

CURRICULUM VITAE

DEAN E. PEARSON

EDUCATION:

University of Montana	Organismal Biology and Ecology	Ph.D. May 2005
University of Montana	Zoology	M.A.S. May 1995
University of Montana	Wildlife Biology	B.S. March 1992

RESEARCH INTERESTS:

My primary interest lies in integrating community and invasion ecology to advance these fields of research and improve invasives management. Ecological theory is founded on traditional manipulation experiments, where we attempt to understand processes of community assembly by removing individual system components and examining the outcome. However, even relatively recent species assemblages in the northern United States represent collections of organisms that have had roughly 11,000 years to interact and assemble themselves. Thus, simple manipulation experiments can be misleading. Biological invasions represent massive natural experiments whereby a completely novel organism enters into a new system and either fails to establish, establishes with little effect or establishes and completely disrupts the recipient community and forces it to reassemble. Thus, biological invasions provide acid tests for ecological theory by illustrating processes of community assembly and disassembly before our eyes. Such experiments provide unique research opportunities to simultaneously advance ecological theory and improve invasive species management.

EMPLOYMENT/PROFESSIONAL HISTORY:

Research Ecologist, USDA Forest Service, Rocky Mountain Research Station, June 2005 to present.

Faculty Affiliate, University of Montana, Missoula, MT, September 2005 to present.

Wildlife Biologist, USDA Forest Service, Rocky Mountain Research Station, September 1995 to June 2005.

Research Assistant, University of Montana, September 1994 to September 1995.

Private Contractor, USDA Forest Service, Rocky Mountain Research Station, 1995.

Biological Technician, Glacier National Park, 1991 to 1994.

Teaching Assistant, University of Montana, 1991 to 1993.

Biological Technician, Conservation Biology Project, UCLA, stationed in Baja Mexico, Sept. to Dec. 1990.

GIS Technician, Glacier National Park, June to September 1990.

Biological Technician, Wolf Ecology Project, University of Montana, 1988 to 1989.

PUBLICATIONS

Zwolak, R., D.E. Pearson, Y.K. Ortega, E.E. Crone. In press. Fire and mice: seed predation moderates fire's influence on conifer recruitment. *Ecology*

Bricker, M., D.E. Pearson, and J.M. Maron. In press. Small mammal seed predation limits the recruitment and abundance of two perennial grassland forbs. *Ecology*

Pearson, D. E. 2009. Biological invasions on oceanic islands: implications for island ecosystems and avifauna. Pages 3-14 in Proceedings of the 3rd International Symposium on Migratory Birds. Seabirds in Danger: Invasive Species and Conservation of Island Ecosystems. Keynote Address, 25 September 2009, Mokpo, Korea.

Crone, E.E., M. Marler, D.E. Pearson. 2009. Non-target effects of broadleaf herbicide on a native perennial forb: a demographic framework for assessing and minimizing impacts. *Journal of Applied Ecology* 46:673-682.

Pearson, D. E. and Y. K. Ortega. 2009. Managing invasive plants in natural areas: moving beyond weed control, pp 1-21, in (ed.) R.V. Kingley, *Weeds: Management, Economic Impacts and Biology*. Nova Publishers, NY

- Pearson, D. E. 2009. Invasive plant architecture alters trophic interactions by changing predator abundance and behavior. *Oecologia* 159:549-558.
- Pearson, D. E. and R. M. Callaway. 2008. Weed biocontrol insects reduce native plant recruitment through second-order apparent competition. *Ecological Applications* 18:1489-1500.
- Pearson, D. E. and R. J. Fletcher, Jr. 2008. Mitigating exotic impacts: restoring native deer mouse populations elevated by an exotic food subsidy. *Ecological Applications* 18 (2):321-334.
- Sturdevant, N., Kegley, S., Ortega, Y., and D. Pearson. 2006. Evaluation of establishment of *Cyphocleonus achates* and its potential impact on spotted knapweed. *USDA FS FHP General Technical Report 06-08:1-9*.
- Shick, K. R., D. E. Pearson, and L. F. Ruggiero. 2006. Forest habitat associations of the golden-mantled ground squirrel: implications for fuels management. *Northwest Science* 80:133-139.
- Pearson, D. E. and R. M. Callaway. 2006. Biological control agents elevate hantavirus by subsidizing mice. *Ecology Letters* 9:442-449.
- Pearson, D. E., and R. M. Callaway. 2005. Indirect nontarget effects of host-specific biological control agents: implications for biological control. *Biological Control* 35:288-298.
- Ortega, Y. K., and D. E. Pearson. 2005. Strong versus weak invaders of natural plant communities: distinguishing invasibility from impact. *Ecological Applications* 15:651-661.
- Pearson, D.E. 2005. Biological control is more than just natural enemies. Review of Natural Enemies: an Introduction to Biological Control. *Trends in Ecology and Evolution* 20: 10-11.
- Pearson, D. E. and R. M. Callaway. 2004. Response to Thomas et al.: biocontrol and indirect effects. *Trends in Ecology and Evolution* 19:62-63.
- Ortega, Y. K., D. E. Pearson, and K. S. McKelvey. 2004. Effects of introduced biological control agents and exotic plant invasion on native deer mouse populations. *Ecological Applications* 14:241-253.
- Pearson, D. E. and R. M. Callaway. 2003. Indirect effects of host-specific biological control agents. *Trends in Ecology and Evolution* 18(9):456-461.
- Pearson, D. E., Y., K. Ortega, and L. F. Ruggiero. 2003. Trap-induced mass declines in small mammals and the implications for body mass as a negatively biased index. *Journal of Wildlife Management* 67(4):684-691.
- Pearson, D. E., and L. F. Ruggiero. 2003. Transect versus grid trapping arrangements for sampling small mammal communities. *Wildlife Society Bulletin* 31(2): 454-459.
- McKelvey, K. S., and D. E. Pearson. 2001. Population estimation with sparse data: the role of indices versus estimators revisited. *Canadian Journal of Zoology* 79(10):1754-1765.
- Ortega, Y. K., and D. E. Pearson. 2001. Occurrences of the western skink (*Eumeces skiltonianus*) in grasslands of western Montana. *Northwestern Naturalist* 82:125-125.
- Pearson, D. E., and Y. K. Ortega. 2001. An indirect dispersal pathway for spotted knapweed seeds via deer mice and great-horned owls. *Canadian Field-Naturalist* 115(2):354.
- Pearson, D. E., Y. K. Ortega, K. S. McKelvey, and L. F. Ruggiero. 2001. Small mammal communities and habitat selection in Northern Rocky Mountain bunchgrass: implications for exotic plant invasions. *Northwest Science* 75(2):107-117.
- Pearson, D. E., and L. F. Ruggiero. 2001. Test of a prey-base hypothesis for American marten use of red squirrel middens. *Canadian Journal of Zoology* 79(8):1372-1379.
- Pearson, D. E. 2000. Evidence of red-squirrel fall breeding in western Montana. *Canadian Field-Naturalist* 114(4):703-704.
- Pearson, D. E., K. S. McKelvey, and L. F. Ruggiero. 2000. Non-target effects of an introduced biological control agent on deer mouse ecology. *Oecologia* 122(1):121-128.

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- Buskirk, S. W., L. F. Ruggiero, K. B. Aubry, D. E. Pearson, J. Squires, and K. S. McKelvey. 1999. Comparative ecology of lynx in North America. Pp. 397-417 In L.F. Ruggiero, K.B. Aubry, S.W. Buskirk, G.M. Koehler, C.J. Krebs, K.S. McKelvey, and J.R. Squires (eds.) Ecology and conservation of lynx in the United States. University Press of Colorado, Colorado, USA.
- Pearson, D. E. 1999. Deer mouse predation on the biological control agent, *Urophora* spp., introduced to control spotted knapweed. *Northwestern Naturalist* 80(1): 26-29.
- Pearson, D. E. 1999. Small mammals of the Bitterroot National Forest: a literature review and annotated bibliography. USDA Forest Service, General Technical Report RMRS-GTR-25.
- Foresman, K. R., and D. E. Pearson. 1999. Activity patterns of American martens, fishers, snowshoe hares, and red squirrels in westcentral Montana. *Canadian Field-Naturalist* 113(3):1-4.
- Foresman, K. R., and D. E. Pearson. 1998. Comparison of proposed survey procedures for detection of forest carnivores. *Journal of Wildlife Management* 62(3):1217-1226.
- Ruggiero, L. F., D. E. Pearson, S. E. Henry. 1998. Characteristics of American marten den sites in Wyoming. *Journal of Wildlife Management* 62(2):663-673.

GRANTS

- NSF, DEB-0915409, \$585,000. Indirect effects of apex predators in a grassland ecosystem. John M. Maron and D. E. Pearson. Awarded September 2009.
- USDA FS, Rocky Mountain Research Station's FY08 Rangeland Research Competitive Proposals. \$27,900.00. Long-term efficacy of broadleaf herbicide treatments for restoration of weed-invaded rangelands. Pearson, D. E., Y. K. Ortega, R. M. Callaway. 2008. Awarded June 2008.
- USDA FS, Rocky Mountain Research Station Cross-Program Award, \$60,000. Native seed mixes for improving invasives management and reducing new invasions following fuels treatments. D. Pearson, R. Callaway, S. Sutherland, M. Harrington, and J. Butler. Awarded July 2007.
- USDA FS, Rocky Mountain Research Station Cross-Program Award, \$63,000. Prediction, detection, and monitoring of invasive species in forests, rangeland, and aquatic ecosystems: A synthesis of RMRS research for marketing, education, and outreach. J. Butler, M. Kim, D. Pearson, S. Sutherland, D. Finch, M. Young, G. Markin, N. Klopfenstein, A. Hudak, B. Richardson, P. Zambino. Awarded July 2007.
- USDA FS, Native Plant Materials Project, \$50,893. Using weed-resistant native seed mixes to restore burned areas: a collaboration between Forest Service Research, University of Montana, and Native Yards. S. Sutherland, R. Callaway, and D. Pearson. Awarded March 2007.
- USDA, NRI - National Research Initiative and Integrated Programs in Ecological Systems, CSREES-2005-35101-16040, \$300,000.00. Assessing indirect effects of top predators on diversity, productivity, and health of grassland ecosystems. J. Maron and D. E. Pearson. Awarded August 2005
- USDI-USDA Joint Fire Sciences Program, \$162,000. Evaluating effects of fuels treatments on native flora and fauna: restoration in weed-invaded landscapes of the Northern Rocky Mountains. Y. K. Ortega, D. E. Pearson, and D. L. Six. Awarded June 2003.
- NSF, DEB-0236061, \$294,267. Nontarget effects of host-specific biocontrols: direct and indirect effects of biocontrols that subsidize native consumers. R. M. Callaway and D. E. Pearson. Awarded December 2002.
- USDI National Park Service, Inventory and Monitoring Award, \$27,000. Small mammal surveys of Little Bighorn National Monument and Grant-Kohrs Ranch National Historic Site. D. E. Pearson and L. F. Ruggiero. Awarded April 2002.
- NSF SGER-010889, \$22,000. Do Gall Fly-induced Increases in Deer Mouse Populations increase the Prevalence of Hantavirus? R. M. Callaway and D. E. Pearson. Awarded May 2001.

AWARDS

- Presidential Early Career Award for Science and Engineering (PECASE). July 2009. "Selection for this award is based on the combination of innovative research at the frontiers of science and technology and community service demonstrated through scientific leadership and community outreach."
- Deputy Chief's Early Career Scientist Award. Received 25 March 2009 in Washington D.C. This honor was awarded in recognition of significant contributions to the fields of biological control, invasive species ecology, and wildlife biology.
- Best Scientific Publication Award, USDA Forest Service, Rocky Mountain Research Station, Feb 2009, for the publication: Ortega, Y.K and D. E. Pearson. 2005. Strong versus weak invaders of natural plant communities: distinguishing invasibility from impact. *Ecological Applications* 15:651-661.
- Best Scientific Publication Award, USDA Forest Service, Rocky Mountain Research Station, October 2007, for the publication: Pearson, D. E. and R. M. Callaway. 2006. Biological control agents elevate hantavirus by subsidizing mice. *Ecology Letters* 9:442-449.
- Merit Award, USDA Forest Service, Rocky Mountain Research Station, October 2007, for leaderships of the Invasive Species /Disease Research Team in the Wildlife and Terrestrial Ecosystems Program.
- Merit Award, USDA Forest Service, Rocky Mountain Research Station, August 2007, for role as team leader on the Invasive Species Ecology and Community Dynamics Team and for contributions toward changing paradigms in the field of biological control.
- Merit Award, USDA Forest Service, Rocky Mountain Research Station, March 2006, "for your role on the RMRS Invasives Meeting Team in planning and conducting a workshop to share information, identify needs, and complete a white paper."
- Early Career Scientist Publication Award, USDA Forest Service, Rocky Mountain Research Station, March 2005, for the publication: Ortega, Y. K., D. E. Pearson, and K. S. McKelvey. 2004. Effects of introduced biological control agents and exotic plant invasion on native deer mouse populations. *Ecological Applications* 14:241-253.
- Early Career Scientist Publication Award, USDA Forest Service, Rocky Mountain Research Station, March 2001, for the publication: Pearson, D. E., K. S. McKelvey, and L. F. Ruggiero. 2000. Non-target effects of an introduced biological control agent on deer mouse ecology. *Oecologia* 122(1):121-128.

SELECTED PRESENTATIONS

- Pearson, D. E. 2009. Biological invasions on oceanic islands: implications for island ecosystems and avifauna. *Invited Keynote Address*, Proceedings of the 3rd International Symposium on Migratory Birds. Seabirds in Danger: Invasive Species and Conservation of Island Ecosystems. 25 September 2009, Mokpo, Korea.
- Pearson, D. E. and Y. K. Ortega. 2009. Climate change and exotic weeds: what should we expect? *Invited presentation* for the United States Fish and Wildlife Service Integrated Pest Management and Invasives Species Coordinating Meeting, 16 July 2009, Great Falls MT.
- Pearson, D. E. 2009. Biological invasions and avian species: impacts, implications for native communities and management. *Invited opening presentation* for the Special Symposium - Biological invasions: consequences for native birds in a changing world. 79th Annual Meeting of the Cooper Ornithological Society. April 17 2009, Tucson AZ.
- Pearson, D. E. and Y. K. Ortega. 2008. A heuristic model for guiding research on the ecology and management of invasive species. *Invited presentation* Invasive Species in Natural Areas Conference, February 13-14th, Hilton Garden Inn, Missoula, MT.
- Pearson, D. E. and Y. K. Ortega. 2008. Ecology and management of invasive species. *Invited presentation*, Montana Weed Control Association, Annual Meeting, January 16th Greatfalls, MT.

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- Pearson, D. E. 2007. Indirect nontarget effects of spotted knapweed biological control agents due to food-web interactions. *Invited Presentation* Symposium on Biocontrol of *Centaurea* at the 55th Annual Meeting of the Entomological Society of America, 9-11 Dec. 2007, San Diego, CA.
- Pearson, D. E., R. M. Callaway, Y. K. Ortega. 2006. Ecological challenges of weed management in natural systems. *Invited presentation* for Weeds and their Management: A Problem for Wildlife? Special Symposium at the Montana Chapter of the Wildlife Society 2006 Annual Meeting, Helena, Montana 21-22 February 2006.
- Pearson, D. E., and R. M. Callaway. 2005. Nontarget effects of host-specific biological control agents. *Invited Presentation*, Montana Weed Control Association Annual Conference, 25 January 2005, Helena, MT, USA.
- Pearson, D. E., Y. K. Ortega, R. M. Callaway, and K. S. McKelvey. 2004. Indirect effects of host-specific biological control agents. 89th Annual meeting of the Ecological Society of America, Portland, OR, USA.
- Pearson, D. E. and R. M. Callaway. 2004. Nontarget effects of host-specific biological control agents. *Invited Presentation* 4th International Symposium on Science and Decision Making in the Biological Control of Weeds. Denver, CO, USA.
- Pearson, D.E., Y. K. Ortega, K. S. McKelvey, R. M. Callaway, L. F. Ruggiero. 2003. From spotted knapweed to hantavirus: and ecological tail. *Invited Presentation* for Centers for Disease Control and Prevention Hantavirus Conference, August, 2003. Cascade, MT, USA.
- Pearson, D.E., K.S. McKelvey, L.F. Ruggiero, and Y.K. Ortega. 2001. Nontarget effects of an introduced biological control agent on deer mouse ecology. 81st Annual Meeting, American Society of Mammalogists, 19 June 2001, University of Montana, Missoula, Montana.
- Pearson, D. E., Y. K. Ortega, K. S. McKelvey, and L. F. Ruggiero. 2001. Direct and indirect effects of well-behaved biological control agents on nontarget species – a case study: spotted knapweed, gall flies, and deer mice. International Knapweed Symposium, March 15-16, Coeur d'Alene, Idaho.
- Pearson, D. E., McKelvey, and L. F. Ruggiero. 2000. Nontarget effects of a “well-behaved” biological control agents: implication for conservation of native communities susceptible to exotic plant invasion. Society for Conservation Biology, 14th Annual Meeting. University of Montana, Missoula, Montana. 10-12 June 2000.
- Pearson, D.E., and L.F. Ruggiero. 1999. Understanding the relationship between species detection and species abundance: probability of detection as an index for monitoring vertebrate populations. Professional paper presented at the International Monitoring Symposium, Snowbird, Utah. 18-22 October 1999.