

Tyler J. Brummer
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Education

- BS Montana State University, Land Rehabilitation 2009
(Focus in Revegetation, Minor: Soil Science); Highest Honors; GPA: 3.94
- MS Montana State University, Land Resources and Environmental Sciences; 2012
Thesis: *Non-native species distributions in space and time: integrating ecological theory and predictive modeling*; GPA: 4.0

Professional Experience

Research Technician, Montana State University 2012-present

- Assisted in field research – organize logistics and provide expertise in plant identification and sampling to research projects for Dr. Lisa Rew.
- Analyzed data and prepared reports for the Fish and Wildlife Service. Species distribution models were constructed and interpreted, with associated management recommendations based on data.
- Applied for and received \$10,000 grant continuation. Prepared work plans and budgets.

Graduate Research Assistant, Montana State University 2009-2012

- Fully funded Master of Science research position.
- Collected data using Trimble GeoXT GPS units
- Managed large datasets in R and ArcGIS.
- Used hierarchical site occupancy models and metapopulation dynamics models in R.
- Built spatially and temporally explicit metapopulation dynamics simulation models in R.
- Analyzed plant dispersal data using non-linear regression; co-authored manuscript
- Collaborated with Department of Energy contractors in research at the Idaho National Laboratories. Results informed a conservation management plan.
- Collaborated with graduate students, research faculty and faculty on a diversity of spatial and non-spatial modeling problems.
- Managed four employees per year. Organized all logistics including travel, lodging, and training each summer (total of 4 field seasons).
- Presented results of research at regional weed control association meetings to inform better management practices.

Teaching Assistant, Montana State University 2010

Introduction to Land Resources (LRES 110)

- Organized and co-lead field trips, tutored students on coursework; graded assignments.

Research Assistant, Montana State University 2006-2009

Weed Ecology Laboratory--Dr. Lisa Rew

- Managed multiple field experiments. Coordinated with the Department of Defense to study the transport of invasive species on military vehicles. Traveled to California multiple times to carry out field experiments associated with seed transport studies.
- Analyzed data and co-wrote two grant proposals (Awarded \$18,000 from the Montana Noxious Weed Trust Fund).
- Presented research at regional and national meetings – including the Montana Weed Control Association, Invasive Species in Natural Areas Conference, and the International Weed

Science Society Meeting.

- Authored and coauthored annual and final reports.

Teaching Assistant, Montana State University 2008
Weed Ecology (LRES 443)

- Organized greenhouse demonstration experiments and aided students in laboratory and homework assignments.

Teaching Assistant, Montana State University 2008-2011
Plant Sciences, Resources, Environment (PSPP 102)

- Graded writing assignments throughout the academic term.

Research Assistant, Colorado State University 2003-2006
Rangeland Ecology--Dr. Joe Brummer

- Collected field data on Sage-grouse habitat structure and analyzed laboratory samples.

Relevant Coursework

- Seed Plant ID, Soil Remediation, Habitat Inventory, Agrostology, GIS, Ecology
- Weed Ecology and Management, Restoration Ecology
- Conservation Genetics, General Ecology, Agroecology, Plant Physiological Ecology
- Occupancy Modeling Seminar (Visiting Instructor: Dr. Subhash Lele)
- Methods in Data Analysis 1 and 2 (Covered ANOVA through Generalized Regression)
- Categorical Data Analysis (In depth study of Generalized Regression and Mixed Models)

Scholarships and Educational Grants

Mildred Livingstone Grant

Western Undergraduate Exchange Scholarship

John McFarlane Scholarship

Land Resource Stewardship Scholarship

Marty Turley Scholarship

Weed Science Society of America Undergraduate Research Grant

Awards

Outstanding Senior Award: Land Resources and Environmental Sciences Department

University Activities

2010 – 2011 Graduate Student Organisation – Mentoring Chair

2006 – 2008 President & Member – Environmental Resources Club

Conference Abstracts

Brummer T., Maxwell B.D., and Rew L.J. (2010) Using plant survey data: Detection accuracy and implications for habitat modeling. *2nd Conference on Invasive Species in Natural Areas*, October 25-29, 2010, Coeur D'Alene, ID.

Brummer, T., Maxwell B., Keith B., and Rew, L. “Are invasions episodic? Empirical results from populations of *Linaria dalmatica*.” Weed Science Society of America Annual Meeting, Sheraton Hotel, Denver, CO, February 9, 2010. Poster Presentation.

Rew, L.J., **Brummer, T.**, and Pollnac, F.W. (2010) “Vehicles as Vectors of Seed Dispersal.” Montana Weed Control Association Annual Meeting, Hilton Hotel, Missoula, MT, January 13, 2010.

Brummer T., Maxwell B.D., and Rew L.J. (2008) Characterizing invasion of *Linaria dalmatica* at the population and metapopulation scale. *5th International Weed Science Congress, Vancouver, Canada*. 20-25 June, 2008. p 36. Poster Presentation.

Brummer, T. and Rew L.J. (2008) Determining the pattern of spread within a population of *Linaria dalmatica*. *Invasive Species in Natural Areas Conference, Missoula, Montana*. 13-14 Feb, 2008.

Research Grants

Keith, B., Rew, L.J., Dyer, W. and **Brummer, T.** Understanding invasion dynamics – case study for Dalmatian toadflax. Montana Noxious Weed Trust Fund. 2009. \$18,571.

Brummer, T., Rew, L.J. Surveying, Monitoring and Predicting the Occurrence and Spread of Native and Non-Native Plant Species at Idaho National Laboratory Site – Supplemental Funding. United States Department of Energy. 2012. \$10,000.

Peer Reviewed Publications

Taylor, K., **Brummer, T.**, Taper, M., Wing, Alexandre, and Rew, L.J. (2012) Human mediated long distance dispersal: an empirical evaluation of seed dispersal by vehicles. Diversity and Distributions. Online July 15 2012.

Lavin, M., **Brummer, T.**, Seipel, T., Maxwell, B., Rew, L.J. (in Press) The Intermountain Flora sets the stage for a community phylogenetic analysis of plant biodiversity in the sagebrush steppe of western North America. Brittonia.

Publications in Review or Preparation

Brummer, T., Maxwell, B., Higgs, M., Rew, L.J. (in review) Role of ecological factors in local scale invasive species distribution models and management. Diversity and Distributions.

Brummer, T., Maxwell, B., Lele, S., Rew, L.J. (in review) Detection error in plant surveys: to correct or not to correct? Methods in Ecology and Evolution.

Brummer, T., Maxwell, B., Rew, L.J. (in prep) Regional dynamics of non-native plant species: metapopulations?

Extension Publication

Taylor, K., Pollnac, F., **Brummer, T.**, Mangold, J. and Rew, L.J. (2011) Washing vehicles to prevent weed seed dispersal. MontGuide MT201106AG Montana State University.

Academic References

Dr. Lisa Rew. MSc Advisor. Assistant Professor of Non-Native Plant Ecology. Montana State University. Phone: (406) 994-7966. Email: lrew@montana.edu.

Dr. Bruce Maxwell. MSc Committee Member. Professor of Applied Plant Ecology. Montana State University. Phone: (406) 994-5717. Email: bmax@montana.edu.