

Garrett J. Knowlton

2596 Haines Road, Lapeer, MI 48446 | gknowlt1@gmail.com
(810) 656-5807

Education

B.S. in Fisheries & Wildlife (with Honors)

Michigan State University

College of Agriculture and Natural Resources

Aug. 2015 - May 2020

- Minor in Geographic Information Science
- Concentration in Wildlife Biology
- GPA: 3.82/4.00 (Dean's List)
- Demmer Scholars Program (Washington, D.C., Summer 2019)

Research & Work Experience

Remote Sensing Intern

January 2021 - April 2021

NASA DEVELOP National Program, Ft. Collins, CO (Remote)

- Collaboratively working on a project investigating the influence of forest management strategies and fuel treatment on wildfire severity in three fires that occurred in 2020 across the front range of Colorado. Utilizing Google Earth Engine and RStudio to collect and analyze remote sensing data. Using R programming and machine learning models to analyze data. Working collaboratively and remotely with four team members across three time zones to complete a term project.

Undergraduate Research Assistant

Aug. 2018 - Aug. 2020

Supervisor: Dr. Gary Roloff

Applied Forest and Wildlife Ecology Lab, MSU, East Lansing, MI

- Conducted field work in northern Michigan in remote areas deploying camera traps and managing camera trap data
- Quantified vegetation in camera trap photos using programming software (R)

Undergraduate Research Project:

- ***Resource selection and habitat use of feral pigs in Northern Michigan in response to management***
 - Analyzed GPS collar data from feral pigs in Northern Michigan using resource selection and step-selection functions in programming software (R)
 - Manipulated land cover data in ArcGIS and R

Undergraduate Outreach and Engagement Assistant

Sep. 2019 - Aug. 2020

Supervisor: Dr. Alexa Warwick

MSU Extension & Fisheries and Wildlife Department, MSU, East Lansing, MI

- Conducted interviews with meat and deer processing business owners and hunters regarding their perceived risks of chronic wasting disease to their health and businesses
- Communicated with business owners and stakeholders to understand effective communication strategies for scientific and policy information

- Reviewed and edited interview transcripts, coding interviewing using Dedoose qualitative software, and preparing a manuscript for peer-review

Undergraduate Research Assistant

Nov. 2016- May 2020

Supervisors: Dr. David Williams & Dr. William Porter

Quantitative Wildlife Center, MSU, East Lansing, MI

Undergraduate Research Projects:

- ***Analyzing the impact of urbanization on the movement and activity of white-tailed deer across an urban-to-rural gradient***
 - Assisted with the capture, immobilization, and collaring of white-tailed deer in the greater Lansing, MI area
 - Communicated with landowners in the greater Lansing, MI to gain landowner permission to trap deer on private property
 - Used landscape metrics and landcover data to quantify urbanization and development across the study area
 - Analyzed GPS collar data using programming software (R) and ESRI ArcGIS to quantify rates of movement and explore spatial and temporal activity patterns
- ***Quantifying reporting rates of white-tailed deer harvests entered into the Boone and Crockett big game records and providing information about patterns of reporting bias in the white-tailed deer records***
 - Cleaned, compared, and analyzed large data sets of harvest records using Microsoft Excel and open source programming software (R)
 - Prepared and presented poster at MSU Undergraduate Research Fair and the national meeting of The Wildlife Society
 - Presently preparing a manuscript for peer-review and publication

Other Various Tasks:

- Gathered and organized NOAA Climate Data
- Assisted in tracking and capturing American woodcock using radio telemetry

Conservation Programs Intern / Demmer Scholar

May 2019 – Aug. 2019

Supervisor: Mr. Rocco Saracina

Sustainable Forestry Initiative, Washington, D.C.

- Provided geospatial support and built interactive web maps of grants awarded to display on the SFI website
- Reviewed SFI grant projects and developed a dataset to determine project locations, areas of impact, and overarching themes of projects
- Provided support to the annual SFI conference and communicated with universities to provide student travel awards
- Tracked relevant federal legislation, attended hearings, and provided policy briefings to SFI staff

Bat Ecology Intern / Field Technician*May 2018 - Aug. 2018*

Supervisor: Dr. Jesse Barber (Boise State) and Dr. David Gustine (Wildlife Chief, Grand Teton NP)

National Park Service & Boise State University, Grand Teton National Park, Moose, WY

- Worked collaboratively with the National Park Service and Boise State to monitor bat populations within Grand Teton National Park
- Deployed Wildlife Acoustics Song Meters and collected data to identify bat presence and foraging activity in response to light fixtures
- Set up and operated triple-high mist nets to capture, identified species, and placed radio transmitters on bats
- Located bat roosts using VHF radio telemetry and set up telemetry receivers to record space-use and foraging activity of bats
- Communicated and provided information regarding scientific research and bats to members of the public

Sharp-tailed Grouse Field Technician*Mar. 2018 – May 2018*

Supervisor: Dr. Gary Roloff

Applied Forest and Wildlife Ecology Lab, MSU, East Lansing, MI

- Worked collaboratively with the Applied Forest and Wildlife Ecology Lab and Michigan Department of Natural Resources in an effort to locate, trap, and translocate sharp-tailed grouse from the eastern to western Upper Peninsula, Michigan
- Constructed live traps and translocation boxes to capture and transport grouse
- Communicated with community members and landowners in the eastern Upper Peninsula to locate and secure access to trapping locations
- Used Digikam software to photo tag camera trap photos from the Upper Peninsula of Michigan.

Wildlife Research Volunteer*Aug. 2017*

South Dakota Fish, Game, and Parks, Custer, SD

- Checked mortality and located bighorn sheep using vehicle and handheld VHF radio telemetry
- Hiked and worked in rough terrain to locate bighorn sheep

Sea Lamprey Research Technician*May 2017 - Aug. 2017*

Supervisor: Skye Fissette

Weiming Li Laboratory, Hammond Bay Biological Station, MI

- Independently conducted experiments at field sites to collect behavioral response data of sea lamprey to migratory and mating pheromones
- Observed sea lamprey behavior in natural streams to collect behavioral data on nesting site selection
- Installed and operated passive integrated transponder (PIT) systems and surgically implanted fish with PIT tags
- Collected water samples for bile acid analysis to monitor pheromone release patterns
- Dissected sea lamprey and collected tissue samples for bile acid analysis to investigate pheromone production and release patterns

Leadership/Extracurricular Experience

Justin S. Morrill Leadership Fellow

Aug. 2018 - May 2020

Supervisor: Dr. Dru Montri

College of Agriculture and Natural Resources, MSU, East Lansing, MI

- Represented the College of Agriculture and Natural Resources at various events on and off campus for prospective students, alumni, and stakeholders
- Served as an undergraduate representative to the CANR College Affairs Committee
- Gave tours and communicated with prospective CANR students about the university to recruit high-quality undergraduate students
- Worked with CANR staff and other fellows to plan events, run tours, and perform other various tasks

Volunteer, Darwin Discovery Day

Feb. 2020

MSU Museum, East Lansing, MI

- Managed the ornithology exhibit and interacted with visitors
- Taught children about bird evolution and species traits

Presentations

Knowlton, G., C. Choi, J. Klisauskaite, N. Swayze. Front Range Disasters: Analyzing the effectiveness of fuel treatment in the Calwood and Cameron Peak fires. *NASA DEVELOP Close-out Presentation*. 29 March 2021. Fort Collins, CO

Knowlton, G.J., J.K. Trudeau, and D.M. Williams. White-tailed deer diel patterns in response to urbanization. Poster presentation at the *2019 Joint Conference of the American Fisheries Society and The Wildlife Society*. 30 September 2019. Reno, NV.

Knowlton, G.J., R.L. Cain, and D.M. Williams. Patterns of white-tailed reporting to the Boone and Crockett records. Oral presentation at the *1st annual Michigan Fish and Wildlife Conference*. 14 March 2019. Gaylord, MI.

Knowlton, G.J., R.L. Cain, and D.M. Williams. Spatially-explicit analysis of white-tailed reporting in the Boone and Crockett records. Poster presentation at the *25th annual meeting of The Wildlife Society*. 11 October 2018. Cleveland, OH.

Knowlton, G.J., R.L. Cain, and D.M. Williams. Spatially-explicit analysis to evaluate reporting rates of white-tailed deer entered in the Boone and Crockett records. Poster presentation at the *20th Annual University Undergraduate Research and Arts Forum*. 13 April 2018. East Lansing, MI.

Publications

Knowlton, G.J., R.L. Cain, and D.M. Williams. Assessing Patterns in Reporting of White-Tailed Deer Records to the Boone and Crockett Club. *In Prep*.

Feltman, B.C., A. Zwickle, **G.J. Knowlton**, A.R. Warwick. Evaluating Chronic Wasting Disease Risk Communication in Michigan Meat Processors and Hunters. *In Prep*.

Grants

- College of Ag. and Natural Resources Undergraduate Research Grant (\$2000) *Nov. 2018*
- Comparing white-tailed deer activity patterns and movement rates along an urban-to-rural gradient
- College of Ag. and Natural Resources Undergraduate Research Grant (\$2000) *Feb. 2017*
- Spatially-explicit analysis of white-tailed deer reporting in the Boone and Crockett Records

Other Employment Experience

Student Labor Assistant *Nov. 2016 – Jan. 2017*

Department of Plant Biology, East Lansing, MI

- Cleaned and properly disposed of used laboratory equipment and supplies
- Followed lab safety and EHS safety protocol

Undergraduate Research Assistant *Nov. 2015 – May 2016*

Liao Bioenergy Lab, East Lansing, MI

- Performed lab experiments on anaerobic digestion effluent using electrocoagulation
- Tested effluent for pH, TP, COD and analyzed water samples using a centrifuge
- Fed AD reactors, adjusted pH and measured gas production

Skills

Wildlife Research	Large and small animal capture (bats, woodcock, small mammals, white-tailed deer); landowner communication and permissions; radio telemetry tracking and passive systems; acoustic monitoring systems; mist netting; camera trapping; live trap construction; PIT systems; dissection and tissue sampling; Use of DSLR cameras; GPS and compasses; wilderness first aid; backpacking and camping; vegetation sampling; 4x4 vehicles and small engines
Qualitative Research	Developing and sending surveys; stakeholder interviews; interview coding; IRB protocol; stakeholder communication
Policy Skills	Attending legislative hearings and briefings; tracking legislation; creating briefings and memo
Programming & Software	R, ERDAS Imagine, Google Earth Engine, Python (novice), ArcGIS, ArcGIS Pro, QGIS, Microsoft Office, Dedoose, Qualtrics, Adobe software, DigiKam, Wildlife Acoustics

Awards and Honors

Dean's List, Michigan State University

2015-2020

Honorable Mention, NSF Graduate Research Fellowship	Apr. 2020
Anglers of the Au Sable Scholarship	Mar. 2020
Demmer Scholars, Washington, D.C., Michigan State University	Summer 2019
Wildlife Leadership Award, Rocky Mountain Elk Foundation	Jun. 2019
Flint Steelheaders / Eastern Michigan Sportsman Scholarship	Apr. 2019
Peter Tack Memorial Scholarship	Apr. 2019
Michigan TWS Travel Grant	Mar. 2019
Anglers of the Au Sable Scholarship	March 2020
College of Agriculture and Natural Resources Alumni Assoc. Scholarship	Feb. 2019
Andy Ammann Chapter of the Ruffed Grouse Society Scholarship	Apr. 2018
Flint Steelheaders / Eastern Michigan Sportsman Scholarship	Apr. 2018
MSU Fountain Challenge: 3 rd Place Team (\$5,000 prize)	Mar. 2017

Organizations

International Association of Landscape Ecology	Present
The Wildlife Society, National, North-central, and Michigan Sections	Present
Spatial Ecology and Telemetry Working Group, The Wildlife Society	Present
Human Dimensions Working Group, The Wildlife Society	Present

Relevant Coursework

Chemistry & Lab	Cells and Molecules	Organismal/Population Biology & Lab
Soil Science	Fundamentals of Wildlife Mgmt	Intro Geographic Information Science
Ecology	Statistics for Ecologists	Human Dimensions of Fish and Wildlife
F&W Communication	Calculus	Natural Resources Policy
Forest Vegetation	Forest Ecology	Wildlife Research Techniques
Wetland Ecology	Plant Genetics	Ecological Problem Solving
Wildlife Policy	Physics	Remote Sensing of the Environment
Geo. Information Systems	Grant-writing	Population Analysis and Management
Biology of Birds	Environmental Ethics	Upland Ecosystem Management
Biology of Mammals	Advanced Remote Sensing	Landscape Ecology (Graduate-level)

References

Dr. Gary Roloff

Professor, Applied Forest and Wildlife Ecology
Lab
Michigan State University
roloff@msu.edu
517-432-5236

Dr. David Williams

Assistant Professor, Boone and Crockett
Quantitative Wildlife Center, MSU
dmwill@msu.edu
517-353-1997

Dr. Alexa Warwick

Wildlife Outreach and Engagement Specialist
Michigan State University
awarwick@msu.edu
517-353-4872

Mr. Rocco Saracina

Manager, Conservation Programs
Sustainable Forestry Initiative, Washington,
D.C.
rocco.saracina@forests.org
202-596-3459