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Personal Websites:

<https://scholar.google.com/citations?user=L8R--2sAAAAJ>

<https://www.linkedin.com/in/michaelkschwartz/>

Centers and Programs Founded/Directing (*may be temporarily offline):

<https://research.fs.usda.gov/rmrs/centers/ngc>

<https://research.fs.usda.gov/rmrs/centers/biodiversity-research-and-policy-center>

<https://research.fs.usda.gov/rmrs/programs/wildlife-ecology>

EDUCATION

- May 2019 Senior Executive Fellowship, Kennedy School of Government, Harvard, Cambridge MA
- May 2001 Ph.D., Wildlife Biology, University of Montana, Missoula, MT
(Landscape genetics of carnivores)
- Sept. 1996 M.S., Biology (Ecology and Evolution), American University, Washington, D.C.
(Behavioral ecology of Humboldt penguins in Peru)
- 1992-1994 Post-B.A., Coursework, University of Washington, Seattle, WA
- May 1991 B.A., Psychology (Animal Behavior/Neurobiology) Colby College, Waterville, ME

PROFESSIONAL EXPERIENCE

- Nov. 2017 – Present **Program Manager**, Wildlife and Terrestrial Ecosystems Program and Forest and Woodland Ecosystem Program – *Rocky Mountain Research Station USDA Forest Service*
- 30 direct reports (*dispersed scientists and staff*)
 - *Manage \$10.7M appropriate budget and external grants*
 - *Founded and Direct 2 Centers*
 - *Member of Rocky Mtn. Res. Station Executive Leadership Team*
- Jan. 2023 – Present **Co-Director** *Biodiversity Research and Policy Center. University of Montana / USDA Forest Service*
- July 2021 – Present **Senior Scientist**, USDA Forest Service, *USDA Forest Service* Missoula, MT
- Nov. 2014 – **Director, National Genomics Center for Wildlife and Fish**

- Present **Conservation** *USDA Forest Service* Missoula, MT.
- Sept 2015 – Present **Adjunct Research Professor** *University of Montana – Department of Ecosystem and Conservation Sciences / Wildlife Biology Program* Missoula, MT.
- Sept. 2012 – Sept. 2015 **Adjunct Research Associate Professor** *University of Montana – Department of Ecosystem and Conservation Sciences / Wildlife Biology Program* Missoula, MT.
- June 2001 – Nov. 2014 **Wildlife Ecologist / Conservation Genetics Team Leader** *USFS Rocky Mountain Research Station* Missoula, MT.
- July 2011 – Jan. 2012 **Acting Director** *Aldo Leopold Wilderness Research Institute*, Missoula, MT.
- Sept. 2007 – Sept. 2012 **Adjunct Research Assistant Professor** *University of Montana – Department of Ecosystem and Conservation Sciences / Wildlife Biology Program* Missoula, MT.
- Sept. 2001 – Dec. 2007 **Faculty Affiliate** *University of Montana – Wildlife Biology Program* Missoula, MT.
- Jan. 2000 – Oct. 2001 **Biological Technician** *USFS Rocky Mountain Research Station* Missoula, MT.
- Aug. 1996 – May 2001 **Graduate Research Assistant / Teaching Assistant** *University of Montana – Wildlife Biology Program* Missoula, MT.
- Aug. 1994 – Aug. 1996 **Molecular Ecology / Field Biology Research Assistant** *Smithsonian Institution – Department of Conservation Biology* National Zoological Park, Washington D.C.
- Feb. 1992 – July 1994 **Marine Mammal and Seabird Technician** *National Marine Mammal Laboratory*
Alaska Fishery Science Center Seattle, WA. Worked in Arctic and Antarctic on marine predators (fur seals, leopard seals, and chinstrap penguins)
- Nov. 1991 – Jan. 1992 **Biodiversity Education Outreach** *Smithsonian Institution – Department of Animal Health* National Zoological Park, Washington D.C.
- July 1991 – Nov. 1991 **Technician** *Smithsonian Institution – Department of Conservation Biology* National Zoological Park, Washington D.C.
- Jan. 1990 **Behavioral Ecology Technician (Volunteer)** *New England Aquarium* –

Marine Mammal Department Boston, MA.

July 1989 – **School for Field Studies** *San Juan Islands* Washington State.
Aug. 1989

MAJOR GRANTS AWARDED

(Not including over 200 project grants between \$25,000 - \$50,000)

- 2023 R&D BIL Ecosystem Restoration Research Grant
Funding allocated by congress to the USFS from the Bipartisan Infrastructure Law ecosystem restoration for research and development. The funded proposal is entitled “Integrated modeling tools to monitor, predict, prevent, and eradicate aquatic invasives species from highly disturbed riverscapes”. (co-PI Alexandra Fraik, \$974,122)
- 2019 LIFE Wolfalps – European Union LIFE Project: Wolves in the Alps: implementation of coordinated wolf conservation actions across Europe. Integrating science and action (Many Investigators Across Multiple Countries and Multiple National Parks: \$16M Euro
- 2019 Rocky Mountain Region of USFS (R2) Review of bighorn sheep movement and disease in the Rocky Mountains (Schwartz; \$100,000)
- 2019 USFS Washington Office. Expanding the eDNA Atlas to include brook trout in the Eastern United States (Schwartz; \$350,000)
- 2018 USFS Washington Office. Use of eDNA and population genetic modeling to predict spread of white nose syndrome in North American bats (Schwartz; \$325,000)
- 2018 USFWS / USGS. Assessing the need for additional reintroduction of fishers in Olympic National Park. (\$69,000)
- 2018 USFS Washington Office. Inventorying native brook trout using eDNA (Schwartz, McKelvey, Isaac, Young; \$200,000)
- 2018 BLM. Monitoring keystone leks in the Northern tier of the sage grouse range using molecular genetics. (Schwartz and Cross; \$125,000)
- 2017 SERDP. Engaging a crowd-sourced eDNA database to enhance DoD-relevant conservation goals (Schwartz, McKelvey, Isaac, Young, Lance; \$1,998,000 + \$1,100,000 by ESTCP in 2021)
- 2017 NRCS Sage Grouse Initiative. Translating sage grouse connectivity science

- into management and public informational tools (Schwartz and Cross; \$79,000)
- 2017 US Fish and Wildlife Service. Identification of a carnivore community and its interactions via scat detection dogs (Pilgrim and Schwartz; \$70,000)
- 2016 USDA Forest Service RIM Funding for developing region wide carnivore monitoring – (Schwartz and McKelvey; \$313,000)
- 2016 National Fish and Wildlife Foundation – Development of Aquatic eDNA for the American West (Isaak, Young, Schwartz; \$89,000)
- 2015 GNLCC - A rapid range-wide assessment of bull trout distributions: a crowd-sourced, eDNA-based approach with application to many aquatic species (Young, Isaak, McKelvey, Carim, and Schwartz PI; \$150,000)
- 2015 Washington Office USFS / USFS R&D: Developing multi-species, metagenomics eDNA based approaches to detect aquatic invasive species (Schwartz PI; \$80,000)
- 2014 USDA Forest Service Regional Funding for eDNA surveys of Bull Trout and Salmon in the Columbia River Basin (Young, McKelvey, and Schwartz PIs; \$175,000)
- 2014 Funding of a National Genomics Center for Wildlife and Fish Conservation (Schwartz PI; \$297,000)
- 2013 LIFE Wolfalps – European Union LIFE Project: Wolves in the Alps: implementation of coordinated wolf conservation actions in core areas and beyond. (Many Investigators Across Multiple Countries and Multiple National Parks: \$6.1M Euro)
- 2012 US Fish and Wildlife Service / Bureau of Land Management: Genomics and range-wide connectivity of greater sage-grouse populations-the northern tier. (Schwartz PI; \$459,690)
- 2012 GNLCC – Sage grouse genomic tool development (Schwartz, Cross and Naugle Co-PI; \$90,000)
- 2011 USFS R&D Washington Office: Synthesis of connectivity modeling algorithms approaches and implementation. (McKelvey Co-PI; \$50,000)
- 2010 USFS R&D: Integration of ecological and social data to optimize economic decisions on wildlife corridors. (Block, Calkin, McKelvey, and Thompson Co-PI; \$150,000)

- 2009 RMRS Climate Change RFP: Providing decision support for assisted migration to mitigate climate change – preventing expensive failures through species distribution modeling. (McKelvey Co-PI; \$247,000)
- 2007 Joint NCEAS / NESCent: Genetic monitoring (Allendorf Co-PI; \$114,000)
- 2007 USFS Diversity Strategy Award: Coordinating carnivore surveys with the Coeur d'Alene Tribes (Schwartz PI; \$30,000)
- 2007 USFS Cross-Program Proposals: Combining multi-resource monitoring with vegetation and wildlife habitat modeling to infer the effects of climatic change on forest ecosystems and wildlife in the Northern Rockies (Cushman, McKelvey, and Little Co-PI; \$89,000)
- 2006 Italian Regional Parks / LIFE Wolf Alps. Monitoring of recolonizing wolves in the Italian Alps (Schwartz; \$327,000)
- 2006 USFS Region 1 Two Grants for non-invasive surveys of fisher in the Rocky Mountains (Schwartz PI; \$103,000)
- 2004 Internal USFS RMRS Equipment Grant (Schwartz PI; \$75,000)
- 2002 Montana Department of Transportation: Understanding wolverine movement in relation to highways (Squires, Copeland, McKelvey, and Ruggiero; Co-PI; \$200,000)
- 2001 USFS / Northern Region: Using genetics for population viability analyses (McKelvey Co-PI; \$80,000)

SCHOLARSHIPS AND AWARDS

- 2022-2024 USDA Performance Award
- 2018-2020 American Genetics Association. Elected Council Member
- 2018 Clarivate Analytics – 2018 Highly Cited Researchers
- 2017 Clarivate Analytics – 2017 Highly Cited Researchers
- 2017 Western Association of Fish and Wildlife Agencies Special Recognition Award 2017
- 2017 RMRS Science in the Media Award
- 2017 Thomson Reuters Highly Cited Researcher 2016
- 2016 Thomson Reuters Highly Cited Researcher 2015
- 2015 RMRS Distinguished Scientist Award
- 2013 RMRS Best Science Award (co-author)
- 2013 Research Fellow – Ben Gurion University, Israel
- 2011 RMRS Visionary Science Award
- 2009 National Wilderness Award – Excellence in Wilderness Stewardship Research
- 2009 RMRS Performance Award – Step Increase
- 2007 RMRS Early Career Scientist Publication Award (co-author)

2007	Merit Award: Scientific Productivity
2007	Merit Award: Excellence in Technology Transfer
2006	RMRS Best Scientific Publication Award (co-recipient)
2005	Presidential Early Career Award for Science and Engineering
2003	USFS Chiefs Award for Early Career Scientist
2002	RMRS Early Career Scientist Publication Award
2000	Best Student Paper – Wildlife Society (MT Chapter)
1999-2000	Bertha Morton Scholarship – University of Montana
1998-1999	Clancy Gordon Environmental Scholarship – University of Montana
1997-1998	Les Pengelly Conservation Scholarship – University of Montana
1996-1998	Research Assistantship – University of Montana
1994-1995	Teaching Fellowship – American University
1995	Smithsonian Graduate Fellowship
1994	Antarctic Service Medal

MEMBERSHIP IN WORKING GROUPS AND SCIENCE TEAMS

Multi-Regional, Multi-Carnivore Monitoring Team. Initiated a team of researchers and managers from across the Western United States to develop a standard approach to monitoring mid-sized carnivores (wolverines, lynx, fishers, American marten, pacific marten, and mountain red fox). August 2016 – Present.

Sage Grouse Rangewide Genetics Team. Team from USGS, USFS, and 2 Universities designed to produce genetic information across the geographic range of sage grouse and disseminate results to State agencies using online, user-friendly tools designed to inform management decisions.

State of Science for Non-native Invasive Species Leading experts on pathogens, pests, and climate change participated in a USFS led workshop to highlight science on invasive species and identify knowledge gaps in a diverse array of topics. The objective of the workshop was to solicit input from invasive species experts on a National Invasive Species Assessment. The product of this working group was a National Invasive Species Assessment. 2015-2016.

National Center for Ecological Synthesis and Analysis (NCEAS): Red Flags – Development of Criteria for Assessing Extinction Risk Working Group The group uses an empirically-based approach to developing risk criteria guidelines that takes advantage of large amounts of data for natural populations that have been compiled over the last 1-2 decades. 2010 – 2013.

National Center for Ecological Synthesis and Analysis (NCEAS) / National Evolutionary Synthesis Center (NESCent): Genetic Monitoring Working Group A team of 18 national and international scientists and managers co-lead by Dr. Schwartz and Dr. Allendorf to develop and facilitate implementation of genetic monitoring tools. The goal of this working group is to open significant new avenues for research in the field of genetic monitoring. 2008 – 2011.

Fisher Science Team A team of 4 scientists whose mission is to synthesize and develop new knowledge for fisher (*Pekania pennanti*) in the west coast states and the Rocky Mountains. The west coast fisher had been proposed for ESA listing, and in 2004 was given a “warranted but precluded by other higher priority actions” status by the USFWS. Given that this status recognizes that perils to persistence exist for this species, a Fisher Steering Committee, Biology Team, and Science Team were organized in 2005. 2004 – 2010.

National Vertebrate Monitoring Team Forest Service Regional Directors of Wildlife requested a team to provide recommendations for monitoring terrestrial animals and species on National Forests and Grasslands. The scientist must be a team member along with 4 other scientists and 8 NFS employees to develop strategies for monitoring animals and habitats. 2003 – 2005.

UPPER LEVEL TEACHING EXPERIENCE (See Also Class Talks)

2014	Conservation Genetics – University of Montana
2013	Conservation Genetics and Monitoring – Ben Gurion University, Israel
2013	Landscape Genomics – University of Montana
2012	Evaluating Landscape Connectivity of Plants and Animals – University of Montana
2009	Wildlife Conservation and Management– Northern Arizona University, Online
1999	Rocky Mountain Flora – Teaching Assistant, University of Montana
1997-1998	Readings in Conservation Biology (upper level course) – University of Montana
1995-1996	General Biology II (laboratory and occasional lectures) – American University
1995-1996	Evolution for Non-majors (lectures and discussions) – American University
1995-1996	General Biology for Non-majors (laboratory) – American University
1995	Genetics – Teaching Assistant, American University

ACADEMIC COMMITTEES: GRADUATE STUDENTS (*students I advise or co-advise)

*Jordan Heiman, University of Montana, M.S., *Wildlife Biology*
Strengthening Population Estimates and Conservation Goals for Rare 1 and Elusive Species, Fall 2022-2025.

Tanner Humphries, University of Montana, M.S., *Wildlife Biology*
Maximizing Restoration Success for Fishers in the North Cascades: Assessing how prey, predator, and competitor distributions relate to fisher habitat selection. Fall 2018-Spring 2022.

Ellen Pero, University of Montana, Ph.D., *Wildlife Biology*
Restoration of elk in Southeastern Missouri. Fall 2017 – Spring 2022.

Brit Garner, University of Montana, Ph.D. *Wildlife Biology*
Monitoring, understanding, and predicting biodiversity trends in the age of big data. Fall 2015 – Spring 2020.

*Katie Zarn, University of Montana, M.S., *Wildlife Biology*
Multi-scale population structure of Alexander Archipelago wolves in Southeast Alaska. Fall 2016- Spring 2020

Colleen Detjens, Montana State University, M.S., *Department of Ecology*
Use of eDNA to estimate abundance of spawning Yellowstone Cutthroat Trout in tributaries to Yellowstone Lake. Spring 2017 – Present.

Sam Panonni, University of Montana, Ph.D. *Wildlife Biology*
Using microbial biomarkers to assess movement of wildlife. Spring 2015 – Present.

Sarah Bassing, University of Montana, M.S. *Wildlife Biology*
Occupancy estimates of wolves in Alberta. Fall 2014 – Spring 2017.

*Taylor Wilcox, University of Montana, Ph.D. *Wildlife Biology*
Using eDNA to monitor endangered and invasive char. Spring 2013 – Fall 2017.

Patrick Cross, University of Montana, M.S. *Systems Ecology*
Determining the origin, distinction, and significance of a high elevation population of red fox in the Greater Yellowstone Ecosystem. Spring 2013 – Spring 2016.

*Todd Cross, University of Montana, Ph.D. *Wildlife Biology*
Delineating greater sage grouse conservation units to preserve genetic variation across a changing landscape. Fall 2011 – Spring 2017.

*Julie Weckworth, University of Montana, Ph.D. *Ecology of Infectious Diseases Program*
CDV spread in African lions by domestic dogs. Spring 2010 – Spring 2018.

*Gretchen Roffler, University of Montana, Ph.D. *Wildlife Biology*
Effects of climate change on connectivity of a sensitive mountain ungulate: Predicting long term persistence of wild sheep. Fall 2010 – May 2015.

*Keith Slauson, University of Montana, Ph.D. *Wildlife Biology*
Linking landscape scale change to population process in carnivorous mammals. Fall 2010 – Spring 2017.

Brett Addis, University of Montana, M.S. *Division of Biological Sciences*
Gene flow in western toads. Fall 2010 – Spring 2013. University of Montana, Ph.D. *Division of Biological Sciences* The evolutionary basis of dispersal in the stream salamander *Gyrinophilus porphyriticus*. Spring 2013-Spring 2019.

Ryan Bracewell, University of Montana, Ph.D. *Department of Ecosystem and Conservation Sciences – College of Forestry and Conservation* Coevolution and cospeciation between *dendroctonus* bark beetles and their symbiotic fungi. Fall 2009 – Fall 2015.

Kellie Carim, University of Montana, Ph.D. *Ecology of Infectious Diseases Program – Division*

of Biology Human impacts on the environment mediating susceptibility to disease. Spring 2009 – Fall 2013.

Darin Newton, University of Montana, M.S. *Wildlife Biology*
Estimating actual and potential northern river otter population size in the Upper Clark Fork River. Fall 2009 – Fall 2012.

Adam Sepulveda, University of Montana, Ph.D. *Division of Biological Sciences*
Local and landscape scale processes that structure Idaho giant salamander distribution and coexistence patterns. Fall 2007 – Spring 2010.

Lindy Mullen, University of Montana, M.S. *Division of Biological Sciences*
Spatial structure and dispersal in the Idaho giant salamander. Fall 2007 – Spring 2009.

*Jody Tucker, University of Montana, Ph.D. *Wildlife Biology*
Developing a genetic based monitoring program for California fisher (*Martes pennanti*). Fall 2006 – Spring 2013.

Ben Jimenez, University of Montana, M.S. *Wildlife Biology*
Movement black bear habitat selection in relation to road density in the Idaho Panhandle National Forests. Fall 2006 – Spring 2011.

Barb McCall, University of Montana, M.S. *Wildlife Biology*
Monitoring black bears in northern Idaho using non-invasive DNA sampling. Fall 2006 – Spring 2009.

Tzeidle Wasserman, Western Washington University, M.S. *Environmental Sciences*
Landscape genetics of American marten in north Idaho. Fall 2005 – Spring 2008.

Megan Corrigan, University of Montana, M.S. *Environmental Studies*
When are ecologically marginal populations valuable for conservation? Fall 2005 – Fall 2007.

Ellen Cheng, University of Montana, Ph.D. *Wildlife Biology*
Snowshoe hare landscape genetics. Fall 2004 – Fall 2011.

Francesca Marucco, University of Montana, Ph.D. *Wildlife Biology*
Effects of habitat fragmentation on Italian Wolves. Fall 2003 – Spring 2009.

*Jennifer Woolf, University of Montana, Ph.D. *Wildlife Biology*
Demographic and genetic examination of black-backed woodpeckers. Fall 2003 – Fall 2009.

Megan Parker, University of Montana, Ph.D. *Wildlife Biology*
Behavioral ecology of wild dogs in Botswana, Africa. 2001 – 2010.

Melanie Hoffman, American University, M.S. *Biology*
Fluctuating asymmetry affects survival in South American sea lions. 1998 – 2000.

External Examiner: International Ph.D. Students

Gayle Pedersen. Directing Rhino population genetic management "best practice" during a poaching crisis. *Department of Production and Animal Studies*. University of Pretoria, South Africa. Examiner on Ph.D. thesis June 2018.

Rachel van Heughten, University of Canterbury, Christchurch, New Zealand, *School of Biological Sciences* Weta affairs: an investigation into the population structure and possible hybridization of two tree weta species (*Hemideina*) in Canterbury. Examiner on Ph.D. thesis September 2015.

Josh Miller, University of Alberta, Edmonton, Canada, *Department of Biological Sciences* Genomics of wild sheep. Examiner on Ph.D. thesis June 2015.

Shannon Renan, Ben Gurion University, Sede Boker, Israel *Department of Desert Ecology* From behavioral patterns to genetic structure: the reintroduced Asiatic wild ass (*Equus hemionus*) in the Negev Desert. Examiner on Ph.D. thesis – December 2014.

Erin Koen, Trent University, Peterborough, Canada, *Environmental and Life Sciences Graduate Program* Evaluating the effects of landscape structure on genetic differentiation and diversity. Examiner on Ph.D. thesis – September 2013.

Nicolas Dussex, University of Otago, New Zealand, *Department of Zoology* Conservation genetics of the alpine parrot, the kea *Nestor notabilis*. Examiner on Ph.D. thesis – August 2013.

Aritz Ruiz-González, Universidad del Pais Vasco, Spain, *Departamento Zoología y Biología Celular Animal* Phylogeography and non-invasive landscape genetics of the European pine marten (*Martes martes* L. 1758): Insights into ancient and contemporary processes shaping genetic variation. External Examiner on Ph.D. thesis – 2011.

David Pavlacky, University of Queensland, *School of Integrative Biology* Avian patch occupancy and landscape genetics of logrunners (*Orthoonyx temminckii*) in fragmented subtropical rainforests of South East Queensland. Examiner on Ph.D. thesis – May 2008.

Anna-Karin Sundqvist, Uppsala University, *Department of Evolutionary Biology* Conservation genetics of wolves and their relationship to dogs. Opponent on Ph.D. examination – February 2008.

ACADEMIC COMMITTEES: UNDERGRADUATE STUDENTS

Amanda Preston, University of Montana. Investigating the continental divide as a barrier to the Hoary Bat, *L. cinereus* movement. Fall 2019-Spring 2020.

Paden Alexander, University of Montana, *The Wildlife Society Native American Research Fellow*. Non-invasive surveys for wolverine on the Confederated Salish and Kootenai Tribes of the Flathead Nation lands. Spring 2016-Fall 2016

Grace Malato, University of Montana, Senior Thesis *Wildlife Biology*
Hybrids lost: fading introgression in two freshwater sculpin populations. Fall 2012 – Spring 2013.

Naomi Akaiame, University of Montana, *Undergraduate Honors Committee – Biology*
Using viruses and DNA to determine relatedness of Yellowstone mountain lions. Fall 2001 – Spring 2004.

HIGH SCHOOL STUDENTS MENTORED

Lucca Musco. Hellgate High School, Missoula MT. Stream conditions that correlate with invasive New Zealand Mud Snail invasions of the Bitterroot River, Montana. Fall 2023 -Spring 2024. *3 awards at national and international science fairs.

Mia Foster. Hellgate High School, Missoula MT. Examining the Effect of Native Host Species Presence on Western Pearlshell Mussel Distributions Using eDNA. Fall 2017. *12 awards in 2 science fairs in 2018. School Year 2018-2019: Developing molecular genetic assays for the detection of mountain lion (*Puma concolor*) from snow-tracks. School Year 2019-202: Developing molecular genetic tools for the early detection of varroa mites (*Varroa destructor*) from honey.

Tischa Padgett Stewart. Hellgate High School, Missoula MT. Design of environmental DNA tools for sampling river otters. Fall 2014 – Summer 2015. *First place ISEF Science Fair. Presented at 2 National Science Fairs.

PEER-REVIEWED PUBLICATIONS

231. Abernathy, H.N., Ditmer, M.A., Hibbard, S.B., Lombardi, J.V., Stephenson, T.R., Squires, J.R., Newton, J.N., Dewey, S.R., Zeller, K.A., Schwartz, M.K. and Wittemyer, G., 2025. A case for human mobility data applications in wildlife management. *Journal of Applied Ecology*.
230. Chmura, H.E., Fowles, G., Pilgrim, K.L., Strand, J.M., Theobald, D.M., Zeller, K.A. and Schwartz, M.K., 2025. The impact of urbanization on genetic connectivity of 10 mammal species in New Jersey. *Ecological Applications*, 35(7), p.e70113.
229. Zarn, K.E., Roffler, G.H., Kardos, M., Good, J.M., Vanderpool, D., Wilcox, T. and Schwartz, M.K., 2025. Genomic Analysis Reveals Inbreeding in an Island Population of Alexander Archipelago Wolves. *Evolutionary Applications*, 18(8), p.e70144.

228. Sergeev, M., Ditmer, M.A., Deming, K.Z., Goedert, N., Schwartz, M.K., Massman, S. and Wittemyer, G., 2025. Leveraging human mobility data to assess recreational activity across the United States' most visited National Forest. *Journal of Outdoor Recreation and Tourism*, 52, p.100973.
227. Fraik, A.K., Pilgrim, K.P., Mosby, C.E., Weir, R. Heusser, C.L., Kluge, N. and Schwartz, M.K. 2025. The genetic implications of translocations on fishers (*Pekania pennanti*) populations in Montana and Idaho. *Journal of Mammalogy*, <https://doi.org/10.1093/jmammal/gyaf065>.
226. Mason, D.H., Henderson, H.A., Franklin, T.W., Young, M.K., Hernandez, J.E., Engkjer, C.L., Hatt, J. and Schwartz, M.K., 2025. Environmental DNA Detects Endangered Texas Hornshell and Its Hosts. *Ecology and Evolution*, 15(7), p.e71397.
225. Brodie, J.F., A. Emmel, B. Wiedenheft, R.L. Sandler, K.H. Redford, C.A. Schultz, A. Moehrensclager, M. Mark-Shadbolt, W.S. Kamau, J.E. Helm, W.A. Gendron, and M.K. Schwartz. 2025. Synthetically assisted conservation and the application of emerging biological technologies for the protection of biodiversity. *Conservation Letters*, 18(3), p.e13114.
224. Kronenberger, J.A., T.M. Wilcox, and M.K. Schwartz. 2025. SmartScreen-AIS: a high-throughput qPCR chip for nationwide surveillance of aquatic invasive species. *Environmental DNA*: <https://doi.org/10.1002/edn3.70144>.
223. Golding, J.D., McKelvey, K.S., Schwartz, M.K., Millspaugh, J.J., Sanderlin, J.S. and Jackson, S.D., 2025. Monitoring with multiple goals: Bayesian methods for changing objectives. *Ecological Modelling*, 508, p.111196.
222. Baughan, K.C., Davis, B.H., Pilgrim, K.L., Carlson, A.A., Morales, S.E., Ramsey, P.W., Schwartz, M.K. and Howie, M.G., 2025. A portable structure for identifying wolverines and Canada lynx using integrated cameras and hair snags. *The Journal of Wildlife Management*, p.e70053.
221. Samuels, L.R., Wilcox, T., Hoffman, M., Elmore, M., Aldredge, R., Stegenga, B.S., Bogan Jr, J.E., Davis, M.A., Hertz, S., Schwartz, M.K. and Chandler, H.C., 2025. Comparison of camera traps, eDNA, and visual encounter surveys for threatened species detection. *Journal for Nature Conservation*, p.126948.
220. Samuels, L.R., Chandler, H.C., Hoffman, M., Kronenberger, J.A., Elmore, M., Aldredge, R., Stegenga, B.S., Bogan Jr, J.E., Davis, M.A., Hertz, S. and Schwartz, M.K., 2025. Persistence of Reptile DNA in a Terrestrial Substrate: A Case Study Using the Eastern Indigo Snake. *Environmental DNA*, 7(1), p.e70053.
219. Schwartz, M.K., Dunn, S.L., Gendron, W.A., Helm, J.E., Kamau, W.S., Mark-Shadbolt, M., Moehrensclager, A., Redford, K.H., Russell, G., Sandler, R.L. and Schultz, C.A., 2024.

- Principles for introducing new genes and species for conservation. *Trends in Ecology & Evolution*.
218. Elmore, J.W., Wilcox, T.M., Dutcher, A.E., Reiss, Y. and Schwartz, M.K., 2024. An inside “beak”: Molecular analysis of swab samples reveals the seabird diet of invasive Barn Owls in Hawai’i. *Journal of Heredity*, 115(4), pp.432-443.
217. Heiman, J.L., Tucker, J.M., Sells, S.N., Millsbaugh, J.J. and Schwartz, M.K., 2024. Leveraging local wildlife surveys for robust occupancy trend estimation. *Ecological Indicators*, 169, p.112863.
216. Cancellare, I.A., Weckworth, B., Caragiulo, A., Pilgrim, K.L., McCarthy, T.M., Abdullaev, A., Amato, G., Bian, X., Bykova, E., Dias-Freedman, I. et al., 2024. Snow leopard phylogeography and population structure supports two global populations with single refugial origin. *Biodiversity and Conservation*, 33(14), pp.3961-3979.
215. Day, C.C., Landguth, E.L., Sawaya, M.A., Clevenger, A.P., Long, R.A., Holden, Z.A., Akins, J.R., Anderson, R.B., Aubry, K.B., Barrueto, M. et al., 2024. Genetic connectivity of wolverines in western North America. *Scientific Reports*, 14(1), p.28248.
214. Elbroch, L.M., Weckworth, B.V., Pilgrim, K., Ohrens, O., Lagos, N., Arroyo-Arce, S., Montt, M., Goic, D. and Schwartz, M.K., 2024. An Initial Genetic Assessment of the Emblematic Pumas of the Torres del Paine UNESCO Biosphere Reserve. *Diversity*, 16(9), p.581.
213. Elmore, J.W., Wilcox, T.M., Young, M.K., Kopp, S.M., Carim, K.J., Mason, D.H., Franklin, T.W. and Schwartz, M.K., 2024. The riverscape on a chip: High-throughput qPCR enables basin-wide fishery assessments. *Canadian Journal of Fisheries and Aquatic Sciences*.
212. Chmura, H.E., Olson, L.E., Murdoch, R., Fraik, A.K., Jackson, S., McKelvey, K.S., Koenig, R., Pilgrim, K.L., DeCesare, N. and Schwartz, M.K., 2024. Climate change differentially alters distribution of two marten species in a hybrid zone. *Ecology and Evolution*, 14(8), p.e70181.
211. Onorato, D.P., Cunningham, M.W., Lotz, M., Criffield, M., Shindle, D., Johnson, A., Clemons, B.C., Shea, C.P., Roelke-Parker, M.E., Johnson, W.E. and McClintock, B.T., 2024. Multi-generational benefits of genetic rescue. *Scientific Reports*, 14(1), p.17519.
210. Olson, L.E., Sauder, J.D., Fekety, P.A., Golding, J.D., Lewis, C.W., Sadak, R.B. and Schwartz, M.K., 2024. Fishers (*Pekania pennanti*) are forest structure specialists when resting and generalists when moving: behavior influences resource selection in a northern Rocky Mountain fisher population. *Movement Ecology*, 12(1), p.49.
209. Weir, R.D., Rankin, A.M., Robinson, L., Pilgrim, K.L., Schwartz, M.K. and Lucid, M.K., 2024. Genetic structuring of Fishers in British Columbia, Canada: implications for

- population conservation and management. *Journal of Mammalogy*, 105(3), pp.465-480.
208. Elbroch, L.M., Williams, S.H., Ohrens, O., Pilgrim, K., Moeller, A., Arroyo-Arce, S., Parker, M., Goic, D., Robinson, H. and Schwartz, M.K., 2024. Comparing abundance estimates of a cryptic carnivore in southern Patagonia using two experimental methods. *Animal Conservation*, 27(3), pp.283-292.
207. Wilcox, T.M., Kronenberger, J.A., Young, M.K., Mason, D.H., Franklin, T.W. and Schwartz, M.K., 2024. The unknown unknown: A framework for assessing environmental DNA assay specificity against unsampled taxa. *Molecular Ecology Resources*, 24(4), p.e13932.
206. Stewart, D.R., Hafen, T., Hendrickson, D.A., Taylor, A.T., Varela-Romero, A., Mason, D.H., Dysthe, J.C., Franklin, T.W., Young, M.K., McKelvey, K.S. and Schwartz, M.K., 2024. Environmental DNA mitochondrial markers to assess potential occupancy of Endangered Yaqui catfish in the Yaqui River basin, Mexico. *Endangered Species Research*, 53, pp.569-586.
205. Kronenberger, J.A., Wilcox, T.M., Young, M.K., Mason, D.H., Franklin, T.W. and Schwartz, M.K., 2024. Large-scale validation of 46 invasive species assays using an enhanced in silico framework. *Environmental DNA*, 6(2), p.e548.
204. Vanderpool, D.D., Wilcox, T.M., Young, M.K., Pilgrim, K.L. and Schwartz, M.K., 2024. Simultaneous species detection and discovery with environmental DNA metabarcoding: A freshwater mollusk case study. *Ecology and Evolution*, 14(2), p.e11020.
203. Sleetings, M.F., Wilcox, T.M., Mason, D.H., Franklin, T.W. and Schwartz, M.K., 2024. From jaguars to pathogens: Simultaneous genetic detection of diverse taxa across biodiversity hotspots in the US. *Conservation Genetics Resources*. <https://doi.org/10.1007/s12686-024-01375-1>.
202. Pilgrim, K.L., Green, R.E., Purcell, K.L., Wilcox, T.M., McGregor, E.L., Gleason, L.E., Wasser, S.K. and Schwartz, M.K., 2023. Shifts in fisher (*Pekania pennanti*) diet in response to climate-induced tree mortality in California assessed with DNA metabarcoding. *Journal for Nature Conservation*, 73, p.126408.
201. Jones, G.M., Goldberg, J.F., Wilcox, T.M., Buckley, L.B., Parr, C.L., Linck, E.B., Fountain, E.D. and Schwartz, M.K., 2023. Fire-adapted traits in animals. *Trends in Ecology & Evolution*.
200. Jones, G.M., Goldberg, J.F., Wilcox, T.M., Buckley, L.B., Parr, C.L., Linck, E.B., Fountain, E.D. and Schwartz, M.K., 2023. Fire-driven animal evolution in the Pyrocene. *Trends in Ecology & Evolution*.
199. Marucco, F., Boiani, M.V., Dupont, P., Milleret, C., Avanzinelli, E., Pilgrim, K., Schwartz, M.K., von Hardenberg, A., Perrone, D.S., Friard, O.P. and Menzano, A., 2023. A

- multidisciplinary approach to estimating wolf population size for long-term conservation. *Conservation Biology*, p.e14132.
198. Cross, T.B., Tack, J.D., Naugle, D.E., Schwartz, M.K., Doherty, K.E., Oyler-McCance, S.J., Pritchert, R.D. and Fedy, B.C., 2023. The ties that bind the sagebrush biome: integrating genetic connectivity into range-wide conservation of greater sage-grouse. *Royal Society Open Science*, 10(2), p.220437.
197. Thompson, L.M., Thurman, L.L., Cook, C.N., Beever, E.A., Sgrò, C.M., Battles, A., Botero, C.A., Gross, J.E., Hall, K.R., Hendry, A.P. Hoffmann, A.A., Hoving, C., LeDee, O.E. Mengelt, C., Nicotra, A.B., Niver, R.A., Pérez-Jvostov, F., Quiñones, R.M., Schuurman, G.W., Schwartz, M.K., Szymanski, J. and Whiteley, A. 2023. Connecting research and practice to enhance the evolutionary potential of species under climate change. *Conservation Science and Practice*, 5(2), p.e12855.
196. Paolini, K.E., Schwartz, M.K., Friggens, M.M., Cushman, S.A., Weckworth, J.K. and Holbrook, J.D., 2023. A review of population and landscape level dynamics associated with pneumonia outbreaks in bighorn sheep with implications for land management. *Conservation Science and Practice*, p.e12956.
195. Roffler, G.H., Pilgrim, K.L., Zarn, K.E., Schwartz, M.K. and Levi, T., 2023. Variation in adult and pup wolf diets at natal den sites is influenced by forest composition and configuration. *Ecology and Evolution*, 13(1), p.e9648.
194. Jones, G.M., Shirk, A.J., G.M., Yang, Z., Davis, R.J., Ganey, J.L., Gutiérrez, R.J., Healey, S.P., Hedwall, S.J., Hoagland, S.J., Maes, R., Malcolm, K., McKelvey, K.S., Vynne, C., Sanderlin, J.S., Schwartz, M.K., Seamans, M.E., Wan, H.Y., Cushman, S.A. 2023. Spatial and temporal dynamics of Mexican spotted owl habitat in the southwestern US. *Landscape Ecology*, 38(1), pp.23-37.
193. Shirk, A.J., Jones, G.M., Yang, Z., Davis, R.J., Ganey, J.L., Gutiérrez, R.J., Healey, S.P., Hedwall, S.J., Hoagland, S.J., Maes, R., Malcolm, K., McKelvey, K.S., Vynne, C., Sanderlin, J.S., Schwartz, M.K., Seamans, M.E., Wan, H.Y., Cushman, S.A. 2023. Automated habitat monitoring systems linked to adaptive management: a new paradigm for species conservation in an era of rapid environmental change. *Landsc Ecol* 38, 7–22) <https://doi.org/10.1007/s10980-022-01457-1>
192. Marucco, F., Pilgrim, K.L., Avanzinelli, E., Schwartz, M.K. and Rossi, L., 2022. Wolf Dispersal Patterns in the Italian Alps and Implications for Wildlife Diseases Spreading. *Animals*, 12(10), p.1260.
191. Isaak, D.J., Young, M.K., Horan, D.L., Nagel, D., Schwartz, M.K. and McKelvey, K.S., 2022. Do metapopulations and management matter for relict headwater bull trout populations in a warming climate?. *Ecological Applications*, p.e2594.
190. Young, M.K., Isaak, D.J., Nagel, D., Horan, D.L., Carim, K.J., Franklin, T.W., Zeller, V.A.,

- Roper, B. and Schwartz, M.K., 2022. Broad-scale eDNA sampling for describing aquatic species distributions in running waters: Pacific lamprey *Entosphenus tridentatus* in the upper Snake River, USA. *Journal of Fish Biology*.
189. Kronenberger, J.A., Wilcox, T.M., Mason, D.H., Franklin, T.W., McKelvey, K.S., Young, M.K. and Schwartz, M.K., 2022. eDNAssay: A machine learning tool that accurately predicts qPCR cross-amplification. *Molecular ecology resources*, 22(8), pp.2994-3005.
188. Oyler-McCance, S.J., Cross, T.B., Row, J.R., Schwartz, M.K., Naugle, D.E., Fike, J.A., Winiarski, K. and Fedy, B.C., 2022. New strategies for characterizing genetic structure in wide-ranging, continuously distributed species: A Greater Sage-grouse case study. *PLoS one*, 17(9), p.e0274189.
187. Franklin, T.W., Dysthe, J.C., Neville, H., Young, M.K., McKelvey, K.M. and Schwartz, M.K., 2022. Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) and Paiute cutthroat trout (*Oncorhynchus clarkii seleniris*) detection from environmental DNA samples: a dual-purpose assay. *Western North American Naturalist*, 82(2), pp.388-397.
186. Young, M.K., Smith, R., Pilgrim, K.L., Isaak, D.J., McKelvey, K.S., Parkes, S., Egge, J. and Schwartz, M.K., 2022. A Molecular Taxonomy of *Cottus* in western North America. *Western North American Naturalist*, 82(2), pp.307-345.
185. Green, D.S., Martin, M.E., Powell, R.A., McGregor, E.L., Gabriel, M.W., Pilgrim, K.L., Schwartz, M.K. and Matthews, S.M., 2022. Mixed-severity wildfire and salvage logging affect the populations of a forest-dependent carnivoran and a competitor. *Ecosphere*, 13(1), p.e03877.
184. Carim, K.J., Eby, L.A., Miller, L.M., McLellan, H., Dupuis, V. and Schwartz, M.K., 2022. Mechanism of northern pike invasion in the Columbia River Basin. *Management of Biological Invasions*. 13 (1): 168-190.
183. Serrao, N.R., Weckworth, J.K., McKelvey, K.S., Dysthe, J.C. and Schwartz, M.K., 2021. Molecular genetic analysis of air, water, and soil to detect big brown bats in North America. *Biological Conservation*, 261, p.109252.
182. Yates, M.C., Wilcox, T.M., McKelvey, K.S., Young, M.K., Schwartz, M.K. and Derry, A.M., 2021. Allometric scaling of eDNA production in stream-dwelling brook trout (*Salvelinus fontinalis*) inferred from population size structure. *Environmental DNA*, 3(3), pp.553-560.
181. Young, M.K., Smith, R., Pilgrim, K.L. and Schwartz, M.K., 2021. Molecular species delimitation refines the taxonomy of native and nonnative physine snails in North America. *Scientific reports*, 11(1), pp.1-13.
180. Sanderlin, J.S., Golding, J.D., Wilcox, T., Mason, D.H., McKelvey, K.S., Pearson, D.E. and Schwartz, M.K., 2021. Occupancy modeling and resampling overcomes low test

- sensitivity to produce accurate SARS-CoV-2 prevalence estimates. *BMC Public Health*, 21(1), pp.1-10.
179. Wilcox, T.M., Caragiulo, A., Dysthe, J.C., Franklin, T.W., Mason, D.H., McKelvey, K.S., Zarn, K.E. and Schwartz, M.K., 2021. Detection of Jaguar (*Panthera onca*) From Genetic Material in Drinking Water. *Frontiers in Ecology and Evolution*, 9, p.613200.
178. Weckworth, J.K., B.W. Davis, M.E. Roelke-Parker, R.P. Wilkes, C. Packer, E. Eblate, M.K. Schwartz and L.S. Mills. 2020. Identifying candidate genetic markers of CDV cross-species pathogenicity in African lions. *Pathogens* 11: 872-881.
177. Balkenhol, N., M.K. Schwartz, R.M. Inman, J.P. Copeland, J.S. Squires, N.J. Anderson, and L.P. Waits. 2020. Landscape genetics of wolverines (*Gulo gulo*): scale-dependent effects of bioclimatic, topographic, and anthropogenic variables. *Journal of Mammalogy* 101: 790-803.
176. Mason, D.H., J.C. Dysthe, T.W. Franklin, C.L. Williams, M.K. Schwartz, K.S. McKelvey, and M.K. Schwartz. 2020. Certain detection of uncertain taxa: eDNA detection of a cryptic mountain sucker (*Pantosteus jordani*) in the Upper Missouri River, USA. *Environmental DNA*: DOI: 10.1002/edn3.133.
175. Bassing, S.B., D. E. Ausband, M. S. Mitchell, M. K. Schwartz, J. J. Nowak, G. Hale, L. P. Waits. In Press. Immigration does not offset harvest mortality in a cooperatively breeding carnivore. *Animal Conservation* 23 (6), 750-761doi:10.1111/acv.12593.
174. Schwartz, M.K., A.D. Walters, K.L. Pilgrim, K.M. Moriarty, K.M. Slauson, W.J. Zielinski, K.B. Aubry, B.N. Sacks, K.E. Zarn, C.B. Quinn, and M.K. Young. Accepted. Pliocene-Early Pleistocene geological events structure Pacific martens (*Martes caurina*). *Journal of Heredity*. <https://doi.org/10.1093/jhered/esaa005>
173. Lukacs, P.M. D. Evans-Mack, R. Inman, J.A. Gude, J.S. Ivan, R.P. Lanka, J.C. lewis, R.A. Long, R. Sallabanks, Z. Walker, S. Courville, S. Jackson, R. Kahn, M.K. Schwartz, S.C. Torbit, J.S. Waller, K. Carroll. 2020. Wolverine occupancy, spatial distribution, and monitoring design. *Journal of Wildlife Management*.
172. McKelvey, K.S., C. Kallstrom, J. Ledbetter, D. Sada, K. Pilgrim, and M.K. Schwartz. 2020. An inventory of springsnails (*Pyrgulopsis* spp.) in and adjacent to the Spring Mountains, Nevada. *Western North American Naturalist* 80: 183-193.
171. Rodgers, T.W., J.C. Dysthe, C. Tait, T.W. Franklin, M.K. Schwartz, and K.E. Mock. Detection of four imperiled western North American freshwater mussel species from environmental DNA with multiplex qPCR assays. 2020. *Freshwater Science* 39: 000-000.
170. Wilcox, T., K.S. McKelvey, M.K. Young, C. Engkjer, R.F. Lance, A. Lahr, L.A. Eby, and M.K. Schwartz. 2020. Parallel, targeted analysis of environmental samples via high throughput quantitative PCR (HT-qPCR). *Environmental DNA* DOI: 10.1002/edn3.80.

169. Weckworth, J., B. Davis, E. Dubovi, N. Fountain-Jones, C. Packer, S. Cleaveland, E. Eblate, M. Craft, M.K. Schwartz, L.S. Mills, and M. Roelke-Parker, Melody. 2020. Cross-species transmission and evolutionary dynamics of canine distemper virus during a spillover in African lions of Serengeti National Park. *Molecular Ecology*: DOI: 10.1111/mec.15449 .
168. Carim, K.J., N.J. Bean, J.M. Connor, W.P. Baker, M. Jaeger, M.P. Ruggles, K.S. McKelvey, T.W. Franklin, M.K. Young, and M.K. Schwartz. 2020. Environmental DNA sampling informs fish eradication efforts: case studies and lessons learned. *North American Journal of Fisheries Management* 40: 488-508.
167. DeCesare, N.J., B.V. Weckworth, K.L. Pilgrim, A.B.D. Walker, E.J. Bergman, K.E. Colson, R. Corrigan, R.B. Harris, M. Hebblewhite, B.R. Jesmer, J.R. Newby, J.R. Smith, R.B. Tether, T.P. Thomas and M.K. Schwartz. 2020. Phylogeography of moose in western North America. *Journal of Mammalogy* 10: 10-23.
166. Happe, P., K. Jenkins, R. McCaffery, J. Lewis, K. Pilgrim, and M.K. Schwartz. 2020. Occupancy patterns in a reintroduced fisher population during reestablishment. *Journal of Wildlife Management* 84: 344-358.
165. Peele, L.E., A.J. Wirsing, K.L. Pilgrim, and M.K. Schwartz. 2019. Identifying predators from saliva at kill sites with limited remains. *Wildlife Society Bulletin* 43: 546-557.
164. Zielinski, W.J., M.A. Linnell, M.K. Schwartz, and K. Pilgrim. 2020. Exploiting the winter trophic relationship between weasels (*Mustela* sp.) and their microtine prey as a survey method for weasels in meadow ecosystems. *Northwest Science* 93: 185-192.
163. Moriarty, K.M., Aubry, K.B., Morozumi, C.N., Howell, B.L., Happe, P.J., Jenkins, K.J., Pilgrim, K.L. and Schwartz, M.K., 2019. Status of Pacific Martens (*Martes caurina*) on the Olympic Peninsula, Washington. *Northwest Science*, 93(2), pp.122-136.
162. Sawaya, M.K., A.P. Clevenger, and M.K. Schwartz. 2019. Demographic fragmentation of a protected wolverine population bisected by a major transportation corridor. *Biological Conservation* 236: 616-625.
161. Carim, K.J., J.C. Dysthe, H. McLellan, M.K. Young, K.S. McKelvey, and M.K. Schwartz. 2019. Using environmental DNA sampling to monitor the invasion of nonnative *Esox Lucius* (northern pike) in the Columbia River basin, USA. *Environmental DNA*.
160. Young, MK, RJ Smith, KL Pilgrim, MP Fairchild, MK Schwartz. 2019. Integrative taxonomy refutes a species hypothesis: the asymmetric hybrid origin of *Arsapnia Arapahoe* (Plecoptera, Capniidae). *Ecology and Evolution* 2: 1364-1377.
159. Roffler, G., J. Waite, K. Pilgrim, K. Zarn, MK Schwartz. 2019. Estimating abundance of a cryptic social carnivore using spatially explicit capture-recapture. *Wildlife Society*

Bulletin 43: 31-41. 10.1002/wsb.953

158. Franklin, T. W. T. M. Wilcox, K. S. McKelvey, M. K. Young, J. C. Dysthe, and M. K. Schwartz. 2019. Repurposing environmental DNA samples to verify the range limits of tailed frogs in the upper Clark Fork basin, Montana. *Northwest Science*.
157. Mason, D., J. C. Dysthe, T. W. Franklin, J. A. Skorupski, M. K. Young, K. S. McKelvey and M. K. Schwartz. 2018. qPCR detection of Sturgeon chub (*Macrhybopsis gelida*) DNA in environmental samples. *PLoS One* 13:e0209601.
156. Franklin, T.W., K. S. McKelvey, D. H. Mason, J. D. Golding, J. C. Dysthe, S. Greaves, K. L. Pilgrim, J. R. Squires, K. B. Aubry, R. A. Long, C. M. Raley, S. Jackson, P. Mackay, J. D. Sauder, J. Lisbon, M. Press, D. Heffington, and M. K. Schwartz. 2019. Using environmental DNA methods to improve winter surveys for rare carnivores: DNA from snow and improved noninvasive techniques. *Biological Conservation* 229: 50-58.
155. Cross, P., B. Sacks, G. Luikart, M.K. Schwartz, K. Van Etten, and R. Crabtree. 2018. Red fox ancestry and connectivity assessments reveal minimal fur farm introgression in the Greater Yellowstone Ecosystem. *Journal of Fish and Wildlife Management*.
154. Dysthe J. C., T. W. Franklin, K. S. McKelvey, M. K. Young, and M. K. Schwartz. 2018. An improved environmental DNA assay for bull trout (*Salvelinus confluentus*) based on the ribosomal Internal Transcribed Spacer I. *PLoS One* 13(11): e0206851
153. Wilcox, T. M., M. K. Young, K. S. McKelvey, D. J. Isaak, D. L. Horan, and M. K. Schwartz. 2018. Between a rock and a hard place: Fine-scale environmental DNA sampling reveals interactions between native *Salvelinus confluentus*, invasive *Salvelinus fontinalis*, and climate change. *Ecosphere*.
152. Wilcox, T.M., K. Zarn, M. Piggott, M.K. Young, K.S. McKelvey, and M.K. Schwartz. 2018. Capture enrichment of aquatic environmental DNA: a first proof of concept. *Molecular Ecology Resources*: DOI: 10.1111/1755-0998.12928.
151. Wilcox, T.M., Carim, K.J., Young, M.K., McKelvey, K.S., Franklin, T.W., Schwartz, M.K. 2018. The importance of sound methodology in environmental DNA sampling. *North American Journal of Fisheries Management* 38: 592-596.
150. Franklin, T.W., J.C. Dysthe, M. Golden, K.S. McKelvey, B.R. Hossack, K.J. Carim, C. Tait, M.K. Young, and M.K. Schwartz. 2018. Inferring presence of the western toad (*Anaxyrus boreas*) species complex using environmental DNA. *Global Ecology and Conservation*. e00438.
149. Cross, T.B., Schwartz, M.K., Naugle, D.E., Fedy, B.C., Row, J.R., and S.J. Oyler-McCance. 2018. The genetic network of greater sage-grouse: range-wide identification of keystone hubs of connectivity. *Ecology and Evolution*.

148. Row, J.R., K.E. Doherty, T.B. Cross, M.K. Schwartz, S. Oyler-McCance, D.E. Naugle, S. T. Knick, and B.C. Fedy. 2018. Quantifying functional connectivity: the role of breeding habitat, abundance, and landscape features on range-wide gene flow in sage grouse. *Evolutionary Applications*.
147. Wilcox, T.M., M.K. Schwartz, and W.H. Lowe. 2018. Evolutionary community ecology: time to think outside the (taxonomic) box. *Trends in Ecology and Evolution* 33: 240-250.
146. Dysthe, J.C., T. Rodgers, T.W. Franklin, K.J. Carim, M.K. Young, K.S. McKelvey, K.E. Mock, and M.K. Schwartz. 2018. Repurposing environmental DNA samples: detecting the western pearlshell (*Margaritifera falcata*) as a proof of concept. *Ecology and Evolution* 8: 2659-2670.
145. Dysthe, J.C., K.J. Carim, T.W. Franklin, D. Kikkert, M.K. Young, K.M. McKelvey, and M.K. Schwartz. 2018. Molecular detection of northern leatherside chub (*Lepidomeda copei*) DNA in environmental samples. *Western North American Naturalist* 78: 92-99.
144. Dysthe, J.C., K.S. McKelvey, M.K. Young, K.J. Carim, T.W. Franklin, J. Olden, E. Suther, and M.K. Schwartz. 2018. A non-invasive sampling method for detecting non-native smallmouth bass (*Micropterus dolomieu*). *Northwest Science* 92:149-157.
143. Schwartz, M.K., B. Penaluna, T. Wilcox. 2017. Environmental DNA sampling: not just for fisheries biologists anymore. *The Wildlife Professional* 11:47-51.
142. Green, S.D., S. Matthews, R.C. Swiers, R.L. Callas, J.S. Yaeger, S. Farber, M.K. Schwartz, R.A. Powell. 2018. Dynamic occupancy modeling reveals a hierarchy of competition among fishers, gray foxes, and ringtails. *Journal of Animal Ecology* 87: 813-824.
141. Isaak, D., M.K. Young, C. McConnell, B. Roper, E. Archer, B. Staab, C. Hirsch, D. Nagel, M.K. Schwartz, and G. Chandler. 2018. Crowd-sourced databases as essential elements for Forest Service partnerships and aquatic resource conservation. *Fisheries* 43: 423-430.
140. Tucker, J.M., F.W. Allendorf, R.L. Truex, M.K. Schwartz. 2017. Sex-biased dispersal and spatial heterogeneity affect landscape resistance to gene flow in fisher. *Ecosphere* 8: e01839. 10.1002/ecs2.1839
- 139 Dysthe, J.C., K.J. Carim, M. Ruggles, K.S. McKelvey, M.K. Young, and M.K. Schwartz. 2017. Environmental DNA assays for sister taxa sauger (*Sander canadensis*) and walleye (*Sander vitreus*). *PLoS One* 12: e0176459.
138. Schwartz, M.K. and D.J. Boness. 2017. Marine mammal subspecies in the age of genetics. *Marine Mammal Science* 33: 7-11.
137. Young, M.K., D.J. Isaak, K.S. McKelvey, T.M. Wilcox, M.R. Campbell, M.P. Corsi, D.L. Horan, and M.K. Schwartz. 2017. Ecological segregation moderates a climactic conclusion to trout hybridization. *Global Change Biology* DOI: 10.1111/gcb.13828.

136. Slauson, K.M, W.Zielinski, and M.K. Schwartz. 2017. Ski areas affect Pacific marten movement, seasonal habitat use, and density. *Journal of Wildlife Management* 81: 892-904.
135. Cross, T.B., D. Naugle, J.C. Carlson. M.K. Schwartz. 2017. Genetic recapture identifies long-distance dispersal in greater sage-grouse (*Centrocercus urophasianus*). *Condor* 119: 155-166.
134. Carim, K.J., J.C. Dysthe, M.K. Young, K.S. McKelvey, and M.K. Schwartz. 2017. A noninvasive tool to assess the distribution of Pacific lamprey (*Entosphenus tridentatus*) in the Columbia River Basin. *PLoS One* 12: e0169334.
133. Stetz, J.B., M.A. Sawaya, A.B. Ramsey, S.J. Amish, M.K. Schwartz and G. Luikart. 2016. Discovery of 20,000 RAD-SNPs and development of a 52-SNP array for monitoring river otters. *Conservation Genetics Resources*: 8, pp.299-302.
132. Young, M.K., D. Isaak, K.S. McKelvey, T.M. Wilcox, D. Bingham, K.L. Pilgrim, K.J. Carim, M. Campbell, M. Corsi, D. Horan, D. Nagel, and M.K. Schwartz. 2016. Climate, demography, and zoogeography predict introgression thresholds in salmonid hybrid zones in Rocky Mountain streams. *PLoS One* 11: e0163563
131. Roffler, G.H., S.J. Amish, S. Smith, T. Cosart, M. Kardos, M.K. Schwartz, and G. Luikart. 2016. SNP discovery in candidate adaptive genes using exon capture in a free-ranging alpine ungulate. *Molecular Ecology Resources* 16: 1147-1164.
130. Dysthe, J.C.S., M.K. Young, K.S. McKelvey, K. Carim, and M.K. Schwartz. 2016. Quantitative PCR assays for detecting loach minnow (*Rhinichthys cobitis*) and spikedace (*Meda flugida*) in the southwestern United States. *PLoS One*: e0162200
129. Carim, K.J., J.C.S. Dysthe, M.K. Young, K.S. McKelvey, and M.K. Schwartz. 2016. An environmental DNA marker for detecting Arctic grayling in the upper Missouri River basin, North America. *Conservation Genetics Resources* 3: 197-199.
128. Cross. T.B., D. Naugle, J.C. Carlson and M.K. Schwartz. 2016. Hierarchical population structure in greater sage-grouse provides insight into management boundary delineation. *Conservation Genetics* 17: 1417-1433.
127. Carim, K., K. Christianson, K.S. McKelvey, W.M. Pate, B. Johnson, M.K. Young, and M.K. Schwartz. 2016. Environmental DNA marker development with sparse biological information: a case study on opossum shrimp (*Mysis diluviana*). *PLoS One*: e0161664
126. Dilkina, B., R. Houtman, C.P. Gomes, C.A. Montgomery, K.S McKelvey, K. Kendall, T. Graves, R. Bernstein, and M.K. Schwartz. 2016. Trade-offs and efficiencies in optimal budget-constrained multispecies corridor networks. *Conservation Biology* 31: 192-202.

125. Hawley, J.E., P.W. Rego, A.P. Wydeven, M.K. Schwartz, T.C. Viner, R. Kays, K.L. Pilgrim, and J.A. Jenks. 2016. Long-distance dispersal of a subadult male cougar from South Dakota to Connecticut documented with DNA evidence. *Journal of Mammalogy* 97: 1435-1440.
124. Benestan, L. A.-L. Ferchaud, P. Hohenlohe, B.A. Garner, G.J.P. Naylor, I. Baums, M.K. Schwartz, J.L. Kelley, and G. Luikart. 2016. Conservation genomics of natural and managed populations: building a conceptual and practical framework. *Molecular Ecology* 25: 2967-2977.
123. Carim, K.J., T.M. Wilcox, M. Anderson, D. Lawrence, M.K. Young, K.S. McKelvey, and M.K. Schwartz. 2016. An environmental DNA marker for detecting nonnative brown trout (*Salmo trutta*). *Conservation Genetic Resources* 8:259-261.
122. Hanks, E.M., M.B. Hooten, S.T. Knick, S.J. Oyster-McCance, J.A. Fike, T.B. Cross, and M.K. Schwartz. 2016. Latent spatial models and sampling design for landscape genetics. *Annals of Applied Statistics* 10:1041-1062.
121. Shafer et al. 2016. Reply to: Genomics in Conservation – case studies and bridging the gap between data and application. *Trends in Ecology and Evolution* 31: 83-84.
120. Roffler, G.H. M.K. Schwartz, K.L. Pilgrim, S. Talbot, G.K. Sage, L. Adams, and G. Luikart. 2016. Identification of Landscape Features Influencing Gene Flow: How Useful Are Habitat Selection Models? *Evolutionary Applications* 9: 805-817.
119. Juarez, R.L., M.K. Schwartz, K.L. Pilgrim, D.J. Thompson, S.A. Tucker, J.B. Smith and J.A. Jenks. 2016. Assessing temporal genetic variation in a cougar population: influence of harvest and neighboring populations. *Conservation Genetics*, pp.1-10.
118. Kretser, H., M. Glennon, A. Whitelaw, A. Hurt, K.L. Pilgrim and M.K. Schwartz. 2016. Scat-detection dogs survey low density moose in New York. *Alces* 52:55-66.
117. Schwartz, M.K., B. Hahn, and B.R. Hossack. 2016. Where the wild things are: a research agenda for studying the wildlife-wilderness relationship. *Journal of Forestry* 114: 311-319.
116. Schwartz, M.K. 2016. Recipient of the 2015 Molecular Ecology Prize: Fred Allendorf. *Molecular Ecology* 25: 450-453.
115. Wilcox, T. M., K. S. McKelvey, M. K. Young, A. J. Sepulveda, B. B. Shepard, S. F. Jane, A. R. Whiteley, W. H. Lowe, and M. K. Schwartz. 2016. Understanding environmental DNA detection probabilities: a case study using a stream-dwelling char (*Salvelinus fontinalis*). *Biological Conservation* 194: 209-216
114. McKelvey, K. S., Young, M. K., Knotek, W. L., Carim, K. J., Wilcox, T. M., Padgett-Stewart, T. M., and Schwartz, M. K. 2016. Sampling large geographic areas for rare

- species using environmental DNA: a study of bull trout *Salvelinus confluentus* occupancy in western Montana. *Journal of Fish Biology* 88: 1215-1222.
113. Proffitt, K.M., J.F. Goldberg, M. Hebblewhite, R. Russell, B.S. Jimenez, H.S. Robinson, K. Pilgrim, and M.K. Schwartz. 2015 Integrating resource selection function into spatial capture-recapture models for large carnivores. *Ecosphere* 6: 1-15.
112. Padgett-Stewart, T.M., T.M. Wilcox, K.J. Carim, K.S. McKelvey, M.K. Young, and M.K. Schwartz. 2016. Designing an eDNA Assay for River Otter Detection: A tool for discerning the efficacy of eDNA surveying on semi-aquatic mammals. *Conservation Genetics Resources* 8: 5-7..
111. Wilcox, T. M., K. S. McKelvey, M. K. Young, W. H. Lowe, and M. K. Schwartz. 2015. Environmental DNA particle size distribution from Brook Trout (*Salvelinus fontinalis*). *Conservation Genetics Resources* 7: 639-641.
110. Wilcox, T. M., K. J. Carim, K. S. McKelvey, M. K. Young, and M. K. Schwartz. 2015. The Dual Challenges of Generality and Specificity When Developing Environmental DNA Markers for Species and Subspecies of *Oncorhynchus*. *PloS one*, 10(11), p.e0142008.
109. McKelvey, K. S., M. K. Young; T. M. Wilcox, D. Bingham, K. L. Pilgrim, and M. K. Schwartz. 2015. Patterns of hybridization among cutthroat and rainbow trout in northern Rocky Mountain streams. *Ecology and Evolution* 6: 688-706.
108. Keith, D., H.R. Akcakaya, S.H.M. Butchart, B. Collen, N.K. Dulvy, E.E. Holmes, J.A. Hutchings, D. Keinath, M.K. Schwartz, A.O. Shelton, R.S. Waples. 2015. Temporal correlation in population trends: conservation implications from time-series analysis of diverse animal taxa. *Biological Conservation* 192: 247-257.
107. Ellis, M.M., J.S. Ivan, J. Tucker, and M.K. Schwartz. 2016. rSPACE: Spatially-based power analysis for conservation and ecology. *Methods in Ecology and Evolution*.
106. Schoenecker, K., M.K. Watry, L. Ellison, G. Luikart, and M.K. Schwartz. 2015. Estimating bighorn sheep (*Ovis Canadensis*) abundance using noninvasive sampling at a mineral lick within a National Park Wilderness Area. *Western North American Naturalist*.
105. Dobrowski, S.Z., A.K. Swanson, J.T. Abatzoglou, Z.A. Holden, H.D. Safford, M.K. Schwartz, and D.G. Gavin. 2015. Forest structure and species traits mediate projected recruitment declines in western US tree species. *Global Ecology and Biogeography*. DOI 10.1111/geb.12302.
104. Shafer, A.B. et al. 2015. Genomics and the challenging translation into conservation practice. *Trends in Ecology and Evolution*. 30: 78-87.
103. Jane, S.F., T.M. Wilcox, K.S. McKelvey, M.K. Young, M.K. Schwartz, W.H. Lowe, B.H. Letcher, and A.R. Whiteley. 2014. Distance, flow and PCR inhibition: eDNA dynamics

- in two headwater streams. *Molecular Ecology Resources*. 15: 216-227.
102. Roffler, G.H., S.L. Talbot, G.H. Luikart, G.K. Sage, K.L. Pilgrim, L.G. Adams, and M.K. Schwartz. 2014. Lack of sex-biased dispersal promotes fine-scale genetic structure in alpine ungulates. *Conservation Genetics*. 15: 837-851.
101. Whiteley, A.R., K. McGarigal, and M.K. Schwartz. 2014. Pronounced differences in genetic structure despite overall ecological similarity for two *Ambystoma* salamanders in the same landscape. *Conservation Genetics* 15: 573-591. DOI 10.1007/s10592-014-0562-7.
100. Landguth, E.L. and M.K. Schwartz. 2014. Evaluating sample allocation and effort in detecting population differentiation for discrete and continuously distributed individuals. *Conservation Genetics* 15: 981-992. DOI 10.1007/s10592-014-0593-0.
99. Hand, B.K., S. Chen, N.J. Anderson, A. Beja-Pereira, P.C. Cross, M. Ebinger, H. Edwards, R.A. Garrott, M.D. Kardos, M. Kauffman, E.L. Landguth, A. Middleton, B. Scurlock, P.J. White, P. Zager, M.K. Schwartz, and G.H. Luikart. 2014. Sex-biased gene flow among elk in the Greater Yellowstone Ecosystem. *Journal of Fish and Wildlife Management*. 5: 124-132.
98. Lemoine, M., M.K. Young, K.S. McKelvey, L. Eby, K.L. Pilgrim, and M.K. Schwartz. 2014. *Cottus schitsuumsh*, a new species of sculpin (Scorpaeniformes: Cottidae) in the Columbia River basin, Idaho-Montana, USA. *Zootaxa*. 3755: 241-258.
97. McKelvey, K.S., K.B. Aubry, N.J. Anderson, A.P. Clevenger, J.P. Copeland, K.S. Heinemeyer, R.M. Inman, J.R. Squires, J.S. Waller, K.L. Pilgrim, and M.K. Schwartz. 2014. Recovery of wolverines in the Western United States: Recent extirpation and recolonization or range retraction and expansion? *Journal of Wildlife Management*. 78: 325-334.
96. Wilcox, T.M., M.K. Schwartz, K.S. McKelvey, M.K. Young, and W.H. Lowe. 2014. A blocking primer increases specificity in environmental DNA detection of bull trout (*Salvelinus confluentus*). *Conservation Genetics Resources*. 6: 1-2.
95. Olson, L.E., J.D. Sauder, N.M. Albrecht, R.S. Vinkey, S.A. Cushman, and M.K. Schwartz. 2014. Modeling the effects of dispersal and patch size on predicted fisher (*Pekania [Martes] pennanti*) distribution in the U.S. Rocky Mountains. *Biological Conservation*. 169: 89-98.
94. Tucker, J., M.K. Schwartz, R.L. Truex, K.L. Pilgrim, and F.W. Allendorf. 2014. Historical and contemporary DNA indicate fisher decline and isolation occurred prior to the European settlement of California. *Conservation Genetics*. 15: 583-595.
93. Dilkina, B., K. Lai, R. Le Bras, Y. Xue, C.P. Gomes, A. Sabharwal, J. Suter, K.S. McKelvey, M.K. Schwartz, and C. Montgomery. 2014. Large landscape conservation-synthetic and

- real-world datasets. *Twenty-Seventh AAAI Conference on Artificial Intelligence*. 27: 1369-1372.
92. Le Bras, R., B. Dilkina, Y. Xue, C. Gomes, K. McKelvey, M.K. Schwartz, and C. Montgomery. 2014. Robust network design for multispecies conservation. *Twenty-Seventh AAAI Conference on Artificial Intelligence*. 27: 1305-1312.
91. Aubry, K.B., C.M. Raley, S.W. Buskirk, W.J. Zielinski, M.K. Schwartz, R.T. Golightly, K.L. Purcell, R.D. Weir, and J.S. Yaeger. 2013. Meta-analyses of habitat selection by fishers at resting sties in the Pacific Coastal Region. *Journal of Wildlife Management*. 77: 965-974.
90. Pierson, J.C., F.W. Allendorf, P. Drapeau, and M.K. Schwartz. 2013. Breed locally, disperse globally: fine scale genetic structure despite landscape-scale panmixia in a fire-specialist. *PLoS One*. 8: e67248.
89. Ellis, M.M., J.S. Ivan, and M.K. Schwartz. 2014. Spatially explicit power analysis for occupancy-based monitoring of wolverine populations in the U.S. Rocky Mountains. *Conservation Biology*. 28: 52-62.
88. McCall, B., M.S. Mitchell, M.K. Schwartz, J. Hayden, S.A. Cushman, P. Zager, and W.F. Kasworm. 2014. Combined use of mark-recapture and genetic analyses reveals response of a black bear population to changes in food productivity. *Journal of Wildlife Management*. 77: 1572-1582.
87. Neel, M.C., K.S. McKelvey, N. Ryman, M.W. Lloyd, R. Short Bull, F.W. Allendorf, M.K. Schwartz, and R.S. Waples. 2013. Estimation of effective population size in continuously distributed populations: There goes the neighborhood. *Heredity*. DOI 10.1038/hdy.2013.37.
86. Schwartz, M.K., N.J. DeCesare, B.S. Jimenez, J.P. Copeland, and W. Melquist. 2013. Stand- and landscape-scale selection of large trees by fishers in the Rocky Mountains of Montana and Idaho. *Forest Ecology and Management*. 305:103-111.
85. Wilcox T.M., K.S. McKelvey, M.K. Young, S.F. Jane, W.H. Lowe, A.R. Whiteley, and M.K. Schwartz. 2013. Robust detection of rare species using environmental DNA: the importance of primer specificity. *PLoS ONE*. 8: e59520. DOI 10.1371/journal.pone.0059520.
84. McKelvey, K.S., J. Ramirez, K.L. Pilgrim, S.A. Cushman, and M.K. Schwartz. 2013. Genetic sampling of Palmer's chipmunks in the Spring Mountains, Nevada. *The Western North American Naturalist*. 73: 198-210.
83. Young, M.K., K.S. McKelvey, K.L. Pilgrim and M.K. Schwartz. 2013. DNA barcoding at riverscape scales: Assessing biodiversity among fishes of the genus *Cottus* (Teleostei) in northern Rocky Mountain streams. *Molecular Ecology Resources*. DOI 10.1111/1755-

- 0998.12091.
82. Swanson, A.K., S.Z. Dobrowski, A.O. Finley, J.H. Thorne, and M.K. Schwartz. 2013. Spatial regression methods capture prediction uncertainty in species distribution model projections through time. *Global Ecology and Biogeography*. 22: 242-251.
81. Zielinski, W.J., F.V. Schlexer, T.L. George, K.L. Pilgrim, and M.K. Schwartz. 2013. Estimating abundance and survival in the endangered Point Arena mountain beaver using noninvasive genetic methods. *Northwest Science*. 87:126-139.
80. Tucker, J.M., M.K. Schwartz, R.L. Truex, K.L. Pilgrim, and F.W. Allendorf. 2012. Historical and contemporary DNA indicate fisher decline and isolation occurred prior to the European settlement of California. *PLOS One*. DOI 10.1371/journal.pone.0052803
79. Dobrowski, S.Z., J.T. Abatzoglou, A. Swanson, A. Mynsberge, J. Greenberg, Z. Holden, and M.K. Schwartz. 2012. The climate velocity of the contiguous United States during the 20th century. *Global Change Biology*. 19:241-251.
78. Zielinski, W.J., F.V. Schlexer, S.A. Parks, K.L. Pilgrim, and M.K. Schwartz. 2012. Small geographic range but not panmictic: How forests structure the endangered Point Arena mountain beaver (*Aplodontia rufa nigra*). *Conservation Genetics*. 14: 369-383.
77. Parks, S., K.S. McKelvey, and M.K. Schwartz. 2012. Effects of weighting schemes on the identification of wildlife corridors generated with least-cost methods. *Conservation Biology*. 27: 145-154.
76. Hutchings, J., S.H. Butchart, B. Collen, M.K. Schwartz, and R.S. Waples. 2012. Red Flags: Correlates of impaired species recovery. *Trends in Ecology and Evolution*. 27: 542-546.
75. Tallmon, D.A., R.S. Waples, D. Gregovich, and M.K. Schwartz. 2012. Detecting population recovery using gametic disequilibrium-based effective population size estimates. *Conservation Genetics Resources*. 4: 987-989.
74. Campbell, N.R., S.J. Amish, V.L. Pritchard, K.M. McKelvey, M.K. Young, M.K. Schwartz, J.C. Garza, G.H. Luikart, and S.R. Narum. 2012. Development and evaluation of 200 novel SNP assays for population genetic studies of westslope cutthroat trout and genetic identification of related taxa. *Molecular Ecology Resources*. 12: 942-949.
73. Pilgrim, K.L., W.J. Zielinski, F.V. Schlexer, and M.K. Schwartz. 2012. Development of a reliable method for determining sex for a primitive rodent, the Point Arena mountain beaver (*Aplodontia rufa nigra*). *Conservation Genetics Resources*. 4: 975-977.
72. Stetz, J.B., K.C. Kendall, C.D. Vojta and the Genetic Monitoring Working Group (M.K. Schwartz and F.W. Allendorf). 2011. Genetic monitoring for managers: A new online resource. *Journal of Fish and Wildlife Management*. 2: 216-219.

71. Perez-Figueroa, A., R.L. Wallen, T. Antao, J.A. Coombs, M.K. Schwartz, P.J. White, and G.H. Luikart. 2012. Conserving genomic variability in large mammals: Effect of population fluctuations and variance in male reproductive success on variability in Yellowstone bison. *Biological Conservation*. 150: 159-166.
70. Hansen, M.M., I. Olivieri, D.M. Waller, E.E. Nielsen, and the Genetic Monitoring Working Group (M.K. Schwartz and F.W. Allendorf). 2012. Monitoring adaptive genetic responses to environmental change. *Molecular Ecology*. 21: 1311-1329.
69. Jackson, J.A., L. Laikre, C.S. Baker, K.C. Kendall, and the Genetic Monitoring Working Group (M.K. Schwartz and F.W. Allendorf). 2012. Guidelines for collecting and maintaining archives for genetic monitoring. *Conservation Genetic Resources*. 4: 527-536.
68. Russell, R.E., J.A. Royle, R. DeSimone, M.K. Schwartz, V.L. Edwards, K.L. Pilgrim, and K.S. McKelvey. 2012. Estimating abundance from unstructured spatial samples: An example with Montana mountain lions (*Puma concolor*). *Journal of Wildlife Management*. 76: 1551-1561.
67. McKelvey, K.S., J.P. Copeland, M.K. Schwartz, J.S. Littell, K. B. Aubry, J.R. Squires, S.A. Parks, M. McGuire Elsner, and G.S. Mauer. 2011. Predicted effects of climate change on wolverine distribution and movement in western North America. *Ecological Applications*. 21: 2882-2897.
66. Lai, K.J., C.P. Gomes, M.K. Schwartz, K.S. McKelvey, D. Calkin, and C. Montgomery. 2011. The Steiner multigraph problem: applications in wildlife corridor design. *Symposium of the Advancement of Artificial Intelligence*.
65. Knaus, B.J., R. Cronn, A. Liston, K.L. Pilgrim, and M.K. Schwartz. 2011. Mitochondrial genome sequences illuminate maternal lineages of conservation concern in a rare carnivore. *BMC Ecology*. 11: DOI 10.1186/1472-6785-11-10.
64. Marucco, F., L. Boitani, D.H. Pletscher, and M.K. Schwartz. 2011. Bridging the gaps between non-invasive genetic sampling and population parameter estimation. *European Journal Wildlife Research*. 57: 1-13.
63. Magoun, A.J., C.D. Long, M.K. Schwartz, K.L. Pilgrim, R.E. Lowell, and P. Valkenburg. 2011. Integrating motion-detection cameras and hair snags for wolverine identification. *Journal of Wildlife Management*. 75: 731-739.
62. Schwartz, M.K., P.B. Landres, and D.J. Parsons. 2011. Wildlife scientists and wilderness managers finding common ground with non-invasive and non-intrusive sampling of wildlife. *International Journal of Wilderness*. 17: 4-8.
61. Short Bull R., S.A. Cushman, R. Mace, T. Chilton, K. Kendall, E.L. Landguth, M.K. Schwartz, K.S. McKelvey, F.W. Allendorf, and G.H. Luikart. 2011. Why replication is

- important in landscape genetics: American black bear in the Rocky Mountains. *Molecular Ecology*. 20: 1092-1107.
60. Hare, M., L. Nunney, M.K. Schwartz, D.E. Ruzzante, M. Burford, R.S. Waples, K. Ruegg, and F. Palstra. 2011. Understanding and estimating effective population size for practical application in marine species management. *Conservation Biology*. 25: 438-449.
59. Laikre, L., M.K. Schwartz, R.S. Waples, N. Ryman, and The Genetic Monitoring Working Group (M.K. Schwartz and F.W. Allendorf). 2010. Compromising genetic diversity in the wild: Unmonitored large-scale release of plants and animals. *Trends in Ecology and Evolution*. 25: 520-529.
58. Landguth, E.L., S.A. Cushman, M.K. Schwartz, K.S. McKelvey, M. Murphy, and G.H. Luikart. 2010. Quantifying the lag time to detect barriers in landscape genetics. *Molecular Ecology*. 19: 4179-4191.
57. Brinkman, T.J., D.K. Person, M.K. Schwartz, K.L. Pilgrim, K.E. Colson, and K.J. Hundertmark. 2010. Individual identification of sitka black-tailed deer (*Odocoileus hemionus sitkensis*) using DNA from fecal pellets. *Conservation Genetics Resources*. 2: 115-118.
56. Luikart, G.H., N. Ryman, D.A. Tallmon, M.K. Schwartz, and F.W. Allendorf. 2010. Estimation of census and effective population sizes: The increasing usefulness of DNA-based approaches. *Conservation Genetics*. 11: 355-373.
55. Mullen, L.B., H.A. Woods, M.K. Schwartz, A.J. Sepulveda, and W.H. Lowe. 2010. Scale-dependent genetic structure of the Idaho giant salamander (*Dicamptodon aterrimus*) in stream networks. *Molecular Ecology*. 19: 898-909.
54. Tallmon, D.A., D. Gregovich, R.S. Waples, C.S. Baker, J. Jackson, B. Taylor, F. Archer, F.W. Allendorf, and M.K. Schwartz. 2010. When are genetic methods useful for estimating contemporary abundance and detecting population trends? *Molecular Ecology Resources* 10: 684-692.
53. Pierson, J., F.W. Allendorf, V. Saab, P. Drapeau, and M.K. Schwartz. 2010. Do male and female black-backed woodpeckers respond differently to gaps in habitat? *Evolutionary Applications* 3: 263-278
52. Laikre, L., F.W. Allendorf, L. Aroner, C.S. Baker, D. Gregovich, M.H. Hansen, J. Jackson, K.C. Kendall, K.S. McKelvey, M.C. Neel, I. Olivieri, N. Ryman, M.K. Schwartz, R. Short Bull, J. Stetz, D.A. Tallmon, B.L. Taylor, C.D. Vojta, D.M. Waller, and R.S. Waples. 2010. Genetic diversity neglected in the implementation of the Convention on Biological Diversity. *Conservation Biology*. 24: 86-88.
51. Copeland, J.P., K.S. McKelvey, K.B. Aubry, J.R. Squires, M.K. Schwartz, J. Krebs, E. Lofroth, A. Landa, J. Persson, R. Inman, C.L. Copeland, R.E. Yates, J. Wilmot, H.

- Golden, A. Magoun. 2010. Does spring snow cover define the bioclimatic envelope of the wolverine? *Canadian Journal of Zoology*. 88: 233-246.
50. Schwartz, M.K. and J.A. Vucetich. 2009. Molecules and beyond: Assessing the distinctness of the Great Lakes wolf. *Molecular Ecology*. 18: 2307-2309.
48. Brinkman, T., M.K. Schwartz, D.K. Person, K.L. Pilgrim, and K.J. Huntermark. 2009. Effects of time and rainfall on PCR success using DNA extracted from deer fecal pellets. *Conservation Genetics*. 11: 1547-1552.
47. Marucco, F., D.H. Pletscher, L. Boitani, M.K. Schwartz, K.L. Pilgrim, and J.D. Leberton. 2009. Wolf survival and population trend using non-invasive CMR techniques in the Western Alps. *Journal of Animal Ecology*. 46: 1003-1010.
46. Schwartz, M.K., J.P. Copeland, N.J. Anderson, J.R. Squires, R.M. Inman, K.S. McKelvey, K.L. Pilgrim, L.P. Waits, and S.A. Cushman. 2009. Wolverine gene flow across a narrow climatic niche. *Ecology*. 90: 3222-3232.
49. Schwartz, M.K. 2009. Uniting ecological and genetic data for the conservation of wild ibex. *Animal Conservation*. 12: 103-104.
45. Beja-Pereira, A., R. Oliveira, P.C. Alves, M.K. Schwartz, and G.H. Luikart. 2009. Advancing ecological understandings through technological transformations in noninvasive genetics. *Molecular Ecology Resources*. 9: 1279-1301.
44. Cushman, S.A., K.S. McKelvey, and M.K. Schwartz. 2009. Evaluating habitat connectivity and mapping of corridors between Yellowstone National Park and the Canadian Border with landscape genetics and least cost path analysis. *Conservation Biology*. 23: 368-376.
43. Schwartz, M.K. and K.S. McKelvey. 2009. Why sampling matters: The effect of sampling and spatial autocorrelation on landscape genetic results. *Conservation Genetics*. 10: 441-452.
42. Homyack, J.A., J.H. Vashon, C. Libby, E.L. Lindquist, D.F. McAlpine, K.L. Pilgrim, and M.K. Schwartz. 2008. Canada lynx-bobcat (*Lynx canadensis* x *L. rufus*) hybrids at the southern periphery of lynx range in Maine, Minnesota and New Brunswick. *American Midland Naturalist*. 159: 504-508.
41. McKelvey, K.S., K.B. Aubry, and M.K. Schwartz. 2008. The use of anecdotal occurrence data for rare or elusive species: The illusion of reality and a call for evidentiary standards. *Bioscience*. 58: 549-555.
40. Moriarty, K.M., W.J. Zielinski, A.G. Gonzalez, T.E. Dawson, K.M. Boatner, C.A. Wilson, F.V. Schlexer, K.L. Pilgrim, J.P. Copeland, and M.K. Schwartz. 2009. Wolverine confirmation in California after nearly a century: Native or long-distance immigrant? *Northwestern Science*. 83: 154-162.

39. Luikart, G.H., K. Pilgrim, J. Vistry, V. Ezenwa, and M.K. Schwartz. 2008. Parasite-mediated heterozygote advantage in wild bighorn sheep detected via noninvasive faecal sampling. *Biology Letters*. 4: 228-231.
38. Schwartz, M.K., K.L. Pilgrim, K.S. McKelvey, P. Rivera, and L.F. Ruggiero. 2007. A panel of microsatellite DNA primers for calculating snowshoe hare abundance with non-invasive genetic samples in the wild. *Northwest Science*. 81: 316-322.
37. Kurta, A., M.K. Schwartz, and C.R. Anderson. 2007. Does a population of cougars exist in Michigan? *American Midland Naturalist*. 158: 467-471.
36. Jordan, M.J., J.M. Higley, S.M. Matthews, O.E. Rhodes, M.K. Schwartz, R.H. Barrett, and P.J. Palsboll. 2007. Development of 23 new microsatellite loci for fisher (*Martes pennanti*) with variability results from across their range. *Molecular Ecology Notes*. 7: 797-801.
35. Schwartz M.K. 2007. Ancient DNA confirms native rocky mountain fisher *Martes pennanti* avoided early 20th century extinction. *Journal of Mammalogy*. 88: 921-925.
34. Squires, J.R., J.P. Copeland, T.J. Ulizio, M.K. Schwartz, and L.F. Ruggiero. 2007. Wolverine survival in western Montana: A harvested population. *Journal of Wildlife Management*. 71: 2213-2220.
33. Schwartz, M.K., K.B. Aubry, K.S. McKelvey, K.L. Pilgrim, J.P. Copeland, J.R. Squires, R.M. Inman, S.M. Wisely, and L.F. Ruggiero. 2007. Inferring geographic isolation of wolverine in California using historical DNA. *Journal of Wildlife Management*. 71: 2170-2179.
32. Schwartz, M.K., G.H. Luikart, and R.S. Waples. 2007. Genetic monitoring as a promising tool for conservation and management. *Trends in Ecology and Evolution*. 22: 25-33.
31. Cushman, S.A., K.S. McKelvey, J. Hayden, and M.K. Schwartz. 2006. Gene-flow in complex landscapes: Confronting models with data. *American Naturalist*. 168: 486-499.
30. Schwartz, M.K., S.A. Cushman, K.S. McKelvey, J. Hayden, and C. Engkjer. 2006. Detecting genotyping errors and describing black bear movement in north Idaho. *Ursus*. 17: 138-148.
29. Zielinski, W.J., F.V. Schlexer, K.L. Pilgrim, and M.K. Schwartz. 2006. Testing the efficacy of two methods for snaring hair from mesocarnivores. *Wildlife Society Bulletin*. 34: 1152-1161.
28. Pilgrim, K.L., W.J. Zielinski, M.J. Mazurek, F.V. Schlexer, and M.K. Schwartz. 2006. Development and characterization of microsatellite markers in Point Arena mountain beaver *Apodontia rufa nigra*. *Molecular Ecology Notes*. 6: 800-802.

27. Vinkey, R.S., M.K. Schwartz, K.S. McKelvey, K.R. Foresman, K.L. Pilgrim, B.J. Giddings, and E.C. LoFroth. 2006. When reintroductions are augmentations: The genetic legacy of fishers (*Martes pennanti*) in Montana. *Journal of Mammalogy*. 87: 265-271.
26. Ulizio, T.J., J.R. Squires, D.H. Pletscher, J.J. Claar, L.F. Ruggiero, and M.K. Schwartz. 2006. The efficacy of obtaining genetic-based identifications from putative wolverine snow tracks. *Wildlife Society Bulletin*. 34: 1326-1332.
25. McKelvey, K.S., J. von Kienast, K.B. Aubry, G.M. Koehler, B.T. Maletzke, J.R. Squires, E. Lindquist, S. Loch, and M.K. Schwartz. 2006. DNA analysis of hair and scat collected along snow tracks to document the presence of Canada lynx (*Lynx canadensis*). *Wildlife Society Bulletin*. 34: 451-455.
24. Biek, R., N. Akaike, M.K. Schwartz, T.K. Ruth, K.M. Murphy, and M. Poss. 2006. Female philopatry leads to stable genetic population structure in wide-ranging Yellowstone cougars (*Felis concolor*). *Biology Letters*. 2: 312-315.
23. Schwartz, M.K., K.L. Pilgrim, K. Ralls, D. Williams, and R. Fleischer. 2005. Gene flow among San Joaquin kit fox populations in a severely changed ecosystem. *Conservation Genetics*. 6: 25-37.
22. Schwartz, M.K. and L.S. Mills. 2005. Gene flow after inbreeding lead to higher survival in deer mice. *Biological Conservation*. 123: 413-420.
21. Pilgrim, K.L., K.S. McKelvey, A.E. Riddle, and M.K. Schwartz. 2005. Felid sex identification based on noninvasive genetic samples. *Molecular Ecology Notes*. 5: 60-61.
20. McKelvey, K.S. and M.K. Schwartz. 2005. DROPOUT: A program to identify problem loci and samples for noninvasive genetic sampling in a capture-mark-recapture framework. *Molecular Ecology Notes*. 5: 716-718.
19. Schwartz, M.K., K.L. Pilgrim, K.S. McKelvey, E. Lindquist, J.J. Claar, S. Loch, and L.F. Ruggiero. 2004. Hybridization between bobcats and Canada lynx. *Conservation Genetics*. 6: 349-355.
18. McKelvey, K.S. and M.K. Schwartz. 2004. Dangers of genetic errors in mark-recapture sampling: Problems and new solutions. *Journal of Wildlife Management*. 68: 439-448.
17. McKelvey, K.S. and M.K. Schwartz. 2004. Providing reliable and accurate genetic mark-recapture in a cost-effective manner. *Journal of Wildlife Management*. 68: 439-448.
16. Inman, R.M., R.R. Wigglesworth, K.H. Inman, M.K. Schwartz, B.L. Brock, and J.D. Rieck. 2004. Wolverine makes extensive movements in the Greater Yellowstone Ecosystem. *Northwest Science*. 78: 261-266.
15. Gemmell, N.J., M.K. Schwartz, and B.C. Robertson. 2004. Moa were many. *Proceedings of*

- the Royal Society London, Series B.* 271: 430-432.
14. Schwartz, M.K., L.S. Mills, Y.K. Ortega, L.F. Ruggiero, and F.W. Allendorf. 2003. Landscape location affects genetic variation of Canada lynx (*Lynx canadensis*). *Molecular Ecology*. 12: 1807-1816.
 13. Manel, S., M.K. Schwartz, G.H. Luikart, and P. Taberlet. 2003. Landscape genetics: The combination of landscape ecology and population genetics. *Trends in Ecology and Evolution*. 18: 1807-1816.
 12. Schwartz, M.K., L.S. Mills, K.S. McKelvey, L.F. Ruggiero, and F.W. Allendorf. 2002. DNA reveals high dispersal synchronizing the population dynamics of lynx. *Nature*. 415: 520-522.
 11. Ralls, K., K.L. Pilgrim, P.J. White, E.E. Paxinos, M.K. Schwartz, and R.C. Fleischer. 2002. Kinship, social relationships, and den-sharing in kit foxes. *Journal of Mammalogy*. 82: 858-866.
 10. Pletscher, D.H. and M.K. Schwartz. 2001. Rearranging the deck chairs on the Malthusian ship: Reply to Phifer and Roebuck. *Conservation Biology*. 15: 1812-1813.
 9. Mills, L.S., K.L. Pilgrim, M.K. Schwartz, and K.S. McKelvey. 2000. Identifying lynx and other North American felids based on MtDNA. *Conservation Genetics*. 1: 285-288.
 8. Pletscher, D.H. and M.K. Schwartz. 2000. The tyranny of population growth. *Conservation Biology*. 14: 1918-1919.
 7. Mills, L.S., J.J. Citta, K.P. Lair, M.K. Schwartz, and D.A. Tallmon. 2000. Estimating animal abundance using non-invasive DNA sampling: Promise and pitfall. *Ecological Applications*. 10: 283-294.
 6. Schwartz, M.K., D.A. Tallmon, and G.H. Luikart. 1999. Using genetics to estimate the size of wild populations: Many methods, much potential, uncertain utility. *Animal Conservation*. 2: 320-322.
 5. Schwartz, M.K., D.J. Boness, P. Majluf, C. Schaeff, and R. Fleischer. 1999. Extra-pair mating: An epiphenomenon for the Humboldt penguin? *Behavioral Ecology*. 10: 242-250.
 4. Hiruki, L.M., M.K. Schwartz, and P.L. Boveng. 1999. Social and hunting behavior of the leopard seal on Seal Island, Antarctica. *Journal of Zoology*. 249: 97-109.
 3. Schwartz, M.K., D.A. Tallmon, and G.H. Luikart. 1998. Using non-invasive genetic sampling methods and new analytical tools to detect population declines and minimize extinctions. *Animal Conservation*. 1: 293-299.
 2. Boveng, P.L., L.M. Hiruki, M.K. Schwartz, and J.L. Bengston. 1998. The effect of leopard

seal predation upon Antarctic fur seals at Seal Island, Antarctica. *Ecology*. 8: 2863-2877.

1. Bengston, J.L., J.K. Jansen, W.R. Meyer, R.V. Miller, M.K. Schwartz, and B.W. Walker. 1993. AMLR Program: Fur seal and seabird studies at Seal Island, South Shetland Islands during the 1992/93 austral summer. *Antarctic Journal*. 14: 21-24.

BOOKS, BOOK CHAPTERS, AND THESES

Reeves, M., I. Ibanez, D. Blumenthal, G. Chen, Q. Guo, C. Jarnevich, J. Koch, F. Sapio, M.K. Schwartz, and B. Wylie. 2021. Impacts of invasive species in terrestrial and aquatic systems in the USA. Chapter 11 in National Invasive Species Assessment (Patel-Weynand et al. eds). 700p.

Mayfield, A.E., S.J. Seybold, W.R. Haag, M.T. Johnson, B.K. Kerns, J.C. Kilgo, D.J. Larkin, R.D. Lucardi, B.D. Moltzan, D. E. Pearson, J.D. Rothlisberger, J.D. Schardt, M.K. Schwartz, and M.K. Young. 2021. Tools and technologies for quantifying spread and impacts of invasive species. Chapter 2 in National Invasive Species Assessment (Patel-Weynand et al. eds). 700p.

Oswalt, S., Oswalt, C., Crall, A., Rabaglia, R., Schwartz, M.K. and Kerns, B.K., 2021. Inventory and Monitoring of Invasive Species. *Invasive Species in Forests and Rangelands of the United States: A Comprehensive Science Synthesis for the United States Forest Sector*. Springer International Publishing, pp.231-242.

Golding, J. D., M. K. Schwartz, K. S. McKelvey, J. R. Squires, S. D. Jackson, C. Staab, and R. B. Sadak. 2018. Multispecies mesocarnivore monitoring: USFS multiregional monitoring approach. Gen. Tech. Rep. GTR-RMRS-xxx. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 90 p.

Finch, D.M. D.A. Boyce, J.C. Chambers, C.J. Colt, K. Dumroese, S.G. Kitchen, C. McCarthy, S. E. Meyer, B.A. Richardson, M.M Rowland, M.A. Rumble, M.K. Schwartz, M.S. Tomosy, and M.J. Wisdom. 2016. Conservation and restoration of sagebrush ecosystems and sage-grouse: an assessment of USDA Forest Service Science. RMRS-GTR: 1-54.

Carim, K.J., K.S. McKelvey, M.K. Young, T.M. Wilcox, and M.K. Schwartz. 2016. A protocol for collecting environmental DNA samples from streams. Gen. Tech. Rep. RMRS-GTR-355. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 18 p.

Schwartz, M.K., W. Block, and J. Sanderlin. 2015. Manage habitat, monitor species. In Morrison, M.L. and H. A. Mathewson. *Wildlife Habitat Conservation: Concepts, Challenges, and Solutions*. John Hopkins University Press.

Wade A.A., K.S. McKelvey, and M.K. Schwartz. 2015. Resistance surface-based wildlife conservation connectivity modeling: Summary of efforts in the United States and guide

- for practitioners. USFS Washington Office General Technical Report.
- Pierson J.C., G.H. Luikart, and M.K. Schwartz. 2015. The application of genetic indicators in wild populations: Potential and pitfalls for genetic monitoring. In *Surrogates and Indicators in Ecology; Conservation and Environmental Management*. Lindenmayer D.B., J.C. Pierson, and P. Barton P (eds). CSIRO Publishing, Melbourne. CRC Press, London (In press/production review).
- Janecka, J.E., P. Alves, D. Karmacharya, N. Samsei, E. Cheng, D. Tallmon, and M.K. Schwartz. 2013. Wildlife genetics in mountainous rugged Asian landscapes: Methods, applications, and examples. In Mills, L.S., T. Tempa, and E. Cheng. *Wildlife Research Techniques in Rugged Mountainous Asian Landscapes*. Ugyen Waynchuck Institute for Conservation and the Environment. Bumthang, Bhutan.
- Schwartz, M.K. and J. Tucker. 2013. Guest Box 9: Genetic population structure and conservation of fishers in western North America. In Allendorf, F.W., G.H. Luikart, and S. Aikens. *Conservation and the Genetics of Populations*.
- Schwartz, M.K., A. Ruiz-Gonzalez, R. Masuda, and C. Pertoldi. 2012. Conservation genetics of the genus *Martes*: Assessing within-species movements, units to conserve, and connectivity across ecological and evolutionary time. In Aubry et al. *Martes Conservation and Management*. Cornell University Press, New York.
- Culver, M. and M.K. Schwartz. 2011. Conservation genetics as relevant to cougar management. In *Cougar Management Guidelines*. Second Edition.
- McKelvey, K.S., S.A. Cushman, and M.K. Schwartz. 2010. Landscape genetics. In Cushman, S.A. and F. Huettmann. *Spatial Information Management in Animal Science*. Springer, New York, USA.
- Schwartz, M.K., G.H. Luikart, K.S. McKelvey, and S.A. Cushman. 2010. Landscape genomics: A brief perspective. In Cushman, S.A. and F. Huettmann. *Spatial Information Management in Animal Science*. Springer, New York, USA.
- Schwartz, M.K. and S.L. Monfort. 2008. DNA and endocrine sampling. In Long, R.A., P. MacKay, J.C. Ray, W.J. Zielinski (eds). *Noninvasive survey methods for North American carnivores*. Island Press, Washington D.C.
- Schwartz, M.K. 2007. Guidelines on the use of molecular genetics in reintroduction programs. European Union LIFE Nature Program, Caraminico, Italy.
- Holthausen, R., R.L. Czaplewski, D. DeLorenzo, G. Hayward, W.B. Kessler, P. Manley, K.S. McKelvey, D.S. Powell, L.F. Ruggiero, M.K. Schwartz, B. Van Horne, and C.D. Vojta. 2005. Strategies for monitoring terrestrial animals and habitats. Gen. Tech. Rep. RMRS-GTR-161. Fort Collins, CO, US Department of Agriculture, Forest Service, Rocky Mountain Research Station. 34p.

- Mills, L.S., M.K. Schwartz, D.A. Tallmon, and K.P. Lair. 2003. Measuring and interpreting changes in connectivity for mammals in coniferous forests. In Zabel, C., R.G. Anthony (eds). *Mammal community dynamics in Western coniferous forests: Management and conservation in the new millennium*. Island Press, Washington D.C. 587-613.
- Schwartz, M.K. 2001. Estimating effects of landscape location on genetic variability in mid-sized carnivores. Dissertation. Wildlife Biology Department, School of Forestry, Missoula, Montana.
- Ruggiero, L.F., M.K. Schwartz, S.F. Buskirk, C.J. Krebs, and A. Stanley. 2000. Ecotypic variation and conservation. In Ruggiero, L.F., K.B. Aubry, S.F. Buskirk, C.J. Krebs, K.S. McKelvey, and J.R. Squires (eds). *The Ecology and Conservation of Lynx*. University of Colorado Press, Denver, CO.
- Schwartz, M.K. 1996. An examination of the breeding biology of the Humboldt penguin using molecular genetic techniques. Masters Degree. Biology Department, Washington, D.C.
- Zeller, N.K. and M.K. Schwartz. 1996. *General biology laboratories: Evolution and the kingdoms*. Kendall/Hunt Publishing Company, Iowa.

OTHER PUBLICATIONS

- Copeland et al. 2024. A worldwide wolverine distribution model based on late-spring snow cover. Forest Service Data Archive: <https://www.fs.usda.gov/rds/archive/catalog/RDS-2024-0046>
- Young, M.K., D.J. Isaak, K.S. McKelvey, M.K. Schwartz, K.J. Carim, W. Fredenberg, T.M. Wilcox, T.W. Franklin, G.L. Chandler, D.E. Nagel, S.L. Parkes-Payne, D.L. Horan, S. Wollrab. 2017. Species occurrence data from the Range-Wide Bull Trout eDNA Project. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2017-0038>
- Inman et al. 2013. Restoration of wolverines: Considerations for translocation and post-release monitoring. April 2013. <http://www.wcsnorthamerica.org/Wildlife/Wolverine.aspx>.
- “Contributor” to Manley et al. 2006. Multiple species inventory and monitoring technical guide. *General Technical Report WO-73*.
- McKelvey, K.S., S.A. Cushman, M.K. Schwartz, and L.F. Ruggiero. 2007. Wildlife monitoring across multiple spatial scales using grid-based sampling. *Proceedings of the Eighth Annual Inventory and Assessment Symposium*.
- Schwartz, M.K., K. Ralls, D. Williams, K.L. Pilgrim, and P. Kelly. 1999. Estimates of gene flow and genetic variation in San Joaquin kit fox show metapopulation structure.

California Water Board Administrative Report.

Schwartz, M.K., J.L. Bengtson, B.G. Walker, P.L. Boveng, and R. Holt. 1994. Abundance and distribution of Antarctic fur seals in the northern South Shetland Islands. In Antarctic Marine Living Resources 1993/94 Field Season Report. Rosenberg, J. (ed). *Administrative Report LJ-94-13.*

Schwartz, M.K. and J.L. Bengtson. 1994. Breeding success and morphological variability of cape petrels on Seal Island, Antarctica. *CCAMLR, WC-CEMP-46.*

Walker, B.G., L.M. Hiruki, M.K. Schwartz, P.L. Boveng, and J.L. Bengtson. 1994. Pinniped research at Seal Island during 1993/94. In Antarctic Marine Living Resources 1993/94 Field Season Report. Rosenberg, J. (ed). *Administrative Report LJ-94-13.*

Jansen, J.K., W.R. Meyer, M.K. Schwartz, and J.L. Bengtson. 1994. Seabird research at Seal Island Antarctica in 1993/94. In Antarctic Marine Living Resources 1993/94 Field Season Report. Rosenberg, J. (ed). *Administrative Report LJ-94-13.*

Reiche, G.A., M.K. Schwartz, and J.L. Quan. 1994. Seabird and marine mammal observations around the Elephant Island area. In Antarctic Marine Living Resources 1992/93 Field Season Report. Rosenberg, J. (ed). *Administrative Report LJ-94-13.*

Walker, B.G., M.K. Schwartz, J.B. Bengtson, and M.E. Goebel. 1993. Pinniped research at Seal Island during 1992/93. In Antarctic Marine Living Resources 1992/93 Field Season Report. Rosenberg, J. (ed). *Administrative Report LJ-93-08.*

END USER TOOLS DEVELOPED

See <https://github.com/NationalGenomicsCenter> for scripts written by NGC Team members.

Sage Grouse Interactive Connectivity Maps. 2017. Working with Sage Grouse Initiative to incorporate connectivity maps to identify key leks (breeding aggregations) for fostering movement. <https://map.sagegrouseinitiative.com/>

Bull Trout Rangewide Distribution Maps. 2017. Worked with a team to provide information for a crowd-sourced, eDNA database detailing detections of bull trout in the Western United States. The database is being expanded to form the eDNAAtlas which will provide a web portal for accessing all eDNA results produced by the National Genomics Center for Wildlife and Fish Conservation. https://www.fs.fed.us/rm/boise/AWAE/projects/BullTrout_eDNA.html and <https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=6d5597b2755c4c00a35613b7a1849760>.

rSPACE Monitoring Tool (built for R). 2015. Led a team that developed a tool for assessing the power of occupancy based monitoring efforts. Corresponds with paper Ellis et al. 2014 in

Conservation Biology and Ellis et al. 2015 in *Methods in Ecology and Evolution*.

SYMPOSIA / PANELS ORGANIZED

Conservation Design. *North America Congress for Conservation Biology*, Virtual, July 16, 2020. (Symposia co-led with Jessie Golding).

Science leadership in the 21st Century. *International Congress for Conservation Biology*, Cartagena, Colombia, July 26, 2017.

Status of Fishers in the U.S. Rocky Mountains. *Idaho Chapter of the Wildlife Society*, Coeur D'Alene, Idaho. March 13, 2013.

Wildlife genomics: Keeping up with next generation technologies. Co-organized symposium with K. Mock. *The Wildlife Society 19th Annual Conference*, Portland, OR. October 15, 2012.

Delineating wildlife corridors using landscape genetics. *Carnivores 2009*, Denver, CO. November 17, 2009.

Co-organized Western Forest Carnivore Conference. Lead a Wildlife Genetics Section and a Marten and Fisher Conservation Section. *Western Forest Carnivore Committee*, Missoula, MT. October 20-22, 2009.

Can noninvasive and nonintrusive methods for wildlife improve our understanding and management of wilderness? Co-organized with P. Landres. *Rethinking Protected Areas in a Changing World – George Wright Society Biennial Conference on Parks, Protected Areas, and Cultural Sites*. Portland, OR. March 2-5, 2009.

Genetic Monitoring Symposium. Co-organized with G. Spong. *International Union of Game Biologists XXVIII Congress*, Uppsala, Sweden. August 13-18, 2007.

Carnivore Genetics Symposium. Co-organized with L.F. Ruggiero. *Defenders of Wildlife: Carnivore 2004*, Santa Fe, NM. November 2004.

Hybridization of threatened and endangered species. Co-organized with S. Haig. *Society of Conservation Biology 2004*, Columbia University, NY. August 2004.

WORKSHOPS ORGANIZED

Validation of Corridor Models Co-lead a workshop in association with the Western Governors Association and Connectivity Working Group focusing on how to use empirical data to validate GIS based corridor models. Missoula, MT. January 23-24, 2012.

Rocky Mountain Fisher Working Group 1 day workshop for agency, tribal, industry, academic, and environmental biologists concerned about the geographic distribution of fisher in the Rockies. Forum for coordinating fisher research in the Rocky Mountains. Missoula, MT and Plummer, ID. September 2005, December 2006, May 2009, December 2011.

Landscape Genetics Workshop in a Landscape Ecology course for USFS and USFWS personnel. Flagstaff, AZ. January 15, 2008-2010.

Fisher Detection Workshop I was invited to present approximately 1 – 1 ½ days of workshop material on the detection of fisher using non-invasive methods and the genetic tools used to assess species and individual identification. I delivered 3 talks titled: Mesocarnivore Genetics, DNA analysis, and Sampling Devices and Schemes. Arcata, CA. May 2007.

A Sample of Wildlife Sampling including Genetic Sampling Half day workshop for USFS Region 4 Biologists co-lead with K.S. McKelvey. Logan, UT. December 2004.

Sampling and Sample Design for Wildlife Biologists 1 day symposium for USFS-Northern Region Biologists co-lead with K.S. McKelvey and S.A. Cushman. Missoula, MT. December 2003.

INVITED SEMINARS (NATIONAL AND INTERNATIONAL)

Schwartz, M.K. 2021. Federal Agency Integration of Genetics: USFS National Genomics Center for Wildlife and Fish Conservation: The Wildlife Society- Annual Meeting. Invited Symposium, Adaptation Through Collaboration: Integrating Genetics to Inform Wildlife Decisions Symposim. Oct/Nov 2021

Schwartz, M.K. 2021. Environmental DNA provides new insights into Ecological Systems. Keynote Address. Latin America eDNA Conference. September/October, 2021.

Schwartz, M.K. 2021. Field Monitoring of Wildlife and Fish Using Molecular Genetics. University of Brasilia. May 13, 2021

Schwartz, M.K. 2020. Importance of Genomic Standardization for Wolf Monitoring. LIFE WolfAlps EU genetic workshop. Invited talk. November 6, 2020.

Schwartz, M.K. 2020. Large-scale molecular surveys: where crowdsourcing and conservation meet. Trends in Biodiversity and Evolution (TiBe)-CiBio / University of Porto, Portugal 2020 Metabarcoding and metagenomics Conference. Portugal. December 9-11. Plenary Talk.

Schwartz, M.K. 2020. A Horizon Scan of eDNA Applications. National eDNA Technical Meeting (GEDWG). Plenary Talk. November 4, 2020

Schwartz, M.K. 2020. Beyond monitoring threatened and endangered species with environmental DNA. Portland State University Biology Seminar Series. October 2021

Schwartz, M.K. et al. 2019. Illuminating species interactions at upper trophic levels from non-invasive genetics. Northern Arizona University. School of Forestry Seminar Series – Graduate Student Invited Talk. November 21, 2019.

Keynote Lecture: The Next Frontier for Environmental DNA: Scaling Up and Out of the Water. CSIRO Sponsored Symposium: Cutting Edge Symposium on Molecular Sensing of the Environment. Hobart, Tasmania, Australia. September 29-Oct 2, 2018.

USFS Chief's Forum. Partnering with the National Forest System for coproducing science with eDNA technologies. (Talk shared with Christine Dawe). Webinar. Sept 20, 2018.

Habitat Connectivity and Meso-carnivores in the GYE. *Wildlife Migration Symposium* hosted by the Greater Yellowstone Coordinating Committee. Jackson, Wyoming. June 6, 2018.

Invited Webinar. Environmental DNA and ecological knowledge. USFS Washington Office. June 26, 2018.

Exploring species interactions using eDNA detections. Iowa State University. Natural Resource Ecology and Management. Departmental Seminar. October 13, 2017.

Keynote Lecture and Panel: How can genomics most improve conservation and wildlife management? *Conservation Genomics Course*. Flathead Lake Biological Station. September 28, 2017, September 14, 2018.

Molecular genetic laboratory considerations for developing mesocarnivore monitoring. *Meso-carnivore monitoring workshop*. Kalispell Montana, April 6, 2017.

Genetic and Genomic Innovations Mini-Session: eDNA detection efforts. *North American Wildlife and Natural Resources Conference. Invasive Species Committee*. Spokane, WA, February 15, 2017.

Keynote Lecture: Environmental DNA: new technology for monitoring endangered and invasive species and creating biodiversity inventories. *Idaho Department of Environmental Quality: Water Quality Workshop*. Boise, Idaho. February 1, 2017.

Schwartz, M.K. 2016. Seeing the invisible: detecting rare species with genetic technologies – Invited Talk in Seminar Series at Montana Tech. November 17, 2016.

National Invasive Species Assessment. – 8-11 December 2015, Phoenix AZ. “Invasive Terrestrial Wildlife Species Influencing US Ecosystems”

Wolf Monitoring over the Alps – moving towards a unique genetic approach. Stelvio National

- Park, Bormio Italy. Alps Wolf Group (EU Funded). 27-28 October 2015.
- “Seeing the invisible: detecting rare species with genetic technologies” – Invited Talk in Seminar Series at Montana Tech. November 17, 2016
- Introduction to the National Genomics Center for Wildlife and Fish Conservation. *Association of Fish and Wildlife Agencies*. Webinar. October 20, 2016.
- Can we predict genetic responses to climate change? *The Wildlife Society Annual Meeting*, (Symposium on adaptation to climate change.) Winnipeg, Manitoba, CA. October 18, 2015
- Genetic considerations for the recovery of lynx: substructure and hybridization. USFWS Lynx Species Status Assessment. Minneapolis, MN October 13-14 2015.
- Is Genomics living up to its promise for Conservation Biology and Wildlife Management? Conservation Genomics Course. Flathead Lake Biological Station. September 2015.
- Western white pine, mixed mesic forests, fisher, and climate change. *Wildlife and Silviculture Annual Meeting*, Missoula, MT. April 2015.
- A synthesis of genetic monitoring. *Society for Conservation Biology North American Meeting*. Missoula, MT. July 2014.
- Ecological causes and genetic consequences of introgression. *LIFE Sponsored Hybridization in Wolves Workshop*, Grosseto, Italy. November 2-4, 2014.
- Wilderness and wildlife: A framework. Co-lead with B. Hahn and B. Hossack. *Wilderness Act 50th Anniversary Conference*, Albuquerque, NM. September 2014.
- Genomics and real world applications. *European Science Foundation ConGenomics Workshop*, Wiks Slott, Sweden. March 19, 2014.
- Will genomics help us manage wildlife populations: is more always better? Co-lead with G.H. Luikart and F.W. Allendorf. *Idaho Wildlife Society Plenary Symposium*. Boise, ID. March 5, 2014.
- The conservation of connectivity for wolverine based on landscape genetic results. *Colorado Wildlife Society*, Ft. Collins, CO. February 5, 2014.
- Landscape genetics, climate change, and the conservation of connectivity in the U.S. Rocky Mountains. *Hawaii Institute of Marine Biology*, Coconut Island, HI. February 29, 2014.
- Wolverines and climate change in the high divide and northern Rocky Mountains. Co-lead with K.S. McKelvey. *Carnivores, connectivity, and climate in the high divide: Science to move conservation forward in Northern Rocky Mountain Ecosystems*, Three Forks, MT.

January 9, 2014.

Connectivity science for wolverines in the high divide and northern U.S. Rockies. Co-lead with K.S. McKelvey and J.P. Copeland. *Carnivores, connectivity, and climate in the high divide: Science to move conservation forward in northern Rocky Mountain ecosystems*, Three Forks, MT. January 8, 2014.

Landscape genetics in the management and conservation of sage grouse. Co-lead with T.B. Cross. *Montana Governor's Council and Wildlife*, Helena, MT. September 3, 2013.

Fishers in white pine ecosystems. Co-lead with multiple scientists. *Region 1 Joint Silviculture and Wildlife Meetings*, Clearwater-Nez Pierce Forest, Powell Ranger Station, ID. July 9, 2013.

New research findings on fishers (*Pekania pennanti*) in the northern Rocky Mountains and west coast DPS. *Defenders of Wildlife*, Washington D.C. June 3, 2013.

Plenary address: Range margins in a rapidly changing world. Co-lead with F.W. Allendorf. *Canadian Society for Ecology and Evolution*, Kelowna, B.C., Canada. May 15, 2013.

Landscape genetics of fishers. Co-lead with multiple scientists. *Idaho Wildlife Society*, Boise, ID. March 13, 2013.

The use of new genomic techniques to manage species of conservation interest. Co-lead with multiple scientists. *The Wildlife Society Meetings Transformative Research Symposium*. Portland, OR. October 17, 2012.

Recovery of carnivores in the western United States: The role of molecular genetics and genomics. *Cornell University*, Ithaca, NY. September 25, 2012.

Cougars expand east from a contemporary eastern refugia: Implications for connectivity model validation. *Webinar: USFS R&D*, Washington D.C. May 22, 2012.

Cougars expand east from a contemporary eastern refugia. *Marlboro College*, Marlboro, Vermont. April 10, 2012.

Genomic information reveals threatened species isolated before European settlement: Implications for reintroduction efforts. Co-lead with B. Knaus, A. Liston, K.L. Pilgrim, and R. Cronn. *Conservation Genomic Symposium Society for Conservation Biology 25th International Congress for Conservation Biology*, Auckland, New Zealand. December 9, 2011.

Genomics provides new insights for managing endangered species: Fisher in the Rocky Mountains and lynx in Switzerland. Co-lead with J. Tucker. *International Exploratory Workshop on the Genetic Status and Conservation Management of Reintroduced and Small Autochthonous Eurasian Lynx Populations in Europe*, Saanen, Switzerland.

October 24-27 2011.

Genetic monitoring of terrestrial and marine vertebrates: Successes and failures of the molecular genetic approach to cost-effective monitoring. Keynote Speaker. *19th Biennial Conference on the Biology of Marine Mammals*, Tampa Bay, FL. November 27, 2011.

Coordinated efforts needed to detect trend in occupancy in wolverine across the western United States. Co-lead with M.M. Ellis and J. Ivan. *Video Teleconference for Wolverine Steering Committee*. September 1, 2011.

Multiple scales and objectives of landscape connectivity. Co-lead with K.S. McKelvey and F.W. Allendorf. *Great Northern Landscape Conservation Cooperative Steering Committee Meeting*, Whitefish, MT. September 22, 2011.

Habitat connectivity: Everybody's doing it, but everybody's doing it differently: The who, what, where, why and how of wildlife connectivity. Co-lead with K.S. McKelvey and F.W. Allendorf. *Federal Land Managers Workshop*, Missoula, MT. September 8, 2011.

The beguiling reality of genotypic errors and toilsome process of their detection: How genotype reliability affects substructure, relatedness, and abundance estimates. *Smithsonian Institution*, Front Royal, VA. May 25, 2011, 2013. All Day Talk.

Conservation genetics I: Introduction to molecular markers and sampling for monitoring natural populations. Workshop on applications of genetic data to ecological and evolutionary biology. University of San Francisco, Quito, Ecuador. February 8-9, 2011.

Conservation genetics II: Population connectivity. Workshop on applications of genetic data to ecological and evolutionary biology. University of San Francisco, Quito, Ecuador. February 8-9, 2011.

Fisher in the Rocky Mountains: A research and monitoring update. *USFS Region 1 Wildlife Council*, Missoula, MT. December 9, 2010.

Wolverine monitoring: Putting power estimates behind the methods. Co-lead with J. Ivan and M.M. Ellis. *Region 1 Wildlife Council*, Missoula, MT. December 9, 2010.

Assisted migration and corridors: Two adaptation strategies for wildlife in an era of climate change. Co-lead with K.S. McKelvey. Lewis and Clark National Forest and Helena National Forest, MT. December 7, 2010.

Evaluating the climate change adaptation strategies of connectivity and assisted migration. Co-lead with multiple scientists. *NFS and USFS Research WO*, Washington D.C. August 24-25, 2010.

Genetic monitoring of a recovering wolf population in the Alps. Co-lead with F. Marucco, K.L. Pilgrim, and L. Boitani. *Wolves, people, and territories: European wolf management*,

conservation, monitoring, damage prevention, and conflict mitigation, Turin, Italy. May 24-26, 2010.

Assisted migration of plant and animals: We account for uncertainty to predict species distributions? Co-lead with K.S. McKelvey and S.Z. Dobrowski. *Climate Change Science Talks*, Lewis and Clark National Forest and Helena National Forest, Helena Forest Supervisor's Office. January 20, 2010.

Martes conservation genetics: Using molecular genetics to assess within species movements, barriers, and corridors. Co-lead with A. Ruiz-Gonzalez, R. Masuda, and C. Pertoldi. 5th *International Martes Meeting*, Seattle, WA. September 2009. Invited Talk.

Lolo Pass carnivores studies: What have we learned about animal movement relative to transportation corridors? Co-lead with multiple scientists. *Idaho Transportation Department Project Development Conference*, Boise, ID. April 8, 2009.

How well do effective population size estimators reflect changes in abundance?: Results from Wright-Fisher and spatially structured populations. Co-lead with NCEAS Working Group. *International Marine Conservation Congress Effective Population Size Symposium*, Washington D.C. May 21 2009.

Using landscape genetics to understand carnivore connectivity in the northern U.S. Rocky Mountains. *Biology Seminar Series*, Northern Arizona University, Flagstaff, AZ. December 4, 2008.

Detecting genotyping and scoring errors for population estimation. *Conservation Genetic Data Analysis Course*, Vairo, Portugal. September 12, 2008.

La metodologia di laboratorio per le analisi genetiche non-invasive (Laboratory methods for analyzing non-invasive genetics). *Piedmont Region Natural Science Museum*, Turin, Italy. June 25, 2008. This talk was fully funded and discussed ongoing collaborative research with the European Union wolf recovery programs.

Detecting (and correcting) genetic errors for the management of natural populations. *Piedmont Region Natural Science Museum*, Turin, Italy. June 25, 2008. This talk was fully funded and discussed ongoing collaborative research with the European Union wolf recovery programs.

Climate change and mammals in Montana. Co-lead with multiple scientists. *Climate Change Workshop*, Missoula, MT. February 2008. Invitation to Schwartz, but talk delivered by K.S. McKelvey.

Wolverine movement in Montana defined by a narrow habitat niche. *Montana Wildlife Society Meetings*, Missoula, MT. February 2008.

Landscape genetics and endangered species. *Evolutionary Biology Seminar Series*, Uppsala

- University, Sweden. February 7, 2008.
- Genetic monitoring of carnivores. *Grimso Biological Field Station*, Sweden. February 4, 2008.
- Testing early naturalist's observations using ancient DNA. *Ecology Seminar Series*, University of Montana, Missoula, MT. November 7, 2007.
- Applying landscape genetic approaches to aide in the conservation and management of species. *Department of Ecology, Evolution, and Organismal Biology*, Iowa State University, Ames, Iowa. October 18-19, 2007.
- Detecting errors. *Conservation Genetics Data Analysis Course*, Flathead Lake Biological Station, Yellow Bay, MT. September 11-16, 2007.
- Genetic monitoring: A cost-effective approach to determining trends in species abundance and demography. Co-lead with G.H. Luikart. *International Union of Game Biologists XXVIII Congress*, Uppsala, Sweden. August 13-18, 2007.
- Fisher conservation in the northern U.S. Rockies: Combining genetics and field biology to assess distribution, connectivity, and demography. *Center for Research on Invasive Species and Small Populations*, University of Idaho, Moscow, ID. May 4 2007.
- Wildlife genetics: Estimating the distribution, population size, and connectivity of carnivore populations. *USFS Skills for Tree Improvement Workshop*, Coeur D'Alene, ID. March 14, 2007.
- Monitoring abundance using molecular markers and non-invasive genetic sampling. *Conservation Genetics Data Analysis Course: Recent Approaches*, Porto, Portugal. August 30-September 2, 2006.
- Landscape genetics reveals wildlife corridors. Co-lead with S.A. Cushman and K.S. McKelvey. *The Wildlife Society*. Anchorage, AK. September 25, 2006.
- Use of landscape genetics to evaluate barriers to movement in black bears in North Idaho. Co-lead with S.A. Cushman and K.S. McKelvey. *Ecological Society of America*, Nashville, TN. August 9, 2006.
- Hybridization between lynx and bobcats: Management implications and scientific findings. Co-lead with McKelvey. *New York Chapter of The Wildlife Society*, Brookhaven, NY. March 28, 2006.
- Conservation genetics of marten and fisher: What we know and what we have to learn. Co-lead with K.S. McKelvey and L.F. Ruggiero. *Symposium Preceding Western Section of The Wildlife Society*, Sacramento, CA. February 7, 2006.

Guidelines on the use of molecular genetics for reintroductions. *European Union LIFE Nature Symposium on Reintroductions*, Caramanico, Italy. March 21, 2005.

An overview of wildlife genetics. *US Forest Service's National Genetics Meeting*, Placerville CA. April 27, 2004.

How molecular genetic technology can assist forest service management. *USDA Seminar Series*, Washington D.C. June 22, 2004.

Combining field and genetics data for managing western forest carnivores. Co-lead with multiple scientists. *Biology Seminar Series*, Colby College, Waterville, ME. April 2003.

Estimating gene flow and effective population size for ecology and wildlife biology. Co-lead with multiple scientists. *NW Section Wildlife Society*, Hood River, OR. April 16, 2002.

Gaining new insights into Canada lynx management using DNA. Co-lead with multiple scientists. *Montana Wildlife Society Meetings*, Great Falls, MT. February 28-March 2, 2001.

Using DNA-based census and effective population size estimators with wild populations. Co-lead with multiple scientists. *Swiss Wildlife Society Monitoring Conference*, Zurich, Switzerland. February 3, 2000.

Using non-invasive genetic sampling to estimate geographic range and population size of Canada lynx. Co-lead with multiple scientists. *Swiss Wildlife Society Monitoring Conference*, Zurich, Switzerland. February 3, 2000.

OFFERED PRESENTATIONS

New genes and new species: Guiding principles for the application of synthetic biology to conservation. *North American Congress for Conservation Biology*. Vancouver, British Columbia, June 27, 2024.

How many marten species are there in the Rockies? *Montana Chapter of the Society for Conservation Biology*, Missoula, MT, November 6, 2017.

21st Century Science Leadership in Conservation Biology. *International Congress for Conservation Biology*, Cartagena, Colombia, July 26, 2017.

Assumptions in qPCR based environmental DNA marker development. *Government Environmental DNA Working Group*. Denver, Colorado. August 1-2, 2016

Spatially explicit power analyses to assess the power to detect trend for the southern Sierra Nevada fisher population. *The Wildlife Society*. Winnipeg, Manitoba, Canada. October 20, 2015.

- Evaluating carnivore connectivity and corridors for conservation planning in the northern U.S. Rocky Mountains: A landscape genetics perspective. *Western Section of the Wildlife Society*, Sacramento, CA. January 23, 2009.
- Should an “umbrella corridor” concept be used for landscape planning?: Empirical results from Rocky Mountain carnivores. *Montana Chapter of the Society for Conservation Biology: Applying Conservation Science to Action Conference*. Missoula, MT. October 10, 2008.
- Monitoring genetic change in natural populations. *Ecological Society of Australia*, Perth, Western Australia, Australia. November 25-30, 2007. Presentation by F.W. Allendorf.
- Assessing fisher distribution and connectivity in the U.S. Rocky Mountains using non-invasive genetic sampling. *Montana Chapter of the Wildlife Society*, Bozeman, MT. February 6-9, 2007.
- Hybridization in carnivores: What we know and what we have to learn. *Carnivores 2004*, Santa Fe, NM. November 14-17, 2004.
- Hybridization in threatened and endangered species: An overview. *Society for Conservation Biology*, Columbia University, NY. August 1-3, 2004.
- Carnivores and highways: An overview of the Lolo Pass projects. *Western Forest Carnivore Meetings*, Spokane, WA. May 1-2, 2002.
- Combining genetic and demographic data to understand lynx population dynamics. *NW Section of The Wildlife Society*, Spokane, WA. April 17-19, 2002.
- Wolverine research in the U.S. Rocky Mountains. *Society for Northwestern Vertebrate Biology*, Hood River, OR. April 3-5, 2002.
- Genetic variation and the conservation of Canada lynx. *Society for Conservation Biology Annual Meeting*, Hilo, HI. July 29-Aug 2, 2001.
- Gene flow, genetic variation, and ESUs for Canada lynx. *Defenders of Wildlife Carnivore Symposium*, Denver, CO. November 17, 2000.
- Genetic variation in and gene flow between San Joaquin kit fox populations. *Ecological Society of America Annual Meeting*, Snowbird, UT. August 5-10, 2000.
- Genetic variation in core and peripheral populations of Canada lynx (*Lynx canadensis*). *Society for Conservation Biology Annual Meeting*, Missoula, MT. June 9-12, 2000.
- Estimating population size and genetic variation in Canada lynx (*Lynx canadensis*) populations using microsatellite DNA. *Western Forest Carnivore Meetings*, Whitefish, MT. May 2, 2000.

DNA-based estimates of genetic variation, gene flow and population size of San Joaquin kit fox. *San Joaquin Valley Wildlife Society Meetings*, Bakersfield, CA. March 24, 2000.

Estimating census and effective population size: What's new, what works, and what doesn't. *Montana Wildlife Society Meetings*, Great Falls, MT. February 22-24, 2000.

Sustainable versus unsustainable conservation efforts along the Peruvian Coast. *Montana Wildlife Society Meetings*, Missoula, MT. March 1997.

Humboldt penguin extra-pair mating: A selective advantage or a random occurrence. *Department of Zoological Research, Smithsonian Institution, National Zoological Park*, Washington D.C. August 16 1996.

Evidence of mixed mating strategies in the Humboldt penguin. *Graduate Student Conference*. College of Arts and Sciences, American University, Washington D.C. February 1996.

TALKS FOR GENERAL PUBLIC

Wolverines: Myths and truths. *UM Chapter of SCB / Defenders of Wildlife event at the Roxy Theater*, Missoula, MT. April 9, 2013.

Wildlife connectivity in the era of climate change. *Montana Natural History Center*, Missoula, MT. December 8, 2010. Missoula, MT.

The state of wolverine genetics: What we know and where do we go from here. *The Wolverine Foundation*, Puyallup, WA. June 27, 2010.

Wildlife CSI. *Montana Natural History Center*, Missoula, MT. November 5, 2008.

Wild fisher: A forgotten species. *Montana Natural History Center*, Missoula, MT. April 30, 2008.

Conservation genetics of fisher and other forest species. *Bitterroot Audubon*, Hamilton, MT. February 2007.

Conservation genetics of birds and other wildlife. *Five Valley Audubon Society*, Missoula, MT. August 2005.

Panel for the reintroduction of the grizzly bear into the Bitterroot Ecosystem. *Sponsored by the International Wildlife Film Festival*, Teller Wildlife Refuge, Stevensville, MT. 1997.

Understanding population viability analysis with regard to reintroduction of the grizzly bear into the Bitterroot Ecosystem. *Sponsored by the Alliance for the Wild Rockies*. September

1997.

INVITED CLASS TALKS

Environmental DNA After the Hype: Making a Functional Tool for Better Ecological Understandings and Conservation. Conservation Science Class, Division of Biological Sciences, University of Montana, Missoula MT. December 2018

Genetics and Wildlife Management. *USFS Carnivore Class*, Yellowstone National Park, WY. May 2003, 2005, June 2006-2017, 2024.

10 Common Myths of Graduate School for Wildlife Biologists. Wildlife Seminar, College of Forestry and Conservation, University of Montana, Missoula, MT. October 2016.

Wolverine and the ESA, what does foreseeable future mean and other questions from the trenches of wildlife science. *Wildlife Policy Graduate Class*, College of Forestry and Conservation, University of Montana, Missoula, MT. April 2016.

Agency research leads to effective conservation. *Senior capstone in Wildlife Biology*, College of Forestry and Conservation, University of Montana, Missoula, MT. April 2015.

Landscape ecology and genetics in practice. *Landscape Ecology*, Lead field trip to Clearwater Lake/Flathead Lake Biological Station, Yellow Bay, MT. June 2013, 2014.

Landscape ecology meets genetics. *Foundations of Landscape Ecology*, College of Forestry and Conservation, University of Montana, Missoula, MT. May 7, 2013.

Common sampling mistakes in conservation genetics. *Research Design*, Wildlife Biology Program, University of Montana, Missoula, MT. November 2, 2012.

Use of molecular genetics to inform management decisions under the National Forest Management Act and the Endangered Species Act. *Conservation of Wildlife Populations / Population Dynamics*, Wildlife Biology Program, University of Montana, Missoula, MT. September 7, 2012.

Ran a field sampling lab on non-invasive genetic sampling, followed by an afternoon in the laboratory. *Foundations of Wildlife Biology*, Wildlife Biology Program, University of Montana, Missoula, MT. February 21-23, 2012.

The role of agencies in providing scientific information for land management decisions. *Conservation Biology*, Flathead Lake Biological Station, Yellow Bay, MT. July 29, 2010, July 22, 2011.

Spatial Genetics. *Ecology*, Division of Biological Sciences, University of Montana, Missoula,

MT. October 2009.

Effects of sampling on population genetic results. *Research Design*, Wildlife Biology Program, University of Montana, Missoula, MT. April 20, 2009.

Graph theory and networks: New tools for landscape genetics. *Advanced Population Genetics*, Division of Biological Sciences, University of Montana, Missoula, MT. April 14, 2009.

Discussion on landscape genetics and sampling issues. *Beier Lab Group Meeting*, School of Forestry, Northern Arizona University, Flagstaff, AZ. December 4, 2008

Gene flow in ecological genetics: The good, the bad, and the ugly? *Ecology*, Division of Biological Sciences, University of Montana, MT. October 2008.

Wildlife genetics. *Introductory Biology*, Division of Biological Sciences, University of Montana, Missoula, MT. April 21, 2008.

Spatial genetics. *Landscape Ecology*, Lolo National Forest, Missoula, MT. August 2007, January/July 2008, January 2009.

Do we need to worry about sampling when evaluating gene flow? *Evolution and Organismal Wildlife Lunch Seminar*, Department of Ecology, Iowa State University, Iowa City, IA. October 19, 2008.

Forest management, sensitive species, and DNA. *School of Forestry*, University of Montana, Missoula, MT. March 2007.

Fisher detectability, presence, and absence. *USFS Regional Training Academy*, Missoula, MT. March 29, 2007.

How sampling influences genetic substructure results: an evaluation of program STRUCTURE. *Division of Biological Sciences*, University of Montana, Missoula, MT. February 2007.

Genetic monitoring of wildlife. *USFS Regional Training Academy*, Missoula, MT. March 30, 2006, March 29, 2007.

History of research in the USFS. *Conservation Ecology*, Flathead Lake Summer Course, Big Fork Ranger Station, Hungry Horse, MT. August 2006.

Use of landscape genetics for evaluating management options. *Division of Biological Sciences*, University of Montana, MT. February 2006.

What is valid data for estimating species distributions? *Ecology*, Yellow Bay Biological Station, Yellow Bay, MT. July 2005.

Estimating gene flow and effective population size for ecology and wildlife biology. *Wildlife*

Biology, University of Montana, Missoula, MT. March 2005.

Detecting movement in carnivores using new technology. *Environmental Studies*, University of Montana, Missoula, MT. September 2004.

Conducting science for land management. *Conservation Ecology*, Yellow Bay Biological Station, Yellow Bay, MT. August 2004.

Does hunting effect the genetics and ecology of bighorn sheep? *Graduate Wildlife Science*, University of Montana, Missoula, MT. January 2004.

Combining conservation and conservation biology: A case study of the Lynx. *Conservation Genetics*, University of Montana, Missoula, MT. December 2003.

Detecting carnivores. *Conservation Ecology*, Flathead Lake Biological Station, Yellow Bay, MT. July 2003.

The use of genetics in population viability analysis. *Conservation Genetics*, University of Montana, Missoula, MT. November 2001 – 2011.

Bottlenecks I: Causes and effects. *Advanced Population Genetics*, University of Montana, Missoula, MT. March 2003.

Bottlenecks II: New detection techniques. *Advanced Population Genetics*, University of Montana, Missoula, MT. March 2003.

A case study: El Nino and marine life along the coast of Peru – an example of environmental stochasticity. *Evolution (Biology)*, American University, Washington D.C. April 1996.

SIGNIFICANT CONSULTATIONS / PRESENTATIONS (See Also Workshops)

Western Forestry Leadership Coalition / Council of Western State Foresters - Led research displays on forestry and wildlife at the Fall Meeting. November 5-7, 2024

Congressional Field Visits. Led field (Lolo National Forest) and laboratory (National Genomics Center) visits for congressional staffers from the House and Senate Agriculture Committees, House Natural Resources Committee, Senate Energy and Natural Resources Committee, House and Senate Interior, Environment and Related Agencies Appropriations Subcommittee. April 24, 2024

Carnivore Working Group, Western Association of Fish and Wildlife Agencies. Presentation on “Meso-carnivore genetics in the Rocky Mountains: management implications of new genomic information.” Boise, ID. May 2024.

Congressional Staffer Visits. Co-organized a field trip with Congressional staffers from Daines

and Gianforte's staff in Missoula (also attended by Deputy Chief of Research). Traveled to Flagstaff to co-lead a staff visit with Senator Sinema's staff. Traveled to Boise to co-lead a staff visit with Simpson and Risch Staff. Follow up visit from Daine's staff in Missoula with a Legislative fellow from the BLM.

Peer-Review Expert for Draft Status NOAA/NMFS Review of Upper Klamath-Trinityh Rivers Chinook Salmon Evolutionary Significant Unit. I was asked to view this controversial decision regarding how unique this population of salmon is on the Pacific Coast. Genomic data is at the core of the decision which could impact farming, ranching, and future dam removal. (September 2019)

Multi-state Wolverine Monitoring and Occupancy Estimation. Engaged as part of a large working group to estimate the distribution and occupancy of wolverine in the Rocky Mountains and Cascade Mountains. Consulted on design of the study and analysis of genetic samples. May 2016-present. Project design workshop July 7-9, 2015 (Salmon Idaho). Data analysis workshop (Lubrecht Experimental Forests, MT) October 11-12, 2017 and June 30, 2018 (Spokane, Washington).

Multi-state Fisher Status Assessment. Worked with western state agencies and Region 1 of the USFS to develop a statistically robust and scientifically meaningful plan to monitor fishers in the Northern U.S. Rocky Mountains. Powell Ranger Station, Idaho April 2-4.

Region 1 USFS, Regional Leadership Team. Consult with team on multi-species monitoring efforts to support and how to work with partners. September 21, 2017.

Multi-state Wolverine Monitoring and Occupancy Estimation. Met with leaders from Idaho Fish and Game and Montana Fish Wildlife and Parks to consult on design of a multi-state, multi-jurisdictional, multi-agency fisher monitoring project to launch in winter 2017/2018. September 18-19, 2017.

Region 1 USFS, Wildlife Biologists Meeting. Presented a talk called "Genetic sights to 5 carnivore species and what this means for management". April 26, 2017.

USFWS Lynx Species Status Assessment Peer Review. Evaluated the species status assessment for the Canada lynx continuous United States Distinct Population Segment (256 p) and subsequently worked with USFWS staff to evaluate the status of the Canada lynx in the United States. February – March, 2017

Northwest Power Council's Fish and Wildlife Committee. Met with council members to discuss information obtained on bull trout from our eDNA sampling in the Columbia River basin (8,000 samples). Discussed future plans for sampling and how to help them with research and monitoring needs. March - April 2017.

USFS Framing of a National Assessment of Aquatic Biodiversity on National Forests. Worked with Washington Office staff to initially frame a national assessment of fish and other aquatic species on National Forests and establish a strategic use of environmental

DNA to assist in the assessment. Jan 2017 – Present.

USFS Wildlife and Wilderness Working Group. Worked with USFS Aldo Leopold Wilderness Research Institute to review and revise a 10 year interagency (BLM, USFWS, NPS, USFS) strategic plan for wilderness research involving wildlife. Jan – April 2017

USFS Region 1 Chief's Review. Served on a panel to discuss Research and Applied Science in Region 1 of the USFS in front of USFS R1 leadership and national leadership (Chief Tidwell). October 20, 2017.

Wildlife Management Institute / USFWS Northern Rocky Mountain Fisher Information Dialog. I was invited to dialog with NGOs and Government agencies to discuss ESA process as it related to the fisher. Discussions focused on information gaps, and the impact of harvest on the species. October 11 and 12, 2016.

Multi-state Monitoring Meeting. Worked with Idaho Fish and Game and Montana Fish Wildlife and Parks to discuss developing long-term multi-state carnivore monitoring programs together. Helena, MT. September 29, 2016 (Discussions continued to present) and Missoula, MT. May 8, 2016.

Aldo Leopold Wilderness Research Institute. Served on a hiring committee to select the Deputy Director of the Institute. September 2016.

Montana Fish Wildlife Parks. Attended MFWP Managers Meeting in Miles City, Montana to have discussions with managers and leadership about how to better collaborate with USFS Research and NFS. August 2, 2016.

USFS Northern Region. Served on a hiring committee to select the Deputy Director for Renewable Resources Management for Region 1 of the USFS. May-July, 2016

USFWS Lynx Species Status Assessment. Served as an expert presenter for the USFWS at a multi-state / multi-agency species status assessment. My role was to advise on lynx genetics and genomics. October 13-14, 2015.

USFWS West Coast DPS Fisher Peer Reviewer. Served as a peer reviewer for the USFWS decision to list one or multiple DPS units on the West Coast for fishers. January 2015.

USFWS Sage Grouse DPS and Management Unit Assessment. Attended a multiday meeting to assess if Distinct Population Segments exist for Sage Grouse, and what activities could be used to maintain connectivity with a DPS. September 2014.

USFS Multi-Carnivore Monitoring Strategy. I have lead a group to devise a comprehensive Region 1 carnivore monitoring strategy. This group is R1 Wildlife leadership members, RMRS scientists, and USFWS listing coordinators and is focused on lynx, wolverines, and fishers. 2014-2015

Montana Fish Wildlife and Parks. I was requested to participate in a small 4 person working group to find ways to improve relationships and reduce conflict between the US Forest Service and the State of Montana's Fish Wildlife and Parks. June 2014-May 2015. Sept 1, 2017.

Rocky Mountain Research Station Leadership. Assigned to a restructuring team to evaluate ways to improve station efficiency. June – Sept 2014

USFWS Lynx Substructure. Consulted with USFWS on latest information on lynx substructure on both the East Coast and the Rocky Mountains. April 2014.

USFS Region 1 Fisher Assessment. Provided scientific guidance towards Region 1 of the USFS' species assessment and conservation plan for the fisher. 2013-2014.

USFS Region 1 Fisher NEPA Studies Served as a scientific advisor to Region 1 of the USFS on several administrative studies to understand how fishers use dry forests and rare forest types. I consulted on how to design a study and how to interpret results from ongoing fisher research at RMRS. Meeting biweekly. 2012 – 2013.

Congressman Daines Staffer. Consulted and provided tour for staffer at Congressman Daines office on opportunities to develop a genomics facility and its benefits to conservation and management. June 25, 2013.

USFWS Wolverine Monitoring Consulted with USFWS on monitoring issues associated with designing a large-scale genetic monitoring program for wolverines. April 25, 2013.

Idaho Wolverine Substructure Consulted with Idaho Fish and Game on genetic issues associated with substructure of Idaho wolverines. April 25, 2013.

Managed Relocation Consulted with the USFS National Program Leader in Genetics and Global Change Research on best management practices for managed relocation. March 13-2013 – Present.

California Black-backed Woodpecker Listing Decision I worked with scientists from the California Department of Fish and Wildlife and The Institute for Bird Populations to understand if the California black-backed woodpeckers are contiguous with the Oregon populations as this species has recently been proposed for listing under the US Endangered Species Act. December – June 2013.

Peer Reviewer for Wolverine Listing Decisions Was formally asked by USFWS to review their listing decision to list the northern Rocky Mountain population of wolverines and their decision to initiate a reintroduction of the species into Colorado. April – May 2013.

Clearwater / Nez Pierce National Forest Carnivore Monitoring Worked with forest biologists to design a joint monitoring program for fishers, lynx, and wolverine. December 19,2012, January 18/April 2013.

Humboldt Marten Conservation Group I presented genomic data on the subspecies status of the Humboldt marten and other subspecies of marten to help determine the validity of ESA listing status. October 30, 2012.

Wolverine and Lynx Biology Team I presented research findings and consulted with team members to demonstrate the power and efficacy of various monitoring efforts to detect trends in carnivore population decline and recovery. October 25, 2012.

Olympic National Park Fisher Reintroduction We are helping USGS and NPS design a monitoring study to examine the success of fishers in Olympic National Park. Multiple meetings. 2011 – 2013.

Wolverine Biology Team I presented our first round of statistical power modeling results to the Wolverine Biology Team. These data show the effort required across agencies and NGOs to actually detect trend in wolverine populations over time. September 1, 2011.

Fisher Genomic Data I met with biologists, managers, and policy makers in the Sierra Nevada to discuss the implications of our recent findings on ESA listing decisions. See Knaus et al. 2011. June 27, 2011.

Fisher Habitat Use Multiple consultations with rangers and forest personnel concerning management of forest units and how these landscape altering actions may influence threatened fisher populations. Bitterroot National Forest – April 29, 2011, Flathead National Forest – January 31, 2011.

Large Scale Landscape Connectivity Multiple consultations with agencies such as Montana Fish Wildlife and Parks, USFWS (LCCs), and Northwest Landscape Integrity Group (multi-agency group) on interpretation of largescale landscape mapping efforts. August 4, 2011, September 8/21, 2011, respectively.

National Park Service, Biological Resource Management Division Reviewed a Bison Conservation Genetic Workshop Report and Recommendations, which provides options for the management of the Department of Interiors bison herds. Additional conference calls with the chief of the Biological Resource Management Division and the Endangered Species Program Manager. June – July 2010.

Potlatch Timber Company Consultation with company biologists regarding new fisher genetic information and how it may impact future forestry practices. Idaho. June 21, 2010.

USFS Washington Office of Planning (NFS). Consultation regarding the use of genetics in the new planning rule. May 10, 2010.

Penobscot Indian Nation and USFWS. Consultation on the species of canids (grey wolf, eastern wolf, coyote) found in Maine. December 11, 2009.

National Wildlife Federation, Northern Rockies Regional Center Consultation with sage steppe coordinator at NWF office regarding sharp tailed grouse genetics data and the delineation of subspecies boundaries. Missoula, MT. December 1, 2009.

Chief of the USFS Review, Northern Region. Presentation and panel: Challenges and opportunities in sustaining forest and grassland health. Whitefish, MT. November 2, 2009.

Aldo Leopold Wilderness Research Institute Participated in a wilderness workshop to help determine the direction of the Institute and the future of wilderness research. Missoula, MT. April 28-30, 2009.

American Wildlands Provided staff at American Wildlands information on connectivity of wolverine and bears and discussed appropriate use of information and how to avoid GIS abuses. May 1, 2009.

USFWS, Ecological Services. Reviewed synthesis of wolf taxonomy in the United States, including red wolves, eastern wolves, Mexican wolves, great lakes wolves, and grey wolves. Consulted with USFWS senior scientists regarding their status and synthesized information. May 2009.

Wolverine Biology Team Delivered a presentation on the genetics of wolverine. Missoula, MT. October 2, 2007.

USFWS, Listing Branch Gave a presentation on the genetics, ESUs, and effective population size of wolverine in the contiguous United States. Consultation continued until September 2010. Missoula, MT. September 19, 2007.

Department of Justice Expert witness presenting DNA statistical data for a federal court case involving poaching of lynx in Duluth, MN. August 21, 2007.

USFWS, Division of Scientific Authority for CITES Consultation on how hybridization of lynx and bobcats and the similarity of appearance between these species should impact the US position on delisting bobcats from CITES. May 10, 2007.

USFS, Washington Office Reviewing the proposed removal of bobcats from CITES. January – March 2007.

Coeur D’Alene Tribes Coordinating fisher surveys in the Rocky Mountains. December 8, 2006.

Department of Interior Genetics and taxonomy of endangered species workshop. May 23-24, 2005.

USFS National Wildlife Strategic Monitoring Steering Committee January – September 2004.

USFS Region 10 Joint USFS and Fish and Game Seminar. *Genetic technology and capabilities for estimating abundance of sitka black-tail deer*. April 2004.

USFWS *What can DNA provide for management*. Juneau, AK. April 2004.

USFS Region 1 Workshop on forest carnivore biology. *Carnivore genetics: Implications for management and conservation*. May 2003.

Watershed, Wildlife, Fisheries, and Rare Plants, USFS, Northern Region *Wildlife genetics: Providing new information to old problems*. June 2003.

Rocky Mountain Research Station Leadership Team *Wildlife Genetics in RWU 4201*. July 2003.

IDT, USFWS, and USFS Lolo Pass partner's meeting. *Overview and Updates on Lolo Pass Research Projects*. July 2003.

USFS Regional wildlife leaders meeting. *The use of genetics for Forest Service Research*. July 2003.

USGS Meeting on procedures for estimating population size of grizzly bears in the Northern Continental Divide Ecosystem. *Recommendations for laboratory processes*. September 2002.

USFS, Northern Region RIM board. *Genetic approaches to monitoring and population viability*. December 2002.

USFS, Northern Region RIM board. *New approaches to predator viability in the Rocky Mountain west*. December 2001.

CONFERENCE POSTERS

Leopard seal hunting behavior. Co-lead with L.M. Hiruki and P.L. Boveng. *Eleventh Biennial Conference on the Biology of Marine Mammals*, Orlando, FL. 1995.

Male harbor seal visual and acoustic underwater displays. Co-lead with D.J. Boness and B. Buhleier. *Eleventh Biennial Conference on the Biology of Marine Mammals*, Orlando, FL. 1995.

The effect of leopard seal predation upon Antarctic fur seals at Seal Island, Antarctica. Co-lead with L.M. Hiruki, P.L. Boveng, and J.L. Bengston. *Scientific Committee of Antarctic Research Symposium on Biology*, Venice, Italy. 1994.

Breeding success and morphological variability of cape petrels on Seal Island, Antarctica. Co-lead with J.L. Bengston. *Scientific Committee of Antarctic Research Symposium on Biology*, Venice, Italy. 1994.

RESEARCH FEATURED IN POPULAR PRESS

- *Wired*. “Scientists capture airborne Animal DNA for the first time.” Jan. 10, 2022
- *San Francisco Examiner*. “Environmental genes could be the problem solver of the century. October 17, 2022.
- *Wyoming Public Radio*. <https://www.wyomingpublicmedia.org/post/tracking-plants-and-animals-dna-they-leave-behind>. September 23, 2020.
- *Daily Inter Lake*. “Researchers look at how rare cats maneuver burned landscapes.” February 16, 2020. And “Researchers spend years building datasets for elusive wildlife February 15, 2020.
- *Nature*. “Rare bird’s detection highlights promise of ‘environmental DNA’.” November 19, 2019.
- *National Geographic*. “How DNA from snow helps scientists track elusive animals.” Nov 2018. <https://www.nationalgeographic.com/animals/2018/11/environmental-dna-snow-helps-track-lynx-rare-animals/>
- *Montana Outdoors*. “Where are the wolverine?” Nov-Dec 2018.
- *Missoulian, Newstalk KGVO*. “Montana counts three influential scientists” January 2018.
- *Yale Environment 360*. “A splash of river water now reveals the DNA of all its creatures” March 9, 2017.
- *This Week’s eWildlifer & TWS Talks. Talk*: “Can we predict genetic adaptation to climate change” October 13, 2016
- *Science You Can Use (RMRS Bulletin)*. “Here today, here tomorrow: managing Forests for Fisher Habitat in the Northern Rockies. Sept/Oct.
- *Missoulian*. Missoula scientists’ wildlife DNA work tops global ranking. January 18, 2016
- *Lewiston Tribune, Missoulian, Helena Air*. Study holds out hope for cutthroat trout. January 20, 2016
- *Helena Independent Record*. We all have a responsibility: biologists launch unprecedented multistate wolverine study. January 14, 2016.
- *Billings Gazette, Missoulian, Helena Independent Record*. Scientists try to coordinate rare carnivore research. December 26, 2015.
- *Montana Magazine*. Wonders of the wild. Nov/Dec 2015
- *Quartz News Digest*. Superwolves, new butterflies, and all the hybrid species evolving before our eyes. June 4, 2015.
- *KPAX-TV*. Missoula lab revolutionizing use of DNA in animal studies. March 30, 2015.
- *Billings Gazette, Missoulian, U.S. Forest Service*: New Missoula lab uses DNA to expose hidden wildlife. March 3, 2015.
- *LA Times*, California’s only known wolverine nearing end of his natural life. January 16, 2015.
- *Huffington Post, AP, ABCNews*. California’s only wolverine spotted in Sierra Nevada. January 10, 2015.
- *On Earth*, Forging a new path. September 2014.
<http://www.onearth.org/articles/2014/09/designing-wildlife-corridors-how-to-build-a-better-mouse-trap>

- *Montana Outdoors*, Reading an animal's "fingerprints". March-April, 2014.
- *Reuters / NBC*, New species of ugly, big-headed fish found in Idaho and Montana. January 30, 2014
- *Spokesman Review*, Cedar sculpin fish species discovered in region's streams. January 30, 2014
- *Missoulian / KPAX TV*, Study finds twice as many mountain lions in Bitterroot as expected. January 9, 2014
- *LA Times*, Furry fishers, don't blame the gold rush. March 8, 2013
- *National Wildlife*, On the trail of the ghost cat. March 2013
- *High Country News*, Wildlife Biology Goes High-Tech, December 27, 2012.
- *Adirondack Daily Enterprise*, April 21, 2012. Moose genealogy.
- *Inside Science / US News and World Report*, January 19, 2012. Designing Wildlife Corridors in the Digital Age
- *Science News*, August 27, 2011. Genes, sightings, retrace path of cougar's journey.
- *CBS News*. Tale of Wandering Cougar Seen as Harbinger, July 29, 2011.
- *Live Science*, July 29, 2011. Cougar's record-breaking trek reveals larger trend.
- *National Public Radio*, July 27, 2011. Connecticut mountain lion likely came from the Black Hills
- *New York Times*, July 26, 2011. Wild cougar traveled east 1,500 miles, tests find.
- *Land Letter*, April 28, 2011. "Scientists probe genetic component of climate-hardy species."
- *Montana Magazine*, March/April 2011. "Protecting a predator."
- *The Missoulian*, February 24, 2011. "Biologists hunt for fisher hair in Fish Creek"
- *The Sacramento Bee*, Feb. 20, 2011. "Lone wolverine continues to roam Sierra"
- *Big Ideas for a Small Planet (Sundance Channel)* October 2009. – Detector dogs.
- *The Missoulian*, April 10 2009. "Super sniffers - Group trains canines to pinpoint scat, snails - even noxious weeds "
- *The New York Times*, March 2009. "Tools That Leave Wildlife Unbothered Widen Research Horizons"
- *Chicago Wilderness Magazine*, Summer 2008. "Cougar Killed in Chicago"
- *Bloomberg News*, May 14, 2008. "Wolverines Return to California, Scaring Bears, Mountain Lions"
- *Chicago Tribune*, April 30, 2008. "Scientists clamor to study cougar shot in Chicago"
- *Wichita Eagle*, April 18, 2008. "Cougar killed in Chicago may be from S. Dakota"
- *Sioux Falls Argus Leader*, April 17, 2008. "Likely Black Hills cat shot in Chicago"
- *Washington Post*, April 16, 2008. "Young, Restless Cougars Roaming Eastward"
- *Redding Record Searchlight*, April 13, 2008. "Scientist: Wolverine seen in Sierra Nevada came from Rockies"
- *San Francisco Chronicle*. April 3, 2008. "Scientists: Tahoe Wolverine not from state". Story also covered by Sacramento Bee, Sierra Sun (Truckee CA), KNCO Radio, and Redding Record Searchlight.
- *Defenders*. Summer 2007. "Quest for a forest phantom."
- *Coloradoan*. May 7, 2007. "Why are bighorn sheep struggling in Rocky Mountain National Park."
- *Casper Star Tribune*. January 29, 2007. "Decade long cougar study nears end"
- *Great Falls Tribune*. Jan 18, 2007. "Lion lessons"

- *Great Falls Tribune*. Jan 18, 2007. "Follow that cat!"
- *Horizon Air Magazine*. July 2006. "Fascinating Fishers."
- *Woods-N-Water Magazine*. May 2006. DNA analysis from the Michigan Thumb Wolverine.
- *Missoulian*. June 14, 2005. "Missoula researcher honored as top young scientist."
- *New Scientist*. November 10, 2004. "Moas on decline before humans arrived."
- *Cali. Acad. of Sci.: California Wild*: Nov. 17, 2004. "Moas on decline prior to human arrival."
- *Bangor Daily News*. August 28, 2003. "Canada lynx bobcat hybrids confirmed in Maine"
- *Portland Press Herald*. August 28, 2003. "A rare, curious hybrid"
- *Duluth News Tribune* June 3, 2003. "Cross-breed of bobcat lynx found"
- Minnesota Public Radio April 24, 2003. "The missing lynx"
- CBC North Radio February 6, 2002. Radio Interview
- *Denver Rocky Mnt. News* February 2, 2002. "Study shows lynx really get around" (AP Wire)
- *Science News* February 2, 2002. "Genetic Lynx"
- *National Geographic News* February 2002. "Lynx needs habitat corridor protection, study suggests"

PUBLISHED PHOTOGRAPHS

- *Book Cover (Zielinski 2011)* Photo of a fisher. 2011
- *Missoulian Fisher (Martes pennanti)* photo in April 26 paper. 2010.
- *USFS Kids in the Woods Photo Contest* Honorable mention. 2009.
- *Bluebird* Cover photograph spring issue. 2002.
- *Science News* February 2 issue. 2002.
- *Proceedings of the National Academy of Sciences* May 8 issue. 2001.
- *Ecological Society of America Bulletin* Cover photograph January. 1999.
- *Bioscience* Cover photograph October. 1996.
- *General Biology Laboratories* Cover photographs (3). 1996.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Ecological Society of America
- Society for Conservation Biology
- Fauna and Flora International
- The Wildlife Society

ASSOCIATE EDITOR OR REVIEWER

Associate / Handling Editor

- *Conservation Biology (Handling Editor, 2011-present)*
- *Marine Mammal Science (Guest Associate Editor - 2009-Present)*
- *Conservation Genetics (Associate Editor, 2006-2012)*

- *North Eastern Naturalist (Guest Associate Editor in 2008)*

Reviewer

- National Science Foundation
- USFS & USFWS –Internal Grants and Panels

- *Acta Theriologica*
- *Alaska Sea Grants*
- *Animal Conservation*
- *Arctic*
- *Auk*
- *Biodiversity and Conservation*
- *Biological Conservation*
- *Biology Letters*
- *BioScience*
- *BMC – Evolutionary Biology*
- *Conservation Biology*
- *Ecology*
- *Ecological Applications*
- *Ecology and Society*
- *European Journal of Wildlife Research*
- *Global Change Biology*
- *Journal of Mammalogy*
- *Landscape Ecology*
- *Marine Biology*
- *Marine and Coastal Fisheries*
- *Marine Mammal Science*
- *Molecular Ecology*
- *Molecular Ecology Resources*
- *Movement Ecology*
- *National Geographic Society – Conservation Grants*
- *Oikos*
- *Proceedings of the Royal Society of London (Biological Series)*
- *PLOS One*
- *Science*
- *Trends in Ecology & Evolution*
- *Ursus*
- *Wildlife Biology*
- *Journal of Zoology (London)*
- *Journal of Wildlife Management*

SERVICE AND VOLUNTEER ACTIVITIES (See Also Public Talks)

2018	Judge – Speech Debate – Missoula Public High School
2016-2018	Level 1 Certified Ice Hockey Referee
2012-2015	Level 3 Certified Ice Hockey Coach
2014	Little League Baseball Head Coach (U10)
2011-2012	Level 2 Certified Ice Hockey Coach
2010-2011	Level 1 Certified Ice Hockey Coach
2009-2011	Coach – U6 Boys Soccer, U8 Boys Soccer
2003-2004	Neighborhood Council Leadership Team
2001-2004	NSF: IBScore Undergraduate Mentor
1998-2002	Film Judge: International Wildlife Film Festival
1999-2000	SCB 2000 Local Organizing Committee
1998	Montana Science Fair Final Judge
1997-1999	Montana Public Radio – Wrote and Read “Field Notes”
1997	Quantitative Ecologist Search Committee – University of Montana
1997	Training Peruvian Students in Field Ecology (Radio-tracking)
1997	Forest Pathology and Entomology Search Committee – University of Montana
1996	Smithsonian Folklife Festival, Washington D.C.
1995-1996	Field Biologist: Cave Invertebrates Studies, Organ Cave, WV
1994-1996	LIFE Education Program, National Zoological Park, Washington D.C.
1994-1996	Graduate Student Evaluation Committee, Biology Department, American Univ.
1994	Chairman Search Committee, Graduate Rep., American University

OTHER SKILLS AND TRAINING

2025	Incident Command Systems / Advanced ICS
2024	PADI Open Water Diver
2016	Wilderness First Responder
2004, 2009, 2011, 2014, 2022	Wilderness First Aid and CPR
2004-2009, 2014, 2017	Defensive Driving, USFS
2003	Supervisor Training
2003, 2009	Bear Spray Training
2003, 2007, 2012, 2023	Media Training, USFS
2002	First Aid Training, USFS
2002	Sawyer Class B (Limited), USFS
2002, 2025	Snowmobile Certified, USFS
2002	Avalanche Awareness, USFS
1999	Animal Handling and Immobilization
1996	DNA Fingerprinting and Microsatellite Development
1996	Radiation Safety, Smithsonian Institution
1992	Wildlife Inflicted Injury First Aid
1992	First Aid Training, NOAA
1988	YMCA Certified Scuba Diver