## WYNDD PROJECT REPORTS – <u>BOTANY AND VEGETATION ECOLOGY</u>

## Completed reports will be available at: http://www.uwyo.edu/wyndd/reports-and-publications/

## Completed between 1 June – 1 November 2018

Beauvais, G.P., M.D. Andersen, J. Handley and K. Hubbard. 2018. Rangewide data gathering for *Spiranthes diluvialis*. Report prepared for the USDI Fish and Wildlife Service by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Handley, J. and B. Heidel. 2018. Status of *Townsendia microcephala* (Cedar Mountain Easter-daisy). Report prepared for the USDI Bureau of Land Management – Rock Springs and State Offices by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. 2018. Monitoring *Boechera pusilla* (small rockcress) in southwestern Wyoming – final monitoring report (2015-2017) and status report. Report prepared for the USDI Bureau of Land Management – Rock Springs Field Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. 2018. Monitoring *Penstemon gibbensii* (Gibbens' beardtongue) in central Wyoming – 2017. Report prepared for the USDI Bureau of Land Management – Rawlins Field Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. 2018. Population trends of *Penstemon haydenii* (Blowout penstemon) – extensive monitoring in 2015-2017 - final report. Report prepared for the USDI Bureau of Land Management - Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. 2018. Monitoring *Rubus arcticus* ssp. *acaulis* (northern blackberry), Bighorn National Forest, 2000-2017. Report prepared for the USDA Forest Service – Bighorn National Forest by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B., S.E. Cox and F.C. Blomquist. 2018. Dune habitat trends of an endangered species, *Penstemon haydenii* Wats. (blowout penstemon), in Carbon County, Wyoming. Western North American Naturalist 78(2): 119-125.

Mayer, C. 2018. Mount Rushmore National Memorial floristic inventory field report. Report prepared for the USDI National Park Service - Northern Great Plains Inventory and Monitoring Network by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Washkoviak, L., G.P. Jones and T.M. Tibbets. 2018. Wetland profile and condition assessment of the Little Snake River, Wyoming. Report prepared for the U.S. Environmental Protection Agency (Wetland Development Program) by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Washkoviak, L., T.M. Tibbets and G.P. Jones. 2018. Wetland profile and condition assessment of the Great Divide Basin, Wyoming. Report prepared for the U.S. Environmental Protection Agency (Wetland Development Program) by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

## In-progress as of 1 November 2018

Andersen, M.D. and G.P. Beauvais. 2018. Rangewide predictive distribution modeling for Ute's ladies'-tresses (*Spiranthes diluvialis*). Report prepared for the Wyoming Governor's Office and USDI Fish and Wildlife Service by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Andersen, M.D., B. Heidel, P. O'Toole, M. Arnett, D. Ratz and B. Maxell. 2018 *in preparation*. The Wyoming Field Guide: an online platform for species account information. Report prepared for the USDI Bureau of Land Management by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming

Burkhart, B. 2018 *in preparation*. Wind Cave National Park floristic inventory field report. Report prepared for the USDI National Park Service-Northern Great Plains Inventory and Monitoring Network by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Crawford, M., C. Bell and L.M. Tronstad. 2018 *in preparation*. Investigating potential effects of bloom density on attracting rare pollinating insects. Report prepared for the Wyoming NASA Undergraduate Fellowship and Wyoming Research Scholars Program by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Dority, D., L.M. Tronstad, M.E. Dillon and M.I. Dority. 2018 *in preparation*. Effects of wind turbines on insects, plants, and ecological cascades. Report prepared for the Wyoming NASA Undergraduate Research Fellowship, Wyoming EPSCoR, and National Science Foundation by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Handley, J. 2018 *in preparation*. Monitoring and survey of *Cymopterus williamsii* (Williams' springparsley), north-central Wyoming – 2017/18 report. Report prepared for USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Handley, J. 2018 *in preparation*. Monitoring of *Cymopterus williamsii* (Williams' springparsley), north-central Wyoming. Report prepared for USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Handley, J. and B. Heidel. 2018 *in preparation*. Compilation of negative survey results for rare plants surveys in Wyoming. Report prepared for USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Handley, J. and L. Tronstad. 2018 *in preparation*. Investigating the status, pollen-limitation and pollinators of *Yermo xanthocephalus* (desert yellowhead) in central Wyoming. Report prepared for USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Handley, J. and L. Tronstad. 2018 *in preparation*. Investigating the status, pollen-limitation and pollinators of *Trifolium barnebyi* (Barneby's clover) in central Wyoming. Report prepared for USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Handley, J. and L. Tronstad. 2018 *in preparation*. Investigating the status, pollen-limitation and pollinators of *Penstemon absarokensis* (Absaroka Range beardtongue) in northwest Wyoming. Report prepared for USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. 2018 *in preparation*. Fen resource inventories in the Caribou-Targhee and Bridger-Teton National Forests. Report prepared for the USDA Forest Service–Region 4 by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. 2018 *in preparation*. Recruitment of *Penstemon haydenii* (Blowout penstemon) as integral to population trend - interim report. Report prepared for the USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. 2018 *in preparation*. Flora of North America north of Mexico. Regional coordination of revisions by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. 2018 *in preparation*. Monitoring *Penstemon gibbensii* (Gibbens' beardtongue) in central Wyoming – 2018. Report prepared for USDI Bureau of Land Management–Rawlins Field Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. 2018 *in preparation*. Surveys for *Spiranthes diluvialis* (Ute lady's tresses) in unsurveyed areas of Wyoming – 2018. Report prepared for USDI Bureau of Land Management–Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. and J. Handley. 2018 *in preparation*. Threatened, Endangered and Sensitive plant species surveys in scattered BLM tracts – Albany County, Wyoming. Report prepared for the USDI Bureau of Land Management-Rawlins and State Offices by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. and J. Handley. 2018 *in preparation*. *Cryptantha subcapitata* (Owl Creek miner's candle) survey, westcentral Wyoming. Report prepared for the USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. and J. Handley. 2018 *in preparation*. *Rorippa calycina* (Persistant-sepal yellow-cress) survey, central Wyoming. Report prepared for the USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B. and J. Handley. 2018 *in preparation*. Updated Wyoming species accounts for rare plants. Report prepared for USDI Bureau of Land Management-Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B., J. Handley and D. Tuthill. 2018 *in preparation*. 31-year population trends of Colorado butterfly plant (*Oenothera coloradensis*; Onagraceae), a short-lived riparian species on F.E. Warren Air Force Base. Report prepared for the USDI Fish & Wildlife Service–Region 6 and Department of Defense-F.E. Warren Air Force Base by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Heidel, B., I. Abernethy, L. Tronstad and Z. Wallace. 2018 *in preparation*. Inventory and monitoring of sensitive species in the Oregon Buttes and Whitehorse Creek Wilderness Study Areas, Wyoming. Report prepared for the USDI Bureau of Land Management by the Wyoming Natural Diversity Database – University of Wyoming, Laramie, Wyoming.

Heidel, B., B. Burkhart, H. Marriott and J. Handley. 2018 *in preparation*. Annotated flora of Wind Cave National Park. Report prepared for the USDI National Park Service-Northern Great Plains Inventory and Monitoring Network by the Wyoming Natural Diversity Database – University of Wyoming, Laramie, Wyoming.

Heidel, B., C. Mayer, H. Marriott and J. Handley. 2018 *in preparation*. Annotated flora of Mount Rushmore National Memorial. Report prepared for the USDI National Park Service-Northern Great Plains Inventory and Monitoring Network by the Wyoming Natural Diversity Database – University of Wyoming, Laramie, Wyoming.

Heidel, B., J. Handley, M. Andersen, M. Arnett and P. O'Toole. 2018 *in preparation*. Wyoming plant species field guide: products and process. Report prepared for the USDI Bureau of Land Management–Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming

Jones, G.P. 2018 *in preparation*. Regional Lodgepole Pine community study. Report prepared for the USDA Forest Service–Rocky Mountain Region by the Wyoming Natural Diversity Database – University of Wyoming, Laramie, Wyoming.

Jones, G.P. 2018 *in preparation*. Surveys for rare plants in groundwater-dependent ecosystems in the Lava Mountain area on the Shoshone National Forest. Report prepared for the USDA Forest Service-Shoshone National Forest by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Jones, G.P., B. Heidel and K. Cary. 2018 *in preparation*. Inventory of groundwater-dependent wetlands in selected areas of the Shoshone National Forest. Report prepared for the USDA Forest Service-Shoshone National Forest by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Kosovich-Anderson, Y. I. and B. Heidel. 2018 *in preparation*. Working list of bryophytes species of concern in Wyoming. Report prepared by the Wyoming Natural Diversity Database- University of Wyoming, Laramie, Wyoming.

Laughlin, D., T. Wepprich and B. Heidel. 2018 *in preparation*. Population viability analysis of a Threatened riparian forb, *Oenothera coloradensis* (Colorado butterfly plant). Report prepared for the Department of Defense-F.E. Warren Air Force Base and for publication, by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Tekeila, D. and B. Heidel. 2018 *in preparation*. Wyoming thistle guide. Publication prepared for the Wyoming Cooperative Extension Service by the Rocky Mountain Herbarium and Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Tronstad, L., I.M. Abernethy and G. Jones. 2018 *in preparation*. Investigating how riparian vegetation affects aquatic health and animal diversity in Wyoming basins. Report prepared for the USDI Bureau of Land Management–Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.

Washkoviak, L. and T. Tibbets. 2018 *in preparation*. Developing Wyoming-specific wetland assessment methods for highly managed basins in the face of climate change. Report prepared for the U.S. Environmental Protection Agency (Wetland Development Program) by the Wyoming Natural Diversity Database- University of Wyoming, Laramie, Wyoming.