

## Faculty Applicant (Environmental Engineering)

Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN 37023  
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### EDUCATION

The University of North Carolina at Chapel Hill, School of Public Health, Chapel Hill, NC  
PhD Environmental Sciences and Engineering 2005  
Area of Specialization: Population Ecology  
Thesis: "Foraging behavior with short and long-range movement in heterogeneous environments"  
Advisor: Dr. Jim Jenk

Northwestern University, Evanston, Illinois  
MS Biological Sciences 1999  
BA Integrated Science, with honors 1993

### AWARDS and HONORS

Cracheter Postdoctoral Fellowship, US Department of Engineering 2005-present  
ARCS Foundation Fellowship 2003-2005  
National Science Foundation Graduate Fellowship 2000-2003  
Phi Beta Kappa 1993

### RESEARCH INTERESTS

- Theoretical and field study of ecological communities
- The roles that spatial patterns and processes play in shaping communities
- How populations and processes acting on different spatio-temporal scales affect the behavior of - ecological systems -
- Influences of disturbance size and frequency on landscape structure

### RESEARCH EXPERIENCE

*Oak Ridge National Laboratory Environmental Sciences Division*  
Postdoctoral Fellow 2005-present

Develop quantitative theory of hierarchical structure in ecological systems. Analyze how ecological communities reflect environmental heterogeneity at different scales. Conduct numerical study of foraging behavior with short and long-range movement in heterogeneous environments.

*Research Advisor: Dr. Stan H. Smith*

*University of North Carolina School of Public Health, Department of Environmental Sciences*  
PhD Candidate 2002-2005

Conducted theoretical analysis of spatial scale and environmental heterogeneity in models of predator-prey communities. Performed analytical and numerical analysis to show how species interactions can sharpen underlying environmental patterns and how heterogeneous environments can stabilize predator and prey populations.

*Engineering Research Advisor: Dr. Jim Jenk*

*Northwestern University, Department of Biochemistry, Molecular Biology, and Cell Biology*  
Undergraduate Honors Researcher 1993

Investigated primary events of bacterial photosynthesis. Isolated and performed spectral analysis of photosynthetic reaction centers.

*Research Advisor: Dr. Peter Hawk*



## **PUBLICATIONS and PRESENTATIONS**

Phillips,S and FJC. 2005. Cowbird predation on starlings and swallows: attack and interspecific defense, - *Avia* 90:503-505. -

FJA and J Randolph. 2004. Avian predation on Anolis lizards in the northeastern Caribbean: an inter-island contrast, *Ecology* 70:617-628. -

FJA and J Randolph. Predation across spatial scales in heterogeneous environments, *Theoretical Population in Biology* ( in press Elsevier).

FJA and F Green. Species interactions in space, symposium paper presented at the 2003 meeting of the Ecological Society of America, Chadwick, ME ( submitted for publication to *Ecology* ).

## **REVIEWER**

*The American Ornithologist*  
*Backyard Birder*

## **TEACHING EXPERIENCE**

*University of North Carolina-Chapel Hill, Nature Education Seminar, Chapel Hill, NC*

Instructor, Ecosystems Ecology

2002-2004

Lectured 20 students on ecology and led weekend hikes to learn animal tracking and wilderness skills.

*Stanford University, Department of Biology, Palo Alto, CA*

Co-Instructor, Biology of Birds

1996-1997

Conducted a weekly help session, graded tests and homework, assisted in designing tests, co-lectured, and led field trips to the Palo Alto Baylands Nature Preserve.

*Core Biology Laboratory*

Teaching Assistant, Population Ecology

1995

Taught ecology lab sessions and led discussion sections.

## **UNIVERSITY SERVICE**

*UNC-CH Keep Carolina Green Coalition*

Founder and Tour Guide

2002-2005

Conducted botanical tours of the UNC campus, emphasizing native plants and how they are endangered by traffic and construction. Recruited over 50 new members and successfully applied for funds from the UNC Student Government, thereby ensuring the Coalition's continuity.

*Northwestern Students for a Better Environment*

President and Member

1994-1999

Organized student rallies, raised funds for radio and television ads, and initiated a letter-writing campaign to the state legislature which resulted in protection of endangered Picotee Lake wetlands.

## **COMMUNITY SERVICE**

Animal Protection Society of NC, Volunteer Dog Trainer

2002

Habitat for Humanity, Volunteer

2000-2001

Food Bank of Central Illinois, Volunteer

1999

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