

# KEVIN R. BURGIO

UNDERGRADUATE PROGRAM LEADER & RESEARCH SPECIALIST

*Cary Institute for Ecosystem Studies*

RESEARCH SCIENTIST

*Dept. of Ecology & Evolutionary Biology, University of Connecticut*

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## RESEARCH INTERESTS

I am broadly interested in the processes that form, and limit, where species are distributed, and their roles are in communities and ecosystems. I use an integrative approach to examine historical ecology, community assembly, the effects of climate change on communities, and extinction. My goal is to help bridge the divide between ecological theory and on-the-ground conservation in order to make the best possible decisions not just for today, but also for the future.

## TEACHING PHILOSOPHY

I am a strong proponent of reflective teaching practices, direct mentoring, and engaging students in active learning, with meaningful, hands-on activities and experiences to give students an opportunity not only to master the material, but to give them the tools they need to think critically in all aspects of their life. I am a vocal advocate for increasing inclusiveness in higher education, based on my own background as a first-generation, non-traditional student, who is also part of the LGBTQIA+ community and a military veteran.

## ACADEMIC BACKGROUND

- 2017 - 2019    **Postdoctoral Research Associate**, Dept. of Ecology and Evolutionary Biology, and the Center for Environmental Sciences and Engineering, University of Connecticut
- 2017         **Ph.D.** Ecology and Evolutionary Biology, University of Connecticut  
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”
- 2010         **B.A.** (*Summa cum laude*, University Scholar, Honors Scholar), University of Connecticut, Ecology and Evolutionary Biology

PUBLICATIONS: Citations: 232. h-index: 7. i10-index: 5. \* undergraduate mentee

*Lead-authored – published & manuscripts in review (preprints available)*

**Burgio, K.R.**, K.E. Davis, L.M. Dreiss, B.T. Klingbeil, L.M. Cisneros, S.J. Presley, and M.R. Willig. *In review*. Multiple dimensions of global parrot diversity. *BIRD CONSERVATION INTERNATIONAL*. Preprint available: [BIORXIV](#).

**Burgio, K.R.**, C.J. Carlson, A.L. Bond, M.A. Rubega, and M.W. Tingley. *In review*. The two extinctions of the Carolina parakeet. *BIOLOGICAL CONSERVATION*. Preprint available: [BIORXIV](#).

**Burgio, K.R.**, C.M. MacKenzie, S.B. Borelle, S.K.M. Ernest, J.L. Gill, K.E. Ingeman, A. Teffer, and E.P. White. *In review*. Ten Simple Rules for a Successful Remote Postdoc. *PLOS COMPUTATIONAL BIOLOGY*. Preprint available: [PEERJ PREPRINTS](#).

- news coverage: [Nature](#)
- [Altmetric Score: 185 \(top 5%\)](#)

**Burgio, K.R.**, K.E. Davis, L.M. Dreiss, B.T. Klingbeil, L.M. Cisneros, S.J. Presley, and M.R. Willig. 2019. A complete phylogenetic supertree and trait database for all extant parrots. *DATA IN BRIEF*. DOI: [10.1016/j.dib.2019.103882](https://doi.org/10.1016/j.dib.2019.103882)

**Burgio, K.R.**, C.J. Carlson, and A.L. Bond. 2018. Georeferenced sighting and specimen occurrence data of the extinct Carolina Parakeet 1564 - 1944. *BIODIVERSITY DATA JOURNAL*. 6: e25280. DOI: [10.3897/BDJ.6.e25280](https://doi.org/10.3897/BDJ.6.e25280)

- news coverage: [Pensoft Blog](#), [History of Ornithology](#)
- [Altmetric Score: 52 \(top 5%\)](#)

**Burgio, K.R.**, C.J. Carlson, and M.W. Tingley. 2017. Lazarus ecology: recovering the natural history of the extinct Carolina parakeet. *ECOLOGY & EVOLUTION*. 7:5467–5475. DOI: [10.1002/ece3.3135](https://doi.org/10.1002/ece3.3135)

- news coverage: [Washington Post](#), [IFLScience](#), [Salon](#), [Smithsonian Magazine](#), [Birding Magazine](#), [Forbes](#), [Audubon Magazine](#), [Stuff You Missed in History Class](#)
- [Altmetric Score: 158 \(top 5%\)](#)

**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](https://doi.org/10.2173/bna.322)

**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](https://doi.org/10.7717/peerj.601)

- News coverage: [NPR](#), [New Hampshire Public Radio](#), and [Hartford Business Journal](#)

*Lead-authored – in revision*

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

*Co-authored – published, in review, or preprint*

Gravelly, J.\*, **K.R. Burgio**, and M.A. Rubega. *In review*. A Method for Measuring the Thermal Insulation Value of Bird Feather Coats. *JOURNAL OF VISUALIZED EXPERIMENTS*.

Kosman, E., **K.R. Burgio**, S.J. Presley, M.R. Willig, and S.M. Scheiner. 2019. Conservation prioritization based on trait-based metrics illustrated with global parrot distributions. *DIVERSITY AND DISTRIBUTIONS*. 25: 1156–1165. [DOI: 10.1111/ddi.12923](https://doi.org/10.1111/ddi.12923)

- [Altmetric Score: 26 \(top 5%\)](#)

Bond, A.L., C.J. Carlson, and **K.R. Burgio**. 2019. Local extinction of insular avifauna on the most remote inhabited island in the world. *JOURNAL OF ORNITHOLOGY*. 160: 49-60. [DOI: 10.1007/s10336-018-1590-8](https://doi.org/10.1007/s10336-018-1590-8)

Carlson, C.J., A.L. Bond, and **K.R. Burgio**. 2018. Re-evaluating sighting models, and moving beyond them, to test and contextualize the extinction of the thylacine. *CONSERVATION BIOLOGY*. [DOI: 10.1111/cobi.13187](https://doi.org/10.1111/cobi.13187)

- news coverage: [IFLScience](#)
- [Altmetric Score: 14 \(top 25%\)](#)

Carlson, C.J., A.L. Bond, and **K.R. Burgio**. 2018. Estimating the extinction date of the Thylacine accounting for unconfirmed sightings. *CONSERVATION BIOLOGY*. 32: 477-483. [DOI: 10.1111/cobi.13037](https://doi.org/10.1111/cobi.13037)

- news coverage: [Vice](#)
- [Altmetric Score: 147 \(top 5%\)](#)

Carlson, C.J., **K.R. Burgio**, T.A. Dallas, and W.M. Getz. *In press*. The mathematics of extinction across scales: from populations to the biosphere. *THE MATHEMATICS OF PLANET EARTH*, 2<sup>nd</sup> ed. Preprint available: [PEERJ PREPRINTS](#)

Carlson, C.J., **K.R. Burgio**, T.A. Dallas, and A.L. Bond. 2018 Spatial extinction date estimation: a novel method for reconstructing spatiotemporal patterns of extinction and identifying potential zones of rediscovery. Preprint available: [BIORXIV](#)

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. 2017. Parasite biodiversity faces extinction and redistribution in a changing climate. *SCIENCE ADVANCES*. 3(9): e1602422 [DOI: 10.1126/sciadv.1602422](https://doi.org/10.1126/sciadv.1602422)

- news coverage: [NY Times](#), [Popular Science](#), [Smithsonian Magazine](#), and [the Guardian](#)
- [Altmetric Score: 450 \(top 5%\)](#)

Cizauskas, C.A., C.J. Carlson, **K.R. Burgio**, C.F. Clements, N.C. Harris, E.R. Dougherty, and A.J. Phillips. 2017. Parasite vulnerability to climate change: an evidence-based functional trait approach. *ROYAL SOCIETY OPEN SCIENCE*. 4: 160535. [DOI: 10.1098/rsos.160535](https://doi.org/10.1098/rsos.160535)

Brightsmith, D., **K.R. Burgio**, B.J. Hiller, *K.E. Block\**, P. Pyle, and M.A. Patten. 2017. Yellow-chevroned Parakeet (*Brotogeris chiriri*). *BIRDS OF NORTH AMERICA ONLINE* (P. Rodewald ed.). Ithaca: Cornell Lab of Ornithology. <https://birdsna.org/SpeciesAccount/bna/species/yecpar>

Carlson, C.J., O.C. Mullerklein, A.J. Phillips, **K.R. Burgio**, G. Castaldo, C.A. Cizauskas, G. Cumming, T.A. Dallas, J. Dona, Z. Miao, H. Proctor, H.S. Yoon, and W.M. Getz. 2017. The Parasite Extinction Assessment Red List (PEARL): an extensible, open-source, online biodiversity database for neglected invertebrates. [Preprint available](#)

Brightsmith, D., **K.R. Burgio**, B.J. Hiller, *K.E. Block\**, P. Pyle, and M.A. Patten. 2017. White-winged Parakeet (*Brotogeris versicolorus*). *BIRDS OF NORTH AMERICA ONLINE* (P. Rodewald ed.). Ithaca: Cornell Lab of Ornithology. <https://birdsna.org/SpeciesAccount/bna/species/whwpar>

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/oneco.1.e9501

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

- news coverage: [The Atlantic](#) and [Carbon Brief](#)
- [Altmetric Score: 50 \(top 5%\)](#)

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

K.R. Burgio – Curriculum Vitae

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

#### SCIENCE COMMUNICATION / NON-ACADEMIC PRODUCTS

Bahlai, C. L.J. Bartlett, **K.R. Burgio**, A.M.V. Fournier, C.N. Keiser, T. Poisot, K. Stack Whitney. 2019. Open Science Isn't Always Open to All Scientists. *AMERICAN SCIENTIST* ([link](#)).

**Burgio, K.R.** 2018. The mysterious and tragic story of America's only native parrot, now extinct for 100 years. *WASHINGTON POST* ([link](#)), *IFLSCIENCE* ([link](#)), *SALON* ([link](#)), *REAL CLEAR SCIENCE* ([link](#)), and *THE CONVERSATION* ([link](#)); > 75,000 reads.

**Burgio, K.R.** 2018. Carpe diem: Stories about seizing the day. *THE STORY COLLIDER PODCAST* ([link](#)).

#### 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: \$168,736

2018	(\$1100) American Ornithology Society Travel Award
2011 - 2016	(\$121,000) <b>National Science Foundation Graduate Fellow</b>
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)

K.R. Burgio – Curriculum Vitae

- 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

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*

- 2017 - Jordana Gravely '21 – University of Connecticut. Independent research project:  
Feather coat insulation of House Sparrows.  
- Recipient 2018 UConn SURF Grant (\$3500)

- 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)
  - Co-authored 3 publications
- 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.

### PRESENTATIONS

#### *Invited Seminars*

- 2020 TBD – University of Maine, Orono, ME, USA
- 2018 “Extinction in Two Acts: The Life and Death of the Carolina Parakeet” Rutgers University, Newark, New Jersey, USA
- 2018 “Non-traditional Paths to Graduate School” Central Community College, Columbus, Nebraska, USA
- 2018 “Extinction in Two Acts: The Life and Death of the Carolina Parakeet” Bridgewater State University, Bridgewater, Massachusetts, USA

*International / National Conferences*

- Carlson, C.J., A.J. Phillips, T.A. Dallas, **K.R. Burgio**, and O.C. Muellerklein. 2017. Taking big data for a spin: the georeferenced U.S. National Parasite Collection and what it can do. **Ecological Society of America** Annual Meeting, Portland, OR.
- Kosman, E., **K.R. Burgio**, S.J. Presley, M.R. Willig, and S.M. Scheiner. 2017. Poster: Using functional diversity to set conservation priorities: a methodology and a case study of global parrot diversity. **International Biogeography Society** Annual Conference, Tuscon, AZ.
- 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.
- Cardillo, C., B. Walker, **K.R. Burgio**, and M.A. Rubega. 2016. Poster: 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.
- 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.

#### PUBLIC OUTREACH

- 2018 "Extinction in Two Acts: The Life and Death of the Carolina Parakeet" Linda Loring Foundation
- 2016 Consultant for National Geographic TV series "United States of Animals" Season 1, Episode 11: "The West Sting"
- 2016 "Nesting behavior of Monk Parakeets on Utility Poles" American Federation of Aviculture Annual Conference
- 2015 "The extinction of the Carolina Parakeet" New Haven Bird Club
- 2013 "The Carolina Parakeet: biology, extinction, and current research" The Parrot Club
- 2013 "Monk Parakeets" Western Connecticut Bird Club
- 2012 "The Distribution of Monk Parakeets in Connecticut" CT Department of Energy and Environmental Protection Avian Summit
- 2012 "Ecology: research, graduate school, and careers" Manchester High School, CT
- 2012 "Adaptations of Birds" Franklin Elementary School, Franklin, CT
- 2010 "Monk Parakeets in Connecticut: What Are They Doing Here?" New Haven Bird Club

#### REVIEWER

*Proceedings of the Royal Society B, Global Ecology and Biogeography, Basic and Applied Ecology, Animal Conservation*

#### 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

## RELATED TRAINING AND SKILLS

Computer programs: R, ArcGIS, MaxEnt, RSTAN, 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, vegetation sampling, Infrared Thermography (IRT) and automated recording units (ARUs)

Analyses: species distribution modeling, extinction modeling, species biodiversity metrics, linear mixed models, Bayesian modeling, and quantifying functional and phylogenetic biodiversity

## NON-ACADEMIC SERVICE

- 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
- 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

## REFERENCES

Dr. Margaret A. Rubega, Professor  
Dept. of Ecology and Evolutionary Biology - University of Connecticut  
(860) 486-4502  
*margaret.rubega@uconn.edu*

Dr. Michael R. Willig, Professor  
Dept. of Ecology and Evolutionary Biology - University of Connecticut  
(860) 486-2798  
*michael.willig@uconn.edu*

Dr. Robert K. Colwell, Distinguished Professor Emeritus  
Dept. of Ecology and Evolutionary Biology - University of Connecticut  
(860) 428-5633  
*robertkcolwell@gmail.com*