

Elsita Maria Kiekebusch

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With a demonstrated background in quantitative ecology, I bring strong skills in field research, data analysis and visualization, literature review and scientific writing. I have authored 2 peer-reviewed publications (+2 in review), contributed to >5 technical reports and presented research at >6 conferences and meetings. I have supervised junior scientists, taught 2 Intro to Biology lab sections, and participated in multiple outreach events for general audiences.

Skills

- Experimental Design
- Statistical Analysis
- Field Research Techniques
- R programming language
- Communication (Oral and Written)
- Collaboration

Education

PhD Biology 2020, North Carolina State University, Raleigh, NC

Dissertation Title: *“Effects of Temperature, Phenology, and Geography on Butterfly Population Dynamics under Climate Change”*

Committee: Nicholas Haddad (Chair), Bill Morris, Steve Frank, Adam Terando

Relevant Coursework: *Entomology 502: Insect Diversity, Statistics 512: Experimental Statistics for Biological Sciences II, Population Ecology, Machine Learning Approaches for Biological Sciences using WEKA, Conservation Biology, Structured Decision Making*

MS Ecology of Drylands 2012, Ben Gurion University of the Negev, Israel

Thesis Title: *“Effects of plant defenses and water availability on seasonal foraging preferences of the Nubian Ibex (Capra nubiana)”*

Committee: Burt Kotler (Chair), Ofer Ovadia, Yael Lubin, David Saltz

Relevant Coursework: *Theory and Application of GIS using ArcGIS*

BA Biology 2007, Swarthmore College, Swarthmore, PA

Relevant Coursework: *Organismal and Population Biology, Biodiversity and Ecosystem Function, Statistical Methods, Comparative Ecology, Environmental Field Study*

Experience

Postdoctoral Researcher

Jan 2020 – present, Michigan State University (based in Raleigh NC)

\$43,000/yr, 40 hrs/wk

- Contributing to final report and deliverables on grant from Strategic Environmental Research and Development Program, Department of Defense
- Continued collaboration from doctorate, preparing 5+ first-author and co-author manuscripts for publication resulting from dissertation chapters and grant-related research efforts

Research Assistant

Aug 2015 – Dec 2019, Institute for Wildlife Studies, Arcata CA (based in Raleigh NC)
\$24,000/yr, 40 hrs/wk

- Conducted research as part of large collaborative group to evaluate wildlife vulnerability to novel environmental change on military bases
- Designed 8+ field and greenhouse experiments to evaluate effects of temperature on butterfly vital rates, analyzed all results using generalized linear models, developed population models, projected butterfly population growth rates under future climate scenarios, contributed to 5+ technical reports to Fort Bragg and DoD
- Analyzed 5 GB of climate data to identify future temperature trends
- Carried out plant surveys, data collection and experimental habitat manipulation for Venus Fly Traps at Fort Bragg, Camp Lejune, and Croatan National Forest, advised locations for experimental prescribed burns to take place

Technician

Nov 2012 – Apr 2013; Sep – Nov 2014, Michigan State University, Aiken SC
\$20,000/yr, 40 hrs/wk

- Constructed seed traps, collected seeds and identified plants for research project evaluating the effect of corridors on seed dispersal in a fragmented Longleaf Pine Savannah ecosystem
- Assisted construction and design of wasp traps and beehive protective structures, measured plant functional traits and collected plant tissue samples, identified wasps, managed corridor habitat patches through herbicide application

Contract Ecologist

August 2014, Saguaro National Park, Tucson AZ
\$3000/mo, 40 hrs/wk

- Assisted research project examining effectiveness of aerial herbicide in control of invasive buffelgrass (*Cenchrus ciliaris*)
- Collected NDVI and size measurements on buffelgrass and flagship plant species including saguaro cactus, barrel cactus and palo verde. Created data sheets, entered and checked project data, hiked to research transects at remote mountain sites in high temperature conditions

Field Crew Leader

June – Sep 2013, Fort Bragg, NC
\$13/hr, 40hrs/wk

- Led summer field crew effort to monitor populations and experimentally restore habitat for research and conservation of federally endangered butterfly
- Carried out mark-recapture population monitoring, captive-rearing of individuals in a greenhouse, vegetation surveys, and habitat restoration through hardwood removal and dam installation in wetland areas in order to promote growth of early-successional host-plant species
- Served as liaison between research project PI and land managers at Fort Bragg Endangered Species Branch

Research Technician

Apr 2009 – Sep 2010, Gobabeb Training and Research Centre, Gobabeb Namibia
\$16,000/yr, 40hrs/wk

- Assisted environmental impact assessment for uranium mine, trapped and identified small mammals, carried out day and night surveys for reptiles
- Led field survey of cyanobacteria along 200 mile rainfall gradient, supervised 3 junior technicians, collected data and wrote first draft of manuscript that became a peer-reviewed publication

List of Publications

- **Kiekebusch, E.**, Louthan, A., Hudgens, B., Morris, W. & N. Haddad. Submitted to Ecology. 2020. *Vital rate responses to temperature lead to butterfly population declines under future warming scenarios.*
- Louthan, A., Keighron, M., **Kiekebusch, E.**, Cayton, H., Terando, A. & W. Morris. Submitted to Ecology. 2020. *Climate change modifies the impact of disturbance interval on the growth rate of natural populations of Venus flytrap.*
- Guckian, M., Markowitz, E., Tucker, C., **Kiekebusch, E.**, Klemm, T., Middleton, L., Wootten, A. & M Staudinger. In Review at Environmental Communication. *Assessing the impact of an online climate science community: The Early Career Climate Forum.*
- **Kiekebusch, E.** and B. Kotler. 2016. *Effects of plant defenses and water availability on seasonal foraging preferences of the Nubian Ibex (Capra nubiana).* Israel J Ecology and Evolution 62(3-4):128-137.
- Warren-Rhodes, K., McKay, C., Boyle, L., Wing, M., **Kiekebusch, E.**, et al. 2013. *Physical ecology of hypolithic communities in the Namib Desert: the role of fog, rain, rock habitat and light.* Journal of Geophysical Research: Biogeosciences 118:1-10.

Awards and Grants

- **Graduate Research Assistantship**, Institute for Wildlife Studies (tuition and student stipend over 5-year period during PhD)
- **Porter Graduate Fellowship**, Kellogg Biological Station, MI (\$1600)
- **Global Change Fellowship**, DOI Southeast Climate Adaptation Science Center, NC State University (\$18,000 over three semesters)
- **People's Choice Award** for Lightning Talk, National Climate Science Center Student and Early-Career Training, Amherst, MA
- **Bouskila Award for Best Student Publication**, Israel J Ecology & Evolution (\$250)
- **Research Scholarship**, Albert Katz International School for Desert Studies (tuition and student stipend over 2-year period during MS)
- **Lande Field Research Award**, Dept. Biology, Swarthmore College (\$2000)

Conference Presentations

- **Kiekebusch, E.**, Louthan, A., Morris, W., Hudgens, B. and N. Haddad. 2019. Measuring population responses to temperature across the annual lifecycle of a butterfly. 2019. Oral Presentation. International Congress for Conservation Biology, Kuala Lumpur, Malaysia
- **Kiekebusch, E.**, Louthan, A., Morris, W., Hudgens, B. and N. Haddad. 2018. Measuring demographic rates and phenology at cryptic life stages of a locally rare wetland butterfly. Poster. Ecological Society of America, New Orleans LA
- **Kiekebusch, E.**, Henry, E. and N. Haddad. 2017. Using host-plant interactions to guide habitat restoration for the conservation of an endangered butterfly. Invited Talk. Entomological Society of America, Denver, CO
- **Kiekebusch, E.**, Hudgens, B. and N. Haddad. 2017. Population dynamics of Appalachian Brown butterflies under increased temperatures. Poster. Ecological Society of America, Portland, OR
- **Kiekebusch, E.** 2017. Novel Environments. Student Lightning Talk. Earth Optimism Summit, Washington, DC
- **Kiekebusch, E.** 2016. Novel Environments. Lightning Talk. National Climate Science Center Student and Early-Career Training, Amherst, MA

Leadership, Service, and Outreach

2018-19	Seminar Coordinator, Graduate Student Association of Biology, NCSU
2018-19	President, Science Communication Graduate Student Organization, NCSU
2017-18	Editorial Board Member, Early Career Climate Forum (www.eccforum.org)
2017-18	Vice-President, Science Communication Graduate Student Organization, NCSU
2017	Presenter, "Teen Science Cafe", NC Museum of Natural Sciences
2016-17	Treasurer, Science Communication Graduate Student Organization, NCSU
2015-16	Booth, Speaker, "Bugfest", NC Museum of Natural Sciences
2012	Symposium Organizer, Swiss Institute for Dryland Environmental Research

Additional Skills

- **Software:** Microsoft Office including Excel / Powerpoint / Word, R (expert), ArcGIS, JMP, WEKA, MARK, SQL (basic)
- **Tools:** Trimble GPS, Maxim iButton thermochrons, densiometer, handheld NDVI meter
- **Language:** Spanish (proficient), German (conversational)
- **Vehicle:** Valid NC Driver's License, can drive 4x4 and manual transmission