

Daniel A. Bachen - Curriculum Vitae

Montana Natural Program, 1515 East Sixth Avenue, Helena, Montana, 59620-1800
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Goal: To pursue a career in wildlife sciences with emphasis on conservation and management of wildlife species within Montana through actionable science.

Education

- M.S. Fish and Wildlife Management, Montana State University, Bozeman, 2014
 - Conducted experiments investigating mechanisms by which plant invasions affect predation risk and foraging behavior of small mammals within sagebrush steppe
- B.S. Wildlife Biology, University of Montana, Missoula, 2008

Relevant Work Experience

Senior Zoologist, Montana Natural Heritage Program May 2016-Present

- Design, conduct, and secure funding for projects assessing the distribution and conservation status of animal species in Montana
- Coordinate the process of statewide species conservation status ranking
- Provide taxonomic expertise to resource managers
- Supervise assistant zoologist and temporary field staff
- Collect and manage data for statewide databases on Montana's Species of Concern

Research Assistant, US Geological Survey/ Montana State University Jan 2015-April 2016

- Design projects and prepare proposals to conduct research on wildlife disease
- Create and maintain relational databases, assure data quality, respond to data requests
- Analyze biological data to prepare summary reports, presentation and publication quality graphics, and updates to partner organizations
- Coordinate research with federal, state, and NGO partners

Temporary Zoological Project Manager, Montana Natural Heritage Program May-Nov 2014

- Designed, implemented, and managed a project to document status of bird, small mammal, bat, reptile, and amphibian species on federal lands in South Dakota.
- Prepared a report summarizing baseline status and provided management recommendations for these species to Bureau of Land Management personnel
- Coordinated with Heritage Program personnel and BLM wildlife biologists to conduct research
- Additionally, conducted Northern Goshawk and bird surveys on the Custer Gallatin National forest in Southeast Montana and South Dakota.

Teaching Assistant, Montana State University Fall 2012, 2013

- Designed or assisted in design of senior level mammalogy labs
- Teach identification, distribution and natural history of native mammals
- Assisted in development and implementation of a multiday field trip for students to gain field skills and participate in research

Research Assistant, Montana State University Aug 2011 – May 2014

- Designed and conducted experiments and developed novel techniques to identify effects of invasive plants on predator avoidance and foraging behavior of small mammals
- Worked closely with Montana Fish Wildlife and Parks to coordinate research on Wildlife Management Areas

Field Zoologist/Research Assistant, Montana Natural Heritage Program Sep 2010-Aug 2011

- Crewmember on two-person team conducting baseline inventories of reptiles, and amphibians, in Montana
- Responsible for entering, correcting and error checking data from the project and for processing observational and spatial data for the Heritage Program

Technician, Montana Natural Heritage Program & Montana Fish Wildlife and Parks

May-Nov 2008, May 2009-Aug 2010

- Senior crewmember on two-person team conducting baseline inventories of reptiles, amphibians, and small mammals, including bats across Montana
- Coordinated field work for my team and others on a collaborative project
- Contacted private land owners to conduct surveys on private lands, coordinating with agency biologists as needed to gain access to some of these lands
- Worked unsupervised in remote locations, following and interpreting protocols as necessary to collect and manage data
- Responsible for entering, correcting and error checking data from the project and for processing other types of data for the Heritage Program

Professional Affiliations

Montana Bat Working Group

- Member 2014- present
- Working Group Lead 2016- present

Western Bat Working Group

- Member 2016- present
- Montana representative 2018 – present

The Wildlife Society

- Member 2011- present

Montana Chapter of the Wildlife Society

- Member 2011- present
- Secretary 2017-2019
- Species of Concern Committee Chair 2016-Present

Montana Society for Conservation Biology

- Member 2014-2018
- Secretary 2016-2018

American Fisheries Society

- Member 2018- present

Montana Chapter American Fisheries Society

- Member 2018- present

Workshops and Meetings

- Implementing Short-term Acoustic Monitoring for Bats (NABat). 2021, Zoom Presentation. Half-day training, lead and organizer
- Montana Bat Working Group Meeting. 2021. Montana Chapter of the Wildlife Society Annual Meeting, virtual meeting. Half-day meeting, lead and organizer
- Implementing Short-term Acoustic Monitoring for Bats (NABat). 2020, Zoom Presentation. Half-day training, lead and organizer
- Montana Bat Working Group Meeting. 2020. Montana Chapter of the Wildlife Society Annual Meeting, virtual meeting. Half-day meeting, lead and organizer
- Digital Tools for Wildlife Data Collection. 2019. Montana Chapter of the Wildlife Society Annual Meeting, Helena, Montana. Half-day workshop, co-lead and organizer
- Montana Bat Working Group Meeting. 2019. Montana Chapter of the Wildlife Society Annual

- Meeting, Helena, Montana. Half-day meeting, lead and organizer
- Natural history, capture, and management of bats. 2018. Pryor Mountains, Montana. Three day training, lead and organizer
- Montana Bat Working Group Meeting. 2018. Montana Chapter of the Wildlife Society Annual Meeting, Butte, Montana. Half-day meeting, lead and organizer
- Natural history, capture, and management of bats. 2017. Pryor Mountains, Montana. Three day training, lead and organizer
- Montana Bat Working Group Meeting. 2017. Montana Chapter of the Wildlife Society Annual Meeting, Helena, Montana. Half-day meeting, lead and organizer
- Natural history, capture, and management of bats. 2016. Pryor Mountains, Montana. Three day training, co-lead and organizer

Permits of Note

- **U.S. FWS Recovery Permit, Northern Long-eared Bat, 2019-2024**

Publications and Reports

- Bachen, D.A. 2020. *Deployment protocol for fixed point short-term acoustic detectors (NA Bat)*. Montana Natural Heritage Program, Helena, Montana. 16 pp.
- Bachen, D.A. McEwan, B. Skone, H. Harris, and L. Hanauska-Brown. 2020. *Hibernaculum potential of rock outcrops and associated features in eastern Montana*. Montana Natural Heritage Program, Helena, Montana. 12 pp. plus appendices
- Bachen, D.A., A. McEwan, B. Burkholder, S. Blum, and B. Maxell. 2020. *Accounts of Bat Species Found in Montana. Report to Montana Department of Environmental Quality*. Montana Natural Heritage Program, Helena, Montana. 58 p.
- Bachen, D.A., B.O. Burkholder, A.L. McEwan, S.L. Hilty, S.A. Blum, and B.A. Maxell. 2020. *A Directory of Reports on Long-term Acoustic Monitoring for Bats at Sites Across the Northern Rocky Mountains and Great Plains*. Montana Natural Heritage Program. Helena, Mt. 5 pp.
- Bachen, D.A. 2019. *Assessment of presence, range and status of Northern Myotis (Myotis septentrionalis) in the Northern Great Plains of Montana*. Montana Natural Heritage Program. Helena, MT. 16pp + appendices
- Bachen, D., A. Litt, and C. Gower (2018) *Simulating cheatgrass (Bromus tectorum) invasion decreases access to food resources for small mammals in sagebrush steppe*. *Biological Invasions* 20(9): 2301-2311.
- Bachen, D.A (2018) *Update on Northern Myotis (Myotis septentrionalis A.K.A Northern Long-eared Bat) Surveys in Eastern Montana*. Montana Natural Heritage Program, Helena, Montana. 10 pp. plus appendices
- Bachen, D.A., A. McEwan, B. Burkholder, S. Blum, and B. Maxell (2018) *Acoustic assessment of bat activity and diversity at Spion Kop Wind Energy Facility. Report to Northwestern Energy*. Montana Natural Heritage Program, Helena, Montana. 54 pp. plus appendices.
- Bachen, D., A. McEwan, B. Burkholder, S. Blum, and B. Maxell (2018) *Long-term acoustic assessment of bats at coal mines across southcentral Montana and management recommendations for bats. Report for MT Department of Environmental Quality*. Air, Energy, and Mining Division. Coal Section. Montana Natural Heritage Program. 169 pp. + appendices

- Bachen, D.A., A. McEwan, B. Burkholder, S. Hilty, S. Blum, and B. Maxell (2018) *Bats of Montana: Identification and Natural History. Report to Montana Department of Environmental Quality.* Montana Natural Heritage Program. Helena, MT. 111pp.
- Bachen, D., A. McEwan, and B. Burkholder (2018) *Evaluation of Indicators of Environmental Sensitivity with Respect to Bats and their Native Habitats near Albeni Falls Dam and Lake Pend Oreille, Idaho.* Montana Natural Heritage Program, Helena, Montana. 18 p. plus appendices.
- Bachen, D. (2017) *Update on Northern Myotis (Myotis septentrionalis A.K.A Northern Long-eared Bat) Surveys in Eastern Montana.* Montana Natural Heritage Program, Helena, Montana. 11 pp. plus appendices
- Bachen, D., B. Maxell, E. Whittle (2017) *Measurements, body condition, and reproductive status of bats captured in Montana, northern Idaho, and western South Dakota.* Montana Natural Heritage Program, Helena MT. 13p.
- Bachen, D.A., B.A. Maxell, A.L. McEwan, B. Crees (2016) *Mapping of Black-tailed Prairie Dogs (Cynomys ludovicianus) using National Agriculture Imagery Program (NAIP) 2015 imagery.* Montana Natural Heritage Program, Helena, MT. 18p.
- Bachen, D., and Maxell B. (2014) *Distribution and status of bird, small mammal, reptile and amphibian species, South Dakota Field Office-BLM.* Helena, Montana: Montana Natural Heritage Program technical report.
- Bachen, D. (2014) *Cheatgrass invasion of sagebrush steppe: Impacts of vegetation structure on small mammals.* Master's Thesis. Montana State University, Bozeman, Montana.

Select Presentations

- Bachen, D. (2021) *Increasing the Efficiency and Consistency of Rank Calculation by Leveraging Automation and Batch Updates in a Relational Database Structure.* Presentation at the Biodiversity without Boundaries Conference. Virtual Meeting.
- Bachen, D. (2021) *Wind Energy and the Ecology of Bats in Montana.* Presentation at the Montana Wildlife & Wind Energy Virtual Workshop. Virtual Meeting
- Bachen, D., A. McEwan, and K. Smucker (2021) *Acoustic monitoring of bat species to support multi-scale monitoring and conservation.* Research presented at the Montana Chapter of the Wildlife Society annual meeting. Virtual Meeting
- Bachen, D. (2021) *Assessment of Conservation Status of Montana's Wildlife and Implications for Inventory and Monitoring.* Research presented at the Montana Chapter of the Wildlife Society annual meeting. Virtual Meeting
- Bachen, D., H. Harris, M. Mcgrath, and B. Skone (2019) *Establishing Range for Montana's Rarest Bat Species: the Northern Myotis.* Presentation of Research at the Montana Chapter of the Wildlife Society annual meeting. Helena, Montana
- Bachen, D., and B. Maxell (2018) *Use of Caves by Bats in Montana.* Presentation of Research to the National Speleological Society Convention, Helena, Montana.
- Bachen, D., B. Burkholder, A. McEwan, and B. Maxell. (2017) *Acoustic Assessment of Year-*

round Bat Activity and Distribution in Montana and Surrounding Areas. Presentation of Research to the Western Bat Working Group Meeting, Fort Collins, Colorado.

- Bachen, D., B. Maxell, L. Hanauska-Brown. *Bat Use, Human Visitation, and Environmental Attributes of Cave Hibernacula in Montana*. Invited presentation to the Western Bat Working Group Meeting, Fort Collins, Colorado.
- Bachen, D., B. Maxell, M. McGrath, B. Skone, H. Harris. (2017) *Rediscovery of the Northern Myotis in Montana*. Research presented at the Montana Chapter of the Wildlife Society annual meeting. Helena, Montana
- Bachen, D., B. Maxell, and L. Hanauska-Brown (2017) *Bat Use, Human Visitation, and Environmental Attributes of Cave Hibernacula in Montana*. Research presented at the Montana Chapter of the Wildlife Society annual meeting. Helena, Montana.
- Bachen, D. (2016) Monitoring visitation and bat use of Montana Caves. Cave and Karst Interagency Workshop, Great Falls, Montana.
- Bachen, D. (2015) *Using the data.table package to facilitate efficient manipulation and analysis of large datasets in R*. Instructional presentation to the UseR group, Bozeman, Montana.
- Bachen, D. & Cross, P. (2015) *Quantifying the spatial spread of Brucellosis in the Greater Yellowstone Ecosystem*. Project update to the USGS Northern Rocky Mountain Science Center, All Hands Meeting, Bozeman, Montana
- Bachen, D. (2014) *Cheatgrass invasion of sagebrush steppe: impacts of vegetation structure on small mammals*. Research presented at Montana State University. Bozeman, Montana.
- Bachen, D., Litt, A., Gower, C. & Higgs, M. (2014) *Indirect effects of nonnative brome grasses on small mammals in sagebrush steppe ecosystems*. Research presented at the Montana Chapter of the Wildlife Society annual meeting. Bozeman, Montana.
- Bachen, D., Litt, A., Gower, C. & Higgs, M. (2013) *Effects of nonnative brome grasses: Moving toward a mechanistic understanding of small mammal declines*. Research presented at the Wildlife Society national convention. Milwaukee, Wisconsin.
- Bachen, D., Litt, A. & Gower, C. (2013) *How do nonnative plants affect small mammals? Effects of vegetation structure on escape ability of small mammals*. Research presented at the Montana Chapter of the Wildlife Society annual meeting. Whitefish, Montana.
- Bachen, D., Litt, A. & Gower, C. (2012) *Mechanisms driving nonnative plant-mediated changes in small mammal populations and communities*. Poster presented at the Montana Chapter of the Wildlife Society annual meeting. Great Falls, Montana.