LIZ STUDER, PHD CANDIDATE
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website

EDUCATION

Dartmouth College Current, expected completion summer 2022
PhD Candidate in Ecology, Evolution, Ecosystems, and Society
Dissertation: From Ash to Ashes: Examining the cascading effects of the loss of a keystone species*, Fraxinus americana L.*, in subcanopy plant and invertebrate communities of Northeastern mixed hardwood forests

University of Georgia May 2016
MS in Entomology
Master's Thesis: Natural history and distribution of Habroscelimorpha dorsalis media, a potential ecological indicator of human impact in threatened Southeastern coastal ecosystems
Interdisciplinary Certificate in University Teaching

University of Colorado, Boulder May 2010
BA in Ecology and Evolutionary Biology-Magna Cum Laude
BA in Anthropology
Honors Thesis: A Multivariate Analysis of Grasshopper Mandible Morphology, Function, and Ecology

RESEARCH EXPERIENCE

Ph.D. Student, Dartmouth College current
Ayres Lab (Hanover, NH)
- Investigated the functional role of ash trees in northeastern mixed hardwood forests, not yet infested with EAB, to determine the potential cascading effects of the loss of ash on subcanopy plants and invertebrates
- Personally collected and identified 5000+ leaf-litter invertebrates to family and 3000+ subcanopy herbs to species
- Led a team of up to 12 on-site field technicians and mentored them in entomology, botany, ecology, and scientific writing at the Hubbard Brook Experimental Forest
- Conducted remote sensing surveys of tree phenology with UAVs (US FAA Part 107 drone license certified)
- Participated in the NSF LTER renewal process by both meeting with NSF leadership during site visits to Hubbard Brook and collaboratively generating ideas, text, and figures for the renewal document with PI's and other students

Master's Student, University of Georgia
McHugh Lab (Athens, GA) Sept 2013- Apr 2016
- Conducted a population survey of the Southeastern Beach Tiger Beetle, *Hasbroscelimorpha dorsalis media*, along the Georgia coastal barrier islands to determine its potential as an ecological indicator
- Underwent professional development training to work toward the goal of becoming a professor
- Curated Arthropod Teaching Collection and trained other TA's in curation techniques

Oak Ridge Institute for Science and Education Fellow, Center for Disease Control
Rickettsial Zoonoses Branch (Atlanta, GA) Aug 2010- Jun 2013
- Independently conducted crossbreeding study of three different geographical populations of *Rhipicephalus sanguineus* (the Brown Dog Tick)
- Conducted and assisted in research projects studying tick-borne disease agents including Ehrlichia, Anaplasma, Rickettsia, and Bartonella genera
- Reared and maintained 14 live tick colonies and used in tick phylogenetic, behavioral, and morphological studies
- Utilized various micro- and molecular-biological techniques including PCR, DNA extraction, sequencing, and immunofluorescence assay

Undergraduate Research Fellow, University of Colorado
Entomology Lab/Museum Collections (Boulder, CO) Sept 2008 – May 2010

- Received a grant from the University Research Opportunities Program to study grasshopper mandible morphology, function, and ecology
- Performed collection, microscopic dissection, and categorizing of grasshopper mouth parts
- Novel use of geometric morphometric analyses for grasshopper morphology and functional analysis
- Defended senior thesis and presented findings at poster presentation

National Science Foundation (NSF) Fellow, University of Notre Dame
Bioarcheology Lab, **(**South Bend, IN) May – August 2009

- Conducted independent research to estimate age based on femoral fragments in sub-adults of Bab-edh-Dhra', Jordan
- Training in human osteology, bone morphology, and excavation techniques
- Hands-on research with human bones from a 5000 year old Bronze Age village in Jordan

Researcher/Field Assistant, National Geographic Society
The American Pika Research Project (Boulder, CO) May – August 2008

- Collected data to test climate-related models of range contraction for the American pika (*Ochotona princeps*), an alpine species severely threatened by rapid climate change
- Performed survey techniques using temperature data loggers and GIS

PUBLICATIONS

Dissertation publications in prep, expected submission May 2022
- Target journals: Ecology, Plant Biology, Soil Biology and Biogeochemistry

Harding, L., and **L. Studer**. (2018). Metafeedback: A Model for Teaching Instructor Response to Student Writing in the Sciences. In: Yu, H. and Northcut, K., (Ed.). Scientific Communication: Practices, Theories, and Pedagogies (pp. 258-277). New York, NY: Routledge.

Levin M.L., **L. Studer**, G. Zemtsova, L.F. Killmaster, K. Mumcuoglu. (2012) Crossbreeding between different geographical populations of the brown dog tick, *Rhipicephalus sanguineus* (Acari: Ixodidae)*. Experimental and Applied Acarology.* 58: 51-68.

Contributions: Wrote methods/results, managed tick colonies, performed crossbreeding experiments, analyzed statistical data, recorded life history data of crossbreeds

PRESENTATIONS

Above the Canopy: Using Drones to Quantify Phenology and Monitor the Decline of Ash in HBEF. 55th Annual Hubbard Brook Cooperator's Meeting. Hubbard Brook Experimental Forest, North Woodstock, NH. July 12, 2018.

Assessing Above and Belowground Biodiversity in Adaptive Silviculture for Climate Change. 1st Annual Northeastern Adaptive Silviculture for Climate Change (ASCC) Symposium. Dartmouth College, Hanover, NH. Feb 22, 2018.

How does foliar nitrogen affect belowground food-webs? Hubbard Brook Quarterly Committee of Scientists Meeting. Cary Institute, Millbrook, NY. Jan 4, 2018.

Trophic Structure in Brown and Green Web Arthropods of a Temperate Hardwood Forest Using Stable Isotope Analysis: Preliminary Results and Future Directions. 3rd Symposium on Ecological Networks and Molecular Analysis of Trophic Interactions. Poster Session. Uppsala, Sweden. Sept 12, 2017.

From Ash to Ashes: Examining the Cascading Effects of the Loss of a Keystone Species, *Fraxinus Americana*, from Hubbard Brook. Hubbard Brook Quarterly Committee of Scientists Meeting. Hubbard Brook Experimental Forest, North Woodstock, NH. July 14, 2017.

Above and Belowground Biodiversity: Understanding drivers of green and brown food web arthropod assemblages and their effects on ecosystem processes. 54th Annual Hubbard Brook Cooperator's Meeting. Hubbard Brook Experimental Forest, North Woodstock, NH. July 13, 2017.

Habroscelimorpha dorsalis media as a potential ecological indicator of human impact in Georgia beach ecosystems. Georgia Entomological Society Meeting. Jekyll Island, GA. Apr 2015.

The full impact: A morphometric study with conservation implications of the Southeastern Beach Tiger Beetle (*Habroscelimorpha dorsalis media*). Georgia Entomological Society Meeting. Poster Session. Jekyll Island, GA. Apr 2015.

Habroscelimorpha dorsalis media as a potential ecological indicator of human impact in Georgia beach ecosystems. UGA Lund Week Presentation Competition. Athens, GA. Apr 2015.

Symposium Organizer for, "From Pupae to Pupils: Teaching Entomology in a Changing World." Entomological Society of America: Southeastern Branch Meeting. Biloxi, MS. Mar 2015.

Teaching Teachers: A primer on designing a graduate teaching seminar in Entomology. Entomological Society of America: Southeastern Branch Meeting. Biloxi, MS. Mar 2015.

Habroscelimorpha dorsalis media as a potential ecological indicator of human impact in Georgia beach ecosystems. Entomological Society of America. Portland, OR. Nov 2014.

Historical Study of Tiger Beetle Distributions in Georgia. UGA Lund Week Poster Competition. Athens, GA. Apr 2014.

Historical Study of Tiger Beetle Distributions in Georgia. Entomological Society of America: Southeastern Branch Meeting. Poster Competition. Greenville, SC. Feb 2014.

Crossbreeding between different geographical populations of the brown dog tick, *Rhipicephalus sanguineus* (Acari: Ixodidae). Ticks and Tick-borne Pathogens Conference. Poster Session. Zaragoza, Spain. August 2011.

University of Colorado Collegiate Scholars Seminar, Poster Session. You Are What You Eat: A Multivariate Analysis of Grasshopper Mandible Morphology, Function, and Ecology. Boulder, CO. February 2009.

FELLOWSHIPS, GRANTS, AND MONETARY AWARDS

Dartmouth Excellence in Teaching Award ($1000)	May 2019
UGA Writing Intensive Program Course Development Assistantship ($5000)	August 2015
Excellence in Teaching Award-UGA ($1000)	February 2015
Lund Insect Photo Competition Awazzzrd-1st Place ($100)	March 2015
H. H. Ross Travel Grant ($1500)	November 2014
CTL Course Development Assistantship ($4000)	August 2014
Future Faculty Achievement Award ($600)	August 2014
Oak Ridge Institute for Science and Education Fellowship ($100,000 for 3 years of support)	August 2010
NSF REU University of Notre Dame Grant and Fellowship ($3600+room, board, and flights)	May 2009
University of Colorado Undergraduate Research Opportunities Grant ($3000)	January 2008

PROFESSIONAL MEMBERSHIPS

STEM Women's Mentors, Ecological Society of America, Entomological Society of America, Hubbard Brook Committee of Scientists, UGA Future Faculty

TEACHING EXPERIENCE

Courses Taught

Dartmouth College

Biology Foreign Studies Program

Role: Teaching Assistant and Lecturer
Student Profile: 13 undergraduate students

- Field course taught in Panama, Costa Rica, and Little Cayman Island focusing on ecology, the scientific process, and experimental design
- Students were tasked with designing and implementing real field experiments in various ecosystems and analyzing, presenting, and writing up their results in a true practice of the scientific process
- Students were required to present on primary literature to their classmates to deepen their understanding of statistics and methods and to encourage their communication and presentation skills
- Students were engaged in highly independent learning, from their own creative scientific design to the communication of results

Africa Foreign Studies Program

Role: Teaching Assistant and Lecturer
Student Profile: 13 undergraduate students

- Field course taught in South Africa and Namibia focusing on global aspects of environmental problems and an introduction to the study of socio-ecological systems
- Students were challenged to shift from passive to active learning by being participants in real-world problem solving and research with local partners rather than being “educational tourists”
- Students were required to synthesize different ways of learning including empirical and theoretical knowledge and asked to produce publication quality manuscripts at the culmination of the course using their own collected data on research they designed

Animal Physiology

Role: Laboratory Instructor
Student Profile: 20 undergraduate students

- Students gained hands on knowledge of all body systems through dissections of real animal tissues
- Critical evaluation of literature took place through discussion of methods and practicing data presentation
- Students designed and conducted their own research on fellow students using surveys and respiratory/blood pressure cuff instruments
- Students engaged heavily in scientific writing with weekly writing assignments and a formal scientific paper on their independent research due as the culminating assignment

Biostatistics

Role: Laboratory Instructor
Student Profile: 15 undergraduate students

- Students learned basic JMP literacy with hands on experience in statistical testing and data interpretation
- Gained critical thinking through interpretation of statistical presentation in media exercises
- Worked on problem solving activities through independent data exploration and analysis

University of Georgia, Distinguished Teaching Assistant

Graduate Seminar in Science Writing Pedagogy

Role: Instructor and Primary Course Designer
Student Profile: 40 graduate students in multiple sections, seminar discussion and lectures

- Was invited to redesign the former class to follow evidence based teaching in writing and science education literature
- Combined writing pedagogy with science pedagogy to teach new instructors how to develop their students writing and improve their own
- Focused on giving effective feedback on student work, developing student writing as a scientific process, and using scientific writing in their own work as a professional skill
- The outcomes of the class and course design information will be detailed in a chapter within an upcoming book entitled, “Scientific Communication: Principles, Practices, and Methods”

Graduate Teaching Seminar in Entomology

Role: Instructor and Primary Course Designer
Student Profile: 10 graduate students, seminar discussion and lectures

- Applied for and received a grant through the UGA Center for Teaching and Learning to design a discipline-specific graduate teaching seminar for Entomology
- This course was designed with the goal of preparing graduate students for their role as a graduate teaching assistant in Entomology or the general Biological Sciences and give graduate students a framework to build their teaching career in whatever capacity they choose
- Built upon three main themes: philosophy of teaching and pedagogy, practical teaching skills, and professional development

Organismal Biology Prep for Teaching Assistants

Role: Instructor and Collaborative Course Designer
Student Profile: 10 graduate students, seminar discussion and lectures

- Led a preparatory course for teaching assistants assigned to 1108 Organismal Biology Labs
- Approaches to teaching inquiry based laboratory course material were covered to guide new TA's

Introductory Organismal Biology Lecture and Lab

Role: Instructor and Collaborative Course Designer
Student Profile: multiple sections, 20 undergraduate students each, 80 total in lecture

- Taught an introductory survey course in organismal biology for science majors with a range of topics include Earth's biodiversity, field ecology, and research methods with a strong emphasis on inquiry based learning.
- Designed and guest lectured one third of the course comprising of the Ecology Unit in its entirety, including all in class activities and exam construction
- Designed in-class active learning activities and group work to guide students through scientific experiments

Guest Lectures

- "Collecting Insects at Night" Biol 22 – Methods in Ecology, Dartmouth College
- Guest Field Instructor Biol 22 – Methods in Ecology, field excursion to collect nocturnal insects, Dartmouth College
- Guest Field Instructor Biol 22 – Methods in Ecology, field excursion to the Hubbard Brook Experimental Forest to examine and collect soil, arthropods, and plants, Dartmouth College

Mentorship

Farrar Ransom – Insect and plant taxonomy, independent research, Summer 2021-Spring 2022
Quintin Tyree – Insect Identification and Long-term data curation, Fall 2018
Balthazar von Huene – Comparative Community Ecology of Ash and Beech Trees in HBEF, Summer 2018
Mary Pedicini – Insect Curation and Art, Spring 2017
Kate Shiber – Insect Ecology and Field Studies, Summer 2017
Perri Haser – Tree Community Composition of Hubbard Brook, Summer 2017
Dana Wieland – Forest Ecology and Forest Management at the Second College Grant, Summer 2017

OUTREACH EVENTS AND SERVICE

"Creepy or Cute? Exploring Cultural Normative Views of Insects" Oct 26, 2016

- Upper Valley Co-Op Brain Buzz Event
- Discussing the role insects play in culture, how our views of them have shifted through time and space, and what that means for environmental stewardship and social empathy.

Science Day at Dartmouth Apr 1, 2017

- Teaching 3-14 year olds about the environment and ecology using entomological museum specimens, microscope demonstrations, and live insects

"Insects at Night" with the Fairbanks Museum and Planetarium Jul 14, 2017

- Part of the summer program and lecture series on insects at the museum
- Field excursion to reveal the diverse world of night flying insects using ultraviolet lights as attractants
- Over 30 participants from the community participated in the 4 hour event

"Insects of the Forest" with the Fairbanks Museum and Planetarium July 15, 2017

- Part of the summer program and lecture series on insects at the museum
- field excursion to explore the effects insects have in the forest, from the most obvious insects and their effect on trees, to those that are inconspicuous and cryptic

Future Faculty Program, University of Georgia Aug 2014 - May 2015

- Responsible for organizing, presenting at, and mentoring during the fall Teaching Assistant Orientation
- Planned and organized seminars for graduate students on the topics of best teaching practices, professional development, and teaching theory

Summer Scholars Experience, Skidaway Research Center Jun - Jul 2014

- Invited guest instructor and research correspondent to the Skidaway Summer Scholars Program
- Taught Coastal Ecology and Conservation Biology to groups of 5-40 exceptional scholars from grades 7-12 on boat excursions to the remote Georgia Barrier Islands Wassaw, Skidaway, and Little Tybee

Girls At the Museum Exploring Science (GAMES), CU Natural History Museum May 2009 - 2010

- Participated in an outreach program to encourage and promote excitement about science in preadolescent girls with after-school visits to the CU Museum

H.O. Lund Club's Insectival Fall 2012-Fall 2015 (annual)

- A fall festival held at the Georgia State Botanical Gardens educating children about insects with demonstrations, arts and crafts, and educational games

Ecology, Evolutionary, Ecosystem, and Society Department Post-Doc Search Committee 2017

- Scheduled, organized, and interviewed candidates for the departmental post-doctoral position at Dartmouth College

PROFESSIONAL SKILLS & TRAININGS

- FAA 107 Unmanned Aerial Vehicle Certified, experienced in flying Iris+ and Phantom DJI drones
- Trained in insect and arthropod professional museum curation techniques and collection management
- Experienced in insect and arthropod rearing techniques including exotic insects and pathogen vectors
- Knowledge of insect and tick dissection and organ mounting in wax
- Aptitude for the following computer programs and statistical suites: Microsoft Suite (Excel, Powerpoint, Word etc.), SPSS, JMP, R, TPS Suite (TPSdig, TPSutil, TPStree, TPSrelw), Matlab, ArcGIS, PC-Ord
- Proficiency with lab equipment: Compound and stereo microscopes, digital microscope camera, digital single lens reflex camera, thermal cycler, Qiagen bead beater, and camera lucida
- Scientific illustration and nature/insect photography