

KEVIN R. BURGIO

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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 parrot distributions; the ecology, biogeography, and assembly of vertebrate communities; and extinction in parrots and parasites.

EDUCATION

- Current **Ph.D. Candidate**, Ecology and Evolutionary Biology, U. of Connecticut
Advisor: Margaret Rubega
Committee: Robert Colwell, Chad Rittenhouse, Brian Walker, and Michael Willig
Dissertation topic: The extinction of the Carolina Parakeet and multiple dimensions of global parrot biodiversity
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

PUBLICATIONS

- Dougherty, E.R., C.J. Carlson, V.M. Bueno, **K.R. Burgio**, C.A. Cizauskas, C.F. Clements, D.P. Seidel, and N.C. Harris. 2015. Paradigms for parasite conservation. *CONSERVATION BIOLOGY*. DOI: 10.1111/cobi.12634
- 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*. 38: 876–888

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. Cizauskas, **K.R. Burgio**, C.F. Clements, and N.C. Harris. 2013. The more parasites, the better? *SCIENCE*. 342:1041

Manuscripts in press:

Burgio, K.R., C.R. van Rees, K.E. Block, M. Spreyer, and E.H. Bucher. *In press*. Monk Parakeet (*Myiopsitta monachus*) in *BIRDS OF NORTH AMERICA ONLINE* (P. Rodewald ed.). Ithaca: Cornell Lab of Ornithology.

Manuscripts in review/submission/revision:

Cizauskas, C.A., C.J. Carlson, **K.R. Burgio**, C.F. Clements, N.C. Harris, E.R. Dougherty, and A.J. Phillips. Conservation's biggest blind spot: mainstreaming parasites into climate change biology. *PROCEEDINGS OF THE ROYAL SOCIETY B*.

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. Dimensions of passerine biodiversity along a tropical elevational gradient: a nexus for historical biogeography and contemporary ecology. *ECOGRAPHY*.

Manuscripts in preparation: (Full drafts available)

Burgio, K.R., C.J. Carlson, and M.W. Tingley. Recovering the natural history of an extinct species: the distribution, climate niche, and seasonal movements of the Carolina Parakeet. To be submitted to *AMERICAN NATURALIST* by 12/15/15.

Harris, N.C., C.J. Carlson, **K.R. Burgio**, C.F. Clements, and E.R. Dougherty. Biodiversity hotspots, but we forgot the majority. To be submitted to *GLOBAL ECOLOGY AND BIOGEOGRAPHY* by 12/1/15.

Burgio, K.R., K.E. Block, and D. Brightsmith. White-winged Parakeet (*Brotogeris versicolorus*). To be submitted to *BIRDS OF NORTH AMERICA ONLINE* (P. Rodewald ed.). Ithaca: Cornell Lab of Ornithology by 12/1/15.

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. To be submitted to *PEERAGE OF SCIENCE* BY 12/1/15.

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.

Klingbeil, B.T., **K.R. Burgio**, L.M. Cisneros, L.M. Dreiss, B.D. Patterson, S.J. Presley, and M.R. Willig. Elevational variation in phylogenetic relatedness and size similarity: comparisons of birds, bats, and rodents.

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: \$159,250

2011 - 2016 (\$121,000) **National Science Foundation Graduate Fellow**
2015 (\$500) UConn EEB Summer Support Grant
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 M. 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

PROFESSIONAL EXPERIENCE

- 2012 - **Visiting Faculty** - Fairfield University, CT
- Responsible for training undergraduate students in basic research skills and field methods in ornithology
 - 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

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.

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.

TEACHING EXPERIENCE

Instructor

2015 Field Methods in Ornithology (EEB 4262) – University of Connecticut

Teaching Assistant

2015 Principles of Biology II (BIO 1108) - University of Connecticut

2015 Ornithology Lab (EEB 4261) – University of Connecticut

2015 Ornithology (EEB 4260) - University of Connecticut

2014 Biology of the Vertebrates (EEB 2214) - University of Connecticut

2011 Principles of Biology II (BIO 1108) - University of Connecticut

2010 Principles of Biology II (BIO 1108) - University of Connecticut

Other Teaching Experience

- 2015 Guest Lectures (2), Ornithology Lab (EEB 4261) – UConn
- 2015 Guest Lectures (2), Ornithology (EEB 4260) - UConn
- 2012 - Undergraduate Independent Research Supervisor - Fairfield University
- 2010 Guest Lecture, Topics in Modern Biology (BIO 1109) – UConn

MENTORING

Undergraduates:

- 2012 - 2015 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 - 2015 Nikki Pirtel '15, Manchester High School. Independent research project: Using fungi and bacteria in the bioremediation of plastics

COLLABORATIONS / OTHER RESEARCH PROJECTS

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

MEDIA COVERAGE

- 2015 Paradigms of parasite conservation research published in Conservation Biology featured in [The Atlantic](#).
- 2014 Monk Parakeet utility pole nesting research published in PeerJ featured on: [NPR](#), [FoxCT](#), [New Haven Register](#), [New Hampshire Public Radio](#), [UConn Today](#), [PeerJ Blog](#), and [Hartford Business Journal](#)

PUBLIC OUTREACH

- 2015 Invited speaker: "The extinction of the Carolina Parakeet" New Haven Bird Club
- 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 of Birds" Franklin Elementary School, Franklin, CT
- 2010 Invited speaker: "Monk Parakeets in Connecticut: What Are They Doing Here?" New Haven Bird Club

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 - 2015 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, MaxEnt, EstimateS, GEOLocate, Biota, and ResearchIR

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

REFERENCES

Dr. Margaret A. Rubega

Associate Professor - Dept. of Ecology and Evolutionary Biology - University of Connecticut

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margaret.rubega@uconn.edu

K.R. Burgio – Curriculum Vitae

Dr. Robert K. Colwell

Professor Emeritus - Dept. of Ecology and Evolutionary Biology - University of Connecticut

(860) 486-4395

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Dr. Michael R. Willig

Professor - Dept. of Ecology and Evolutionary Biology - University of Connecticut

Director - Center for Environmental Sciences and Engineering - University of Connecticut

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