

KEVIN R. BURGIO

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RESEARCH INTERESTS

When confronted with climate change, species have three options – move, adapt, or go extinct. Currently, my research explores each of these potentialities as well as their implications for conservation prioritization, using an integrative approach focusing on how organisms may shift their ranges and/or alter their behavior and morphology to survive rapidly changing climates and how these phenomena will influence extinction risk of a broad variety of taxa.

EDUCATION

- 2017 **Ph.D.** Ecology and Evolutionary Biology, University of Connecticut
Advisor: Margaret Rubega
Committee: Robert Colwell, Chad Rittenhouse, Brian Walker, and Michael Willig
Dissertation topic: “Extinction, climate change, and the conservation of parrots: developing the models and tools needed to help save the world's most endangered order of birds”
Successfully defended dissertation: 12/15/16
- 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: Citations: 31. H-index: 3. i10-index: 1

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

Lopez, B.E., **K.R. Burgio**, M.B. Carlucci, K.A. Palmquist, A. Parada, V. Weinberger, and A.H. Hurlbert. 2016. A new framework for inferring community assembly processes using phylogenetic information, relevant traits and environmental gradients. *ONE ECOSYSTEM*. 1: e9501. DOI: 10.3897/oneeco.1.e9501

Burgio, K.R., C.R. van Rees, K.E. Block, P. Pyle, M.A. Patten, M. Spreyer, and E.H. Bucher. 2016. Monk Parakeet (*Myiopsitta monachus*) in *BIRDS OF NORTH AMERICA ONLINE* (P. Rodewald ed.). Ithaca: Cornell Lab of Ornithology. DOI: 10.2173/bna.322

Burgio, K.R., B.J. Hiller, K.E. Block, P. Pyle, M.A. Patten, and D. Brightsmith. *In press*. Yellow-chevroned Parakeet (*Brotogeris chiriri*). *BIRDS OF NORTH AMERICA ONLINE* (P. Rodewald ed.). Ithaca: Cornell Lab of Ornithology.

Burgio, K.R., B.J. Hiller, K.E. Block, P. Pyle, M.A. Patten, and D. Brightsmith. *In press*. White-winged Parakeet (*Brotogeris versicolorus*). *BIRDS OF NORTH AMERICA ONLINE* (P. Rodewald ed.). Ithaca: Cornell Lab of Ornithology.

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*. 30: 724-733

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 revision/review

Carlson, C.J, **K.R. Burgio**, E.R. Dougherty, A.J. Phillips, V.M. Bueno, C.F. Clements, G. Castaldo, T. Dallas, C.A. Cizauskas, G. Cumming, J. Doña, N.C. Harris, R. Jovani, S. Mironov, O. Muellerklein, H.C. Proctor, and W.M. Getz. Parasite biodiversity faces extinction and redistribution in a changing climate. *SCIENCE ADVANCES*.

Burgio, K.R., C.J. Carlson, and M.W. Tingley. Lazarus ecology: recovering the natural history of the extinct Carolina parakeet. *ECOLOGY & EVOLUTION*.

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*.

Carlson, C.J., **K.R. Burgio**, T.A. Dallas, and W.M. Getz. The mathematics of extinction across scales: from populations to the biosphere. Prepared for: *THE MATHEMATICS OF PLANET EARTH*, 2nd ed.

Manuscripts in preparation (full drafts available)

Burgio, K.R., K.E. Davis, L.M. Dreiss, B.T. Klingbeil, L.M. Cisneros, S.J. Presley, and M.R. Willig. Strategic conservation: parrots, multiple dimensions of biodiversity, and climate change. To be submitted to *GLOBAL CHANGE BIOLOGY*.

Burgio, K.R., C.J. Carlson, M.A. Rubega, and M.W. Tingley. The mysterious extinction of the Carolina parakeet: was habitat loss responsible? To be submitted to *PEERJ*.

Carlson, C.J., **K.R. Burgio**, and J.K. Blackburn. Faking your way into ecological niche modeling: a guide to current publication standards for a highly-scrutinized literature. To be submitted to *ECOGRAPHY*.

Harris, N.C., C.J. Carlson, **K.R. Burgio**, E.R. Dougherty, and C.F. Clements. Forgotten no more: the next steps in assessing global parasite hotspots. To be submitted to *GLOBAL ECOLOGY AND BIOGEOGRAPHY*.

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: \$167,636

2011 - 2016 (\$121,000) **National Science Foundation Graduate Fellow**
2016 (\$4671) Experiment crowdfunded project (co-PI w/G. Smith-Vidaurre)
2016 (\$750) UConn Doctoral Student Travel Award
2016 (\$125) American Ornithologists Union Travel Award
2016 (\$2000) UConn Dissertation Fellowship
2016 (\$840) UConn EEB Summer Support Grant
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
- 2007 - 2008 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

- 2013 - **Researcher** - Parasite Ecology Research Project
 - Founding member and facilitator of a multi-institution research collaboration investigating the impact of climate change on parasite biodiversity
 - Other institutions represented: University of California Berkeley, the Smithsonian Museum, University of Michigan, and University of Zurich

- 2016 **Research Assistant** – Science Communications Study
 - Facilitated NSF-funded research project designed to test efficacy of classroom training in developing skills required to communicate science to the general public
 - Helped develop methods and study design

- 2012 - 2016 **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

2011 - 2016 **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

2010 **Field Research Supervisor** - National Audubon Society: Shrub 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

ORAL PRESENTATIONS

K.R. Burgio, K.E. Davis, L.M. Dreiss, L.M. Cisneros, B.T. Klingbeil, S.J. Presley, and M.R. Willig. 2016. Integrating multiple dimensions of biodiversity and considerations of climate change for parrot conservation. **North American Ornithological Conference**, Washington, D.C.

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

Carlson, C.J., **K.R. Burgio**, and K.E. Block. 2013. Reconstructing the extinction of the Carolina Parakeet: Historical data reveal that two distinct human activities drove two separate subspecies' declines. **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. 2013. Comparative Biodiversity of Bats and Rodents along an Extensive Tropical Elevational Gradient: Taxonomic, Functional, and Phylogenetic Dimensions. **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. 2012. Inferring Community Assembly Processes under Niche Lability: Considering the Stress Dominance Hypothesis. **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. 2012. Elevational variation of multiple dimensions of biodiversity: inter-taxon comparisons. **Ecological Society of America** Annual Meeting, Portland, OR.

POSTER PRESENTATIONS

Kosman, E., **K.R. Burgio**, S.J. Presley, M.R. Willig, and S.M. Scheiner. 2017. Using functional diversity to set conservation priorities: a methodology and a case study of global parrot diversity. **International Biogeography Society** Annual Conference, Tuscon, AZ.

Cardillo, C., B. Walker, **K.R. Burgio**, and M.A. Rubega. 2016. Is A Hothead Stressed? A pilot assessment of thermal imaging as a tool for indexing glucocorticoids. **Society of Integrative and Comparative Biology** Annual Conference, Portland, OR.

TEACHING EXPERIENCE

Instructor of Record

2017 Ornithology Laboratory – University of Connecticut
2016 Field Methods in Ornithology – University of Connecticut
2015 Field Methods in Ornithology – University of Connecticut

Teaching Assistant

2016 Biology of the Vertebrates – University of Connecticut
2015 Principles of Biology II – University of Connecticut
2015 Ornithology Laboratory – University of Connecticut
2015 Ornithology – University of Connecticut
2014 Biology of the Vertebrates – University of Connecticut
2011 Principles of Biology II – University of Connecticut
2010 Principles of Biology II – University of Connecticut

Other Teaching Experience

2012 - 2016 Undergraduate Independent Research Supervisor – Fairfield University
2015 Guest Lectures (2), Ornithology Laboratory – University of Connecticut
2015 Guest Lectures (2), Ornithology – University of Connecticut
2010 Guest Lecture, Topics in Modern Biology – University of Connecticut

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)
2014 - 2016 Kerri McPhail '16 - Fairfield University. Research assistant: Testing the efficacy of infrared thermography in evaluating stress and metabolic heat loss in House Sparrows

- 2014 - 2016 Christian Cardillo '16 - Fairfield University. Research assistant: Testing the efficacy of infrared thermography in evaluating stress and metabolic heat loss in House Sparrows
- 2014 - 2016 Sabrae Boisvert '16 - Fairfield University. Research assistant: Testing the efficacy of infrared thermography in evaluating stress and metabolic heat loss in House Sparrows
- 2014 - 2016 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.

High School Students

- 2013 - 2015 Nikki Pirtel '15, Manchester High School. Independent research project: Using fungi and bacteria in the bioremediation of plastics

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

- 2016 Consultant for National Geographic TV series "United States of Animals" Season 1, Episode 11: "The West Sting"
- 2016 Invited speaker: "Nesting behavior of Monk Parakeets on Utility Poles" American Federation of Aviculture Annual Conference
- 2015 Invited speaker: "The extinction of the Carolina Parakeet" New Haven Bird Club
- 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

K.R. Burgio – Curriculum Vitae

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

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Dr. Robert K. Colwell

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Dr. Morgan W. Tingley

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