



North Carolina  
**WILDLIFE  
FEDERATION**

# Journal

WILD LIVES □ WILD PLACES

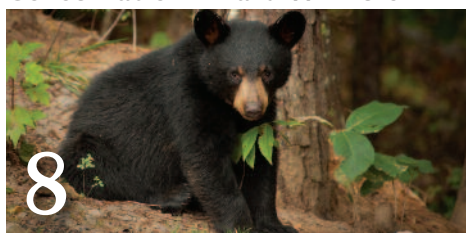
Fall 2017



## HIGH COUNTRY TRIUMPH

They're back—and as majestic as ever!

### Conservation Award Winners



8

### A Stand for the Coast



10

### Hunting for the Hungry



11



## Sweet Sound of Success

BY TIM GESTWICKI, NCWF CEO

The primal bugling that resounds through the valleys of western North Carolina is the triumphant sound of success. This is the call of an iconic and majestic species, deep in the wooded wilds, but this is also a note that speaks to the human spirit—a spirit that will overcome challenges and conquer difficult conservation issues. The bugling of elk from the folded valleys of the Great Smokies and beyond trumpets not only another breeding season for these native animals, but trumpets a success story in North Carolina wildlife conservation.

It may come as a surprise to many citizens across the state that North Carolina is home to a thriving elk herd. It's not been an easy journey back for this species, and this issue of the *NCWF Journal* tells the story of our elk, their reintroduction, the people and organizations behind the efforts, and ongoing work to ensure that the species survives and thrives.

We need a heart-warming success story these days. News both global and local is disheartening. And in an era of bitter political division, the story of the elk return is a good reminder of the possibilities of action when well-intentioned and determined people dig in and work to solve problems. Putting together our minds, resources, and commitment to cooperate, the American spirit and ability to meet challenges rarely fails.


The story of the elk in North Carolina is about solving a problem. It's about figuring out the various pieces of the puzzle to get this species back on the landscape and it's about a commitment to cooperate. From hunters and wildlife viewers to nature photographers and land conservationists, an initial interest was needed before a plan to succeed. The elk are the story here, but this story resonates much more broadly than just in our mountain landscapes. Issues such as habitat fragmentation, genetic diversity, isolated species, agency management, and co-existing with wildlife are all components of the elk story in North Carolina. And for those whose passions do include restoring native species, the story of the elk is still a huge win. I offer that this is a story about survival for all of us. Humans acting together for the greater good and for stewardship of species is a tie that binds us all. If we can keep species from extinction, there's probably a better chance that we humans may survive and certainly our quality of life will improve.

The lands protected for elk will benefit many wildlife species, and they are a huge component of clean water and clean air. Local businesses win thanks to the flocks of people who flood into the Great Smokies for a chance to see or hear the elk. And the restoration success story is also about our American heritage, a story we sorely need in light of recent proposals to roll back federal protections of America's public lands and wildlife. We can point to the naysayers and say: This is how it can work. This is how it should work.

After all, there is a moral obligation to protect our outdoor heritage and preserve wild lands and treasured species for future generations. North Carolina is now home to elk. Can we do similar work for bison and cougars? The same collateral benefits will come if we work for these species, too.

In fact, this *NCWF Journal* is packed with inspiring stories, from elk restoration to our Conservation Achievement Award winners to our scholarship winners. It's all evidence that we can move forward, protect our natural resources, and put into place programs and people that will achieve great successes in the future.

While I subscribe every day to the mantra that every bluebird nest box erected matters, as does each milkweed planted and every child's first cast, the elk reintroduction was a large undertaking that needs to be translated to other large landscape-scale efforts to support the iconic monarch butterfly and ecosystem management to stave off further marine fisheries collapse in North Carolina.

Can we muster the means and overcome the fears and myths? For the answer, I invite you to turn your face to the west for a moment, and listen deeply. The echoes of a bugling bull elk in our very own mountains holds the answer, and the promise. 



## STAFF

Tom Bean, *Government Affairs*  
Mary Bures, *Great Outdoors University Director*  
Dom Canavaro, *Development & Operations Director*  
Dr. Louis Daniel, *Marine Technical Specialist*  
Tim Gestwicki, *Chief Executive Officer*  
Richard B. Hamilton, *Camouflage Coalition Coordinator*  
Dan Harris, *Marketing Manager*  
Fred Harris, *Natural Resource Specialist*  
Dr. Angel Hjarding, *Pollinators & Wildlife Habitat Program Director*  
Sarah Hollis, *Membership & Outreach Coordinator*  
David W. Knight, *Policy Consultant*  
T. Edward Nickens, *Communications Editor*  
Christopher North, *Conservation Coordinator*  
Dr. M.E. "Liz" Rutledge, *Wildlife Specialist*  
Greta Salem, *Office Manager*

## OFFICERS AND EXECUTIVE COMMITTEE

Dr. Bob Brown, *Chair*, Cary  
Billy Wilson, *Vice Chair*, Mooresville  
John Hairr, *Vice Chair*, Charlotte  
Pinkney Bynum, *Treasurer*, Charlotte  
Ann B. Somers, *Secretary*, Greensboro  
John Robbins, *Immediate Past Chair*, Concord

## BOARD OF DIRECTORS

Jennifer Alligood, *Pantego*  
John Crumpler, *Raleigh*  
Sterling Freeman, *Durham*  
John Fuller, *Hickory*  
Phil Hinton, *Sunbury*  
John Hislop, *Hubert*  
Steve Jester, *Charlotte*  
Joyce Shepherd, *Charlotte*  
Erin Singer McCombs, *Asheville*  
Lloyd "Jock" Tate, *Southern Pines*  
Norwood West, *Warsaw*

Carol Buie-Jackson, *NWF District 3 Director*, Matthews

## PRESIDENTS EMERITUS

Alan D. Baker, *Huntersville*  
Dr. John Benbow, *Concord*  
C.B. Brown, *Burlington*  
John Crutchfield, *Huntersville*  
Bill Kane, *Cullowhee*  
Dale Mosteller, *Lincolnton*  
Terry Pratt, *Merry Hill*  
Gary Shull, *Vale*  
Bryan Upchurch, *Raleigh*  
Harry Wilfong, *Newton*

## DIRECTOR EMERITUS

Mike Thomas, *Crouse*

## GENERAL CORPORATE COUNSEL

Robinson Bradshaw & Hinson

## MARKETING / COMMUNICATIONS

Walker Marketing, Inc.

## DESIGN / PRINTING

Designed by: Kimberly KC Schott, *Red Gate Design*  
Printed by: Progress Printing, *Lynchburg, VA*  
Published by: North Carolina Wildlife Federation

## ABOUT THE COVER

*Cover photographs* A ringing cry centuries old, the bugling of elk reverberates again in the North Carolina mountains.  
/ Lisa Santore, iStock.com. Black bear / jadimages, © Can Stock Photo. Kayaker / digidreamgrafix, © Can Stock Photo.  
Deer / satori13, iStock.com. All other photos, unless noted, are courtesy of NCWF.

## CONTACT

NCWF Raleigh office: (919) 833-1923  
1024 Washington Street, Raleigh, NC 27605  
NCWF Charlotte office: (704) 332-5696  
1346 St. Julien Street, Charlotte, NC 28205.



# North Carolina WILDLIFE Federation Journal

WILD LIVES □ WILD PLACES

Fall 2017

Official publication, North Carolina Wildlife Federation (Affiliate of National Wildlife Federation)

## FEATURES

### 2 BREAK OUT THE BUGLES

The successful restoration of elk to the North Carolina mountains begs a question: What else can we do?

### 8 GOVERNOR'S CONSERVATION ACHIEVEMENT AWARD WINNERS

Prepare for inspiration.

## DEPARTMENTS

INSIDE FRONT COVER / Pathways

PAGE 10 / Federation News

PAGE 12 / Chapters Update

BACK COVER / The Season



## 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.





STEPHEN DOBEY

# Land <sup>OF THE</sup> GIANTS

➔ *The inspiring comeback  
of a North Carolina icon*



## Back from the Brink

At this moment, more elk roam the North Carolina mountains than at any time over the last 200 years. The return of this majestic species to its native Southern Appalachian habitat is nothing short of triumphant. It is a wildlife success story, and one that is still being written today. It's a story with deep roots in North Carolina, trailing out over decades, involving private citizens and public agencies, scientists and activists. It all began in 2001 and 2002, when 52 elk were brought to North Carolina from Land Between the Lakes National Recreation Area in western Kentucky and Elk Island National Park in Alberta, Canada.

Those animals were released into Cataloochee Valley located within the western boundary of Great Smoky Mountains National Park. Biologists with the National Park Service (NPS) equipped all the elk with radio collars to collect as much data as possible about these new residents. The initial proposal was classified as an experimental release with a goal to evaluate how, and if, elk could make it in this region. Years were spent documenting elk movements, survival rates, calf production, and evaluating habitat use. Flash forward now to 2017 and the answer to that initial question is a resounding YES. And elk can not only survive, but flourish, in the mountains of western North Carolina.

Most elk seem to travel relatively little if their biological and social needs are satisfied. However, a few individuals have traveled up to 45 miles from Cataloochee either looking for other elk or exploring new territories. Since 2001, elk have expanded their range from Cataloochee Valley to now include smaller resident herds in and around the areas of Cherokee, Balsam Mountain, Maggie Valley, and Waynesville. Calf production now occurs in all those areas, which has bolstered geographic expansion and population growth for North Carolina's herd.

Current goals vary between managing agencies, which have increased in number as elk have become established outside of the national park. Collectively, elk are cooperatively managed by the NPS, N.C. Wildlife Resources Commission, and Eastern Band of the Cherokee Indians. Cooperative monitoring continues among respective herds using radio collars, GPS, and even DNA technology.

To date, 16 years of data show that elk have adapted very well to these mountains. So much so, in fact, that in February of 2016 the Wildlife Commission approved a proposal to establish the framework for a permitted hunting season for elk. That action, in conjunction with removal of elk from the state list of special concern species, is a testament to the health of this growing herd. Two critical components to this success has been the ability of elk to successfully locate and take advantage of quality forage habitat, while generally avoiding areas of high human density. Those behaviors have played a major role in meeting recovery goals for positive population growth, while minimizing potential for human-related conflicts. Managing agencies are beginning a cooperative research project to estimate population size for the elk herd in western NC. When completed, those research efforts will help to guide management efforts for years to come.



## RESTORATION TIMELINE

ISTOCK.COM / JILL LANG

### 1991

GSMNP management began efforts to initiate a habitat feasibility study to determine if long-term survival of elk was possible in the Smokies.

### 1996

"Feasibility Assessment for the Reintroduction of North American Elk into the Great Smoky Mountains National Park" is published. Findings conclude that adequate elk habitat does exist, and suggest a closely monitored experimental release to validate findings.

### 1998

GSMNP announces a decision to begin planning for an experimental release of elk. This decision was based on favorable review of the 1996 feasibility assessment.

### 2000

NPS releases Environmental Assessment for Experimental Release of Elk into GSMNP, which details a 5-year plan for the project.

### 2001

25 elk from Land Between the Lakes National Recreation Area in western Kentucky are released into Cataloochee Valley, GSMNP. This milestone marked the presence of the first wild elk in North Carolina since the early to mid-1800s.

### 2001

On June 24, researchers document the birth of a 40-pound male calf, the first to be born from elk released in North Carolina.



WIKIMEDIA COMMONS / JOHN J. AUDUBON



## Keeping Up with the Wapiti



© CAN STOCK PHOTO / TMAINIERO

Bringing back the elk was hardly easy, from either a biological or political perspective. Initially, state veterinarians in North Carolina and Tennessee were resistant to the idea. Gov. James Hunt set a goal of having the animals reintroduced before he left office in early January of 2001. He persuaded N.C. Commissioner of Agriculture Jim Graham to allow the reintroduction to go through. While Hunt couldn't make his initial deadline, elk were released in Cataloochee Valley just two days after he left office—a victory nonetheless.

After introducing elk back into their ancestral range on the Great Smoky Mountains National Park in 2001, the Park Service declared the stocking a success and turned over management of all elk residing off the Park's boundary to the Wildlife Resources Commission in 2008. The estimated number of elk outside the Park boundary was estimated at about 80 animals. Elk are wanderers and somewhat migratory, moving with the influence of season and food supply. Elk are opportunist grazers, as well, consuming a wide variety of vegetation including pasture grasses, hay, crops, and ornamental plants. That puts them in potential conflict with many of the land uses in western North Carolina.

To develop a management plan consistent with the capabilities of the available habitat and the interests of the local people, the Wildlife Commission undertook an extensive study of the elk, its positive contributions, and its problem behaviors. These are some of the findings.

- The presence of elk has a significant positive impact on the economy of North Carolina that is driven by additional tourism spending by visitors coming to see the animals. Estimated increases in wildlife-viewing tourism, however, have the potential to add substantially to economic activity in North Carolina, including statewide increases in output, employment, and labor incomes. The additional jobs created ranged from 82 to 409 based on the low and high scenarios for visitation. Statewide economic output is estimated to increase by approximately \$9.6 to \$48.1 million per year, depending on the scenario considered.
- In virtually all scenarios and all study areas, benefits of the elk herd are estimated to exceed the costs of the elk herd throughout the 25-year study period. Benefits are projected to be experienced by a relatively large number of individuals; costs, however, are higher on a per-incident basis and are incurred by a relatively small number of individuals, who have farms located near areas that elk favor or drivers who have a collision with an elk. The greatest cost factors are vehicle collisions and fence damage.
- A Human Dimension Survey found that the majority of landowners in western North Carolina support wild, free-ranging elk. However, support for elk within 5 miles of their property diminished with landowners who owned greater than 15 acres in areas where elk were more highly populated. Small landowners generally supported the elk introduction citing opportunities to view the elk and returning the animals to their ancestral home.
- Population growth models yielded information about the feasibility of special permit hunting. The result was that hunting would depress the growth of elk populations and would not add significantly to the economic benefits of introduction. Hunting is not generally considered until the core population reaches 200.
- WRC discovered a strong tendency on the part of some landowners to destroy marauding elk under the depredation laws that allow such action when wildlife is encountered in the act of destroying private property. To discourage that practice and to document its extent, a Rule was passed to require persons killing an elk with or without a depredation permit to report the occurrence to WRC within 24 hours.

North Carolina is blessed with a significant opportunity to restore the impressive elk to the mega-fauna of western North Carolina that will give us and generations to come the chance to see and hear these magnificent animals in their natural habitat. We must all commit to ensuring that this opportunity is realized.



## An Eye Full of Elk

When readers imagine the sound of a breeding elk bugle cutting through the fall air, or picture the sight of two mature bulls battling for dominance, most envision a backdrop reminiscent of the western Rocky Mountains. Most outdoor enthusiasts have little idea just how visible elk are in the Great Smoky Mountains National Park. If you have even the slightest interest in seeing wild elk, the Smokies is the place to be to witness this wildlife success story. Not only are elk visible throughout the year, but the Park offers what might be the most consistent and accessible opportunity to see elk throughout their entire Southern Appalachian range.

There are two primary locations where visitors can view elk on an almost daily basis. The first is the original release site at Cataloochee Valley in the southeast portion of the Park. The most direct route is by taking exit 20 from Interstate 40, then travelling 0.2 mile to Cove Creek Road on the right. Follow Cove Creek Road for approximately 11 miles into the Park, and this will lead you directly into Cataloochee Valley.

The second highly recommended location is the area surrounding the Oconaluftee Visitor Center in the Park. This location can be easily reached from Cherokee by travelling north on U.S. 441 for approximately 3 miles. When you reach the fields along the right, you are in elk country, so keep your eyes open!

Throughout the year, the best times to view elk are in the early morning and late evening. While elk are readily visible in the national park, remember that these are wild animals and behaviors can be unpredictable. Use binoculars for an up-close experience, and never approach elk in the fields. Doing so could ruin the experience for other viewers, while putting you in danger. If you're looking for a truly memorable experience, make certain to plan an elk viewing trip during September when bugling and rutting activity is at its peak. It is nothing short of unforgettable.

STEPHEN DOBEY



## RESTORATION TIMELINE *continued*

### 2002

27 elk from Elk Island National Park in Alberta, Canada are released into Cataloochee Valley, GSMNP.

### 2008

The NPS declares the experimental stage of the North Carolina elk release complete. Responsibility for management of elk outside GSMNP boundaries is transferred to the NCWRC.

### 2010

GSMNP Elk Management Plan 2010-2025 is published.

### 2011

GSMNP concludes finding of no significant impact for the establishment of elk. This announcement paves the way for long-term support for the continued monitoring of elk in the Park.

### 2014

NCWRC identifies property outside GSMNP near Maggie Valley that could be purchased for permanent land protection efforts to benefit elk and other wildlife.

### 2014

NCWF starts a long-term lease on parcel of land that elk frequent and landowners value.

### 2015

NCWF makes elk habitat a conservation priority for the revision of Nantahala-Pisgah forest management plan.

### 2016

NCWRC removes elk from the state list of special concern species and approves proposal to establish framework for a future elk hunting season in the state.





© CAN STOCK PHOTO / KELLYVANDELLEN

## Careful Crossings

With the success of the elk re-introduction program in Great Smoky Mountains National Park, the issues of wildlife corridors and habitat fragmentation are real and present. Providing safe passage for elk and ensuring sufficient habitat en route is the key to a new collaborative. The immediate goal of this project is to use GPS-collared elk to help identify key places along major roads adjacent to GSMNP that could be targeted for wildlife road crossing structures (or other mitigation activities). Such structures could significantly reduce the risk of dangerous and costly elk-vehicle collisions, and could greatly improve the degree of connectivity for elk living inside and outside of the national park, in addition to likely benefits for many other species that would use the crossings.

Imagine you're zooming down Interstate 40 west of Asheville, and as you start your descent down the steep and narrow Pigeon River gorge on your way to the Tennessee line, suddenly a 1,000-pound bull elk steps onto the highway in front of your car! It's not a pretty picture—collisions between elk and vehicles rarely end well for either party. With the elk population continuing to grow in western North Carolina, this could become an issue for public safety and wildlife conservation.

Fortunately, there are proven solutions for helping wildlife cross highways safely. The North Carolina Wildlife Federation, Wildlands Network, National Parks Conservation Association, the National Park Service, and the N.C. Wildlife Resources Commission are all working together in the early stages of a project designed to find the best ways to help elk get across major roads near the Great Smoky Mountains National Park.

One of the best techniques available for reducing wildlife-vehicle crashes is to install special bridges and overpasses. Many Americans have seen pictures of such structures from Banff National Park in Canada, and from various European countries as well, where the idea has really caught on. But wildlife crossings are also increasingly popular in the United States, particularly in the West where they have been shown to be highly successful in helping elk, mule deer, and prong-horn cross roads without getting hit. Here in North Carolina, there are a set of three prominent wildlife crossings along U.S. 64 on the way to the Outer Banks, and more than 30 crossing structures are due to be installed on that highway if the widening project from Columbia to Manteo eventually proceeds.



© CAN STOCK PHOTO / KELLYVANDELLEN

Back in the mountains, it seems like a no-brainer that we should think about installing wildlife crossings along I-40 as it wraps between the national park and the national forests.



STEPHEN DOBEY

There have also been several recent elk-vehicle collisions on U.S. 19 as it passes through Maggie Valley, so that highway is also of concern. But the question is where exactly to put the underpass or overpasses to have the maximum benefit for wildlife?

That's where the collaborative project comes in. We're working on a team effort to install GPS collars on a set of elk in and around the national park, to try to pinpoint where the animals are crossing or attempting to cross major roads. Two elk were recently collared in September, and another 11 collars are set to be deployed later this year. (Want to sponsor an additional collar for \$3,000? Ask how at [info@ncwf.org](mailto:info@ncwf.org).) We hope the resulting data will be very informative as we seek to identify the key pathways for elk as these magnificent animals leave the national park and migrate to surrounding habitats across the North Carolina mountains.



## Silver Linings

Since 2001, a small but growing population of elk has lived in Great Smoky Mountains National Park. As the number of elk increases, so does the need to ensure adequate habitat for these large animals to roam and thrive in western North Carolina.

In 2014, the N.C. Wildlife Resources Commission identified lands adjacent to the Great Smoky Mountains National Park and Blue Ridge Parkway in Maggie Valley that could provide habitat for elk and other wildlife species. With the WRC's priorities in mind, The Conservation Fund, a national non-profit conservation organization, got to work, along with its partners the North Carolina Wildlife Federation and the Rocky Mountain Elk Foundation (RMEF).

Together with local partner the Maggie Valley Sanitary District (MVSD)—winner of the 2016 Municipal Conservationist of the Year Governor's Conservation Achievement Award—The Conservation Fund engaged local conservation-minded landowners.

Since water security and wildlife habitat protection are compatible goals, the Fund and MVSD have teamed up to protect Maggie Valley's drinking water supplies in Jonathan Creek and Campbell Creek. In September 2014, the Fund acquired 561 acres valued at almost \$2,700,000 on Sheepback Mountain. In 2015, the Fund conveyed the property to WRC with the support of grants from the Clean Water Management Trust Fund (CWMTF), Fred and Alice Stanback, Duke Energy Water Resources Fund, the Pigeon River Fund, and the Pittman-Robertson Fund.

The Fund acquired an additional 1,364 acres in 2015 and 2016, valued at almost \$6,700,000 from the descendants of William Harvey Silver, including Thornton Hawkins, Sharon and Lynn Smith, and Robert Williams, Sr., and from local businessman Sammy Carver. These properties help protect Mashie Stomp Creek, Rough Ridge, Deep Gap Branch, Chestnut Ridge, and Indian Creek. With the transfer of these land to WRC—with the support of the CWMTF, Fred and Alice Stanback, Brad and Shelli Stanback, RMEF, Pigeon River Fund, and WRC funds—the William H. Silver Game Land was established.

Ongoing efforts to expand the new game land continue throughout 2017. In addition, the MVSD and the Fund have protected about 1,250 acres in the Jonathan and Campbell Creek watersheds across the valley from the William H. Silver Game Land that also provide additional habitat for the North Carolina elk to flourish. Partnerships are key to ensuring a healthy future for both wildlife and communities in western North Carolina. **NCWF**

## RESTORATION TIMELINE *continued*

### 2016

The Conservation Fund, with support from The Clean Water Management Trust Fund and Rocky Mountain Elk Foundation, purchases over 1,900 acres of private land near Maggie Valley and conveys this to NCWRC for management and permanent ownership.

### 2017

On September 1, the NCWRC opens the recently acquired Maggie Valley land acquisition to the public as the William H. Silver State Game Land.

### 2018

Rocky Mountain Elk Foundation and The Conservation Fund continue land acquisition efforts to protect additional acres adjacent to the William H. Silver Game Land.



STEPHEN DOBEY



The following contributed to this piece along with Federation personnel:

Steven Doby,  
Conservation Program  
Manager Eastern U.S.  
Rocky Mountain  
Elk Foundation

Bill Holman,  
North Carolina State Director  
The Conservation Fund

Ron Sutherland, Ph.D.  
Conservation Scientist  
Wildlands Network



# 2016 GOVERNOR'S CONSERVATION ACHIEVEMENT AWARDS WINNERS

**Working for Wildlife** The North Carolina Wildlife Federation presented its 54th Annual Governor's Conservation Achievement Awards to 20 winners dedicated to conservation in North Carolina. This year's winners are exceedingly notable conservation devotees who work for wildlife from elk to amphibians to fish and marine resources. They are water quality advocates, land stewardship champions and leaders in the preservation of unique ecosystems. The award winners include agency professionals, elected officials, academia, non-profit leaders and organizations rising to the challenge.

By recognizing, publicizing and honoring these conservation leaders—young and old, professional and volunteer—the North Carolina Wildlife Federation hopes to inspire all North Carolinians to take a more active role in protecting the natural resources of our state. The awards were presented at the Annual Governor's Conservation Achievement Awards banquet and celebration held September 9 at the Embassy Suites RTP in Cary, NC.

## WILDLIFE ENFORCEMENT OFFICER OF THE YEAR

**Branden D. Jones, Denton** » Master Officer Jones is the epitome of a hardworking and dedicated officer. He excels in his investigative work being particularly good at detecting egregious acts that jeopardize the state's natural resources or threaten public safety. While investigating a poaching ring, he uncovered a massive drug lab. He, along with other law enforcement agencies, arrested the suspects, who have since been indicted on numerous felony charges.

## MARINE FISHERIES

### ENFORCEMENT OFFICER OF THE YEAR

**Bill Register, Wilmington** » From patrolling heavily-fished coastal waters to monitoring pollution levels, nursery areas and endangered species, Officer Register made a huge impact on southeastern North Carolina's sounds and rivers. A former Navy SEAL, Register helped develop and implement a Water Survival course for Marine Patrol and Division of Marine Fisheries employees, ensuring safety for countless officers and staff in the future.

## CONSERVATION ORGANIZATION OF THE YEAR

**Resource Institute, Winston-Salem** » From restoring wetlands, streams, and river systems to establishing greenways and removing dams, the non-profit Resource Institute fosters collaboration and innovation while working for functioning ecosystems and water quality. One example of its work is the Ararat River restoration effort near Mt. Airy that turned a muddy river into a delayed harvest trout waterway with conservation easements and miles of greenway construction.

## NATURAL RESOURCES SCIENTIST OF THE YEAR

**Fritz Rohde, Wilmington** » As a fisheries biologist for the National Marine Fisheries Service, Rohde is a staunch defender of freshwater, estuarine, and marine resources. He is known for his work on Cape Fear River fish passage and the Roanoke River fish restoration plan. Currently serving as president of the North American Native Fishes Association, Rohde's many publications and volunteer work well describe the uncommon breadth of his contributions to fish resources.

## NCWF AFFILIATE OF THE YEAR

**Carolina Wetlands Association, Raleigh** » In the face of research elimination in agency budgets, scientists and biologists formed CWA to increase public awareness and appreciation of wetland ecosystems and their vital functions for habitat, water quality through filtration, and flood control. The group became a leader for policy and technical expertise across the Carolinas, while CWA's Wetland Treasures program highlights important wetlands and includes public field trips.

## NCWF CHAPTER OF THE YEAR

**Lake Norman Wildlife Conservationists, Mooresville** » Building community for conservation is the hallmark of this wildlife chapter. Over the last year, the group has built and deployed nesting boxes, heron rookeries, and osprey nesting platforms while stabilizing shoreline habitat and establishing fish habitat in and around the largest aquatic ecosystem in the state. The chapter coordinates an island habitat program and provides a robust community education effort via its popular programs, wildlife boat tours, and events.

## HUNTER SAFETY EDUCATOR OF THE YEAR

**Joe Darden, Fayetteville** » Joe Darden has instructed tirelessly through the years, amassing over 2,500 volunteer hours teaching hunter education courses and related events. Darden is recognized as a pioneer and champion of hunter education, setting a remarkable example of dedicated volunteer service.

## WILDLIFE VOLUNTEER OF THE YEAR

**Donald Funderud, Asheville** » As a lifelong friend of fish and wildlife resources, and an avid fisherman and waterfowl hunter, Funderud has supported countless fishing events for youth, veterans, and the physically and mentally challenged. He has held many leadership roles with the Western North Carolina Muskies Club including his service as president, treasurer, and event coordinator, providing fishing opportunities for many people that would not otherwise have them.



## BUSINESS CONSERVATIONIST OF THE YEAR

**Garrett Wildflower Seed Farm, Smithfield** » Don Lee and his family run Garrett Wildflower Seed Farm, where they grow and harvest seeds from as many as 50 species of native North Carolina plants each year. Most are used in restoration projects that seek to replant the sprawling Piedmont and Coastal Plain quail habitats that once blanketed the state. Others are scientific and testing plots, such as current efforts to grow certain milkweeds for use as pollinator plants.

But all the efforts of Garrett Wildflower Seed Farm seek to restore a balance long lost in modern agriculture. Seeds from the company are now growing in wetlands mitigation projects, utility right of ways managed for wildlife, and on conservation plots planted by private landowners large and small. And the word is getting out. Lee is consulting with landowners in North Carolina, Alabama, and Mississippi. Garrett Wildflowers is growing, and Lee has plans so auspicious that some of his family members are starting to wonder just who he thinks is going to do all this work!

Don Lee planted his first field of wildflowers in 1991. They were daisies, and they sprouted in the same field where his grandfather had a heart attack and fell over dead in the tobacco plants. His name was Garrett. His ethic of work and community live on in the family named Lee.



#### MUNICIPAL CONSERVATIONIST OF THE YEAR

**Maggie Valley Sanitary District** » Protecting drinking water for the citizens of Maggie Valley in Haywood County, the MVSD has a vision and a commitment to conservation. It works with partners to conserve 2,000 acres that it owns and manages in the Campbell Creek watershed, and is spearheading the establishment of a nearly 3,000-acre gameland to protect elk and the Jonathan Creek watershed.

#### FOREST CONSERVATIONIST OF THE YEAR

**Megan Sutton, Asheville** » Sutton is the Blue Ridge Program director with The Nature Conservancy. Through her work, thousands of acres of forests have benefited from prescribed burning and restoration. She was recently appointed to the National Advisory Committee for the Implementation of the National Forest System Land Management Planning Rule.

#### LEGISLATOR OF THE YEAR

**Larry Yarborough, Roxboro** » Representative Yarborough is a champion for public trust resources, wildlife, and sporting issues. His staunch support for marine fisheries management and conservation leads the charge for reform and brings to bear the serious issue of fish stock decline in N.C. coastal waters.

#### YOUTH CONSERVATIONIST OF THE YEAR

**Sean O'Donnell, Apex** » North Carolina lost a true conservation champion with the passing this year of Sean O'Donnell. O'Donnell was an avid sportsman whose enthusiasm for sharing, volunteering, and practicing in all things outdoors was boundless. At an early age he began volunteering with groups like Quality Deer Management and NC Bowhunters Association. He also led efforts to feed the needy with venison and participated in hunter education events and youth hunting and fishing days.



#### WILDLIFE CONSERVATIONIST OF THE YEAR

**Jeff Hall, Greenville** » You don't have to go far to witness one of the great natural wonders of the world. You won't believe you've missed it all these years. You'll find this National Geographic worthy experience on the banks of a small pond, on most any warm night in June. You can stand there in the dark and listen to a stunning symphony of calling, groaning, croaking, bellowing, and singing frogs. Bullfrogs and cricket frogs, green frogs, Fowler's toads, American toads, spring peepers. For sheer awe, find you a good frog pond in June.

Jeff Hall has introduced many people to this wonder, as they volunteer to monitor frog calls, part of a Citizen Science project Hall operates. The experience helps open your ears to the wonders right under our earlobes.

Science makes a difference. A biologist with the N.C. Wildlife Resources Commission, Hall is coordinator of the Partners in Amphibian and Reptile Conservation program, and he's served as president of the N.C. Herpetological Society. Respected for his work on ephemeral pool creation for Carolina gopher frogs, bog turtle swamps and for research on the last remaining populations of eastern diamondback rattlers in the state, Hall also excels in leading citizen science research.

#### ENVIRONMENTAL EDUCATOR OF THE YEAR

**Kim Kelleher, Chapel Hill** » Upon constantly witnessing children flounder due to absences, lack of motivation, and learning disabilities in her Title 1 school, this school counselor spearheaded an award-winning nature trail in the woods surrounding her school. Bringing environmental education to the forefront of the school, the trail now has a guide with dozens of trail markers, a covered outdoor classroom and a butterfly garden.

#### WATER CONSERVATIONIST OF THE YEAR

**Lee Ann Smith, Arden** » As her Asheville community was plagued with health issues, Smith became a fierce advocate upon learning her young son also had cancer. Her investigations led to the discovery of toxic contaminants in the soil, groundwater and surface water in the area due to an old electroplating facility. She co-founded the POWER Action Group NC

to advocate for the cleanup of the contaminated site, finally prevailing when the EPA ordered the toxic Superfund site be cleaned.

#### LAND CONSERVATIONIST OF THE YEAR

**David Schnake, Durham** » As the Forest Research Operation Manager for the N.C. Department of Agriculture and Consumer Services, Schnake is responsible for more than 25 land projects spanning 17,000 diversely forested acres. Developing comprehensive land conservation and restoration planning for shortleaf pine and oak savanna ecosystems are among Schnake's efforts.

#### SPORTSMAN OF THE YEAR

**Allen E. Gant, Jr., Burlington** » Gant spearheaded an effort that took a new approach to marine resource conservation. Rather than fighting over how to re-allocate a shrinking resource, he supports reforms that would grow the number of fish for all by taking a conservation based approach to fisheries management with a focus on the economic benefits. Through his efforts, the debate on fisheries management reform has shifted to conservation, providing a possible path to resolving this decades-long dispute.

#### CONSERVATIONIST OF THE YEAR

**Richard Hamilton, Raleigh** » A life-long wildlife and conservation giant with a huge impact on North Carolina's landscape for more than four decades, Hamilton served North Carolina's wildlife agency as Statewide Wildlife Research Project Leader, Chief of the Division of Game, and Chief of the Division of Inland Fisheries before his promotion to Deputy Director in 1986 and subsequent role as Executive Director from 2004 until retirement in 2007. Hamilton has worked for all wildlife species, game and nongame alike, and now advocates for them and for sporting and outdoor heritage issues. **NCWF**

#### CONSERVATION COMMUNICATOR OF THE YEAR

**Bonnie Monteleone, Wilmington** » You've probably run into Bonnie Monteleone, or her work, somewhere. Perhaps it was at a museum where her interactive art sculpture, What Goes Around Comes Around, brings awareness to the menace of one-time-use plastics. That art project has been installed at UNC-Wilmington, Rutgers University, the University of Nevada—Reno, and the Aquarium of the Pacific in California.

Maybe you read about her in *The New York Times*. Or maybe you've seen the movie she was in, *A Plastic Ocean*. That was also her on those ships collecting marine debris samples from the South Pacific, the North Atlantic, the Caribbean. And for



sure, you can run into Monteleone on the North Carolina coast, where she walks her talk about ocean debris impacts by leading and participating in litter cleanups year-round.

In the words of her nomination for this award, the span of work that Monteleone undertakes is astounding. She is a scientist, an advocate, an artist, a prophet, a seer. She is a thinker and a doer. She has chosen to tackle an environmental calamity nearly indescribable in scope and heart-breaking in impact. But the hope she exudes, and the promise she symbolizes in the impact of a single, purposeful, passionate life, might just be big enough to help turn the tide on the scourge of ocean plastics.





## Sound Solutions: Resolved to protect marine resources

The North Carolina Wildlife Federation board of directors recently approved two resolutions that formalized support for marine resource management and marine habitat protection. These resolutions focus on the goals of NCWF's Sound Solutions Campaign, and confirm the deep commitment of the organization to protect North Carolina's coastal habitats and their wildlife.

In focusing on coastal habitat protection and marine fisheries management reform, the resolutions lay out the rationale and goals of these major components of the Sound Solutions Campaign. The NCWF board directly requests that the governor, president pro tempore, speaker of the house, and DEQ secretary act on the recommendations put forward.

North Carolina's 2.5 million acres of estuarine waters provide critical habitat for hundreds of species to feed, seek shelter, and grow until they mature and are old enough to spawn or migrate to offshore spawning grounds. NCWF created the Sound Solutions Campaign to ensure that our sounds and estuaries are protected to sustain both recreational and commercial uses of these resources.

NCWF has looked to work with all interested parties to improve the state's oversight and management of our marine resources. After talking and meeting with hundreds of stakeholders, including fishermen, seafood dealers, scientists, government, and community and business leaders, we determined that our approach needed to be comprehensive and multi-faceted in scope. This decision allows the campaign to utilize all legal, regulatory, and procedural options, as well as different types of public outreach through media and the internet.

*The Marine Fisheries Reform Resolution is necessary because North Carolina's marine fisheries continue to decline among the most important fish stocks, including weakfish, spot, croaker, and southern flounder. After years of decline, NCWF petitioned the Marine Fisheries Commis-*



ISTOCK.COM/TONY L MOORE PHOTO

ion to protect juvenile fish from huge, corporate shrimp trawlers by restricting them in the fisheries' nursery area within state waters.

**No other state allows the level of shrimp trawling that North Carolina does, and it has created a looming collapse of fish stocks because of the hundreds of millions of fish caught as bycatch in the shrimp trawl nets. The conservative estimate of 4 pounds of bycatch to 1 pound of shrimp ratio has negatively impacted the \$2 billion commercial and recreational fishing industries.**

After 20 years, the Fisheries Reform Act has failed to deliver on its promises to sustain North Carolina fisheries. While most thought the FRA would create a management system that would systematically conserve and protect the state's fisheries, it has done just the opposite, by creating an allocation system that is unsustainable. Politics and socio-economics have controlled the process, not science.

*The Coastal Habitat Protection Resolution confirms NCWF's commitment to defending North Carolina's coastal resources. Natural resource agencies took a big step some years ago by creating the Coastal Habitat Protection Plan that serves as a road map to comprehensively conserve,*

protect, and restore North Carolina's coastal water quality and estuarine habitats. The CHPP proposes and supports Best Management Practices, such as low-impact development, pollution reduction devices, and living shorelines construction.

Unfortunately, politics have prevented the agencies and their respective commissions from appropriately carrying out their obligations. The resolution calls on the agencies and commissions to actively support the CHPP, and implement its recommendations in a timely manner.

Sound Solutions has attempted to move beyond the historical divides that have limited progress in marine resource protection, such as those between the commercial fishing industry and recreational anglers, and between land developers and environmentalists. We continue to work with stakeholders, the governor, legislative leadership, the Division of Marine Fisheries, and the MFC to move these public policy recommendations forward. This campaign, however, has confirmed that status quo is not the solution.

The people of North Carolina deserve for their marine resources to be protected and sustained, not vulnerable and degraded. The Sound Solutions Campaign will continue to work with the public and stakeholders to do what is right for the resource, because that is what is best for North Carolina.





# NCWF Scholarships

## A Half-Century of Support

For more than 50 years, North Carolina Wildlife Federation has provided scholarships and grants to help hundreds of North Carolina students pursue their dreams of studying and working in the conservation field. To date, more than 300 students have been aided on their journey to work as professional conservationists.

Each year through our financial aid program, we provide up to seven grants to full-time students (graduate or undergraduate) who are enrolled in and attending an accredited North Carolina college or university, including 2-year programs. Eligible students must be majoring in the areas of wildlife, fisheries, forestry, conservation, or the environment. Congratulations to our 2017 scholarship recipients.

**WILLIAM (CHRIS) THAXTON** • Chris is the recipient of our \$2,500 Conservation Leadership Scholarship. He is a graduate student in biology at East Carolina University with a focus on fisheries. His research in phenology, the study of natural patterns such as flowering or migration, is considered a key indicator in the effects of climate change on eco-systems. Chris is interested in the politicization of sea level rise in North Carolina and aspires to publish a literature review of the issue in an academic journal. Chris's love of the outdoors began at an early age in Eagle Scouts. His affinity for nature led him to academic pursuits including field work as a NOAA Hollings Scholar, an Honors Thesis on the phytoplankton of the Tar-Pamlico River Basin, and research on poisonous frogs in the Peruvian Amazon.

**CHRISTOPHER MOORE** • Chris is a doctoral student in interdisciplinary biological sciences at East Carolina University, researching the use of marine parasites for expedient and cost-efficient assessment of the health of marine systems. Chris aspires to a career as a research biologist and science communicator to integrate human use of the landscape with the best scientific practices.

**JOSEPH FADER** • Joseph is a doctoral student in marine ecology and conservation at Duke University studying conflicts surrounding protected marine mammals and North Carolina commercial fisheries. Joseph's broad perspective includes field work and first-hand experience of the dynamics of marine resource management as a protected species observer at a fishery. His goal is to be a conservation biologist who promotes the viability of both wildlife and livelihoods.

**NICHOLAS GOULD** • Nicholas is a doctoral student at North Carolina State University in the Fisheries, Wildlife and Biology program, examining population ecology of black bears in urban/suburban environments in conjunction with the Wildlife Resources Commission to identify factors of bear colonization of the Piedmont. Nicholas has contributed to the success of wildlife students locally and internationally as a mentor and speaker, and seeks to share his research findings with other professionals.

**WHITNEY ROBERTS** • A graduate student at Duke University in coastal environmental management, Whitney's education focus is creating grassroots networks for sustainable seafood policy that originates in coastal communities. Her background working in lower-income areas gave her a strong foundation in the connection between science, policy, and social justice, which she seeks to apply professionally with a non-profit or research aquarium that will allow her to actively engage with coastal communities to promote sustainable practices from ocean to plate.

**DANIEL CHOI** • Daniel is a rising junior in fisheries, wildlife and conservation at North Carolina State University who is inspired by the intersection of research, fieldwork, and storytelling. These passions, combined for his love of photography, lend themselves to his aspiration to become a field biologist for National Geographic. Daniel is involved in service projects on and off campus that set him apart as a leader.

## 'Tis the Hunting and Helping Season



NCWF's Farmers and Communities Manage Deer (FCMD) program continues to serve local farming communities and the hungry through offering new deer donation sites. These sites provide

individuals and hunt clubs with an outlet for donating venison to manage local deer herds and feed the hungry. Many individuals and families struggle with food insecurity throughout the year and can benefit from the generosity of hunters, landowners, local civic groups, and food relief organizations through the FCMD program.

As we approach the holiday season, please consider donating deer at new and existing sites or make a financial contribution to organizations supporting those in need in North Carolina. The FCMD program is a collaborative effort between the Federation and N.C. Hunters for the Hungry, a 501(c) 3 non-profit, which utilizes individual and corporate donations to process venison for the hungry. All deer donated to the FCMD program are harvested, processed, and distributed locally through charitable organizations.

Please call each site directly for further instructions regarding deer donation. Check out the "Programs" tab at [www.ncwf.org](http://www.ncwf.org) or [www.nchuntersforthehungry.org](http://www.nchuntersforthehungry.org) for a full list of deer drop-off locations. To help support the program or receive more information, please send an e-mail to [liz@ncwf.org](mailto:liz@ncwf.org), or call (919) 833-1923. The Farmers and Communities Manage Deer program is a sponsored project of the NC Tobacco Trust Fund Commission.

### NEW DEER DONATION SITES:

**Cumberland County**  
Noble Meats  
2469 Lillington Hwy,  
Spring Lake  
(910) 436-6022

**Gaston County**  
The Deer Shack  
216 Helms Dr.,  
Mt. Holly  
(704) 718-9135

**Harnett County**  
South Wake  
Conservationists  
4503 Ross Road,  
Lillington  
(919) 250-8441

**Jones County**  
Pollockville Volunteer  
Fire Department  
209 Beaufort Rd.,  
Pollockville  
(252) 224-4681

**Wayne County**  
Whitetail Creations  
Taxidermy  
504 Foxwood Dr.,  
Goldsboro  
(919) 581-8760



**CHECK OUT OUR CHAPTERS!** For more information on how you can participate, contact Christopher North at [chris@ncwf.org](mailto:chris@ncwf.org).



Capital Chapter



Community Alliance for Wildlife



Concord Wildlife Alliance



CROWN (Charlotte Reconnecting Ourselves With Nature)



HAWK (Habitat and Wildlife Keepers)



Lake James Area Wildlife and Nature Society



Lake Norman Wildlife Conservationists



PAWC (Pamlico Albemarle Wildlife Conservationists)



PAWS (Gaston County Piedmont Area Wildlife Stewards)



River Hawks (Wake Forest)



South Wake Conservationists



The Albemarle Conservation and Wildlife Chapter

## Lake Norman Wildlife Conservationists proves 'if you build it, they will come'

Building community for conservation is the hallmark of this wildlife chapter that is celebrating its 10th year anniversary. Over the last year, the group has built and deployed nesting boxes, heron rookeries, and osprey nesting platforms while stabilizing shoreline habitat and establishing fish habitat in and around the largest aquatic ecosystem in the state. The chapter coordinates an island habitat program and provides a robust community education effort via its popular programs, wildlife boat tours, and events.

The prestigious award of "Chapter of the Year" was given to the Lake Norman Wildlife Conservationists during the Governor's Conservation Achievement Awards banquet. From planting trees to putting on their annual Shrimp and Oyster Festival, the Lake Norman Wildlife Conservationists do it all. With a large number of volunteers and dedicated leadership, the team makes an impact throughout all of the Lake Norman communities and habitats. The evening's master of ceremonies described the dedication and commitment of this year's "Chapter of the Year" award winner:

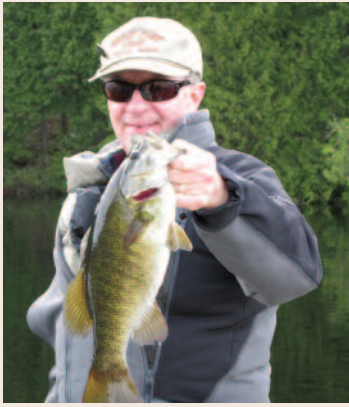
"In the words of my grandmother, a phrase she used whenever she was watching us grandchildren, the Lake Norman Wildlife Conservationists just makes me tired. Listen to all this: Each year the group plants 900 gallons of buttonbush shrubs to control island erosion on Lake Norman, builds and erects nest boxes for prothonotary warblers, brown-headed nuthatches, and tree swallows. Over the last 4 years they've built 7 artificial reefs with hundreds of tons of rock barged into place. In the last 7 years they've sunk 300 fish attractors. Over the same period, they've worked with Boy Scouts to build 27 wooden basking platforms for turtles. Building stuff—stuff for wildlife, and building community for wildlife lovers—is what the Lake Norman Conservationists has always been all about. When you care enough about a turtle to spend your weekend building reptilian tanning beds, let me tell you: That makes you an NCWF Chapter of the Year." **WF**



MAKING A PLACE FOR WILDLIFE AND HABITAT ALONG LAKE NORMAN SHORELINES.







*John Robbins, Owner of Greathorn Properties in Concord and committed philanthropist and sportsman, is the current Chair of the Charlie Shaw Society. He encourages others to join him in support of the North Carolina Wildlife Federation.*

## Charlie Shaw Society: *A message from the Chair*

Members in the Charlie Shaw Society are our most dedicated supporters—generous members who have made a minimum annual commitment of \$1,000 to the work and programs of the North Carolina Wildlife Federation. We are so very grateful.

With the year almost over, I am asking our Shaw Society members—and everyone else—to begin thinking about a year-end gift. If you've always made cash gifts to NCWF, why not consider a gift

of appreciated stock this year? With the various stock indices at or near all-time highs, it's a great time to think about a stock gift.

As most of you know, when you contribute appreciated securities, you receive a tax deduction for the fair market value and you avoid tax on long-term capital gain you would otherwise incur on a sale of those assets. It's the most tax efficient donation approach there is, and a win-win for you and for NCWF.

If this tax efficient approach to giving appeals to you, our Development Director, Dom Canavarro, can assist you with a stock gift to NCWF. Call (919) 833-1923 or e-mail Dom at [dom@ncwf.org](mailto:dom@ncwf.org).

And, as always, my deepest thanks. —JOHN ROBBINS

**Get the most impact  
for NCWF, which in  
turn benefits you.  
Please consider a  
stock gift this year.**



# THE Season

Jeff Beane's GUIDE TO  
NATURAL NORTH CAROLINA

North Carolina Wildlife Federation  
1024 Washington Street  
Raleigh, NC 27605

Non-Profit Org.  
U.S. Postage  
**PAID**  
PPCO

## DECEMBER

**December 1:** Witch-hazel, one of our latest-blooming wildflowers, is still in bloom, often after the tree has dropped its leaves.

**December 2-3:** 30th annual Core Sound Decoy Festival, Harkers Island. For more information, call 252-838-8818 or visit: <http://decoyguild.com/>

**December 3:** Scaup migration peaks. White-tailed deer rut is peaking in the Mountains.

**December 4:** Hummingbirds seen in North Carolina during winter are often vagrant individuals of species other than our usual ruby-throats. The rufous hummingbird is the species most often seen, but others turn up as well. Report late fall and winter hummingbird sightings to [susan@ncaves.com](mailto:susan@ncaves.com) or 910-949-3207.

**December 9:** Good fishing for striped bass in reservoirs like Kerr and Lake Gaston.

**December 13-14:** Geminid meteor shower will peak in the wee hours of the morning. Bundle up and find a dark beach or open field for the show.

**December 14-January 5:** Annual Christmas Bird Counts are held around the state. For information on how you can participate in the world's largest and oldest organized wildlife survey, contact your local Audubon chapter or the Carolina Bird Club, [www.carolinabirdclub.org](http://www.carolinabirdclub.org).

**December 15:** Tiger and Mabee's salamanders—two of our rarer ephemeral-pond-breeding salamander species—begin breeding with the first warm or heavy winter rains in the Sandhills and Coastal Plain.

**December 16:** Black bears begin their winter sleep, but they may be active during warm periods. In the big coastal refuges, where food is plentiful, bears may stay active virtually all winter.

**December 18:** Migration peaks for Canada geese and snow geese.

**December 21:** Winter is coming! In fact, it's here! Solstice is at 11:28 a.m. Eastern Standard Time (16:28 Universal Coordinated Time).

**December 23-24:** Ursid meteor shower peaks tonight—best viewing should be between midnight and dawn.

**December 25:** Most herbaceous plants have been killed by frost, but the fronds of Christmas fern add a bright green holiday touch to the forest floor.

**December 28:** Mink and muskrat fur is prime.

**December 29:** Black bear cubs are being born.

**December 30:** Big flocks of yellow-rumped warblers can be seen in the red-cedar and wax-myrtle thickets along the coast. It can pay to check those flocks carefully for occasional overwintering warblers of other species.

## JANUARY

**January 1:** New Year's resolutions? How about spending more time outdoors? Or learning more about what's going on in the real world?

**January 2:** Most butterflies have migrated, hibernated, or been killed by freezing temperatures, but on warm January days, especially in the Coastal Plain, lingering adults of a few hardy species, including the monarch, common buckeye, variegated fritillary, red admiral, and American lady may be seen flying.

**January 3-4:** Quadrantid meteor shower—the first major meteor shower of the season—peaks in predawn hours.

**January 5:** Watch for rare visits from winter finches like red crossbills and common redpolls.

**January 6:** Waterfowl populations are peaking along the coast; Pea Island and Lake Mattamuskeet National Wildlife Refuges are especially good waterfowl viewing areas. Swanquarter and Cedar Island ferries provide good viewing opportunities for sea ducks.

**January 8:** Harbor seals, and occasionally other seal species, may be seen along our coast in winter, more regularly in recent years. Oregon Inlet is a good place to see these small marine mammals, either swimming or hauled out on spoil islands.

**January 9:** Many small mammals sleep during much of the winter, but shrews remain active in underground tunnels or beneath the snow. Their high metabolism requires that these tiny predators eat more than their weight in insects, earthworms, and other food daily to survive.

**January 10:** Migration is peaking for mallards and black ducks.

**January 11:** Buck white-tailed deer are shedding their antlers.

**January 12:** Great horned owls are nesting.

**January 14:** Barred owls begin nesting.

**January 15:** Bald eagles begin nesting.

**January 16:** Mourning doves are beginning their courtship flights.

**January 20:** Most flycatchers and other heavily insectivorous birds winter in the tropics, but the eastern phoebe hangs around all year, switching its winter diet to berries along with whatever winter insects it can find.

**January 21:** The huge flocks of red-winged blackbirds and other blackbirds overwintering along our coast are impressive spectacles. The large coastal refuges, like Pocosin Lakes, Alligator River, and Mattamuskeet, are good spots to view this phenomenon.

**January 25:** Watch for humpback whales and other marine mammals along the coast, particularly the Outer Banks.

**January 26-27:** The Carolina Bird Club will hold its winter meeting at Wrightsville Beach. For more information, visit [www.carolinabirdclub.org](http://www.carolinabirdclub.org).

**January 28:** Raccoons and opossums are mating.

**January 30:** Wood frogs breed during winter rains. Like many winter-breeding amphibians, these handsome frogs of our Mountains and Foothills are highly freeze-tolerant.

**January 31:** Chorus frogs have begun calling over much of the state: upland chorus frogs in the Piedmont; Brimley's, southern, and ornate chorus frogs in the Coastal Plain; and spring peepers over much of the state.