



**NC Chapter of The Wildlife Society
Annual Meeting**

**“Wildlife Management in
North Carolina: Then and Now”**

**Eastern 4-H Center
Columbia, North Carolina
February 7-9, 2017**

2016-2017 Executive Board

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Program (annual meeting)	Pete Campbell	pete_campbell@fws.gov

The North Carolina Chapter of The Wildlife Society was founded in 1983 and is an association of wildlife professionals from all backgrounds. Members of the Chapter come from state and federal agencies, universities, private industry, private conservation organizations, and other natural resource agencies. The membership consists of wildlife professionals and students involved in research, management, education, administration, and other disciplines. www.nctws.org

Mission Statement

The North Carolina Chapter of The Wildlife Society seeks to provide a forum for wildlife professionals and others to interact to improve wildlife conservation and management while fostering high professional standards and ethics for its members. It will strive to be an acknowledged source of current scientific information and expertise and act as a collective voice on matters relating to wildlife biology, management, education, and policy.

Annual Meeting Agenda

Tuesday, February 7th

1 – 4 PM	Field Trip—NCWRC Texas Plantation Game Land Tour
4:30 PM	Registration (open until 5:30 PM)
6:00 PM	Dinner
7:00 PM	Social/Poster Session/Jam Session

Wednesday, February 8th

7:00 AM	Registration (open until 8:45 AM)
8:00 AM	Breakfast
8:55 AM	Door Prizes
9:00 AM	Welcome
9:15 AM	<u>Plenary</u> : The History of Wildlife Conservation in the United States 1600-Now – Dr. Robert Brown, NC Wildlife Federation
9:45 AM	<u>Plenary</u> : 21 st Century Conservation Challenges – Dr. David Cobb, NC Wildlife Resources Commission
10:15 AM	Break (registration open)
10:25 AM	Door Prizes
10:30 AM	<u>Round Table Discussion #1</u> : Agency Policies and their Effect on How we Manage Wildlife: Past vs. Present
11:30 AM	Break (no refreshments)
12:00 PM	Lunch
12:55 PM	Door Prizes
1:00 PM	<u>Round Table Discussion #2</u> : Managing Controversy and Public Opinion
2:00 PM	Break (registration open)
2:10 PM	Door Prizes
2:15 PM	<u>Student Presentation</u> : Understanding the Influence of Fire on a Granitic Dome Ecosystem – Alexander C. Kiser, Western Carolina University
2:35 PM	<u>Student Presentation</u> : Detection Efficiency Using the Standardized Marsh Bird Monitoring Protocol in a Coastal Breeding King Rail Population – Katie Schroeder, East Carolina University

2:55 PM	<u>Student Presentation</u> : Application of Autonomous Recording Units for Monitoring Marsh Birds – Lucas Bobay, NC State University
3:15 PM	Break (registration open)
3:25 PM	Door Prizes
3:30 PM	<u>Student Presentation</u> : The Implications of Salinization for Coastal Wildlife Management – Paul Taillie, NC State University
3:50 PM	<u>Student Presentation</u> : A Comprehensive Spatial Model for Predicting Whether Hunting Occurs Across Diverse Landscapes – Conner Burke, NC State University
4:10 PM	<u>Student Presentation</u> : Effects of Broadband Anthropogenic Noise on Behavior of Free-Living Deer Mice (<i>Peromyscus maniculatus</i>) - Radmila Petric, UNC at Greensboro
4:30 PM	Announcements
6:00 PM	Dinner
7:00 PM	Social/Auctions/Jam Session

Thursday, February 9th

8:00 AM	Breakfast
8:55 AM	Door Prizes
9:00 AM	NCTWS Business Meeting—Award presentations, student chapter updates, and Passing of the Goat
10:15 AM	Break
10:25 AM	Door Prizes
10:30 AM	<u>Round Table Discussion #3</u> : Pathways to a Career in Wildlife Management
11:30 AM	Closing Remarks/Adjourn
12:00 PM	Lunch
	2017-2018 Executive Board meeting

Special Plenary Sessions

The History of Conservation Policy and Research in the United States 1600-2000

DR. ROBERT BROWN, Chair, Board of Directors, NC Wildlife Federation, 109 Cape Cod Drive, Cary, NC 27511, bob_brown@ncsu.edu [Retired from NC State University]

Wildlife conservation in the U.S. has been based on the Public Trust Doctrine, wherein wildlife and fishes, water, and scenic places were deemed too valuable for the greater good to be held in private ownership. Native Americans utilized wildfire heavily until Europeans arrived in the 1400's. Disease decimated the Indians, and wildlife rebounded. Settlers in the 1500's – 1700's experienced seemingly unlimited supplies of forests, grasslands and wildlife. Westward expansion in the 1800's brought subjugation of the Native Americans, conversion of wildlife habitat to farms and ranches, and decimation of many wildlife populations by market hunting. Americans finally took notice at the turn of the century, and during the Roosevelt era they set aside millions of acres in public parks, forests and wildlife refuges. Wildlife research for and management of wildlife resources began in earnest in the 1930's with funding mostly provided by levies on hunters. Sportsmen's clubs, conservation organizations and scientific societies lobbied the federal government to pass legislation to establish and fund natural resource agencies, wildlife research, and incentives for landowners to conserve wildlife habitat. Public outrage in the 1960's over widespread use of pesticides and predator poisons led to a series of landmark bills to enhance environmental quality. In recent years, interest in conservation by the public has continued, but funding for research and management has suffered. Debate over state versus federal authority and public good versus private property rights continue, as the nation's wildlife faces new threats of global warming and an increasing human population with consumptive habits. Wildlife professionals are challenged to educate the public and decision makers of the choices facing them and to become part of the democratic process.

21st Century Conservation Challenges

DR. DAVID COBB, Chief, Wildlife Management Division, NC Wildlife Resources Commission, 1722 Mail Service Center, Raleigh, NC 27699-1700,
david.cobb@ncwildlife.org

As we continue into the 21st century, wildlife conservation in NC is a dynamically changing interaction among many biotic and abiotic factors. Opportunities and challenges are as never before. This presentation will be a conversation engaging attendees to consider the biological, social, political and economic forces that have shaped our present and will likely sculpt our future.

Bio: David is a native North Carolinian who has served as the NCWRC Chief of the Wildlife Management Division for the past 18 years. He and his family live in rural Franklin County where he enjoys hunting, fishing, and not writing bios about himself.

Round Table Discussions

Round Table #1: Agency Policies and their Effect on How we Manage Wildlife: Past vs. Present

PETE BENJAMIN, Field Supervisor, Raleigh Ecological Service Field Office, US Fish and Wildlife Service, 551F Pylon Drive, Raleigh NC 27606,
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The round table panel format was selected to provide a relaxed venue where students can tap into the experiences and expertise of both retired and current wildlife professionals from federal and state agencies and the private sector. The three discussion themes and panel questions were selected by the three student chapters and each round table session will be moderated by student chapter member. In particular, the students are interested learning about the challenges panel members faced, their successes, failures and lessons learned during their careers managing wildlife in North Carolina.

Round Table #2: Managing Controversy and Public Opinion

TOMMY HUGHES, Coastal Area Ecoregion Supervisor, Land and Water Access, NC Wildlife Resources Commission, 1004 Park Drive, New Bern, NC 28562, tommy.hughes@ncwildlife.org

GORDON WARBURTON, 783 Deep Woods Drive, Marion, NC 28752, gmhpb@charter.net [Retired from NC Wildlife Resources Commission]

MIKE BRYANT, 113 Amelia Drive, Manteo, NC 27954, mike_bryant@fws.gov [Retired from US Fish and Wildlife Service]

DR. ROBERT BROWN, Chair, Board of Directors, NC Wildlife Federation, 109 Cape Cod Drive, Cary, NC 27511, bob_brown@ncsu.edu [Retired from NC State University]

CARL BETSILL, 6064 Hoyt Road, Middlesex, NC 27557, betsill@coastalnet.com [Retired from NC Wildlife Resources Commission and US Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services]

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Student Presentations

Understanding the Influence of Fire on a Granitic Dome Ecosystem

ALEXANDER C. KISER, Undergraduate Senior, Department of Geosciences and Natural Resources Western Carolina University, 331 Stillwell Building, Cullowhee, NC 28723, ackiser1@catamount.wcu.edu

Granitic domes are common within the southern Appalachians, though little is understood about this systems ecology in regards to historical and prescribed fire. Undergraduate students at Western Carolina University have begun researching granitic domes through the Wildlife society and Forestry Club and, more recently, a Forest Applications course. A long-term monitoring plan at Laurel Knob (a granite dome community) in Western North Carolina was developed. We classified the current vegetation through field plots and aerial imagery concluding the presence of fire-dependent mixed pine stands with an ericaceous understory. Based on the vegetation classification, we will monitor vegetation in three plot types: control, mechanically thinned, and mechanically thinned and burned. Also within these plots, we installed 6 camera traps to monitor cottontail distribution. We are specifically interested in the ability to identify Eastern Cottontail from Appalachian cottontail and determine if these management practices have an impact on their densities. In spring 2017, cottontail density transects will be installed in each of the plots. Further, we are collecting pellets for genetic analysis. The results of this project will create a foundation for a long-term cooperative study that will be conducted by Western Carolinas' Chapter of The Wildlife Society and the Highlands Cashiers Land Trust.

Bio: Alex is an undergraduate student at Western Carolina University. He graduated from Haywood Community College with an A.A.S in Fish and Wildlife Management and is certified by the North American Wildlife Technology Association as a designated Technician. Alexander currently serves as President for the WCU Chapter of TWS, focusing much of his undergraduate research time on communities in the Southern Appalachians. He has been fortunate to work with a range of species which includes

Detection Efficiency Using the Standardized Marsh Bird Monitoring Protocol in a Coastal Breeding King Rail Population

KATIE SCHROEDER, M.S. Student, Department of Biology, East Carolina University, Greenville, NC 27858, schroederk15@students.ecu.edu

DR. SUSAN MCRAE, Teaching Associate Professor, Department of Biology, East Carolina University, Greenville, NC 27858, mraes@ecu.edu

Previous studies have found effects of weather, time of day, and time of season on detection of marsh birds. King rails (*Rallus elegans*) are listed as a USFWS priority species for management, yet few studies have successfully assessed king rails due to low detection rates using standardized monitoring protocols. Focusing on a breeding population of king rails studied over the last six years at Mackay Island NWR in coastal North Carolina, we modeled number of detections using a standard protocol as a function of breeder density estimates, incorporating effects of temperature, wind, sky conditions, time of day, and time of season. Intensive nest searches and opportunistic auditory or visual detection of king rails were used to calculate breeder density around each survey location. Call broadcast surveys were then conducted based on the standardized marsh bird monitoring protocol, and the number of detections during passive listening periods and callback periods were used to determine factors affecting detection. We found marginal support for a higher rate of detection during evening surveys versus morning surveys. The peak in number of detections occurred during the last week in May. Wind and cloud cover had a slightly negative effect on number of detections, with temperature having little effect. These preliminary results contribute to an effort to improve survey methodology, and ameliorate detection of king rails across their range.

Bio: Katie is a masters student at East Carolina University working under Dr. Susan McRae. She has a broad interest in avian communication systems and how information is encoded in vocalizations. Katie's current project goals are to characterize the structure and function of king rail calls and to optimize auditory survey methodology for more efficient monitoring and conservation of king rail populations.

Application of Autonomous Recording Units for Monitoring Marsh Birds

LUCAS BOBAY, Undergraduate Senior, Department of Forestry and Environmental Resources, Fisheries and Wildlife Program, NC State University, Turner House 1, Box 7646, Raleigh, NC 27695, lrbobay@ncsu.edu

Coastal marshes support several species of birds that are endangered, declining, or of conservation concern. In addition to continued development, marsh birds are increasingly threatened by climate change, sea level rise, and the resulting effects on habitat composition. Unfortunately, most marsh birds are difficult to monitor because of their elusive behavior and the inaccessibility of the marshes they inhabit. Traditional monitoring protocols specifically designed for marsh birds include single-observer point counts. While effective, point count monitoring requires substantial effort during the repeat visits needed for estimating detection probabilities of elusive species. Acoustic monitoring using Autonomous Recording Units (ARUs) offers an alternative. Although ARUs have drawbacks - such as the need for recording analysis - their potential to gather significantly more data for less effort makes them an intriguing alternative to traditional marsh bird survey protocols. We use occupancy modeling and survey cost estimation to evaluate tradeoffs associated with using ARUs to monitor marsh birds.

Bio: Lucas is a senior in Fisheries, Wildlife, and Conservation Biology at North Carolina State University. He is president of the Leopold Wildlife Club on campus, the student chapter of The Wildlife Society. As an avid birder, his academic interests primarily focus on avian ecology. When he's not in school, Lucas can be found looking for birds around North Carolina and across the continent.

The Implications of Salinization for Coastal Wildlife Management

PAUL TAILLIE, Ph.D. Student, Department of Forestry and Environmental Resources, NC State University, FER (Forestry and Environmental) 100, Box 8008, Raleigh, NC 27695 paul_taille@ncsu.edu

At the juxtaposition of the land and sea, coastal ecosystems are subject to multiple drivers of ecological dynamics. In addition, these systems provide important habitat conditions for a variety of wildlife species. So as the environmental conditions of coastal systems change, significant implications for coastal wildlife can be expected. For the past 2 years, we have been documenting changes in both vegetation conditions and bird communities across a gradient of saltwater exposure on the Albemarle-Pamlico Peninsula to better understand how increasing salinization is changing successional dynamics following disturbance, specifically fire. We have observed that, in addition to causing direct mortality of mature trees, salinization can inhibit regeneration of canopy trees following disturbance, thus resulting in a shift from forest to herbaceous marsh. Furthermore, we have observed marsh-associated birds, like Virginia rail, using newly-created marshes in the wake of fire. As such, the use of prescribed fire to facilitate the landward migration of coastal marshes may greatly benefit marsh-associated wildlife as sea level continues to rise. At the same time, such an approach would exacerbate the already extensive forest loss documented in low-lying coastal regions. A better understanding these relationships and the associated conservation tradeoffs will be essential for the development of conservation strategies for coastal regions as sea level continues to rise.

Bio: Paul is a 3rd-year doctoral student in the Forestry and Environmental Resources Department at North Carolina State University. His research focuses on using ecological processes and patterns to develop more informed approaches to wildlife management and conservation.

A Comprehensive Spatial Model for Predicting whether Hunting Occurs across Diverse Landscapes

CONNER R. BURKE, M.S. Student, Fisheries, Wildlife, and Conservation Biology Program, NC State University, Turner House 1, Box 7646, Raleigh, NC 27695, crburke2@ncsu.edu

DR. M. NILS PETERSON, Associate Professor, Department of Forestry and Environmental Resources, NC State University, Turner House 3, Box 8008, Raleigh, NC 27695, nils_peterson@ncsu.edu

DR. CHRISTOPHER E. MOORMAN, Professor, Department of Forestry and Environmental Resources, NC State University, Turner House 2, Box 8008, Raleigh, NC 27695, chris_moorman@ncsu.edu

DR. CHRISTOPHER S. DEPERNO, Professor, Department of Forestry and Environmental Resources, NC State University, Turner House 9, Box 8008, Raleigh, NC 27695, chris_deperno@ncsu.edu

DAVID T. SAWYER, Surveys and Research Program Coordinator, NC Wildlife Resources Commission, 953 Alleghany Spur Road, Traphill, NC 28685, david.sawyer@ncwildlife.org

DR. CHRISTOPHER SERENARI, Human Dimensions Specialist, NC Wildlife Resources Commission, 1722 Mail Service Center, Raleigh, NC 27699-1700,

Urbanization, land parcelization, and shifting landowner demographics are impacting the persistence of hunting on the landscape, and potentially increasing hunter density on parcels where hunting persists. Rapid urbanization may influence how hunting operates as a wildlife management tool and how harvest reports can be used to create wildlife population indices. We surveyed both industrial and non-industrial private landowners in North Carolina (n = 2,513), and used model selection to choose the best geographic variables for predicting whether a property was hunted. Property size, housing density, and road density were key drivers in predicting hunting on non-industrial lands. Similarly, property size, housing density, road density, and distance to nearest city were key drivers in predicting hunting on industrial lands. Our results

Effects of Broadband Anthropogenic Noise on Behavior of Free-Living Deer Mice (*Peromyscus maniculatus*)

RADMILA PETRIC, Ph.D. Student, Department of Biology, The University of North Carolina at Greensboro, Department of Biology, The University of North Carolina at Greensboro, PO Box 26170, Greensboro, NC 27402-6170, r_petric@uncg.edu

DR. MATINA KALCOUNIS-RÜPPELL, Professor and Director of Graduate Studies, Department of Biology, The University of North Carolina at Greensboro, PO Box 26170, Greensboro, NC 27402-6170, matina_kalcounis@uncg.edu

Anthropogenic noise is a major environmental pollutant that exceeds natural sounds temporally and in frequency composition. Animals rely on acoustic signals to mediate a myriad of daily activities and anthropogenic noise can interfere with production and propagation of signals, which influence animal behavior, physiology and survival. In general, noise negatively affects acoustic signals in two ways, by: 1) masking acoustic signals, and 2) eliciting energetically costly anti-predator behaviors. Noise is pervasive in the audible range but it also extends into the ultrasonic range and there is a knowledge gap on how animals perceive and respond to broadband anthropogenic noise. Our hypothesis is that broadband anthropogenic noise alters important behaviors in animals. In summer of 2016, we live-trapped deer mice (*Peromyscus maniculatus*) in Nantahala National Forest, NC and outfitted 4 mice with radio transmitters. We deployed three remote sensing systems; microphone array, stationary telemetry and thermal imaging for six nights. The first three nights we monitored behaviors without introducing noise (control) and nights four to six, we broadcasted anthropogenic noise from a road generator (treatment). We recorded vocalizations, monitored movements and foraging activity. We predicted that mice exposed to noise will produce fewer vocalizations and decrease movement and foraging activity. Furthermore, if mice vocalize during noise exposure, we predicted a shift in spectral characteristics of vocalizations (frequency, duration and amplitude). By studying effects of anthropogenic noise on mouse behavior, data from this project can be extrapolated and used to generate an environmental impact assessment on other organisms.

Round Table Discussion

Round Table #3: Pathways to a Career in Wildlife Management

DR. ROBERT BROWN, Chair, Board of Directors, NC Wildlife Federation, 109 Cape Cod Drive, Cary, NC 27511, bob_brown@ncsu.edu [Retired from NC State University]

SCOTT LANIER, Deputy Project Leader for the Eastern North Carolina National Wildlife Refuge Complex, US Fish and Wildlife Service, PO Box 1969, Manteo, NC 27954, scott_lanier@fws.gov

GENE HESTER, 79 Wood Green Drive, Wendell, NC 27591, ghester707@cox.net [Retired from US Fish and Wildlife Service]

JAN GOODSON, Senior Biologist/Vice-President, Dr. J.H. Carter III and Associates, Inc., 150 Horseshoe Dr., Southern Pines, NC 28387, jgoodson@jhcarterinc.com

The round table panel format was selected to provide a relaxed venue where students can tap into the experiences and expertise of both retired and current wildlife professionals from federal and state agencies and the private sector. The three discussion themes and panel questions were selected by the three student chapters and each round table session will be moderated by student chapter member. In particular, the students are interested learning about the challenges panel members faced, their successes, failures and lessons learned during their careers managing wildlife in North Carolina.

Business Meeting Agenda

Thursday, February 9, 2017, 9:00 am
Eastern 4-H Center, Columbia, NC 27925

Welcome and Opening Comments – Jamie Sasser

Secretary's Report – Sue Cameron

Review and approval of minutes from the December 5, 2016 Executive Board meeting; minutes are available at <http://nctws.org/wordpress/members>

Treasurer's Report and 2017-2018 Budget – Colleen Olfenbuttel

Report is available at <http://nctws.org/wordpress/members>

Committee Reports – Jamie Sasser

Reports are available at <http://nctws.org/wordpress/members>

Student Chapter Updates

NC State University – Lucas Bobay

Haywood Community College – Blake Ledbetter

Western Carolina University – Aaron Perez

2017 NCTWS Award Presentations – Chris Deperno

NCTWS Chapter Award

Wildlife Conservation Award

Ken Wilson Memorial Awards

Best Poster Award

Nominations and Elections – Jamie Sasser

Present new officers and "Passing of the Goat"

Words from the New President – Jeff Marcus

Awards

NCTWS CHAPTER AWARD

This award is presented to a chapter member for individual effort and contributions to wildlife conservation through The Wildlife Society. Service to the Society and Chapter is strongly considered, along with professional achievement. The award includes a certificate or plaque and a copy of the commendation read during the awards ceremony. Presentation to the recipient is typically made at the annual meeting of the Chapter.

WILDLIFE CONSERVATION AWARD

This award is presented to individuals or groups within North Carolina who deserve recognition for achievement in wildlife conservation, education, research or related endeavors. There is no requirement for Society or Chapter membership. The recognition is for accomplishments widely recognized and publicized. The award includes a certificate or plaque and a copy of the commendation read at the awards ceremony. The award is presented to the recipient or organization at a time and location that is meaningful to the recipient and to the Chapter in terms of future interaction with others who work for the betterment of wildlife conservation.

KEN WILSON MEMORIAL AWARD

The Ken Wilson Memorial Award is presented annually to a student or students, nominated by the wildlife faculty of the various schools within the State having wildlife programs (NC State University, Haywood Community College, and Western Carolina University) and selected by the Awards Committee. Awards are presented for academics, contributions to research, work projects that contribute to State wildlife conservation efforts, involvement with the student chapter of The Wildlife Society, and other accomplishments that the Chapter deems worthy of recognition. Recipients receive a cash award, a plaque, a copy of the Sand County Almanac, and a copy of the commendation signed by the Chapter President.

BEST POSTER AWARD

This award is given to a Chapter member for the most outstanding poster presented at the annual meeting. The poster must be presented during the specified poster session period when the poster evaluation is performed.