissus quinquefolia</i>)
Japanese Honeysuckle (<i>Lonicera japonica</i>)	Coral Honeysuckle (<i>Lonicera sempervirens</i>)
Multiflora Rose (<i>Rosa multiflora</i>)	Native Black Raspberry (<i>Rubus occidentalis</i>)
Mimosa (<i>Albizia julibrissin</i>)	Flowering Dogwood (<i>Cornus florida</i>)
Bradford Pear (<i>Pyrus calleryana</i>)	Sugar Maple (<i>Acer saccharum</i>)
Burning bush (<i>Euonymus alatus</i>)	Aromatic sumac (<i>Rhus aromatica</i>)
Autumn Olive (<i>Elaeagnus umbellata</i>)	Sweet pepperbush (<i>Clethra alnifolia</i>)
Chinese Silvergrass (<i>Miscanthus sinensis</i>)	Indian Grass (<i>Sorghastrum nutans</i>)
Princess Tree (<i>Paulownia tomentosa</i>)	Redbud (<i>Cercis canadensis</i>)
Tree-of-heaven (<i>Ailanthus altissima</i>)	Staghorn Sumac (<i>Rhus typhina</i>)
Leatherleaf Mahonia (<i>Berberis bealei</i>)	Doghobble (<i>Leucothoe fontanesiana</i>)

CONNECTION to the OUTDOORS RUNS DEEP

For many of us, our connection to the outdoors and nature has deep roots leading all the way back to childhood.

For Michelle Pentecost, she has mem-

ories growing up in the foothills of the Allegheny Mountains surrounded by forest land and hunting camps. "We had a spring-fed pond and creek behind the house. There were no kids to play with but I had the company of a butterfly net, fishing pole, BB gun, and pocket knife; it kept me entertained," Pentecost said. "I've always had an inherent love for nature because that was just what I was exposed to as a child."

After living in Charlotte for a number of years as an adult, her life has come full circle and she recently relocated to the mountains of Western Carolina, to Wyldhaven Homestead in Fairview. One can live vicariously through her shared experiences on Facebook walking through the woods. Identification and accompanying photos of treasured flowers like wild indigo and once towering chestnut trees now blessing the forest floor are a treat. Pentecost describes herself as an avid nature lover. "If it involves the outdoors, you can probably talk me into doing it."

Pentecost's involvement with the North Carolina Wildlife Federation goes back to 2001 when she started canvassing for NCWF. Her involvement includes launching NCWF habitat programs and Habitat Steward trainings, organizing the annual Wild on the Water fundraiser, serving on NCWF's board for 10 years, and is now treasurer for the Asheville Mountain Wild Chapter. "I always tell people they need to donate time, donate money, or write letters to elected officials," Pentecost said. She certainly walks the walk.

Habitat loss and invasive species are two of the biggest wildlife and habitat problems that concern her. This is why she invests her time and money with NCWF. "NCWF works from the ground up, connecting people to wildlife and habitat protection," Pentecost said. "The passion of the NCWF family keeps the engine rolling." Because of Pentecost's commitment to the cause, her cherished memories as a child catching fish in her pond before school may also be realized by young anglers for generations to come.



"I've always had an inherent love for nature because that was just what I was exposed to as a child."

—MICHELLE PENTECOST

How do you put wildlife in your will? ASK MANLEY FULLER.



There are few people who can get "muddy and grubby" in the field one day and testify in front of Congress another. Manley Fuller can. Many experiences have shaped him as a conservation lover. He studied alligators and mapped peat deposits at Croatan National Forest, worked as Executive Director of the Florida National Wildlife Federation, and now hangs his hat as Vice President of Conservation Policy at North Carolina Wildlife Federation.

He believes in giving where you're living and has made immediate as well as long-term investments in NCWF by joining the Charlie Shaw Society and leaving a gift for NCWF in his will.

"You need to take care of stuff close to home," said Manley. "I want to leave something when I'm gone to help NCWF and the wildlife and habitats it works to protect."

Manley is worried about increased growth in North Carolina and the pressure this puts on wildlife habitat.

"We need to build connecting habitats for wildlife; especially in more suburban areas," said Manley. "We need to do a much better job of managing our marine fisheries and have places for people of all walks of life to enjoy and experience nature in a variety of ways. These are public trust resources and we all have a responsibility to protect, conserve, and restore them."

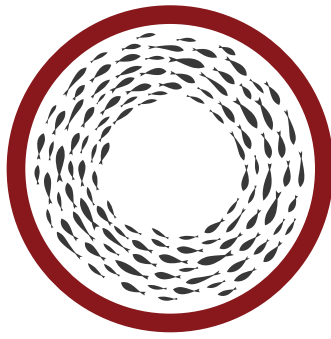
Manley experiences nature's bounty every day at his home in Hickory. "I see deer, coyotes, ground, hogs, wood chucks, blue birds, great blue herons, and even saw a

pancake shaped, spiny soft shell turtle lay its eggs in my yard. There's a lot worth saving and enjoying," Manley said.

Seeing the inner workings of NCWF as an employee has only solidified trust in NCWF to put his investments where they're most needed now and into the future. "I plan to continue supporting NCWF as an employee or not, through financial investments, and time. That is, unless NCWF decides to run me off," Manley laughed.

"If your desire is a positive future for wildlife and nature and having quality outdoor experiences in North Carolina," he said, "then NCWF can help you further your dreams for conservation in the state. I support NCWF because it is an extremely effective advocate for landscape scale wildlife habitat connectivity from the mountains to the sea on both public and private conservation lands benefiting people from all walks of life from our cities to the rural areas of North Carolina."

Have you left a gift to NCWF in your will or estate plan? We'd love to hear what inspired you to make such a meaningful commitment. Don't have a will? You're not alone! Now is a great time to start planning. Call (919-833-1923) or email (dom@ncwf.org) NCWF Development Director, Dom Canavarró. Did you know you can also designate NCWF as a charitable beneficiary of your donor advised fund or life insurance plan? Contact Dom today to discuss the conservation legacy you want to create.



ONE COMMISSION

In our last *Journal* we presented the Board's adopted resolution, "Consolidation of the North Carolina Division of Marine Fisheries into the North Carolina Wildlife Resources Commission to Eliminate Redundancy and Improve Natural Resource Management Efficacy." Our approach to this change is called One Mission, One Commission. As the COVID-19 pandemic causes significant financial uncertainty and the need for government to be more fiscally responsible, the economic impacts of the proposed consolidation deserve a serious look. Here are several reasons why consolidation makes sense from the perspectives of resource management and economics.

In many instances, two separate state agencies, the Wildlife Resources Commission (WRC) and Division of Marine Fisheries (DMF), overlap in the management oversight of North Carolina's marine fisheries. Here's why: Drawn across coastal rivers and some other coastal waters is an arbitrary line delineating the jurisdictions of these oft-competing agencies. One side, WRC manages the inland-designated fisheries resources. On the other, DMF has responsibility over the estuarine and marine resources. One might think that two is better than one when it comes to sound resource management, with all working together for the common good of our public trust natural resources. Unfortunately, the two agencies often disagree on resource issues, and must forge consensus over these jurisdictional boundaries.

A stalemate is not surprising. The WRC has often conflicted with the DMF on matters involving resource management. Proposed changes to the delineation of boundary waters is the most recent chapter in this longstanding debate. The problems center around one primary issue.

Differences center around the arbitrary boundaries delineating areas of jurisdiction between the two agencies that result in differing opinions related to management issues and subsequent action. Because the two agencies have distinctly different philosophies and missions, management strategies either are in conflict, are delayed, or are shelved outright due to lack of agreement.

Specifically, marine fisheries are managed for two distinctly different user groups—commercial and recreational fishermen. Unfortunately, the goals and objectives of these two user groups typically conflict, with recreational fishermen wanting quality and quantity while the commercial fishermen are better served by managing strictly for quantity. By attempting to satisfy both parties, neither is satisfied. Significant conflicts arise. Based on decades of effort since the Fisheries Reform Act of 1997 (FRA), these conflicts have not been resolved and the resource has suffered. The current situation is inconsistent with the FRA and what is in the best interest of the public trust.

Conversely, the WRC manages for what is in the best interest of healthy fish, wildlife, and habitat resources, a philosophy that typically aligns with the goals of recreational anglers who desire both quantity and quality fisheries. As a result, management actions are typically designed to provide both quality and quantity fisheries that are in the best interest of resources sustainability, healthy ecosystems, and the public trust.

Conflicts arise when attempting to manage a shared resource with these distinctly differing philosophies. For example, many of our most historically abundant, culturally vibrant, and economically important fisheries for both commercial and recreational fishermen are the species that are anadromous. The anadromous species migrate from saltwater to freshwater to spawn. Examples include American shad, hickory shad, two species of river herring, striped bass, and the endangered Atlantic and shortnose sturgeons. Landings and stock health of these fisheries have all declined precipitously under the current management scenarios. For example, commercial landings of river herring declined from 11.5 million pounds in 1985 to 109,847 pounds in 2006. A moratorium on harvest due to stock collapse was implemented in 2007.

There has been no open season since. The loss of this cultural icon to the northeastern portion




of our state has been felt across all demographics, and not just by the few commercial fishermen who pursued them to economic extinction under the watch of the DMF. Likewise, moratoriums on striped bass in the Cape Fear River and Central region of North Carolina, an endangered species listing of Atlantic sturgeon, and longstanding declines in American shad can be linked directly to these differing philosophies. There are no winners in the currently dysfunctional and conflicting ecosystem of management agencies.

The basic problem is that these fishes must swim through the ocean and estuaries, where high levels of commercial fishing effort are permitted, in order to reach the protected inland spawning grounds. The WRC, charged with properly managing these resources, has no control over the fate of these fishes prior to them entering their jurisdiction to reproduce.

The WRC believes that based on salinity more joint and coastal fishing waters should be designated as inland waters while the DMF holds that the boundaries are fine the way they are. If the DMF prevails, we maintain status quo. Nothing about status quo would suggest that the condition of these once thriving resources would improve. If the WRC prevails, more areas will fall under the jurisdiction of the WRC and stocks would likely be provided protection and hopefully rebuild.

The North Carolina Wildlife Federation believes, based on the management history and successes of the WRC, that species falling under the jurisdiction of the WRC fare best. For example, designating some current Joint or Coastal waters as Inland waters would disallow the use of gill nets in the new areas. Gill nets employed in the rivers are more efficient in the more narrow confines of the upper reaches where many of the species targeted are moving upriver to spawn. Removing gill net activity in these areas is critical for collapsed river herring, collapsing American shad, endangered sturgeons, and numerous other species of concern such as striped mullet and striped bass.

DMF is housed in the Division of Environmental Quality (DEQ)—this is an additional management layer that complicates progress—and DEQ has stated legal concerns and suggested more delay to involve stakeholders and other DEQ agencies, specifically stating that this issue is a low priority for them. We see a consistent pattern to deflect any substantive conservation action due to process. Progress has been paralyzed by the process and our resources have suffered as a result.

Bottom line: The status of most jointly managed fisheries is depleted, collapsed, or endangered. The status of many marine fisheries managed solely by DMF are in similar conditions. After 23 years of failed efforts under the FRA, it is time for a different approach. One mission and one commission, achieved by merging the DMF into the WRC, would significantly reduce these conflicts, be fiscally positive, reduce confusion and conflicts among the regulated citizens of our state, and manage our public trust resources in the manner the science says they should be managed, for sustainability and ecosystem health. 

CASE STUDY: STRIPED BASS Coastal populations of striped bass occur in Albemarle Sound, Pamlico Sound and the Atlantic Ocean. Stocks found in ocean beyond three miles of the coast are managed by the National Marine Fisheries Service, while those found within three miles of our coast and in the sounds and estuaries are managed by the N.C. Division of Marine Fisheries (DMF).

These fish move into our coastal rivers each spring to spawn. Portions of these rivers are designated as Joint Fishing Waters, in which management authority for striped bass is shared by DMF and the N.C. Wildlife Resources Commission (WRC). At various points upstream of Joint Waters the rivers are designated as Inland Fishing Waters, in which management authority for striped bass is conferred solely on WRC.

Generally, the staffs of the two agencies work cooperatively to develop consistent management objectives and strategies for accomplishing such. Still even in instances of mutual staff agreement, adoption of regulatory and other management actions is cumbersome. One example of this is illustrated by striped bass in the Central Southern Management Area, comprising waters south of Oregon Inlet to the South Carolina line. WRC biologists discovered a few years ago that little or no striped bass reproduction was occurring in the Neuse River and the population was being sustained by annual stockings of hatchery-reared fish. A large portion of the stocked fish were subsequently being taken by commercial fishermen prior to reaching sexual maturity. WRC determined that harvest of striped bass should be curtailed until the reproduction issue could be solved and the population restored.

Once WRC determined the precarious state of the population, it took years to achieve closure of the recreational and commercial seasons for this population. The area-wide closure now in effect was enacted only after the two staffs collected and evaluated data, arrived at a mutual agreement on the interpretation of the data, presented consistent management recommendations to the two Commissions for regulatory changes, and finally the two agency directors issued consistent proclamations to prohibit possession of striped bass. Disagreement between the two agencies at any point in the management process delays or impedes the adoption of conservation measures. There are three separate management areas for striped bass (Albemarle/Roanoke, Central Southern and Cape Fear) within which the above described process, often including the adoption of identical rules by both commissions, must be accomplished prior to implementation of management actions. The inefficiencies of this process largely preclude rapid action to achieve critical resource conservation objectives.

Similar bureaucratic inefficiencies hinder the management of many other fishes that occupy fresh and salt-water environments. Management by two distinct agencies base solely upon arbitrary boundaries that the fishes are free to swim across does not facilitate effective conservation of these stocks or the clarity and utility of regulations governing the recreational and commercial fisheries dependent upon them.



Scholarship Application Period Opens

Students committed to environmental and natural resource conservation and management can apply now for a 2020 N.C. Wildlife Federation scholarship. The Federation will provide up to seven grants to students, awarded as seven \$1,000 grants, or six \$1,000 grants and one \$2,500 Conservation Leadership grant awarded to a student of exemplary merit.

Candidates for scholarships must be enrolled full-time and attending an accredited North Carolina college or university. Scholarships are for both graduate and undergraduate students who are majoring in the areas of wildlife, fisheries, forestry, conservation or environment. Applications are accepted from students enrolled in either 2-year or 4-year programs.

For more than 50 years, the NCWF scholarship program has helped hundreds of North Carolina students pursue their dreams of studying and working in the conservation field, with many award recipients going on to achieve significant success.

The 2020 scholarship application deadline is Friday, June 28. Applications must be received online or by mail by 5 p.m. EST. Visit the NCWF Scholarship Grants webpage to learn more and apply. For questions, contact Sarah Hollis by e-mail at sarah@ncwf.org.

NCWF Scholar Spotlight: Brendan Runde

The recipient of NCWF's 2019 Conservation Leadership Scholarship, Brendan Runde, is a PhD candidate at the North Carolina State University Center for Marine Sciences and Technology in Morehead City. He currently serves as Secretary and Treasurer of the N.C. State Student Fisheries Society and represents the region on a committee of students and early career professionals for the American Fisheries Society. In 2018 and 2019, he gave a series of public talks across North Carolina advocating for best fishing practices.



BRENDAN RUNDE, RECIPIENT OF
NCWF'S 2019 SCHOLARSHIP

Brendan grew up in southern Maryland and spent many days chasing white-tailed deer and striped bass. These pastimes led to a curiosity about natural resource management and a healthy aversion for indoor work. After completing his undergraduate degree in fisheries at Virginia Tech in 2013, he worked at a startup oyster farm in Maryland before beginning graduate school at NCSU.

Under the mentorship of Dr. Jeffery Buckel, Brendan obtained his Master's in Fisheries, Wildlife, and Conservation Biology from NCSU in 2017, and matriculated to a PhD program in the same lab group. The focus of his dissertation

research is refining management of reef fish species such as snappers and groupers. A major focus of this research involves using electronic tagging to evaluate the effectiveness of descender devices for increasing release survival in fish that have experienced barotrauma. In another study, Brendan is using scientific sonar to determine whether a Marine Protected Area near Wilmington has helped to restore populations of imperiled reef fish. After completing his degree, he will seek a career in academia or with a non-governmental organization to continue pursuing management solutions to complex fisheries problems.

CLICK AND SHOUT

Calling all amateur photographers! We're sponsoring our second annual Wildlife Photography Contest to run from May 1 to July 31. Did you catch a gulf fritillary on a passionflower or a great blue heron stalking the shallows to catch its meal? How about a memorable sunset vista from Linville Gorge or a picturesque sunrise over Ocracoke? Maybe you even caught a wow-worthy photo of your spouse while fly fishing in a local river. Submit these memorable photos to share with North Carolinians and be a winner in our much-anticipated photography contest.

Images should highlight the beauty of North Carolina's nature and wildlife, whether the moment was captured in your own backyard or the larger backyard of North Carolina's natural landscapes. Categories include "Carolina Critters," "People in Nature," and "Scenes of North Carolina." And here's a special note: This year there will be a youth category for entrants 13 years of age and younger. Entry donations start at \$15 for nine photos, and all proceeds support wildlife habitat conservation and restoration in North Carolina. Please visit ncwf.org to submit your photos electronically. There will be one adult and one youth winner per category. Good luck!

ANN CARPENTER



CHRIS AUSTIN





FEEDING THE LESS FORTUNATE

With the unprecedented impacts of COVID-19, this is a time for supporting others through acts of kindness. As COVID-19 cases were beginning to appear in the U.S., NCWF volunteers and chapters were continuing to provide year-long support to local communities by distributing ground venison to those in need through the Federation's Farmers and Communities Manage Deer program. This collaborative effort encourages hunters to harvest and donate excess deer during the regulated hunting season. Those deer are taken to NC Hunters for the Hungry-certified meat processors where the venison is ground and packaged specifically for food relief organizations across the state. While the non-profit NC Hunters for the Hungry processes more than 1,000 deer per season, our network of supporters at NCWF facilitated the harvest, donation, or distribution of approximately 600 of these deer to feed the hungry during the 2019-2020 season.

The venison distributed provided an estimated 96,000 servings of protein for North Carolina residents, adults and children who experience food insecurity. Additionally, some of our partners and volunteers on the local level are able to provide a simple chili or spaghetti recipe or meal kit to the venison recipients to ensure they have an option to turn the ground venison into a complete meal.

"In 2019, the Concord Wildlife Alliance (CWA) expanded its role in helping to feed the hungry of Cabarrus County," said Glenda Steele, CWA president. "The need was clear. We have a surplus of deer, an active community of hunters, and neighbors in need of protein-rich food. With the addition of a second processing facility, CWA was able to contribute 67 processed deer to Concord's Cooperative Christian Ministry, providing more than 10,000 meals to its network of pantries. CWA is pleased to be part of a program that is a win-win for all involved!"

NCWF would like to thank the hunters who support the program through deer donation and we encourage new hunters to get involved. Contact info@ncwf.org for more information.



NCWF Chapter CROWN (Charlotte Reconnecting Ourselves With Nature) providing venison chili and spaghetti kits for deer donated by PAWS chapter to S.O.C.K.S. in Belmont.



NCWF volunteers and chapters provide support to local communities by distributing ground venison to those in need through the Federation's Farmers and Communities Manage Deer program. Many thanks to the volunteer networks, meat processors, and food relief organizations, as the program requires many working parts to provide these essential food resources.

NCWF Applauds Actions to Stymie CWD

The contagiousness and devastating effects of COVID-19 are stark reminders of how quickly a disease can spread before the often-shocking outcomes are apparent. The term "social distancing" has become a household phrase in recent months, used as a pro-active safety directive to limit our contact with others to prevent the spread of disease. This level of pro-active management suggests we can reduce the chances of contracting diseases with behavioral changes to our daily routines. Humans are social creatures and rely on interaction and connection. And many wildlife species do, as well.

During this time, we can't help but reflect on the presence and spread of chronic wasting disease (CWD) in cervid populations such as deer, elk and moose. While we're in no way attempting to make a comparison between the presence of COVID-19 in humans and

CWD in cervids, biologists recognize that both are examples of the effectiveness of taking proactive measures in potentially reducing the spread of disease and decreasing negative impacts to individuals and populations.

Chronic wasting disease results from the spread of prions and is always fatal to cervids. This wasting disease has not been detected in North Carolina, but the spread between individuals has been occurring in many other states for quite some time. The disease has the ability to occur relatively undetected before officials (in this case, wildlife managers) become aware of the full extent of local outbreaks. Researchers believe spread occurs through bodily fluids, direct contact between individuals, and possibly through various types of environmental contamination.

Some effective tools available to wildlife managers are education and

implementation of proactive measures to slow the spread of disease. Cervids will certainly not yield to social distancing measures like humans, but there are actions wildlife managers can take and behavioral changes hunters can make to slow the spread of disease and protect these public trust resources. In that regard, NCWF commends the N.C. Wildlife Resources Commission on its recent adoption of a rule to prohibit the use of cervid excrement for taking or attracting wildlife. At NCWF, we believe all safeguards should be evaluated and proactive measures should be put in place when necessary to protect wildlife. Additionally, we commend the Commission for its ongoing surveillance measures to test for CWD across the state. We encourage all hunters to abide by all rules to assist in protecting the health of white-tailed deer and elk in North Carolina.

THE Season

Jeff Beane's GUIDE TO
NATURAL NORTH CAROLINA

North Carolina Wildlife Federation
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JUNE

June 20: Summer is here! Could be a hot one. Solstice is at 5:44 p.m. EDT (21:44 UTC). It's peak bloom for rhododendron and mountain laurel over much of the Mountains. Two of the better places to see the colorful bloom are Roan Mountain in Mitchell County and Craggy Gardens on the Blue Ridge Parkway in Buncombe County. For information on the progress of the bloom at Craggy Gardens, call the Folk Art Center at 828-298-0495.

June 21: It's Fathers' Day! Spend today outdoors with a father—yours if he's alive; perhaps someone else's if he isn't. Sourwood is in bloom. IO moths are flying.

June 22: Five-lined, southeastern five-lined, and broadhead skinks are nesting. Unlike most of our reptiles, these lizards attend their eggs until they hatch. Chickasaw plums are ripe, but late cold snaps killed a lot of them this year. You might have to compete with coyotes, foxes, raccoons, opossums, and various fruit-eating birds if you want to make plum preserves.

June 23: Nesting peaks for our state reptile, the eastern box turtle. Sandhills thistle, Appalachian mountain-mint, and Nash's meadow-beauty are in bloom.

June 24: Lark Sparrows are nesting. Rare, occasional breeders in North Carolina, these sparrows nest on the ground in open grasslands. Sticky false-foxglove, sandhills dayflower, quill-leaved arrowhead, and eastern milkpea are in bloom.

June 25: National Catfish Day was originally established to celebrate "the value of farm-raised catfish," but North Carolina has nearly 20 native species that are even more worthy of celebration. Redlip shiners and mountain redbelly dace are spawning in mountain streams.

June 26: National Canoe Day—get out in a canoe on your favorite stream or pond if you can. Northern pine snakes are nesting. These large, uncommon snakes, found mostly in our Sandhills region, lay the largest eggs of any of our snakes. Females spend up to several days digging a tunnel ending in a nest chamber, where they will deposit their small clutch of large eggs. Their nest chambers are sometimes used as refugia by other animals.

June 27: Forgotten how much fun camping can be? It's National Wildlife Federation's Great American Backyard Campout. Take your family or partner camping! Visit <http://www.nwf.org/Great-American-Campout.aspx> for more information.

June 28: Green June beetles are beginning to emerge. Large emergences usually follow a rain that softens the soil so that the adults can dig their way to the surface.

June 29: The green salamander and newly described Hickory Nut Gorge green salamander are nesting in the southern Mountains.

June 30: American kestrels are fledging. Loggerhead sea turtle nesting peaks. For information on how you can volunteer to help monitor and protect nest sites of this and other sea turtle species, visit <http://www.seaturtle.org/groups/ncseaturtle/volunteer.html> or contact Matthew Godfrey at 252-728-1528, godfrey@coastalnet.com.

JULY

July 1: Black skimmers are nesting, mostly on our more remote beaches and barrier islands.

July 2: Ox beetles are flying.

July 3: St. John's-wort is in bloom. In the Mountains, several species of dusky salamanders are nesting. These semiaquatic salamanders attach their egg clutches to the undersides of rocks or logs, in or near water, and females often attend the eggs.

July 4: Blackberries are ripe. Celebrate our nation's birthday with a cobbler (but leave some berries for the wild things that need them more than you do).

July 5: Velvet ants, also known as cow-killers, are mating. These beautiful insects are actually not ants, but terrestrial wasps. The wingless females have very potent stings, but they sting only if handled (as many a curious child has learned the hard way).

July 6: Eastern cicada-killers are mating. These large, impressive wasps are often needlessly feared, especially during their mating aggregations, but they ignore humans, stinging only if handled.

July 7: Summer runs of white perch provide good fishing on the Chowan River. Bobwhite eggs are hatching.

July 8: Bog turtles are nesting in mountain and foothill wetlands. Unlike most turtles, this tiny, rare species usually does not dig a nest in soil, but conceals its small egg clutch in a moss, grass, or sedge tussock.

July 9: Heirotrophic cicadas have emerged. Four-angle rose-gentian is blooming.

July 10: Squirrel treefrogs, eastern narrow-mouthed toads, and oak toads breed in temporary wetlands after heavy summer thunderstorms.

July 11: Blue grosbeaks are fledging. Littleleaf sensitive-briar is in bloom.

July 12: Common grass cicadas have emerged. Infrequently encountered, these smallest of our cicadas are only about an inch long and prefer to sing in grasslands rather than trees.

July 13: On hot, humid afternoons, watch and listen for the impressive dives and "boom displays" of the common nighthawk.

July 14: Shark Awareness Day—a day for celebrating the wonderful shark diversity along our coast. Shrubby seedbox and several meadow-beauty species are blooming in Coastal Plain savannas.

July 15: American goldfinches are nesting. Dependent on mature thistles for food and nesting material, these colorful and familiar finches are among our latest nesters, raising only one brood each year.

July 16: It's World Snake Day—a great day for celebrating North Carolina's 38 species! Peak flight period for the giant swallowtail—our largest butterfly—in the outer Coastal Plain. Waved sphinx moths are flying.

July 17: Black bear mating peaks.

July 18-26: National Moth Week (actually celebrated for nine days each year). Stay up late exploring the beauty and diversity of moths, and try to learn at least one new species this week.

July 21: Black-eyed Susan and Joe-pye weed are in bloom.

July 22: Our largest beetle and heaviest insect—the eastern Hercules beetle—is flying. Look for these impressive beetles around lights at night.