

KEVIN R. BURGIO

University of Connecticut
Department of Ecology and Evolutionary Biology
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RESEARCH INTERESTS

I am broadly interested in the mechanisms of species range limitations and how disturbance (climate change and habitat fragmentation) influences species distribution patterns and extinction processes. My research focuses on using an integrative approach to understanding the behavioral, physiological, and morphological limitations of parrot distributions; the ecology, biogeography, and assembly of vertebrate communities; and extinction in parrots and parasites.

EDUCATION

- Current **Ph.D. Student**, Ecology and Evolutionary Biology, University of Connecticut
Advisor: Margaret Rubega
Committee: Robert Colwell, Chad Rittenhouse, Brian Walker, and Michael Willig
Dissertation topic: The influence of thermoregulatory adaptations and habitat change on the distribution of two North American parrot species
Expected completion: May 2016
- 2010 **B.A. (*Summa cum laude*)**, University of Connecticut
Ecology and Evolutionary Biology (University Scholar)
Honors Thesis: "Utility pole nesting behavior of Monk Parakeets"
Thesis advisors: Margaret Rubega, Chris Elphick, and Elizabeth Jockusch

PROFESSIONAL EXPERIENCE

- 2012 - **Visiting Faculty** - Fairfield University, CT
- collecting and analyzing data to test the efficacy of infrared thermography in evaluating stress load and metabolic heat loss in House Sparrows
 - collecting stress hormone, metabolic, and thermographic infrared data to explore the thermoregulatory benefits of a variety of behavioral, morphological, and physiological adaptations of Monk Parakeets

- 2010 **Field Research Supervisor** - National Audubon Society: Shrubland Bird Project
 - supervised field technicians in the collection of shrubland-nesting bird demographic, distribution, and behavioral data
- 2009 - 2012 **Volunteer Field Assistant** - University of Connecticut: Saltmarsh Sparrow Project
 - collected demographic and morphological data through mist-netting and censuses
- 2009 - 2010 **Research Intern** - National Audubon Society: New Haven County Breeding Bird Atlas/Survey
 - created a breeding-bird map for New Haven County using GIS and citizen science-collected data
 - reviewed and critiqued conservation management and reserve design plans
- 2009 **Summer Research Fellow** - Treibeck Foundation: Monk Parakeet utility pole nesting behavior research
 - collected and analyzed Monk Parakeet behavioral and distribution data
- 2008 **Field Assistant** - National Science Foundation (Research Experience for Undergraduates): Invasive birds in seed dispersal mutualisms
 - collected invasive plant demographic and growth rate data
- 2008 **Field Assistant** - Town of Mansfield, CT and Natural Resources Conservation Service: Effect of invasive plant removal on forest bird populations
 - designed and conducted avian censuses

PUBLICATIONS

- Burgio, K.R.**, L.M. Cisneros, K.E. Davis, L.M. Dreiss, B.T. Klingbeil, B.D. Patterson, S.J. Presley, and M.R. Willig. *In review*. Dimensions of passerine biodiversity along a tropical elevational gradient: a nexus for historical biogeography and contemporary ecology. *Journal of Animal Ecology*.
- Dreiss, L.M., **K.R. Burgio**, L.M. Cisneros, B.T. Klingbeil, B.D. Patterson, S.J. Presley, and M.R. Willig. 2015. Multiple dimensions of biodiversity for rodents along an extensive tropical elevational gradient: taxonomic, functional, and phylogenetic perspectives. *Ecography*. DOI: 10.1111/ecog.00971
- Burgio, K.R.**, M.A. Rubega, and D. Sustaita. 2014. Nest-building behavior of Monk Parakeets and insights into potential mechanisms for reducing damage to utility poles. *PeerJ*. 2:e601 DOI:10.7717/peerj.601
- Cisneros, L.M., **K.R. Burgio**, L.M. Dreiss, B.T. Klingbeil, B.D. Patterson, S.J. Presley, and M.R. Willig. 2014. Elevational variation of multiple dimensions of biodiversity in bats. *Journal of Animal Ecology*. 83: 1124–1136
- Carlson, C.J., C.A. Cizuaskas, **K.R. Burgio**, C.F. Clements, and N.C. Harris. 2013. The more parasites, the better? *Science*. 342:1041

Manuscripts in preparation: (Drafts available)

- Burgio, K.R.**, C.R. Van Rees, K.E. Block, M. Spreyer, and E.H. Bucher. 2014. Monk Parakeet (*Myiopsitta monachus*) in Birds of North America Online (A. Poole ed.). Ithaca: Cornell Lab of Ornithology. *To be submitted by 10/15/2014.*
- Lopez, B.E., **K.R. Burgio**, M.B. Carlucci, K.A. Palmquist, A. Parada, V. Weinberger, and A.H. Hurlbert. A new conceptual framework for testing the stress dominance hypothesis: trait conservatism of alpha and beta traits along gradients.
- Presley, S.J., **K.R. Burgio**, L.M. Cisneros, L.M. Dreiss, B.T. Klingbeil, B.D. Patterson, and M.R. Willig. Partitioning multiple dimensions of biodiversity along an extensive tropical elevational gradient: a comparison of three vertebrate orders.

PATENTS

- Burgio, K.R.** and M.A. Rubega. 2013. Monk Parakeet Utility Pole Exclusion Device. Provisional Patent # 61/842,608. USA. Filed: 7/3/2013.

RESEARCH GRANTS, AWARDS, AND FELLOWSHIPS

Career Total: \$158,750

- 2011 - 2016 (\$121,000) **National Science Foundation Graduate Research Fellow**
- 2014 (\$2,850) UConn EEB Summer Support Grant
- 2013 (\$500) UConn EEB Summer Support Grant
- 2013 (\$17,000) UConn Faculty Large Grant (co-author, awarded to Margaret Rubega)
- 2013 (\$375) George Clark Jr. Connecticut Natural History Museum Award
- 2010 (\$150) Connecticut Natural History Museum Award
- 2010 (\$1500) Edwin V. Gant Memorial Scholarship, UConn
- 2009 (\$7500) **Barry Goldwater National Scholarship**
- 2009 (\$3500) Treibick Foundation Summer Research Fellowship
- 2009 (\$500) UConn Life Sciences Honors Thesis Research Grant
- 2009 (\$500) UConn Office of Undergraduate Research Grant
- 2009 (\$375) Katie Bu Memorial Grant
- 2009 (\$1800) UConn University Scholar Award
- 2007 (\$1000) UConn Greater Hartford Campus Scholarship
- 2007 (\$200) UConn Hartford Campus Alumni Scholarship

OTHER AWARDS

- 2010 University Scholar – University of Connecticut
- 2010 Honors Scholar - University of Connecticut
- 2009 New England Scholar - University of Connecticut

2008 Babbidge Scholar - University of Connecticut
 2007 Babbidge Scholar - University of Connecticut
 2002 **Air Force Commendation Medal - United States Air Force**
 2001 Distinguished Graduate - United States Air Force Leadership School
 1999 Air Force Achievement Medal - United States Air Force
 1997 Top Graduate - United States Air Force Technical Training School

PRESENTATIONS

Willig, M.R., **K.R. Burgio**, L.M. Cisneros, L.M. Dreiss, B.T. Klingbeil, B.D. Patterson, and S.J. Presley. Gradients of Phylogenetic Relatedness and Size Similarity: Bats and Rodents in a Hotspot of Tropical Biodiversity (Manu, Peru). 2014. **American Society of Mammologists** Annual Meeting, Oklahoma City, OK. *(to be presented June, 2014)*

Carlson, C.J., **K.R. Burgio**, and K.E. Block. Reconstructing the extinction of the Carolina Parakeet: Historical data reveal that two distinct human activities drove two separate subspecies' declines. 2013. **Ecological Society of America** Annual Meeting, Minneapolis, MN.

Willig, M.R., **K.R. Burgio**, L.M. Cisneros, L.M. Dreiss, B.T. Klingbeil, B.D. Patterson, and S.J. Presley. Comparative Biodiversity of Bats and Rodents Along an Extensive Tropical Elevational Gradient: Taxonomic, Functional, and Phylogenetic Dimensions. 2013. **American Society of Mammologists** Annual Meeting, Philadelphia, PA.

Lopez, B.E., **K.R. Burgio**, M.B. Carlucci, K.A. Palmquist, A. Parada, V. Weinberger, and A.H. Hurlbert. Inferring Community Assembly Processes Under Niche Lability: Considering the Stress Dominance Hypothesis. 2012. **Ecological Society of America** Annual Meeting, Portland, OR.

Klingbeil, B.T., **K.R. Burgio**, L.M. Cisneros, K.E. Davis, L.M. Dreiss, B.D. Patterson, S.J. Presley, and M.R. Willig. Elevational variation of multiple dimensions of biodiversity: inter-taxon comparisons. 2012. **Ecological Society of America** Annual Meeting, Portland, OR.

COLLABORATIONS / OTHER RESEARCH PROJECTS

2013 - **Researcher** - Parasite Ecology Research Project

- a founding member of a multi-institution research collaboration investigating the impact of climate change on parasite biodiversity.
- Other institutions represented: Princeton University, University of California Berkeley, the Smithsonian Museum, and the University of Sheffield, UK

- 2011 - **Project Facilitator** - National Science Foundation: Dimensions of Biodiversity Distributed Graduate Seminar
- manager of a multi-university collaboration investigating how changes in phylogenetic and functional diversity over an environmental gradient can be used to better understand community assembly processes

PUBLIC OUTREACH

- 2013 Instructor: Intermediate and advanced avian census techniques, Wildlife Society Northeast Conclave, Ashford, CT
- 2013 Invited speaker: "The Carolina Parakeet: biology, extinction, and current research" The Parrot Club
- 2013 Invited speaker: "Monk Parakeets" Western Connecticut Bird Club
- 2012 Invited speaker: "The Distribution of Monk Parakeets in Connecticut" CT Department of Energy and Environmental Protection Avian Summit
- 2012 Invited speaker: "Ecology: research, graduate school, and careers" Manchester High School, CT
- 2012 Invited speaker: "Adaptations in Birds" Franklin Elementary School, Franklin, CT
- 2010 Invited speaker: "Monk Parakeets in Connecticut: What Are They Doing Here?" New Haven Bird Club

TEACHING EXPERIENCE

- 2014 Teaching Assistant, Biology of the Vertebrates - University of Connecticut
- 2012 - Undergraduate Independent Research Supervisor - Fairfield University
- 2010 - 2011 Teaching Assistant, Principles of Biology II Lab - University of Connecticut
- 2010 Guest Lecturer, Topics in Modern Biology - University of Connecticut

MENTORING

Undergraduates:

- 2012 - Kali Block '15 - University of Connecticut. Independent research project: Testing Bergmann's, Groger's and Allen's Rule among Monk Parakeet populations
- Recipient 2013 Sigma Xi GIAR (\$1000)
 - Recipient 2014 UConn Center for Biodiversity and Conservation Grant (\$500)
- 2014 - Kerri McPhail '16 - Fairfield University. Research assistant: Testing the efficacy of infrared thermography in evaluating stress and metabolic heat loss in House Sparrows

- 2014 - Christian Cardillo '16 - Fairfield University. Research assistant: Testing the efficacy of infrared thermography in evaluating stress and metabolic heat loss in House Sparrows
- 2014 - Sabrae Boisvert '16 - Fairfield University. Research assistant: Testing the efficacy of infrared thermography in evaluating stress and metabolic heat loss in House Sparrows
- 2014 - Nicolette Tiernan '16 - Fairfield University. Research assistant: Testing the efficacy of infrared thermography in evaluating stress and metabolic heat loss in House Sparrows
- 2012 - 2013 Thomas Corona '13 - Fairfield University. Independent research project: Monk Parakeet utility pole nesting preferences
- Presented poster, "Determination of Monk Parakeet Nesting Site Preferences on Utility Poles in Southern Connecticut," at Fairfield University Sigma Xi Annual Poster Session April, 2013.
- 2012 Daniel Gonzalez '14 - Fairfield University, Research assistant: Monk Parakeet utility pole nesting preferences

High School Students:

- 2013 - Nikki Pirtel '15, Manchester High School. Independent research project: Using fungi and bacteria in the bioremediation of plastics

OTHER PROFESSIONAL EXPERIENCE

- 1996 – 2002 Staff Sergeant - United States Air Force
- Manager of Aerospace Dentistry - duties include: dental assistant, radiology technician, and dental hygienist
 - combat medic specializing in chemical, nuclear, and biological decontamination

VOLUNTEER EXPERIENCE

- 2011 - Commissioner - Town of Hamden Natural Resource and Open Space Commission
- 2008 Writing Tutor - University of Connecticut
- 2000 - 2002 Head Instructor - Dental Assistant Training Program - American Red Cross

RELATED TRAINING AND SKILLS

Computer programs: R, ArcGIS 10, MaxEnt, EstimateS, GEOLocate, Biota, and ResearchIR

Field training/experience: mist-netting and banding, survey techniques (point counts, territory mapping, and linear transects), nest searching, behavioral observations, morphological measurements, and vegetation sampling

Analyses: species distribution modeling, extinction modeling, species biodiversity metrics, and quantifying functional and phylogenetic biodiversity

Technology: Infrared thermography (IRT) and automated recording units (ARUs)

PROFESSIONAL AFFILIATIONS

Society for Conservation Biology
American Ornithologists' Union
Association of Field Ornithologists
Phi Beta Kappa Honor Society
Phi Kappa Phi Honor Society

REFERENCES

Dr. Margaret A. Rubega
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