

Megan Dudenhoeffer

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Education

- 2020 M.Sc. Biological Sciences, Department of Biological Sciences, University of Manitoba
- 2017 B.Sc. Zoology, Department of Zoology & Physiology, University of Wyoming
- 2017 B.Sc. Russian, Department of Modern Languages, University of Wyoming

Research Skills

- Conducted remote research in Kenya, Canada, and United States
- Experienced with live capture of animals and appropriate handling
- Completed rabies vaccination in 2013, antibodies check in 2020
- Operated automatic and standard vehicles on and off road (hold a valid driver's license) as well as ATVs and snowmobiles
- Carried firearm in field for protection from polar bears
- Worked with a variety of stakeholders and interest groups including federal, state, and private landowners
- Proficient at writing code in R to perform statistical analysis
- Published research in peer-reviewed journals, presented at conferences and to public

Publications

Peer-Reviewed Journal Articles

- 2023 Johnson, A.D., Henry, B., **Dudenhoeffer, M.**, & Welsh, A.B. Genetic Evaluation of a Stocked Population and Wild Population of Walleye *Sander vitreus*. *PLOS ONE*, Submitted.
- 2022 Mackenzie, A.M.*, **Dudenhoeffer, M.***, Bangoura, B., Sehgal, N.M.R., Tell, L.A., Godwin, B.L., & Ernest, H.B. 2022. Prevalence and diversity of haemosporidians in a migratory high-elevation hummingbird in North America. *Parasitology Research*, 121(2), 769-773. *authors contributed equally
- 2022 Alston, J., Reed, C., Khasoha, L., Brown, B., Busienei, G., Carlson, N., Coverdale, T., **Dudenhoeffer, M.**, Dyck, M., Ekeno, J., Hassan, A., Hohbein, R., Jakopak, R., Kimiti, B., Kurukura, S., Lokeny, P., Louthan, A., Musila, S., Musili, P., Tindall, T., Weiner, S., Kartzinel, T., Palmer, T., Pringle, R. & Goheen, J. Ecological consequences of large herbivore exclusion in an African savanna: 12 years of data from the UHURU experiment. *Ecology*, 103(4), e3649.
- 2021 **Dudenhoeffer, M.**, Roth, J.D., Johnson, L.K., & Petersen, S.D. Arctic fox winter dietary response to damped lemming cycles estimated from fecal DNA. *Journal of Mammalogy*, 102(6), 1455-1465. (editor's choice)
- 2021 Barocas, A., Golden, H.N., **Dudenhoeffer, M.**, & Ben-David, M. Sociality

and signaling activity modulate information flow in river otter communication networks. *Behavioral Ecology*, 32(1), 60-68.

2018 **Dudenhoeffer, M.**, & Hodge, A.M. Opposing forces of seed dispersal and seed predation by mammals for an invasive cactus in Central Kenya. *African Journal of Ecology*, 56(2), 179-184.

2016 Berggren, K.L., Lu, Z., Fox, J.A., **Dudenhoeffer, M.**, Agrawal, S., & Fox, J.H. Neonatal iron supplementation induces striatal atrophy in female YAC128 Huntington's disease mice. *Journal of Huntington's Disease*, 5(1), 53-63.

Other Publications

2018 **Dudenhoeffer, M.**, & Warret Rodrigues, C. Arctic foxes and researchers: Facing the consequences of Arctic warming. Prepared for Arctic Focus. Available [here](#).

Grants, Fellowships, and Honors (>\$80,000 collectively)

2019 In-kind-support, Churchill Northern Studies Centre.

2019 Research Award, Oakes-Riewe Environmental Studies, University of Manitoba.

2019 Bursary Award, Manitoba Big Game Trophy Association.

2018 In-kind-support, Churchill Northern Studies Centre.

2018 Grant in Aid of Research, American Society of Mammalogists.

2018 Fish and Wildlife Enhancement Fund (Project Partner), Manitoba Sustainable Development.

2018 Graduate Fellowship, University of Manitoba.

2018 International Graduate Student Entrance Scholarship, University of Manitoba.

2015 Undergraduate Research Fellowship, Experimental Program to Stimulate Competitive Research (EPSCoR), University of Wyoming.

2015 Undergraduate Research Grant, College of Arts and Sciences, University of Wyoming.

2015 Research Excellence Award, Center for Global Studies, University of Wyoming.

2015 Undergraduate Research Grant, Haub School of Environment and Natural Resources, University of Wyoming.

Research Experience

Sept 2023—Present Biological Science Technician (GS09), Center for Forest Mycology Research

- *USDA Forest Service, Northern Research Station, Madison, Wisconsin, United States*

Jan 2023—Aug 2023 Assistant Research Scientist, Wild Genomics Lab

- *West Virginia University, Morgantown, West Virginia, United States*
- Conducted genetic research using a variety of techniques including microsatellite genotyping, sexing, and fish strain assignment using standard PCR, quantitative PCR, and barcode gene sequencing (sanger), SNP genotyping including GBS and GT-Seq, as well as metabarcoding and library prep for Illumina sequencing
- Developed and tested new laboratory techniques to satisfy the needs of contract and graduate student projects

- Calibrated laboratory equipment and maintaining inventory, stocking supplies and mixing universal reagents
- Maintained large sample databases and records, and cataloged samples
- Used various software packages to statistically analyze and summarize data in reports for various state and federal agencies
- Supported and mentored graduate and undergraduate students by assisting with methods selection, statistical analysis, and data interpretation

Oct 2022—Dec 2022 Volunteer Lab Technician, Center for Forest Mycology Research

- *US Forest Service, Northern Research Station, Madison, Wisconsin, United States*
- Prepared growth media and inoculum for fungal decay assays and maintained fungal cultures and used aseptic techniques to transfer cultures in a biosafety hood
- Collected data on fungal growth and interactions
- Maintained lab detailed records of experimental data in preparation for analysis

Sept 2021—Oct 2021 Field Technician, Pauli Lab

- *University of Wisconsin-Madison, Madison, Wisconsin, United States*
- Hiked 200 miles while conducting carnivore scat surveys on Isle Royale National Park
- Live trapped red fox for GPS collaring using soft food hold traps

Jan 2020—Sept 2021 Assistant Research Scientist, Wildlife Genomics and Disease Ecology Lab

- *University of Wyoming, Laramie, Wyoming, United States*
- Conducted genetic analysis including genotyping and disease analyses on ruminants, birds, and carnivores
- Managed databases for chronic wasting disease and genotyping contract work
- Mentored and taught undergraduate and graduate students lab techniques
- Maintained lab inventory, ordered and stocked lab supplies
- Took relevant graduate level courses (database management and Intro to GIS) while working full time

Sept 2017–June 2020 Masters Research, Trophic Ecology lab

- *University of Manitoba, Winnipeg, Manitoba, Canada*
- Conducted remote field work in Wapusk National Park involving travel by snowmobile and helicopter
- Designed and implemented new data collection protocols for ecosystem monitoring
- Live-trapped red and Arctic foxes using soft foothold traps for GPS collaring and located collared foxes using handheld telemetry
- Worked closely with trappers to procure fox carcasses for genetic analysis
- Conducted genetic analysis on fox feces at the Assiniboine Park Conservancy

June 2017, 2018, 2019 Teaching Assistant, Arctic Field Ecology Course

- *University of Manitoba, Winnipeg, Manitoba, Canada*

- Responsible for student safety, education, and logistics in remote Arctic camps during annual 2-week course
- Supervised and instructed students on a variety of field methods: GPS, compass, camera trap deployment and maintenance, identification of native flora and fauna, trapping and handling of small mammals, avian count surveys, prey abundance estimates, dissection of fox carcasses, and sample collection for genetic and stable isotope analysis

Summer 2017 Field Technician, Evolutionary Ecology Lab

- *University of Wyoming, Laramie, Wyoming, United States*
- Searched for red squirrel middens in National Forest and collected data on lodgepole pines and microhabitat characteristics

Sept 2016–Feb 2017 Lab Technician, Behavioral Ecology Lab

- *University of Wyoming, Laramie, Wyoming, United States*
- Classified camera trap videos and developed behavioral ethograms for costal river otter latrines

Summer 2016 Field Technician, Wyoming Natural Diversity Database

- *Laramie, Wyoming, United States*
- Surveyed for white-tailed prairie dogs for Endangered Species Act status review
- Worked remotely for 8-day hitches, camping on public land in Wyoming
- Used ArcMap, GPS, and topographic maps to plan routes to survey plots
- Corresponded with landowners to gain permission to survey on private land

Summer 2015 Undergraduate Research Fellow, University of Wyoming

- *Mpala Research Centre, Laikipia, Kenya*
- Designed and implemented independent research on invasive cactus species
- Used camera traps to collect data on seed predation
- Surveyed small mammal diversity using Sherman traps

2014–2015 Lab Technician, Huntington’s Disease Research Laboratory

- *University of Wyoming, Laramie, Wyoming, United States*
- Genotyped transgenic research mice and maintained research mouse husbandry
- Used behavioral assays to assess mouse coordination at specific developmental timeframes
- Estimated mouse neuron number using optical fractionator
- Determined the effect of natal iron accumulation using statistical analyses

Sept 2013–Jan 2014 Lab Technician, Wyoming Game and Fish Wildlife Disease Laboratory

- *Laramie, Wyoming, United States*
- Prepped disease diagnostic tests on ungulate lymph node and blood samples

- Maintained disease database on locations of positive chronic wasting disease and brucellosis samples
- Assisted in bighorn sheep and mule deer drop-net captures and collected samples
- Assisted in diagnostic necropsies of Wyoming wildlife such as elk, mule deer, and moose

Fall 2013 Volunteer, Chronic Wasting Disease Research Project

- *University of Wyoming, Laramie, Wyoming, United States*
- Assisted in mule deer capture and collected samples from anesthetized mule deer

Presentations

- 2023 **Dudenhoeffer, M.** Population structure of Brook Trout (*Salvelinus fontinalis*) in West Virginia. *Women in Natural Resources Spring Research Symposium*. Poster presentation.
- 2023 Nitza, E., **Dudenhoeffer, M.**, Morrison, H., Ryan, C., Welsh, A. DNA Metabarcoding of River Otter diet in West Virginia. *Women in Natural Resources Spring Research Symposium*. Oral presentation.
- 2021 **Dudenhoeffer, M.** Hemoparasite prevalence and diversity in Rocky Mountain hummingbirds. *The Wildlife Society Conference*. Poster presentation.
- 2021 **Dudenhoeffer, M.** Winter scat sampling protocols for non-invasive genetic sampling of Arctic foxes: Sample age doesn't matter. *American Society of Mammalogists Conference*. Poster presentation.
- 2019 **Dudenhoeffer, M.** Arctic fox winter diet revealed by next-generation sequencing of fecal DNA. *American Society of Mammalogists Conference*. Oral presentation.
- 2019 **Dudenhoeffer, M.** What poo can tell you about Arctic fox diet. *Lunch and Learn Series, Assiniboine Park Zoo*. Oral presentation.
- 2019 **Dudenhoeffer, M.** Diet diversity of an Arctic predator revealed by next-generation sequencing of fecal DNA. *Prairie University Biological Symposium*. Oral presentation.
- 2019 **Dudenhoeffer, M.** Using non-invasive sampling to reconstruct fox diet in Northern Manitoba. *Darwin Day Symposium, University of Manitoba*. Oral presentation.
- 2018 **Dudenhoeffer, M.** Fox diet and population dynamics in Northern Manitoba. *Wildlife Society Manitoba Chapter Fall Mixer*. Oral presentation. Available [here](#).
- 2018 **Dudenhoeffer, M.** Opposing forces of seed dispersal and seed predation by mammals for an invasive cactus in Central Kenya. *Wildlife Society Manitoba Chapter Winter Getaway*. Oral presentation.
- 2017 **Dudenhoeffer, M.** Pricks and Predators. *University of Manitoba Departmental Seminar Series*. Oral presentation.
- 2016 **Dudenhoeffer, M.** Opposing forces of seed dispersal and seed predation by mammals for an invasive cactus in Central Kenya. *American Society of Mammalogists Conference*. Poster presentation.
- 2016 **Dudenhoeffer, M.** Opposing forces of seed dispersal and seed predation by mammals for an invasive cactus in Central Kenya. *Global Studies seminar series: Wyoming Goes Global Conference*. Oral presentation. Available [here](#).

Teaching Experience

Teaching Assistant

- Fall 2019 Biology of Mammals, University of Manitoba.
Fall 2018 Methods of Data Collection and Analysis in Ecology, University of Manitoba.
Spring 2017, 2018, 2019 Arctic Field Ecology Course, University of Manitoba.
Fall 2014 Mammalogy (Undergraduate TA), University of Wyoming.

Guest Lecturer

- Spring 2019 Biological Diversity and Interaction, University of Manitoba.
Fall 2018, 2019 Skills in Biological Sciences, University of Manitoba.

Mentoring

Graduate Student Mentees:

- Eden Nitza (2023; River otter diet using DNA metabarcoding; West Virginia University)
William Swain (2020 – 2021; Chronic Wasting Disease in Wyoming elk; University of Wyoming)

Undergraduate Student Mentees:

- Lee Shaw (2023; West Virginia University; Morgantown, West Virginia)
Peyton Caylor (2023; West Virginia University; Morgantown, West Virginia)
Andy Riendeau (2023; West Virginia University; Morgantown, West Virginia)
Ellie Olsen (2022; University of Wisconsin-Madison, Madison, Wisconsin)
Adrienne Mackenzie (2020 – 2021; University of Wyoming; Laramie, Wyoming)

Professional Service

- 2022-present Member, North American Lagomorph Working Group.
2020 Graduate Student Awards Committee, University of Manitoba Graduate Students' Association.
2020 Volunteer Judge, Wyoming State Science Fair.
2019-present Peer reviewer: Journal of Mammalogy, Ecology and Evolution, Conservation Science and Practice, Forensic Science International.
2019-2022 Conservation Committee Member, American Society of Mammalogists.
2018-2019 Member at Large, Wildlife Society Manitoba Chapter.
2018 Public outreach, Identifying rodents in the Churchill area. Parks Canada Day.
2018 Workshop, Arctic fox dissections. Churchill High School Grade 12 Class.
2018 Workshop, Wolverine dissections. Parks Canada Junior Rangers.
2017 Public outreach, Arctic food webs and careers in science. WISE Kid-Netic Energy Girls Club: Meet a Scientist Day.

Professional Affiliations

2018-2022 The Wildlife Society.
2017-2019 Manitoba Chapter of the Wildlife Society.
2016-2022 American Society of Mammalogists.