

DANIELLE BILYEU JOHNSTON

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RESEARCH INTERESTS

My research centers around finding practical ways to improve and restore wildlife habitat, and has included investigations of plant-animal interactions, invasive species control, planting techniques, and habitat treatment design.

EDUCATION

2006 Ph.D. Colorado State University, Fort Collins, Colorado. Thesis: Effects of Elk Browsing and Water Table on Willow Growth and Physiology: Implications for Willow Restoration In Yellowstone National Park. *Advisors:* N. Thompson Hobbs and David C. Cooper. This experiment continues today as a long-term study.

1999 B. A. Biology/Art Rice University, Houston, Texas *Magna Cum Laude*

EMPLOYMENT HISTORY

2018-present	Senior Wildlife Researcher	Colorado Division of Parks and Wildlife, Grand Junction, Colorado
2007-2018	Habitat Researcher	Colorado Division of Parks and Wildlife, Grand Junction, Colorado
2006-2007	Researcher	Natural Resource Ecology Laboratory, Fort Collins, Colorado
2000	Research Assistant	University of California at Berkeley, Berkeley, California

FELLOWSHIPS/ GRANTS

2013	Species Conservation Trust Fund Grant	State of Colorado	\$100,000 awarded for study: Investigating use of super-absorbent polymer to mitigate climate change during habitat restoration
2002-2005	Graduate Fellowship	National Science Foundation	3 years of graduate support
2001	First Year Full Fellowship	Colorado State University	1 year of graduate support

AWARDS

- 2007 Outstanding Contribution to Stewardship of Yellowstone National Park, Yellowstone Center for Resources
- 2007 Outstanding Graduate Student, Natural Resource Ecology Laboratory, CSU
- 1999 Julian Huxley Award for Excellence in Ecology and Evolution, Rice University

SELECTED PRESENTATIONS

Garbowski, M., C. S. Brown, and **D. B. Johnston**. Intra-specific trait variation of seedlings of restoration species commonly used in United States arid land restoration. Eighth World Conference on Ecological Restoration. Cape Town, South Africa. September 24-28, 2019.

Alward, R., A. Langton, **D. B. Johnston**, T. Minnick, and G. Koenemann. Tree canopy removal releases shrub understory in mule deer habitat: Monitoring restoration success using drones in western Colorado, USA. Eighth World Conference on Ecological Restoration. Cape Town, South Africa. September 24-28, 2019.

Johnston, D. B., I. Archer, D. Lovoi, and J. Garner. Pothole seeding for cheatgrass control in early restoration. High Altitude Revegetation/ Society for Ecological Restoration Joint Conference. Fort Collins, CO. March 14, 2019.

Johnston, D. B. , P. L. Chapman, C. S. Brown, and A. Monty. Manipulating seed dispersal to benefit native plants. National Native Seed Conference. Washington D.C. February 17, 2017.

Johnston, D. B. Field workshop: Habitat mitigation for oil and gas impacts. Colorado State University Restoration Case Studies. Silt, CO. August 17, 2016 and August 18, 2017.

Johnston, D. B. Field workshop: Rangeland restoration at Horsethief State Wildlife Area. Tamarisk Coalition 13th Annual Research and Management Conference. Fruita, CO. February 11, 2016.

Johnston D.B. Habitat restoration for mule deer: Overview. Colorado Chapter of the The Wildlife Society Annual Meeting, Fort Collins, CO. February 6, 2014.

Johnston, D. B. Restoration Seed Mixes. Preconference technical workshop, 25th Rocky Mountain Energy Summit. Denver, CO. August 2013.

Johnston, D.B. Testing strategy choices in moderate weed risk areas. High Altitude Revegetation Conference, Fort Collins, CO. March 8, 2012.

Bilyeu, D. M., Cooper, D. J., Hobbs, N. T., Cooper, D. J., and E. C. Wolf. Interacting effects of water table and herbivory on willow in Yellowstone National Park. Ecological Society of America (ESA) Annual Meeting, Montreal, Canada. August 2005.

SERVICE

Co-advisor for Ph.D. Candidate Magda Garbowski, Colorado State University, Fort Collins, 2013-present, with Cynthia S. Brown, Bioagricultural Sciences and Pest Management

Co-designer of a tractor-drawn seeding implement, the ‘pothole seeder’, which creates a roughened terrain of 50-cm relief, shown effective in my research in controlling annual plants by limiting their dispersal, 2018, with Ivan Archer, Colorado Parks and Wildlife.

Science Team Member, progressed to Science Team Leader, Colorado Sage-Grouse Habitat Exchange Working Group, 2013-2016. Organized a group of 6 Ph.D. scientists to formulate a tool for quantifying sage-grouse habitat.

Co-advisor for M.S. Student Garrett Stephens, Colorado State University, Fort Collins, 2011-2014, with Mark Paschke, Warner College of Natural Resources

Stakeholder, Additional Regulations Working Group, Colorado House Bill 1298 Rulemaking, 2008. Drafted legislation for protecting soil and vegetation following oil and gas development for HB 1298, a law stating that development of oil and gas must be balance with wildlife and wildlife habitat protection.

Graduate student representative, Graduate Degree Program in Ecology, Colorado State University, 2003-2004

Graduate student representative, Natural Resource Ecology Laboratory, Colorado State University, 2002-2003

PUBLICATIONS

Garbowski, M., **D. B. Johnston**, D. S. Baker, and C. S. Brown. *In press*. Invasive annual grass interacts with drought to influence plant communities and soil moisture in dryland restoration. *Ecosphere*.

Garbowski, M., **D. B. Johnston**, and C. S. Brown. 2021. Leaf and root traits, but not relationships among traits, vary with ontogeny in seedlings. *Plant and Soil* <https://doi.org/10.1007/s11104-020-04790-z>.

Johnston, D. B. 2020. Piceance Basin Restoration for Wildlife: Technical Publication No. 57. Colorado Parks and Wildlife, Fort Collins, CO

Peterson, R. O., R. L. Beschta, D. J. Cooper, N. T. Hobbs, **D.B. Johnston**, D. Kotter, E. J. Larsen, D. R. MacNulty, K. N. Marshall, L. E. Painter, W. J. Ripple, S. D. W., and E. C. Wolf. 2020. Indirect effects of carnivore restoration on vegetation. *In: Smith, D. and R. O. Peterson (eds.)*. *Yellowstone Wolves: Reintroduction, Ecology, Behavior, and Conservation*. University of Chicago Press.

- Garbowski, M., C. S. Brown, and **D.B. Johnston**. 2020. Soil amendment interacts with invasive grass and drought to uniquely influence aboveground versus belowground biomass in aridland restoration. *Restoration Ecology*. 28: A13- A23.
- Johnston, D.B.** and M. Garbowski. 2020. Responses of native plants and downy brome to a water-conserving soil amendment. *Rangeland Ecology & Management* 73:19-29.
- Johnston, D.B.** 2019. Rough soil surface lessens annual grass invasion in disturbed rangeland. *Rangeland Ecology & Management* 72:292-300.
- Decker, K., A. Pocewicz, S. Harju, M. Holloran, M. Fink, T. Toombs, and **D.B. Johnston**. 2017. Landscape disturbance models consistently explain variation in ecological integrity across large landscapes. *Ecosphere*.
- Stephens G. J., **Johnston D.B.**, Jonas, J.L., and M.W. Paschke. 2016. Understory responses to mechanical treatment of pinyon-juniper in northwest Colorado. *Rangeland Ecology & Management* 69:351-359.
- Johnston D.B.** 2015. Downy brome (*Bromus tectorum*) control for pipeline restoration. *Invasive Plant Science and Management* 8:181-192.
- Johnston D.B.** and P.L. Chapman. 2014. Rough surface and high-forb seed mix promote ecological restoration of simulated well pads. *Invasive Plant Science and Management* 7:408-424.
- Monty, A., Brown, C.S., and **D.B. Johnston**. 2012. Fire promotes downy brome (*Bromus tectorum* L.) seed dispersal. *Biological Invasions* 15:1113-1123.
- Johnston D.B.** 2011. Movement of weed seeds in reclamation areas. *Restoration Ecology* 19:446-449.
- Johnston D.B.**, Cooper D.J. and N.T. Hobbs. 2011. Relationships between groundwater use, water table, and recovery of willow on Yellowstone's northern range. *Ecosphere* 2(2):art20: doi:10.1890/ES10-00150.1
- Bilyeu D.M.**, Cooper D.J. and N.T. Hobbs. 2008. Water tables constrain height recovery of willow on Yellowstone's Northern Range. *Ecological Applications* 18: 80-92
- Johnston D.B.**, Cooper DJ and N.T. Hobbs. 2007. Elk browsing increases aboveground growth of water-stressed willows by modifying plant architecture. *Oecologia* 154: 467-478
- Bilyeu D.M.**, Cooper DJ and N.T. Hobbs. 2007. Assessing impacts of large herbivores on shrubs: tests of scaling factors for utilization rates from shoot-level measurements. *Journal of Applied Ecology* 44: 168-175

PROFESSIONAL AFFILIATIONS

The Wildlife Society

Society for Range Management

SKILLS/INTERESTS

Foraging, botany, hiking, mountain biking, sustainable agriculture