

THE FREDERICK AND JOAN BARKALOW DISTINGUISHED CONSERVATIONIST LECTURE



Photo courtesy of Tilla Fearn

Dr. Zeb Hogan, 2011 Fred and Joan Barkalow Distinguished Lecturer spoke to faculty and students on Sept. 14.

IMPERILED GIANTS: ECOLOGY AND CONSERVATION OF THE WORLD'S LARGEST FRESHWATER FISH



Students and faculty listen to Dr. Zeb Hogan's presentation during the Fred and Joan Barkalow Distinguished Lecture.



Dr. Zeb Hogan (center) at dinner with the Barkalow family and friends.



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ABSTRACT: CHARLIE PLUSH

Wildlife use of field borders planted as beneficial insect habitat

(UNDER THE DIRECTION OF DR. CHRISTOPHER MOORMAN)

Strips of fallow vegetation along cropland borders (hereafter, field borders) are an effective strategy for providing wildlife habitat. However, traditional fallow borders lack the nectar-producing vegetation needed to sustain many beneficial insect populations (e.g. crop pest predators, parasitoids, and pollinator species). Planted borders that contain mixes of prairie flowers and grasses may harbor more diverse arthropod communities, but the relative value of these borders as wildlife habitat compared to fallow borders is unknown. We compared the wildlife value of 4 different field border treatments (planted native grass and prairie flowers, planted prairie flowers only, fallow vegetation, or mowed vegetation) by conducting northern bobwhite foraging trials, arthropod sampling, overwintering sparrow surveys, and small mammal trapping. In spring 2008, field border treatments were established randomly around 9 organic crop fields, and all borders were approximately 0.084 hectares.

Groups of 6 human-imprinted bobwhite chicks were led through 30-minute foraging trials in all border treatments from June-August 2009 and 2010. Following trials, chicks were immediately euthanized, and their crops and gizzards were later dissected. Eaten arthropods were identified to family, measured with digital calipers, and counted. Allometric equations were used to calculate a mean foraging rate for each border treatment (grams of arthropods consumed/chick/30 min). Arthropod prey availability was determined within each border treatment using a modified blower-vac to sample arthropods at the vegetation strata where chicks foraged. Foraging rate did not differ among treatments in 2009 or 2010. Total arthropod prey densities calculated from blower-vac samples did not differ among border treatments in 2009 or 2010.

From November-March 2009-2010 and 2010-2011, single-observer transect surveys were conducted to determine overwintering sparrow use in the different field border treatments. During surveys, the total number of sparrows was counted in each field border, and individual species were identified only if easily visible with binoculars. A majority of birds observed were sparrows (96.4%), of which we were able to positively identify 1424 (51%) to species. The most



Photo courtesy of Christopher Moorman
Charlie Plush collecting data for his work on field borders.

common sparrow species observed within field borders were savannah sparrow (*Passerculus sandwichensis*) (61.5%), song sparrow (*Melospiza melodia*) (22.8%), and swamp sparrow (*Melospiza georgiana*) (6.8%). Total sparrow densities were 5-10 times lower in mowed borders than in other border treatments in 2009-2010 and 2010-2011, but did not differ among planted and fallow borders in either year.

In October-November 2009, small mammals were trapped over a 6-day period in each field border using Sherman live-traps. Captured individuals were marked with individually numbered ear tags, and released. Over all trapping periods, 512 individuals of only two species, the hispid cotton rat (*Sigmodon hispidus*) and house mouse (*Mus musculus*), were captured. Using the mark-recapture data, closed population models were created in Program MARK to estimate the density (number of individuals/hectare) of each species in each border. Cotton rat density was higher in borders planted for beneficial insect habitat, which likely was influenced by greater vegetation density and availability of preferred foods in these border types. Total small mammal density was lower in mowed borders, emphasizing the importance of available non-crop vegetation for supporting small mammal communities within intensive agricultural areas.

Overall, the results of this study suggest that field borders planted as beneficial insect habitats provide quality wildlife habitat comparable to traditional fallow field borders. Additionally, planted borders may maximize the biodiversity potential of field border establishment by providing suitable habitat for both wildlife and beneficial insect populations.

ABSTRACT: MELISSA TURNER

Paternity and intracranial abscessation in white-tailed deer under quality deer management

(UNDER THE DIRECTION OF DRs. CHRISTOPHER S. DEPERNO AND RICHARD A. LANCIA.)

Mating systems, which can show temporal and spatial plasticity within a given species, may influence inbreeding, effective population size, genetic diversity, reproductive fitness, and possibly even survival. Although observational research on white-tailed deer has indicated dominant males monopolize breeding opportunities, recent molecular work suggests a more complex system. It is possible that population characteristics fostered under management strategies such as Quality Deer Management (QDM) influence the pre-breeding interactions that affect the distribution of mating success. Our objective was to evaluate the white-tailed deer mating system under QDM through paternity analysis. Using polymerase chain reaction at 8 microsatellite loci and tissue samples from hunter-killed deer at Chesapeake Farms in Chestertown, Maryland, we evaluated 731 deer. Paternity was assigned using Cervus 3.0 and Newpat XL. The 3.5+ age class dominated mating at Chesapeake Farms, with 45% of paternity. However, together the 1.5- and 2.5-year-old age classes accounted for more than half of paternity (56%). We did not detect evidence of polyandry at Chesapeake Farms. Our results suggest the interaction between the balanced sex ratio and older male age structure fostered by QDM influence the mating system by facilitating breeding by younger males. A more equitable mating system suggests there is little selective benefit to monopolizing breeding and may lead to a greater lifetime contribution to the next generation per male and greater genetic diversity and population health.

Understanding the distribution of disease in wildlife is key to predicting the establishment of one health concerns, many of which are zoonotic in nature. The widespread distribution of white-tailed deer and the species' close proximity to humans suggest deer management and population health have implications beyond stewardship as animals can serve as reservoirs for emerging infectious diseases. The intracranial abscessation suppurative meningitis (IASM) disease complex can contribute substantially to mortality in deer. Past studies have most often linked IASM with *Arcanobacterium pyogenes*, a commensal organism in livestock that can serve as a primary pathogen or part of mixed infections in numerous species, including humans. Our objective was to under-



Photo courtesy of Steve Allen

Melissa Turner (center) with Maria Palamar and Jeremy Cooper collecting data.

stand the role of *A. pyogenes* in deer and what might predispose a population to carrying it. We used basic bacterial culture techniques to assess *A. pyogenes* prevalence around antler pedicles and in nasopharyngeal membranes of hunter-killed male deer across six regions in Maryland. We evaluated *A. pyogenes* prevalence in deer of both sexes and all age classes under Traditional Deer Management (TDM) and Quality Deer Management (QDM). Finally, we tested live-caught neonates. We evaluated the significance of age, site/region, and sex using binary logistic regression. We did not detect *A. pyogenes* on deer in 3 of the 6 regions studied. The Upper Eastern Shore was the only region where *A. pyogenes* was common; 45% and 66% of antler and nasal swabs tested positive, respectively. Overall, 78% of animals sampled on the QDM property and 95% of animals on the TDM property carried *A. pyogenes* regardless of sex, age class or management with the exception of neonates, which did not carry *A. pyogenes*. The prevalence of *A. pyogenes* in one region suggests the bacterium may be endemic to Upper Eastern Shore deer. Because the region is home to little livestock activity, deer may serve as the reservoir for *A. pyogenes*. The high level of *A. pyogenes* on the Upper Eastern Shore, as well as low-level presence in adjacent regions, suggest an emerging one health concern warranting further study.

ABSTRACT: AMY RAYBUCK

Short-term response of small mammals and *Plethodon* spp. following oak regeneration silviculture treatments

(UNDER THE DIRECTION OF DRS. CHRISTOPHER E. MOORMAN AND CHRISTOPHER S. DEPERNO.)

Upland, mixed-oak forests in the eastern US have experienced widespread oak regeneration failure, largely due to cessation of anthropogenic disturbance. Silvicultural practices used to promote advance oak regeneration may affect ground-dwelling wildlife. From May to August 2008 (pre-treatment), 2010, and 2011 (post-treatment), we trapped small mammals and *Plethodon* salamanders to assess changes to populations following three silvicultural practices (prescribed burn, midstory herbicide application, and shelterwood harvest) used to promote oak regeneration. We trapped in five replicates of the oak regeneration practices and a control using Sherman live traps (2008 and 2010) and drift fence arrays (2008, 2010, and 2011). We evaluated changes in species richness of small mammals, abundance of peromyscids, and relative abundance of masked shrews (*Sorex cinereus*), smoky shrews (*S. fumeus*), northern short-tailed shrews (*Blarina brevicauda*), Southern Appalachian salamanders (*Plethodon teyahalee*), and Southern gray-cheeked salamanders (*P. metcalfi*). Additionally, for *Plethodon*, we measured changes in juvenile proportion of captures and body condition indices. From pre- to post-treatment, changes in species richness, peromyscid abundance, and relative abundance of shrews and *Plethodon* salamanders were similar among treatments.

Similarly, we did not detect any difference among treatments for changes in juvenile proportion of captures or body condition indices for *Plethodon*. However, there was a year effect for masked shrews, smoky shrews, northern short-tailed shrews, and Southern Appalachian salamanders with a greater increase in captures in 2011 (i.e., second year post-treatment) than in 2010 (i.e., first year post-treatment).

Our research indicates that in the short-term, small mammals and *Plethodon* salamanders can tolerate a wide range of forest disturbance following oak regeneration treatments. Lack of short-term response in herbicide and prescribed burn treatments was likely because of minor or transitory (i.e., dissipated by second year post-treatment) changes to forest structure. In shelterwood harvests, the initial impacts of reduced canopy and leaf litter cover were likely mitigated by rapid understory growth and the presence of residual



Photo courtesy of Amy Raybuck

Amy Raybuck studied the short-term response of small mammals and *Plethodon* spp. following oak regeneration silviculture treatments.

logging debris.

Moreover, high levels of precipitation in 2011 may have compensated for moisture reductions following prescribed burns and shelterwood harvests, thereby increasing captures in the second year post-treatment. Delayed treatment effects including post-herbicide midstory dieback and post-treatment sprouting in shelterwood harvests and future activities associated with oak regeneration systems (e.g., prescribed burns following shelterwood harvests) may have different effects on ground-dwelling wildlife. Therefore, long-term monitoring is warranted for small mammal and *Plethodon* salamander populations (e.g., > 3 years post-treatment)

Leopold Wildlife Club



Photo courtesy of Rachel Conley

Leopold members participated in a snaring workshop led by Joey Van Dyke at the Schenck Memorial Forest.

Submitted by Rachel Conley

This year, the North Carolina State University Leopold Wildlife Club has grown in membership and has been involved in numerous activities in the field and the classroom. The club is pushing 80 registered members and looks to gain even more members in the future. The club meets bi-monthly on Monday evenings and has hosted a variety of guest speakers including, Frank Newell, a lifelong wildlife rehabilitator, Beth Gunn, a NC Wildlife Resource Commission (NCWRC) educator, and Josh Biesecker, an NCSU alumnus and USDA District Wildlife Biologist.

The club participated in a NCWRC sponsored wildlife practical and received detailed information about the Study Abroad opportunities sponsored by the NCSU Fisheries, Wildlife, & Conservation Biology Program.

In September, the club hosted a snaring workshop at the Schenck Memorial Forest led by Joey Van Dyke. Also, the club participated in National Hunting & Fishing Day at Lake Raleigh Woods, the 8th annual Bass Lake Park Day in Holly Springs, North Carolina, and in the annual Howell Woodstock at the Howell Woods Environmental Learning Center. At the peak of fall migration in October, the club led a morning bird walk at Schenck Forest where the bird list topped 60 species. Additionally, the group spotted a Tennessee warbler, which was a new addition to the Schenck's comprehensive species list. Leopold Wildlife Club members participated in a bat survey at Turnipseed Preserve and continued the Adopt-a-Highway service on Penny Road.

Please see, **Leopold** Page 7

Leopold Wildlife Club holding wild foods supper fundraiser

The North Carolina State University Leopold Wildlife Club is having a wild food supper/fundraiser on February 4, 2012 from 5-9 p.m. The supper/fundraiser will be held at the VFW Post 7383, 522 Reedy Creek Road, Cary, NC 27513. All proceeds will benefit the Leopold Wildlife Club and support member attendance at The Wildlife Society Southeastern Conclave at the University of Tennessee-Knoxville in March. Suggested donations are \$15/person and \$10/student. The supper will include an assortment of wild game, fish, and produce.

There will be a best dish contest, silent auction, and door prizes. Please contact Rachel Conley (reconle2@ncsu.edu) or Charles Sanders (cwsander@ncsu.edu) with any questions. Thank you, we look forward to seeing you on February 4, 2012.



Photos courtesy of Rachel Conley

Leopold Wildlife Club former president, Will Wood, and member Mary Cunningham educated youth at National Hunting & Fishing Day on NCSU's Centennial Campus (left). Current president, Rachel Conley, poses with a captive gray wolf at a monthly meeting (right).

Leopold

Continued from page 5

Leopold club members traveled to Kiawah Island, South Carolina for a weekend kayaking excursion in November and accumulated a 75+ species bird list including black skimmer and american oystercatcher.

The club has a fundraiser planned for February 4th, 2012. The fundraiser will be the first annual Leopold Wild Foods Supper. Also, the club is planning a 5K Trail Run as another fundraiser in preparation for the hosting of The Wildlife Society's 2013 Southeastern Conclave. Finally, the club will participate in the annual Dixie Deer Classic in the Spring.

The club is looking forward to participating in The Wildlife Society's 2012 Southeastern Conclave at University of Tennessee-Knoxville in mid-March, where the team hopes to perform well.

The club is currently selling bat boxes and wood duck



Leopold members on a birding trip to Kiawah Island.

boxes for \$50 each. They make great holiday gifts for friends and family. You can donate to the club, purchase boxes, inquire about attending meetings, or request the club be present at your event by contacting Rachel Conley at reconle2@ncsu.edu.



EXPERIENCE WILD ALASKA

Join Dr. Phil Doerr for an Alumni Alaska adventure trip

As you may already have heard via the Fisheries & Wildlife Newsletter (or grapevine), we are planning a number of F/W Alumni activities in the next year. One is the unique trip that Dave Davenport (Msc '94) (Ecoquesttravel.net) and I have planned for interested alums to Alaska in June 2012. We plan to share some good new times with old friends and hope you will consider participating in this fabulous experience.

Join us for a fantastic wildlife adventure in what many call the "last American frontier". Alaska is one of the last remaining really large expanses of wild North America. The number and diversity of large wild vertebrates that occur in Alaska is amazing. Springtime (June) in Alaska is when the tundra throbs 24 hours a day with birdlife (shorebirds, ducks, geese, cranes, falcons jaegers) and as the birds take advantage of long days, to sing, court, and bring off young in the short window that is summer in the North. Also, predators take advantage of the superabundant prey available. Over the past 20 plus years I have had the pleasure to spend many springs, a few summers and one winter in Alaska for "work" and pleasure and these were some of the most rewarding and thrilling times in my life. I would really look forward to sharing some of my favorite wild places with

you.

Think of it: 10 days afield with old friends, classmates and the old prof, just aching for another chance to ask a question! I promise, none of those hideous population problems I tormented ya'll with in class and no duck wing quizzes, either! You will be able to test LONG-term memories of duck identification, however! We can still recall old times, though, and share enjoyment of wildlife & wild places! This retired (but not tired) ol' professor would love to share a lifetime learning experience with a small group of fellow alumni and friends visiting several of America's premier national parks and wildernesses. In addition to the scenery and abundant birds, grizzly bears, coyotes, wolves, lynx, mountain goats, Dall sheep, moose, sockeye, silver & Chinook salmon runs are among the potential visual and spiritual treats waiting for us.

And, this is important, a portion of your cost will be donated to the Phillip D. Doerr Fish and Wildlife scholarship endowment, by Ecoquest. Dave has generously dedicated a number of his company's NCSU alumni trips to the fund raising effort to endow the Fisheries & Wildlife scholarship folks honored me, and NCSU Wildlife Students, with at my retirement roast in 2007.

WILD ALASKA

Wildlife in the Land of the Midnight Sun



11 Days from June 11 through June 21, 2012
Optional 5-Day Extension to Nome for Arctic Birds and Mammals

ITINERARY

- Day 1** – Monday, June 11: Home City to Gateway City and on to Fairbanks, Alaska
Day 2 – Tuesday, June 12: Fairbanks to Denali National Park
Day 3 – Wednesday, June 13: Denali National Park
Day 4 – Thursday, June 14: Alaska Railroad from Denali to Talkeetna
Day 5 – Friday, June 15: Talkeetna to Anchorage
Day 6 – Saturday, June 16: Anchorage to Seward
Day 7 – Sunday, June 17: Kenai Fjords National Park
Day 8 – Monday, June 18: Seward to Homer and Kenai National Wildlife Refuge
Day 9 – Tuesday, June 19: Flight to Hallo Bay, Katmai National Park – Brown Bear Viewing
Day 10 – Wednesday, June 20: Homer to Anchorage and the Chugach Mountains
Day 11 – Thursday, June 21: Anchorage to Gateway City and Home

* Please note that EcoQuest Travel will make every effort to adhere to this itinerary, but dates, times, activities and prices are subject to change depending on scheduling and availability.

Optional Extension to Nome for Arctic Birds and Mammals

- Day 11** – Thursday, June 21: Anchorage to Nome
Day 1 – Friday, June 22: The Nome – Teller Road
Day 2 – Saturday, June 23: The Nome – Council Road
Day 3 – Sunday, June 24: The Kougarak Road
Day 4 – Monday, June 25: Nome to Anchorage
Day 5 – Tuesday, June 26: Anchorage to Gateway City and Home

* Please note that EcoQuest Travel will make every effort to adhere to this itinerary, but dates, times, activities and prices are subject to change depending on scheduling and availability.

Cost:

\$6,693.00/person all-inclusive tour package

\$ 700.00/person estimated airfare*

\$7,393.00/person all-inclusive*

The 5-Day Post-trip Extension to Nome is \$2,495.00/person all-inclusive (including airfare)

*Note: It is our philosophy to provide an all-inclusive price, but due to the volatile nature of the airline industry, EQT is only able to provide an estimated airfare at this time. The

actual date of ticketing will determine the price. Typically, we are accurate in our estimates, but please note that there may be a slight difference in pricing at the time of ticketing. If ticket prices at the time of booking are lower than our estimates the savings will be passed on to you. If ticket prices are higher you will be invoiced the difference.

What's Included:

- Round-trip airfare from Seattle to Fairbanks, Alaska – return trip is from Anchorage (see conditions above)
- Land, train and boat transportation within Alaska (airfare from Anchorage to Nome and return is included in the extension pricing)
- All accommodations – based upon double occupancy (single supplement is available at an additional cost: \$1,150.00 for main trip; and \$435.00 for the extension)
- All tours within the scheduled itinerary
- Most meals are included (please see the trip itinerary to see what is included)
- Permits and National Park entrance fees and guides
- The leadership services of EcoQuest Travel professionals

What's Not Included:

- Airfare from you home cities to Seattle (we will be glad to book your flights to and from Seattle for you, but they are not included in the trip cost)
- Gifts and items of a personal nature
- Gratuities (for drivers, guides and boat crews)
- Travel insurance (please see the Travel Insurance Section below)

Travel Documents:

Although we are traveling within the US, a picture ID is still required to board our flights. You must have either a US passport or a driver's license.

Group Size:

The trip cost is based on a minimum number of participants – 10 people. Although 10 people are required in order to make this trip a reality; we are able to accommodate up to a maximum of 14 people. The extension cost is based on a minimum of 6 people. purchase of trip cancellation/medical insurance.

Trip Leaders:

Dave Davenport: Zoologist and President of EcoQuest Travel, Inc.

Dr. Phil Doerr: Emeritus Professor of Fisheries and Wildlife Sciences, Departments of Forestry and Environmental Resources, and Zoology, North Carolina State University

Student Fisheries Society wins student subunit award

Submitted by Katherine Pierson

The start of the school term has been hectic as usual, with many new additions to our Student Fisheries Society (SFS) and many members attending the AFS National Meeting in Seattle.

During the summer we remained active in our community outreach, conducting a bathymetry analysis of Lake Kildaire for a homeowner's association in the town of Cary and a fish assessment in 3 ponds for Howell Woods Environmental Learning Center. Fast forwarding to September, (Lindsay Campbell, Marybeth Brey, Tim Ellis, Jake Hughes and Katie Pierson) received funding from NC AFS to attend the National AFS meeting. The week was filled with presentations, posters, and many awards. Fifteen of our members gave oral presentations, and 5 presented posters. Congrats are in order for many of our members: Lindsay Campbell was the runner up for the Skinner Memorial Award, Elissa Buttermore and Katie Pierson received the Equal Opportunities Travel award, and Julie Harris received the newest Education Section Award, the Young Professional Award. Tamara Pandolfo received the runner up in the student writing contest, so look for her work in an upcoming issue of Fisheries. To top-off the week, NCSU SFS was awarded the National Most Outstanding Student Subunit Award. Thank you to all that help make NCSU SFS successful and great organization to be a part of!

Upon our return to North Carolina, we have had three SFS meetings and several outreach events. Mike Abney presented hydroacoustic work he and Duke Energy conduct on Lake Norman, Dave Moody of Triangle Fly Fishers gave an excellent presentation on the "Zen" of fly fishing, and Dick Brame of the Coastal Conservation Association talked about the role of non-government organizations in fisheries management. All talks were followed by lively discussion and many questions from our group. Our outreach activities include a youth Cane Pole Fishing event at Yates Millpond, educating kids and talking with alumni at the CALS Alumni Tailgate event, making fishing hats for kids (and willing adults) and helping them fish during National Hunting and Fishing day at Lake Raleigh, and finally, cleaning Rocky Branch Creek that runs through campus. Our stream clean-up yielded 12 full bags of trash and enough tennis balls to fill a 5-gallon bucket (donated to local dog park).

Our next meeting is December 7th at 7 PM, which will serve as our end of the year social and will take place at the bowling alley on Hillsborough. We encourage you to stop



Photos courtesy of Katie Pierson

The Student Fisheries Society received the award for most Outstanding Student Sub-unit at the National American Fisheries Society meeting in Seattle.



The Annual Spawning Run during the National American Fisheries Society meeting in Seattle.

by if you are in the Raleigh area, or check us out in our Illuminate session in the New Year.

It has been a great year, with highlights ranging from getting voted best lesson at the Dixie Fairgrounds Youth Days, to being named the most Outstanding Student Subunit in the Nation, and along the way catching many fish and having lots of laughs. The New Year will find us with new officers and many more outreach activities on the way, so stay tuned! We invite all to join our new SFS Facebook Group that serves as a forum for pictures, updates, discussion, and to network with alumni and professional. To learn more and keep up to date with SFS, please join this group, visit our NCSU website (<http://clubs.ncsu.edu/sfs/>) and also join our e-mail listserv (instructions on website or e-mail one of us). If you are out in the field, or away from Raleigh, we hope to see you on Illuminate, otherwise, we hope to see you soon!

Awards

Shari Rodriguez receives the FERFFEGE Award



Dr. Goldfarb presents Shari Rodriguez with the Forestry and Environmental Resources Faculty Fellowship for Excellence in Graduate Education and Service Award.

In 2011, Shari Rodriguez received the Forestry and Environmental Resources Faculty Fellowship for Excellence in Graduate Education and Service Award. The FERFFEGE was initiated in 2002 to promote and reward scholarship and service by our graduate students in the Department of Forestry and Environmental Resources at NC State. Scholarship can manifest itself in classroom teaching, discovery, or the process of applying knowledge. This award will favor students that have demonstrated scholarship, and service in the Department, College, University, or professional society.

Maria Palamar receives Charles B. Davey Graduate Fellowship Award



Maria Palamar received the Charles B. Davey Graduate Fellowship for Excellence in Biological Sciences Award.

Maria Palamar received the Charles B. Davey Graduate Fellowship for Excellence in Biological Sciences Award. The Charles B. Davey Graduate Fellowship is awarded by the Department of Forestry and Environmental Resources for Excellence in the Biological Sciences. The Fellowship is named to honor Dr. Chuck Davey, former Head of the Department of Forestry, and his many professional accomplishments.

Congratulations to both for receiving these competitive and prestigious annual awards.

Other awards

Shari Rodriguez received The Diversity Enhancement Program Grant from the grad school for the 2011-2012 academic year.

Shari Rodriguez received the Arthur B. Moss Graduate School International Travel Grant to attend the annual meeting for the society for conservation biology meeting in Auckland, New Zealand from Dec 5-9 .

Craig Harms received the Stange Award for Meritorious Service by the Iowa State University College of Veterinary Medicine, October 2011. <http://www.isualum.org/index.cfm?nodeID=36635&audienceID=1>

Awards

James Morris receives Presidential Early Career Award

On September 26, 2011, 2009 PhD graduate James Morris, co-advised by Drs. Jim Rice and Jeff Govoni, was named by President Obama as a recipient of the Presidential Early Career Award for Scientists and Engineers, the highest honor bestowed by the United States government on science and engineering professionals in the early stages of their independent research careers. Awardees are selected for their pursuit of innovative research at the frontiers of science and technology and their commitment to community service as demonstrated through scientific leadership, public education, or community outreach.

James conducted his PhD research on the biology, ecology, population dynamics and management of invasive Pacific lionfish on the East coast of the US, where these predators are having major impacts on reef communities. He is currently an Ecologist for the National Ocean Service, NOAA, at the Center for Coastal Fisheries and Habitat Research in Beaufort, NC, where he continues his research on lionfish and other topics.



James Morris is currently an ecologist for the National Ocean Service in Beaufort, NC.

Also, James was the winner of the 2009 CALS Kenneth Keller Award for Excellence in Doctoral Dissertation Research, and was selected as the National Ocean Service Employee of the year in 2010.

Julie Harris receives Young Professional Travel Award

Dr. Julie Harris, a post-doctoral researcher at North Carolina State University, received the 2011 Young Professional Travel Award from the Education Section of the American Fisheries Society. This award was established in 2011, so Julie is the first recipient! The award provided support for Julie's travel to Seattle for the 2011 AFS meeting, and a one-year membership to AFS. Criteria for the award include publications, presentations, honors/awards, work in continuing education and outreach, and service to the Society. Anyone within three years of graduation is eligible to apply.

Julie presented a talk at the Seattle AFS meeting about how stocking can be used to learn about population dynamics. She used several examples from the American shad restoration program on the Roanoke River and co-authors included NC Wildlife Resources Commission colleagues Kevin Dockendorf and Bennett Wynne. Julie's post-doctoral research at NCSU is a large-scale tagging study of Roanoke River striped bass, using PIT tags, internal anchor



Julie Harris, center, received the 2011 Young Professional Travel Award.

tags, and transmitters. Among the project goals are to estimate natural mortality and mortality associated with catch-and-release fishing.

Publications & Presentations



Research Publications

- Anderson E. T. , C. A. Harms, E. M. Stringer, and W. M. Cluse.** 2011. Evaluation of hematology and serum biochemistry of cold-stunned green sea turtles (*Chelonia mydas*) in North Carolina. *J Zoo Wildl Med* 42: 247-255.
- Anderson E. T., L. J. Minter, E. O. Clarke, R. M. Mroch, J. F. Beasley, and C. A. Harms.** 2011. The effects of feeding on hematological and plasma biochemical profiles in green (*Chelonia mydas*) and Kemp's ridley (*Lepidochelys kempii*) sea turtles. *Vet Med Int.* 2011, 7 pp.,
- Blackman, E. B., C. S. DePerno, C. E. Moorman, and M. N. Peterson.** 2011. Avian influenza testing of American woodcock in an agricultural landscape. *Journal of the North Carolina Academy of Science* 127:189-191.
- Donaldson, M., D. D. Aday, and S. J. Cooke.** 2011. A call for mini-reviews: an effective but underutilized method of synthesizing knowledge to inform and direct fisheries management, policy, and research. *Fisheries* 36:123-129
- Grodsky, S. M., M. J. Behr, A. Gendler, D. Drake, B. D. Dieterle, R. J. Rudd, and N. L. Walrath.** 2011. Investigating the causes of death for wind turbine-associated bat fatalities. *Journal of Mammalogy* 92:917-925.
- Harris, J. E., and J. E. Hightower.** 2011. Spawning habitat selection of hickory shad. *North American Journal of Fisheries Management* 31: 495-505.
- Harris, J. E., and J. E. Hightower.** 2011. Movement patterns of American shad transported upstream of dams on the Roanoke River, North Carolina and Virginia. *North American Journal of Fisheries Management* 31: 240-256.
- Martins, F. T., M. M. Furtado, A. T. D. A. Jacomo, L. Silveira, R. Sollmann, N. M. Torres, and M. B. Labruna.** 2011. Ticks on free-living wild mammals in Emas National Park, Goiás State, central Brazil. *Systematic & Applied Acarology* 16:201-206.
- Money, E. S., D. K. Sackett, D. D. Aday, and M. L. Serre.** 2011. Using river distance and existing hydrography data can improve the geostatistical estimation of fish tissue mercury at unsampled locations. *Environmental Science and Technology.* 7746-7753
- Thakur, S., M. Sandfoss, S. Kennedy-Stoskopf, and C. S. DePerno.** Detection of *Clostridium difficile* and *Salmonella* in feral swine population in North Carolina. *Journal of Wildlife Diseases* 47:774-776.



HELP ENHANCE WILDLIFE HABITAT WITH THE PURCHASE OF BAT BOXES AND WOOD DUCK BOXES

\$50

PROCEEDS BENEFIT THE LEOPOLD WILDLIFE CLUB

If you are interested in purchasing a bat box or a wood duck box contact Dr. Chris DePerno (chris_deperno@ncsu.edu)



Publications & Presentations



Research Presentations

- Archambault, J. M., W. G. Cope, T. J. Kwak, and T. J. Pandolfo.** 2011. Enhanced ecological relevance in laboratory tests to determine thermal tolerance of juvenile freshwater mussels in sediment. Invited speaker to the 3rd Thermal Ecology and Regulation Workshop, Maple Grove, Minnesota.
- Blackman, E. B., C. S. DePerno, M. J. Krachey, C. E. Moorman, and M.N. Peterson.** 2011. Effects of crop field characteristics on use by American woodcock in North Carolina. 18th Annual Conference of The Wildlife Society, Waikoloa, Hawaii.
- Brey, M. K., J. A. Rice, and D. D. Aday.** 2011. Quantifying the effects of introduced species on a reservoir food web. Poster presentation. 141st Annual Meeting of the American Fisheries Society, San Francisco, California.
- Brey, M. K., J. A. Rice, and D. D. Aday.** 2011. Exploring individual and synergistic effects of introduced species on a reservoir food web: an ecosystem modeling approach. 141st Annual Meeting of the American Fisheries Society, San Francisco, California.
- Brown, R., S. Dasmohapatra, T. Strayhorn, D. Morais, J. Payne, C. Moorman, S. Rodriguez, D. Hazel, and J. Knight.** College of Natural Resources – Environmental, Social and Economic Sustainability. Presentation to the North Carolina State University Board of Trustees, April 15. Park Alumni Center, North Carolina State University, Raleigh, NC.
- Buttermore, E. N., T. J. Kwak, W. G. Cope, P. B. Cooney, D. Shea, and P. R. Lazaro.** 2011. Contaminants and food web dynamics in Puerto Rico stream ecosystems. Invited speaker to the Best Student Paper Symposium at the 141st Annual Meeting of the American Fisheries Society, Seattle, Washington.
- Cooney, P. B. and T. J. Kwak.** 2011. Influence of dams, big and small, on tropical diadromous fishes. 141st Annual Meeting of the American Fisheries Society, Seattle, Washington.
- DePerno, C. S., G. R. Karns, R. A. Lancia, J. W. Bishir, M. C. Connor, and C. Barker.** 2011. Improvement of a catch-per-unit estimator for white-tailed deer. 65th Annual Southeastern Association of Fish and Wildlife Agencies (SEAFWA) Conference, Sheraton Music City Hotel, Nashville, Tennessee.
- DePerno, C. S., K. E. Golden, C. E. Moorman, M. N. Peterson, and R. Bardon.** 2011. Predicting private landowner participation and interest in wildlife-related fee access. 65th Annual Southeastern Association of Fish and Wildlife Agencies (SEAFWA) Conference, Sheraton Music City Hotel, Nashville, Tennessee.
- DePerno, C. S., S. Kennedy-Stoskopf, S. Thakur, M. Palamar, C. Betsill, G. Erickson, and M. Sandfoss.** 2011. Active surveillance of feral swine for infectious diseases in eastern North Carolina. Feral Pig Symposium: A timely update on the challenges and future perspectives. North Carolina State University, JC Raulston Arboretum, Raleigh, North Carolina.

Publications & Presentations



- Ellis, T. A., J. A. Buckel, J. E. Hightower, and B. Burns.** 2011. Estimating fishing and natural mortality of spotted seatrout in North Carolina using conventional and telemetry tagging. 141th Annual Meeting, American Fisheries Society, Seattle, Washington.
- Erbland, P. J., G. B. Zydlewski, J. Zydlewski, and J. E. Hightower.** 2011. Fixed, side-aspect acoustic sampling of a diverse diadromous fish community in a tidal river. 141th Annual Meeting, American Fisheries Society, Seattle, Washington.
- Flowers, H. J., and J. E. Hightower.** 2011. Developing hydroacoustic methods for the study of sturgeons and other large-bodied fishes. 141th Annual Meeting, American Fisheries Society, Seattle, Washington.
- Galster, B. J., J. A. Rice, and D. D. Aday.** 2011. Predictors of white perch population size structure and density: what drives invasive fish dynamics? 141st Annual Meeting of the American Fisheries Society, San Francisco, California.
- Harris, J. E., J. E. Hightower, K. Dockendorf, and B. Wynne.** 2011. Designing a stocking program to learn more about population dynamics. 141th Annual Meeting, American Fisheries Society, Seattle, Washington.
- Harris, J. E., and J. E. Hightower.** 2011. Identification of American shad spawning sites and spawning habitat use in the Pee Dee River, North Carolina and South Carolina. Southern Division, American Fisheries Society, Tampa, Florida.
- Hightower, J. E.** 2011. Bayesian methods for analyzing fisheries data. Southern Division, American Fisheries Society, Tampa, Florida.
- Hughes, J. B., and J. E. Hightower.** 2011. Assessing spawning runs of anadromous fishes using a combination of split-beam and DIDSON count data. 141th Annual Meeting, American Fisheries Society, Seattle, Washington.
- Kwak, T. J., P. B. Cooney, and C. G. Lilyestrom.** 2011. Caribbean freshwater fisheries research: an opportunity to enhance diversity. Invited speaker to a symposium on “Diversity Management Solutions in a Changing World” at the 141st Annual Meeting of the American Fisheries Society, Seattle, Washington.
- Palamar, M. B., G. Erickson, B. Schmit, C. DePerno, and M. Correa.** 2011. A retrospective serological survey of PRRS and PCV2 exposure in U.S. feral swine. 18th Annual Conference of The Wildlife Society, Waikoloa, Hawaii.
- Palamar, M. B., G. Erickson, B. Schmidt, M. Correa, and C. S. DePerno.** 2011. A retrospective serological survey of PRRS and PCV2 exposure in U.S. feral swine. Feral Pig Symposium: A timely update on the challenges and future perspectives. North Carolina State University, JC Raulston Arboretum, Raleigh, North Carolina.
- Pandolfo, T. J., T. J. Kwak, W. G. Cope, R. J. Heise, and R. B. Nichols.** 2011. Microhabitat suitability of common and imperiled Atlantic Slope freshwater mussels. 141st Annual Meeting of the American Fisheries Society, Seattle, Washington.

Publications & Presentations



- Petre, S. J., D. K. Sackett, and D. D. Aday.** 2011. An assessment of mercury in economically important fishes commonly landed off the coast of North Carolina. 141st Annual Meeting of the American Fisheries Society, San Francisco, California.
- Peterson, M. N., M. B. Palamar, M. Correa, and C. S. DePerno.** Rabies knowledge and perceptions: selected population sampling in Greensboro, North Carolina. 18th Annual Conference of The Wildlife Society, Waikoloa, Hawaii.
- Porter, K., C. DePerno, and A. Krings.** 2011. Assessing the impact of feral horses, feral pigs, and white-tailed deer on vegetation on the Currituck National Wildlife Refuge. 18th Annual Conference of The Wildlife Society, Waikoloa, Hawaii.
- Raabe, J. K., and J. E. Hightower.** 2011. Use of restored habitat by migratory fishes following dam removals on North Carolina rivers. Workshop on dam removal organized by American Rivers, Chapel Hill, North Carolina.
- Raabe, J. K., and J. E. Hightower.** 2011. Behavior of migratory fishes in a North Carolina river following dam removals. Southern Division, American Fisheries Society, Tampa, Florida.
- Raabe, J. K., and J. E. Hightower.** 2011. Habitat use and survival of American shad following dam removals on a North Carolina river. 141st Annual Meeting, American Fisheries Society, Seattle, Washington.
- Rudershausen, P., T. Dubriel, M. O'Donnell, J. A. Buckel, B. Letcher, and J. E. Hightower.** 2011. Use of passive integrated transponder (PIT) tag antennas to monitor movements of mummichogs *Fundulus heteroclitus* in a tidal saltwater creek. 141st Annual Meeting, American Fisheries Society, Seattle, Washington.
- Rockhill, A. P., and C. S. DePerno.** 2011. The efficiency of surveying mammals in coastal wetlands; distribution, richness, and abundance. 18th Annual Conference of The Wildlife Society, Waikoloa, Hawaii.
- Rodriguez, S. L., M. N. Peterson, F. Cabbage, H. Bondell and E. Sills.** 2011. Assessing North Carolina Private Landowner Interest in Conservation Incentive Programs: Protecting Ecosystem Services and Military Readiness. Virginia Regional Environmental Management Systems webinar series.
- Rodriguez, S. L., M. C. Chitwood, M. N. Peterson, B. Gardner, H. P. Hansen and C. Jensen.** Gender differences in hunting recruitment and dedication in Denmark. 18th Annual Conference of The Wildlife Society, Waikoloa, HI.
- Sollmann, R., B. Gardner, D. Shindle, D. Onorato, A. F. O'Connell, R Chandler, and J. A. Royle.** 2011. Estimating Florida panther density from camera-trapping data. The Wildlife Society 18th Annual Conference, Waikoloa, Hawaii.
- Smith, W. E., T. J. Kwak, and P. B. Cooney.** 2011. Migration and management of Caribbean amphidromous fishes. 141st Annual Meeting of the American Fisheries Society, Seattle, Washington.
- Sackett, D. K., D. D. Aday, J. A. Rice, and W. G. Cope.** 2011. Evaluating mercury dynamics and trophic transfer in aquatic ecosystems. 141st Annual Meeting of the American Fisheries Society, San Francisco, California.

Publications & Presentations



Waine, M. W., J. E. Hightower, K. M. Boswell, and B. J. Reich. 2011. Assessing spawning runs of anadromous fishes using a Bayesian analysis of split-beam and DIDSON count data. 141th Annual Meeting, American Fisheries Society, Seattle, Washington.

Waine, M. W., J. E. Hightower, K. M. Boswell, and B. J. Reich. 2011. Assessing spawning runs of anadromous fishes using a Bayesian analysis of split-beam and DIDSON count data. Southern Division, American Fisheries Society, Tampa, Florida.

Extension and Outreach

Aday, D. D. 2011. People and fish: managing natural resources in a dynamic (and toxic) environment. East Carolina University, Department of Biology.

Rockhill, A. P., C. S. DePerno, and R. A. Powell. Moving by Moonlight: Implications of bobcat hunting strategies. Presented to 54 students in the Virginia Tech Chapter of The Wildlife Society; Virginia Polytechnic Institute and State University; Blacksburg, Virginia

Grants

Aday, D. D., S. Kullman, W. G. Cope, T. Kwak, J. M. Law, and J. A. Rice. A comprehensive examination of endocrine disrupting compounds and intersex in fish in North Carolina water bodies. \$653,426. North Carolina Wildlife Resources Commission. 2011-2016.

Aday, D. D., and J. A. Rice. Population parameters, life history characteristics, spatial distribution, and habitat use of reservoir white bass. \$178,101. NC Wildlife Resources Commission. 2011-2014.

Durso, K. P., and C. S. DePerno. 2012. A preliminary investigation of a human-introduced population of Mediterranean geckos (*Hemidactylus turcicus*) in Cary, North Carolina. Undergraduate Research Awards Grant. \$1,000; 1 year.

Rice, J. A., and D. D. Aday. Coastal Largemouth Bass Responses to Seasonal and Episodic Habitat Constraints. \$187,696. NC Wildlife Resources Commission. 2011-2014.

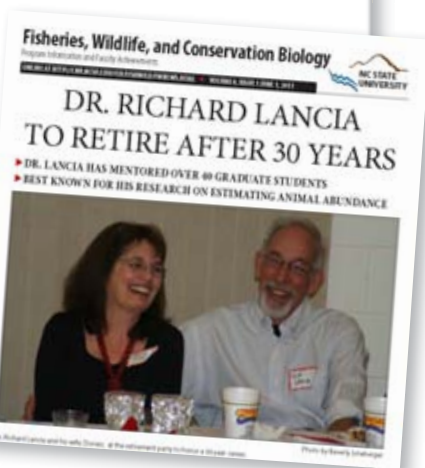
Sanders, C., C. S. DePerno, and C. Olfenbittel. 2012. Age structure and reproductive habits of the North American river otter (*Lontra canadensis*) in North Carolina. North Carolina Trappers Association. \$2,000; 1 year.



READ BACK ISSUES ONLINE

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<http://www.cnr.ncsu.edu/fer/fishwild>



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<http://www.cnr.ncsu.edu/fer/fishwild/fwschol.html>

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If interested contact Dr. Chris DePerno (chris_deperno@ncsu.edu)

THE NEWSLETTER

Compiled and edited by:

Christopher S. DePerno, Ph.D.

Associate Professor, Fisheries, Wildlife, and Conservation Biology

Department of Forestry

College of Natural Resources

North Carolina State University

Turner House, Box 7646

Raleigh, NC 27695-7646

919-513-7559 (office)

919-334-8935 (cell)

919-515-5110 (fax)

chris_deperno@ncsu.edu

Steve Allen

Fisheries, Wildlife, and

Conservation Biology graduate student

design and editing

336-209-5093 (cell) stevecallen@nc.rr.com

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