

Nicolette L. Cagle

Career interests: Conservation biology; Environmental education; Restoration ecology; Landscape ecology; Habitat modeling; Wildlife management; Ecological monitoring; Herpetology.

EDUCATION

DOCTOR OF PHILOSOPHY, Defended: January 2008

Department of Ecology

Duke University, Durham, NC

Dissertation: Multi-scale snake species-habitat relationships and conservation.

Concentration: Conservation biology with an emphasis on landscape ecology.

Special Programs: Preparing Future Faculty Program 2007-2008.

BACHELOR OF SCIENCE, *summa cum laude*, August 1999-May 2002

University of Illinois, Urbana, IL

Major: Environmental science and natural resources.

Special Programs: Environmental Fellows Program; Campus Honors Program.

Selected Honors: Jonathon Baldwin Turner Scholar, 1999-2002; James Scholar, 1999-2002; Morris K. Udall Scholarship recipient, 2001.

PROFESSIONAL EXPERIENCE

Principal Investigator, Duke University, Durham, NC

Devised and implemented a pilot study and multi-annual research strategy to study the abundance and habitat relationships of snake species in the tallgrass prairie of Illinois. Successfully wrote grants and raised over \$90K in research funds.

Field Experience: Quantified vegetation and microhabitat structure. Captured, measured snout-to-vent lengths, scale-clipped and sexed snakes. Designed, constructed, and installed small animal traps and drift-fences.

Data Analysis: Developed and measured habitat metrics using GIS (ArcMap & ERDAS Imagine). Performed multivariate statistical analysis (programs R, S-Plus, SAS, & PC-ORD) and modeled species distributions using structural equations, maximum entropy models, zero-inflated poisson and logistic regressions.

Communication: Developed strong oral and written skills by presenting research to scientists, managers, and community organizations and writing research articles, technical reports, and general articles for local communities. 2003-2008

Forest Succession and Soils Researcher, Duke University, Durham, NC

Identified and measured trees. Developed a litter bag decomposition experiment.

Sampled and compared data using GIS. Constructed and installed soil gas wells and lysimeters. Operated mass spectrophotometer and microbalance. 2003-2005

Researcher, University of Illinois – Urbana

Lichen Project: Motivated and coordinated an investigation of the effects of pollution on lichen morphology in northern Indiana. Collected lichen samples, created lichen microslides, operated spectrophotometer and digital microscope camera 2001-2002

Tropical Herpetology: Independently researched tree frog pigmentation in Costa Rica and Nicaragua. Assisted in boa constrictor tracking study recorded by National Geographic (two Reptile Wild episodes). Provided Spanish/English translation. 2001

Rare Prairie Flora: Developed germination research on a rare prairie forb. Initiated root growth research using root bags. Scarified seeds, recorded germination and growth chamber conditions, and published an article on this research. 2000-2001

Caddisflies and Water Quality: Collected and biometrically evaluated macroinvertebrates. Instigated, funded, and published water chemistry research. 1999-2001

Restoration Ecology Assistant, Chicago Botanic Garden, Glencoe, IL

Mastered prairie restoration techniques including mowing, pulling, dead-heading, and herbicide treatment. Operated small equipment. Collected and cleaned seeds, planted native species, and cared for nursery seedlings. Completed plant surveys and identified 100+ species of native and alien flora. Produced snake reintroduction plan and wrote internal reports. Directed and supervised volunteers in the field. 2000

TEACHING

Teaching Assistant, Duke University, Durham, NC

EXPERIENCE

Provided technical writing assistance. Developed seminar and lab materials. Presented lectures, led seminars and laboratory exercises. Reviewed and edited policy memos, research proposals, and laboratory write-ups. 2003-2008
Classes: Principles of Biology, Animal Physiology, Environmental Science and Policy, Ecosystem Management, Landscape Ecology and Multivariate Statistics.

After-school Tutor, The Lerner School, Durham, NC

Tutored grade school children in the natural sciences, mathematics, and writing. Engaged pre-school to 12 year old students in hands-on learning activities, and supervised outdoor and indoor play. 2006-Present

Certified Environmental Educator, NC Environmental Education Program

Designed and coordinated logistics for a bridge-building project. Directed and recruited volunteers. Engaged in 70+ hours of educator workshops and 50+ hours of structured outdoor environmental education experiences. Taught environmental science to students from age 6 to adults in formal and informal settings. 2004-2007

Biology and English Teacher, United Planet, Dar-es-Salaam, Tanzania

Taught biology and English in challenging conditions to at-risk students, ages 4-35. Developed grade-school biology curriculum. Promoted cross-cultural dialog. 2006

Environmental Educator/Water Quality Monitor, AmeriCorps, Knoxville, TN

Taught high school and middle school environmental science. Devised lesson plans, lectures, and hands-on activities. Planned and implemented creek clean-ups with students. Monitored local stream bacteria, chemistry, and fauna with classes. Presented finding to the Stock Creek Watershed Association with students. Received training in citizenship, human diversity, and defensive driving. 2002-2003.

Naturalist/Environmental Educator, The Grove, Glenview, IL

Trained and supervised 10+ volunteers. Developed outdoor education programs for children and adults. Taught pond studies, entomology, and natural history. Collected seeds and removed invasive species. Handled raptors. Provided advanced husbandry for 50+ reptiles, amphibians, birds, and mammals. 1996-2000

ADDITIONAL EXPERIENCE

Invited Guest Lecturer and Mentor, NC School of Science and Math, Durham, NC
Presented research results and expounded on career paths in the sciences. Mentored students in short-term ecology research projects. 2007-2008

Sea Turtle Rehabilitator Volunteer, Hidden Harbor Hospital, Marathon, FL

Assisted veterinarian in sea-turtle surgeries. Provided basic husbandry to sea turtles. Cared for stranded pilot whales. 2003

Animal Care Volunteer, Anita Purves Nature Center, Urbana, IL

Oriented visitors. Educated children about Illinois fauna. Provided basic husbandry for reptiles, amphibians, birds, and mammals. 1999-2001

GRANTS

2007 - Duke University and Nicholas School Conference Travel Fellowships, \$1,600
2007 - NASA-MSU Professional Enhancement Award, \$500
2005 - National Science Foundation Graduate Research Fellowships, \$90,000
2004 - Prairie Biotic, Inc. Prairie Research Grant, \$1,000
2001 - Illinois Environmental Council Research Experience Grant, \$2,000
2001 - University of Illinois Campus Honors Program Travel Grant, \$1,000
2001 - University of Illinois College of ACES Travel Grant, \$800

PUBLICATIONS

Cagle, N. L. and D. L. Urban. A multi-scale analysis of snakes species composition and abundances from the Grand Prairie, Illinois, USA. (in review at Landscape Ecology)

Cagle, N.L. 2008. Snake species distributions and temperate grasslands: a case study from the American tallgrass prairie. *Biological Conservation* 141:744-755.

Cagle, N. L. 2006. Where have all the snakes gone? Goose Lake Prairie Partner's Own Newsletter. April 2006.

Cagle, N. L. 2005. Snakes alive! Goose Lake Prairie Partner's Own Newsletter. October 2005.

Flocca, N. L. (*maiden name*), Coons, J. M., Owen, H. R., Fischer, B. J., and Edgin, B. E. 2004. Germination of *Silene regia* and *Saponaria officinalis* following stratification or scarification. *Erigenia*. 20: 8 – 14.

R. E. DeWalt and Flocca, N. L. (*maiden name*) 2000. Caddisfly diversity, abundance, and larval growth in Split Rock Brook of Pecumsaugan Creek and Blackball Mine State Nature. Illinois Natural History Survey Technical Report.

PUBLICATIONS IN PREPARATION Cagle, N.L. and N. L. Christensen. Evaluating the conservation status of Illinois' snakes.

Cagle, N. L. Patterns of microhabitat occupancy among snakes of the North American tallgrass prairie.

PRESENTATIONS Cagle, N. L. A Multi-scale Analysis of Snake Species-Habitat Relationships in the Tallgrass Prairie. Joint Meeting of Ichthyologists and Herpetologists, St. Louis, Missouri. July 2007.

Cagle, N. L. Where have all the snakes gone? A landscape-level analysis of snake species distributions in the tallgrass prairie at the North Carolina Herpetology Society Spring Meeting, Grandfather Mountain, North Carolina. May 12, 2007.

Cagle, N. L. Habitat classification and conservation practice: matching ecological and statistical models. NASA-MSU Symposium at the U.S. Regional Association of the International Association for Landscape Ecology, Tuscon, Arizona. April 10, 2007.

Cagle, N. L. The future of prairie snakes: diversity and survival. University of St. Francis, 1st Midewin National Tallgrass Prairie Symposium: 10 years of progress in restoration and research at Midewin, Joliet, Illinois. August 24, 2006.

Cagle, N. L. Snakes of North Carolina. Duke University, Duke Osher Institute for Lifelong Learning, Topics in Environmental Sciences, Durham, North Carolina. February 2006.

Cagle, N. L. Gardening with native plants: the importance of native plants in urban landscapes. Duke University, Nicholas School of the Environment Environmental Workshop, Durham, North Carolina. April 11, 2005.

Cagle, N. L. Snakes: History, Attitudes, and Conservation. Boy Scout Troop 412, Trinity Avenue Presbyterian Church, Durham, North Carolina. March 14, 2005.

Cagle, N. L. and South Doyle High School students. Results of stream chemistry and macroinvertebrate inventory for Stock Creek. Stock Creek Watershed town meeting, Knoxville, Tennessee. April 8, 2003.

Flocca, N. L. (*maiden name*) and R. E. DeWalt. Caddisfly diversity, abundance, and larval growth in Split Rock Brook of Pecumsaugan Creek and Blackball Mine State Nature. University of Illinois, Environmental Horizons Conference, Urbana, Illinois. April 1 and 2, 2002.

PROFESSIONAL ENRICHMENT

- North Carolina Environmental Education Certificate Program (2004)
- Eno River Association: Member (2006 – present)
- Member of the American Association for the Advancement of Science (2005 – present)
- Ecological Education for Grade School Students and Community Organizations
- North Carolina Herpetological Society (2004 – present)
- Duke Natural History Society (2003 – present)
- Member: Chicago Herpetological Society, Society for the Study of Amphibians & Reptiles, and American Society of Ichthyologists & Herpetologists (2003-present)
- Wetlands, Local Summer Flora & Grass Courses at the Chicago Botanic Garden

ADDITIONAL ENRICHMENT

- L'Accademia Italiana - Raleigh/Durham (2006 – present)
- Horticulture Club Secretary (2000-2001)/Horticulture Therapy Chair (2001-2002)
- Illini Tae Kwon Do Club Secretary (2000-2001)/ Treasurer (2001-2002)/Senior Belt
- Campus Honors Program Senior Sibling (2000-2002)
- North Korean Children's Foundation Treasurer (2001-2002)

Hands-On Herb Society founding member (2002)
Animal Care Volunteer at Anita Purves Nature Center (2000-2002)

**ADDITIONAL
ACADEMIC
AWARDS**

Morris K. Udall Scholarship
Forestry Faculty Merit Award
Bronze Tablet Award (Highest University Honors)
Environmental Fellows Program
University of Illinois Chancellor's Scholar – Campus Honors Program
University of Illinois James Scholar
Univ. of Illinois Jonathon Baldwin Turner Scholar
Gamma Sigma Delta Collegiate Honor Society
Outstanding student in Department of Natural Resources and Environmental Science
2001 – 2002
Recipient of 2000 University of Illinois Mothers Association Book Award
Gamma Sigma Delta Outstanding Senior Award
Golden Key Collegiate Honor Society
National Society of Collegiate Scholars
Alpha Lambda Delta Collegiate Honor Society
Xi Sigma Pi Honor Society

**ADDITIONAL
INFORMATION**

Languages: Fluent written and spoken English. Conversant Italian. Basic Spanish,
French, Swahili, and Polish.
PADI certified scuba diver.
Visited 14 countries and all 50 states.