

Michelle DePrenger-Levin

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Education

- 2024 Ph.D., *University of Colorado Denver*, Department of Integrative and Systems Biology
Dissertation: Uses of demography to inform plant conservation.
Advisors: Dr. Mike Wunder, Dr. Rebecca Hufft, Dr. Michael P. Moore, Dr. Laurel Hartley
- 2007 M.S., *University of Colorado at Denver and Health Science Center*, Biology
Thesis: Conservation genetic analysis with codominant marker, allozymes, on a rare North American endemic, *Carex scirpoidea* ssp. *convoluta*.
Advisor: Dr. Leo P. Bruederle
- 1999 B.A., *Macalester College*, St. Paul, Minnesota
Major: Environmental Studies; Core: Biology; Minor: Mathematics.
Advisor: Dr. Mark Davis

Experience

- 2025-present *Manager of Conservation Programs*, Denver Botanic Gardens, Denver, CO.
Implement conservation programs focusing on the conservation, ecology, and demography of rare plants. Engage in state, regional, and global conservation networks.
- 2007-2025 *Research Associate*, Denver Botanic Gardens, Denver, CO.
Develop rare plant demographic field studies and analyses. Model population viability over time and space, with expertise in GIS and statistical analyses. Public outreach.
- 2002-2007 *Research Assistant*, Denver Botanic Gardens, Denver, CO.
Field studies of Colorado rare plants, seed collection for ex-situ conservation.
- 2001-2002 *Research Intern*, Denver Botanic Gardens, Denver, CO.
Data collection for over 50 Center for Plant Conservation rare plant species.
- 2001-2001 *Apprentice*, Easy Bean Farm, Milan, MN.
Organic planting and weeding
- 2000-2000 *Volunteer Coordinator*, AmeriCorps–Vancouver-Clark Parks and Recreation, Vancouver, WA,
Invasive plant species control in public parks, manage volunteers, outreach.

Publications

- DePrenger-Levin, M.**, Dawson, C., Grant III, T., Wunder, M. **2025**. Imperfect detection in plant populations can cause misestimates of demographic rates and missed population trends: the case for *Astragalus microcymbus* Barneby. *Journal of Applied Ecology* *in press*.
- Goebl, A. M., **DePrenger-Levin, M.**, Hufft, R. A., & Doak, D. F. **2025**. Optimizing demographic analysis in the face of missing data years to improve conservation of threatened species. *Biological Conservation*, 301.
- Seglias, A. E., & **DePrenger-Levin, M.** **2024**. Can alpine species take the heat? Impacts of increased temperatures on early life stages. *Seed Science Research*.

- DePrenger-Levin, M. & Wunder, M.B. 2024.** Pace and parity predict the short-term persistence of small plant populations. *Ecology and Evolution* 1-18
- Alba, C., **DePrenger-Levin, M.**, and Hufft, R.A. **2024.** Incorporation of indaziflam into natural areas management of cheatgrass and other short-lived invasive species: Post-fire assessment in a semi-arid Colorado grassland. *Natural Areas Journal* 44(1), 9-20.
- Contina, A, Yanco, S.W., Pierce, A.K., **DePrenger-Levin, M.**, Wunder, M.B., Neophytou, A.M., Lostroch, C.P., Telford, R.J., Benito, B.M., Chipperfield, J., O'Hara, R.B., Carlson, C.J. **2020.** Comment on "A global-scale ecological niche model to predict SARS-CoV-2 coronavirus infection rate", author Coro. *Ecological Modelling* 436 1-4.
- Hufft, R.A., **DePrenger-Levin, M.E.**, Levy, R.A., and Islam, M.B. **2018.** Using herbarium specimens to select indicator species for climate change monitoring. *Biodiversity and Conservation* 27(6) 1487-1501.
- Parobek, C.M., Archer, F.I., **DePrenger-Levin, M.E.**, Hoban, S.M., Liggins, L., and Strand, A.E. **2017.** SKELESIM: an extensible, general framework for population genetic simulation in R. *Molecular Ecology Resources* 17(1), 101-109.
- DePrenger-Levin, M.**, Neale, J.R., Grant III, T., Dawson, C., and Baytok, Y. **2013.** Life history and demography of *Astragalus microcymbus* Barneby (Fabaceae). *Natural Areas Journal* 33(3), 264-275.
- DePrenger-Levin, M.**, Grant III, T, and Dawson, C. **2010.** Impacts of the introduced biocontrol agent, *Rhinocyllus conicus* (Coleoptera: Curculionidae), on the seed production and populations dynamics of *Cirsium ownbeyi* (Asteraceae), a rare, native thistle. *Biological Control* 55, 79-84.
- Sher, A, Lair, K, **DePrenger-Levin, M.**, and Dohrenwend, K. **2010.** Best Management Practices for Revegetation after Tamarisk Removal in the Upper Colorado River Basin. Denver Botanic Gardens, Denver, CO.

Recent Meeting Presentations

- DePrenger-Levin, M. 2025.** Strategies for providing the best available knowledge on population trends. Contributed paper presented at *The Global Strategy for Plant Conservation - International Plant Conservation Conference*. St. Louis, MO.
- DePrenger-Levin, M. 2024.** Imperfect detection in plant populations impacts conservation actions through misestimates of vital rates and missed population trends. Contributed paper presented at *Ecological Society of America*. Long Beach, CA.
- DePrenger-Levin, M. 2023.** Pace and mode of reproduction predict short-term persistence of small populations. Contributed paper presented at *Ecological Society of America*. Portland, OR.
- DePrenger-Levin, M. 2022.** The role of life history traits in population dynamics in a changing environment. *Ecological Society of America*. Montral, Quebec, Canada.
- DePrenger-Levin, M 2021** Addressing uncertainty in extinction risk due to projection length. Contributed paper presented at *Ecological Society of America* (virtual)
- DePrenger-Levin, M 2020** Flexible seed harvest: revisiting the 10% rule. Center for Plant Conservation (virtual)
- DePrenger-Levin, M. 2019.** The impacts of spatial uncertainty in herbaria data on species distribution models. Contributed paper presented at *Ecological Society of America*, Louisville, KY
- DePrenger-Levin, M, R Hufft. 2018.** Accounting for Spatial Error in Herbarium Records for Species Distribution Models of Rare Plant Species. Contributed paper presented at *Natural Areas Conference*, Bloomington, IN
- DePrenger-Levin, M, J Neale, R Hufft. 2017.** Conservation planning for Colorado's alpine plant communities based on herbarium records: predicting community response to a changing climate. Contributed paper presented at *Natural Areas Conference*, Fort Collins, CO

DePrenger-Levin, M, R Hufft, R Levy, M Islam. 2016. Using herbarium records to assess shifts in phenology in alpine plant communities. Contributed paper presented at *Natural Areas Conference*, Davis, CA

DePrenger-Levin, M, J Neale. 2011. Methods to evaluate the risk of extinction of *Astragalus microcymbus*, a recent candidate species. Contributed paper presented at *Natural Areas Conference*, Tallahassee, FL

DePrenger-Levin, M, J Neale. 2009. PVA predicts a grim future for the skiff milkvetch (*Astragalus microcymbus*): Where can we go from here? Contributed paper presented at *Botany*, Snowbird, UT

Working groups

2020 – Present	Ecological Society of America’s Vegetation Classification Panel
2017	<i>NIMBioS Investigative Workshop</i> , Knoxville, TN Species’ range shifts in a warming world
2015	<i>NIMBioS short-term visit</i> , Knoxville, TN Completed R package, skeleSim. Enhance the accessibility of population genetic simulation frameworks using R.
2015	<i>NESCent hackathon on population genetics in R</i> Solving interoperability, scalability, and workflow challenges among population genetics R packages, Collaborative work on code, documentation, use-cases, and resources to aid population genetic communities.