

Jacob R. Goheen

Departments of Zoology & Physiology and Botany
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Research Interests:

Community, conservation, and population ecology; impacts of anthropogenic disturbance on wildlife; herbivory, plant defense, and animal-plant interactions; community assembly and null models; ecology, conservation, and natural history of mammals; ecology, conservation, and natural history of savanna ecosystems.

Professional Employment and Education:

Assistant Professor 2010-present, Departments of Zoology/Physiology and Botany, University of Wyoming.
Assistant Professor 2007-2010, Department of Zoology, University of British Columbia.
Postdoctoral Assistant, 2006-2007, University of Florida.
PhD in Biology, 2006, University of New Mexico.
MSc in Wildlife Science, 2002, Purdue University.
BSc in Wildlife Biology, 1998, Kansas State University.

Professional Experience:

2002-2006 Independent Researcher and Research Fellow; Univ. New Mexico, Albuquerque, NM and Mpala Research Centre, Laikipia District, Kenya.
1999-2001 Graduate Assistant; Dept. Forestry and Natural Resources, Purdue Univ., West Lafayette, IN.
1999 Research Technician; Bureau of Land Management, Cedar City, UT.
1998 Research Experience for Undergraduates Program Participant; Institute of Ecosystem Studies, Millbrook, NY.
1997-1998 Independent Researcher; Div. Biology, Kansas State Univ., Manhattan, KS.
1997-1998 Research Technician; Kansas Cooperative Fish and Wildlife Research Unit and Div. Biology, KSU, Manhattan, Kansas State Univ, Manhattan, KS.

Peer-Reviewed Publications:

In Press **Goheen, J.R.** and T.M. Palmer. Defensive plant-ants stabilize megaherbivore-driven landscape change in an African savanna. *Current Biology. Equal author contributions.*
2010 **Goheen, J.R.**, T.M. Palmer, F. Keesing, C. Riginos, and T.P. Young. Large herbivores facilitate savanna tree establishment through diverse and indirect pathways. *Journal of Animal Ecology* 79:372-382. *Featured in textbook Ecology: A Canadian Context by Freedman et al.*
2010 Thibault, K.M., S.K.M. Ernest, E.P. White, J.H. Brown, and **J.R. Goheen**. Long-term insights into consumer-resource dynamics in desert rodents: effects of community composition across guilds. *Journal of Mammalogy* 91:787-797.
2009 Drever, M.C., **J.R. Goheen**, and K. Martin. Species-energy theory, pulsed resources, and the regulation of species richness: avian community dynamics during a mountain pine beetle outbreak. *Ecology* 90:1095-1105.

- 2008 Ernest, S.K.M, J.H. Brown, K.M. Thibault, E.P. White, and **J.R. Goheen**. Zero-sum, the niche, and metacommunities: long-term dynamics of community assembly. *American Naturalist* 172:E257-E269.
- 2008 Palmer, T.M., M.L. Stanton, T.P. Young, **J.R. Goheen**, R.M. Pringle, and R. Karban. Putting ant-acacia mutualisms to the fire. *Science* 319:1759-1761.
- 2008 Palmer, T.M., M.L. Stanton, T.P. Young, **J.R. Goheen**, R.M. Pringle, and R. Karban. Breakdown of an ant-plant mutualism follows the loss of large herbivores from an African savanna. *Science* 319:192-195. *International coverage by BBC, CBC, CNN, MSNBC, New York Times, Scientific American, U.S. NPR, U.S.A. Today, and others. Recommended Must Read by Faculty of 1000.*
- 2007 **Goheen, J.R.**, T.P. Young, F. Keesing, and T.M. Palmer. Consequences of herbivory by native ungulates for the reproduction of a savanna tree. *Journal of Ecology* 95:129-138.
- 2007 Lusk, J.J., R.K. Swihart, and **J.R. Goheen**. Correlates of interspecific synchrony and interannual variation in seed production by deciduous trees. *Forest Ecology and Management* 242:656-670.
- 2007 Poe, S., **J.R. Goheen**, and E.P. Hulebak. Convergent exaptation and adaptation in solitary island lizards. *Proceedings of the Royal Society Series B* 274:2231-2237.
- 2007 Swihart, R.K., **J.R. Goheen**, S.A. Schnellker, and C.E. Rizkalla. Testing the generality of patch and landscape-level predictors of tree squirrel occurrence at a regional scale. *Journal of Mammalogy* 88:564-572.
- 2006 **Goheen, J.R.**, E.P. White, S.K.M. Ernest, and J.H. Brown. Intra-guild compensation regulates species richness in desert rodents: Response. *Ecology* 86:22-28.
- 2005 **Goheen, J.R.** and R.K. Swihart. Resource selection and predation of North American red squirrels in deciduous forest fragments. *Journal of Mammalogy* 86:22-28.
- 2005 **Goheen, J.R.**, E.P. White, S.K.M. Ernest, and J.H. Brown. Intra-guild compensation regulates species richness in desert rodents. *Ecology* 86:567-573.
- 2004 **Goheen, J.R.**, F. Keesing, B.F. Allan, D. Ogada, and R.S. Ostfeld. Net effects of large mammals on *Acacia* seedling survival in an African savanna. *Ecology* 85:1555-1561.
- 2003 **Goheen, J.R.**, G.A. Kaufman, and D.W. Kaufman. Effect of body size on reproductive characteristics of the northern grasshopper mouse in north-central Kansas. *Southwestern Naturalist* 48:427-431.
- 2003 **Goheen, J.R.** and R.K. Swihart. Food-hoarding behavior of gray squirrels and North American red squirrels in the central hardwoods: implications for forest regeneration. *Canadian Journal of Zoology* 81:1636-1639. *International coverage by BBC, CNN, MSNBC, The Christian Science Monitor, U.S. NPR, Reuters, and others.*
- 2003 **Goheen, J.R.**, R.K. Swihart, T.M. Gehring, and M.S. Miller. Forces structuring tree squirrel communities in fragmented landscapes: species differences in forest connectivity and carrying capacity. *Oikos* 102:95-103.
- 2003 **Goheen, J.R.**, R.K. Swihart, and J.H. Robins. The anatomy of a range expansion: changes in cranial morphology and rates of energy extraction for North American red squirrels from different latitudes. *Oikos* 102:33-44.
- 2003 DeWoody, Y.D., R.K. Swihart, B.A. Craig, and **J.R. Goheen**. Diversity and stability in communities structured by asymmetric resource allocation. *American Naturalist* 162:514-527.
- 2003 Swihart, R.K., T.C. Atwood, **J.R. Goheen**, D. Scheiman, K. Munroe, and T.M. Gehring. Patch occupancy of North American mammals: is patchiness in the eye of the beholder? *Journal of Biogeography* 30:1259-1279.

- 2002 **Goheen, J.R.**, G.A. Kaufman, and D.W. Kaufman. Patterns of reproduction for western harvest mice in north-central Kansas. *Prairie Naturalist* 34:107-113.
- 2001 Post, D.M., T.S. Armbrust, E.A. Horne, and **J.R. Goheen**. Sexual segregation results in differences in content and quality of bison (*Bos bison*) diets. *Journal of Mammalogy* 82:407-413.
- 2001 Schmidt, K.A., **J.R. Goheen**, and R. Naumann. Incidental nest predation in songbirds: behavioral indicators detect ecological scales and processes. *Ecology* 82:2937-2947.
- 2001 Schmidt, K.A., **J.R. Goheen**, R. Naumann, R.S. Ostfeld, E.M. Schaubert, and A.K. Berkowitz. Experimental removal of strong and weak predators: mice and chipmunks preying on songbird nests. *Ecology* 82:2927-2936.

Book Chapters, Research Reports, and Popular Press:

- In Press Augustine, D.J., T.P. Young, K.E. Veblen, **J.R. Goheen**, and C. Riginos. Pathways for positive cattle-wildlife interactions in semi-arid rangelands. In *Conserving Wildlife in African Landscapes: Kenya's Ewaso Ecosystem*.
- In Press Pringle, R.M., T.M. Palmer, **J.R. Goheen**, D.J. McCauley, and F. Keesing. Ecological importance of large herbivores in the Ewaso ecosystem. In *Conserving Wildlife in African Landscapes: Kenya's Ewaso Ecosystem*.
- 2009 **Goheen, J.R.**, R.M. Pringle, and T.M. Palmer. Predicting the impacts of drought and extinction: the UHURU experiment. Mpala Research Centre Newsletter.
- 2009 **Goheen, J.R.** and T.M. Palmer. Of megaherbivores and mutualists: how ants can protect against tree encroachment in the absence of elephants. Laikipia Wildlife Forum Newsletter.
- 2005 Young, T.P. and **J.R. Goheen**. Whistling-thorn recruitment is affected in unexpected ways by large mammals. Laikipia Wildlife Forum Newsletter.
- 2003 **Goheen, J.R.** The effects of rodent density and foraging behavior upon nest success of ground-nesting songbirds. Undergraduate Research Reports Number 16, 1998 and 1999. Institute of Ecosystem Studies.
- 2003 Abades, S., K. Aso, **J.R. Goheen**, M.D. McDonnell, and T.D. Meehan. An agent-based model for predicting invasibility of ecological communities. Student Research Papers, Proceedings of the Santa Fe Institute's Complex Systems Summer School.
- 1999 **Goheen, J.R.** Population estimation of Utah prairie dogs in the Sevier River Preserve. Research report for the Utah Chapter of The Nature Conservancy.
- 1998 **Goheen, J.R.**, J.W. Rivers, and J. Brunson. The Conservation and Reinvestment Act and natural resource professionals: an example of the starving man syndrome. *Wildlife Society Bulletin* 26:649-650.

Grants and Fellowships:

- 2010 "Ecological interactions between wild and domestic ungulates in East African arid ecosystems: a case study of the endangered hirola antelope." Denver Zoological Foundation.
- 2009 "Competition between wild and domestic ungulates in East African rangelands". Rufford Grant for Nature Conservation. Co-PI with A. Hussein and S. Andanje.
- 2009 "Ecological interactions between wild and domestic ungulates in arid ecosystems: a case study of the endangered hirola antelope in northeastern Kenya." Mohamed bin Zayed Species Conservation Fund. Co-PI with A. Hussein and S. Andanje.
- 2009 "Livestock production, predator-prey dynamics, and wildlife management in human-occupied savannas: using cattle to conserve wildlife". Denver Zoological Foundation.

- 2008 “Livestock production, predator-prey dynamics, and wildlife management in human-occupied savannas: using cattle to conserve wildlife”. Martha Piper Fund Award.
- 2008 “Facility for the Study of East African Savannas: human disturbance, landscape change, and wildlife conservation in rangeland ecosystems”. Canada Foundation for Innovation Leaders Opportunity Fund and BC Knowledge Development Fund.
- 2008 “Consequences of herbivore extinction for plant population and community dynamics”. NSERC Discovery Grant.
- 2008 “Establishment of large-scale herbivore exclosures” NSERC Research Tools and Instruments.
- 2005 American Society of Mammalogists Fellowship in Mammalogy, American Society of Mammalogists.
- 2005 Predoctoral Fellowship, Smithsonian Institution.
- 2004 Albert R. and Alma Shadle Fellowship in Mammalogy, American Society of Mammalogists.
- 2004 Science To Achieve Results (STAR) Graduate Fellowship, U.S. Environmental Protection Agency.
- 2004 Grove Summer Scholarship, Dept. Biology, Univ. New Mexico.
- 2004 Short-Term Fellowship, Smithsonian Tropical Research Institute.
- 2003 Grant-in-Aid of Research, American Society of Mammalogists.
- 2003 Research Grant, Graduate Resource Allocations Committee, Univ. New Mexico.
- 2002 Graduate Fellowship in Biocomplexity, U.S. National Science Foundation.
- 2001 Research Grant, Indiana Academy of Science.
- 2001 Travel Grant, Purdue University.
- 2000 Grant-in-Aid of Research, Sigma Xi.
- 2000 Research Grant, American Wildlife Research Foundation.
- 2000 Grant-in-Aid of Research, American Society of Mammalogists.
- 2000 Research Grant, Indiana Academy of Science.

Honors and Awards:

- 2009 Associate Member, Faculty of 1000, Conservation and Restoration Ecology.
- 2004-present Research Affiliate, Dept. Mammalogy, National Museums of Kenya.
- 2003 Graduate, Santa Fe Institute's Complex Systems Summer School.
- 2003 Anna M. Jackson Award, American Society of Mammalogists.
- 2002 Outstanding Poster Presentation, Dept. Forestry and Natural Resources, Purdue Univ.
- 1998 Best Student Paper Award, 50th Kansas Ornithological Society Meeting.
- 1998 Mark Enloe Memorial Scholarship, Div. Biology, Kansas State Univ.
- 1997 Tri-County Rod and Gun Club Scholarship, Div. Biology, Kansas State Univ.

Teaching Experience:

- 2010 Topics in Conservation Biology (undergraduate course), Univ. Wyoming.
- 2009 Field Course in Ecology and Conservation of African Savannas (undergraduate course), Univ. British Columbia.
- 2009 Introduction to Ecology (undergraduate course), Univ. British Columbia.
- 2009 Principles and Methodology in Biological Research (undergraduate course), Univ. British Columbia.
- 2008 Advanced Community Ecology (co-taught graduate course), Univ. British Columbia.
- 2007-present Mammalogy (undergraduate course), Univ. British Columbia.
- 2007 Instructor, Field Course in Savanna Ecology, Princeton Univ.

- 2004, 2005 Instructor, Kenya Wildlands Program, Univ. California, Santa Barbara.
 2003-2004 Teaching Assistant, Introduction to Biology for Majors, Univ. New Mexico.
 2000 Instructor, Purdue Univ. Dept. Forestry and Natural Resources Summer Camp.
 Ottawa National Forest, MI.
 1999-2000 Teaching Assistant, Ecology of Vertebrates Laboratory, Purdue Univ.
 1998 Student Practicum, Mammalogy, Kansas State Univ.
 1997 University Tutor, General Entomology and Wildlife Conservation, Kansas State Univ.

Presentations at Scientific Meetings:

- 2010 J.E. Maclean, **J.R. Goheen**, D.F. Doak, T.M. Palmer, and T.P. Young. British Ecological Society meeting.
 2010 **J.R. Goheen** and T.M. Palmer. American Society of Mammalogists meeting. *Coverage by Science News, U.S. News and World Report.*
 2009 **J.R. Goheen**, T.M. Palmer, and J.E. Maclean. American Society of Mammalogists meeting.
 2009 **J.R. Goheen**, T.M. Palmer, and J.E. Maclean. Ecological Society of America meeting.
 2008 **J.R. Goheen**. Canadian Society for Ecology and Evolution meeting.
 2008 M.C. Drever, **J.R. Goheen**, K. Martin. American Ornithologists Union meeting.
 2007 **J.R. Goheen**, F. Keesing, T.M. Palmer, C. Riginos, and T.P. Young. American Society of Mammalogists meeting.
 2007 S.K.M. Ernest, J.H. Brown, K.M. Thibault, E.P. White, and **J.R. Goheen**. American Society of Mammalogists meeting.
 2007 R.M. Pringle, C. Riginos, B.F. Allan, **J.R. Goheen**, F. Keesing, D.J. McCauley, W. Odadi, T.M. Palmer, M.L. Stanton, and T.P. Young. Ecological Society of America meeting.
 2006 S.K.M. Ernest, J.H. Brown, **J.R. Goheen**, K.M. Thibault, and E.P. White. Ecological Society of America meeting.
 2006 S.K.M. Ernest, J.H. Brown, **J.R. Goheen**, K.M. Thibault, and E.P. White. Gordon Research Conference meeting.
 2006 S. Poe, **J.R. Goheen**, and E.P. Hulebak. American Society of Ichthyologists and Herpetologists meeting.
 2005 **J.R. Goheen**, E.P. White, S.K.M. Ernest, J.H. Brown, J.F. Merritt, P.L. Meserve, and N.A. Slade. International Biogeography Society meeting.
 2004 **J.R. Goheen**, F. Keesing, B.F. Allan, D. Ogada, R.S. Ostfeld, and T.P. Young. Southwestern Association of Biologists meeting.
 2004 R.K. Swihart, J.E. Moore, J.E. Duchamp, C. Rizkalla, **J.R. Goheen**, and T.M. Gehring. The Wildlife Society meeting.
 2003 **J.R. Goheen**, R.K. Swihart, and J.H. Robins. Ecological Society of America meeting.
 2003 F. Keesing, **J.R. Goheen**, B.F. Allan, D. Ogada, and R.S. Ostfeld. Ecological Society of America meeting.
 2003 DeWoody, Y.D., R.K. Swihart, B.A. Craig, and **J.R. Goheen**. American Society of Naturalists meeting.
 2003 **J.R. Goheen**, R.K. Swihart, and J.H. Robins. International Biogeography Society meeting.
 2002 R.K. Swihart, T.C. Atwood, **J.R. Goheen**, D. Scheiman, K. Munroe, and T.M. Gehring. American Society of Mammalogists meeting.
 2001 **J.R. Goheen**, K.A. Schmidt, R. Naumann, R.S. Ostfeld, E.M. Schaubert, and A.K. Berkowitz. American Society of Mammalogists meeting.

- 2001 R.K. Swihart, **J.R. Goheen**, and S. Schnellker. American Society of Mammalogists meeting.
- 2000 **J.R. Goheen**, K.A. Schmidt, and R. Naumann. American Society of Mammalogists meeting.
- 2000 K.A. Schmidt, **J.R. Goheen**, R. Naumann, and R.S. Ostfeld. Ecological Society of America meeting.
- 1999 **J.R. Goheen**, G.A. Kaufman, and D.W. Kaufman. American Society of Mammalogists meeting.
- 1999 K.A. Schmidt and **J.R. Goheen**. Ecological Society of America meeting.
- 1998 D.M. Post, T.S. Armbrust, E.A. Horne, and **J.R. Goheen**. American Society of Mammalogists meeting.
- 1998 **J.R. Goheen**, K.A. Schmidt, and R.S. Ostfeld. Kansas Ornithological Society meeting.
- 1998 **J.R. Goheen**, K.A. Schmidt, and R.S. Ostfeld. Kansas Mammalogists Society meeting.
- 1998 **J.R. Goheen**, G.A. Kaufman, and D.W. Kaufman. Kansas Academy of Sciences meeting.
- 1997 **J.R. Goheen**, G.A. Kaufman, and D.W. Kaufman. Kansas Mammalogists Society meeting.

Invited Seminars, Symposia, and Workshops:

- 2010 Department of Mammalogy, National Museums of Kenya.
- 2010 Department of Plant and Wildlife Sciences, Brigham Young Univ.
- 2009 Department of Biological Sciences, Louisiana State Univ.
- 2009 Denver Zoological Society, Denver, Colorado.
- 2009 International Mammalogical Congress, Mendoza, Argentina.
- 2007 Museum of Vertebrate Zoology, Univ. California, Berkeley.
- 2007 Serengeti Biocomplexity Workshop, Univ. British Columbia.
- 2006 National Centre for Ecological Analysis and Synthesis (NCEAS).
- 2006 American Society of Mammalogists meeting.
- 2006 Department of Zoology, Univ. British Columbia.
- 2006 Department of Biological Sciences, Texas Tech Univ.
- 2005 American Society of Mammalogists meeting.
- 2005 Archbold Biological Station.
- 2004 U.S. Environmental Protection Agency STAR graduate fellows conference.
- 2003 American Society of Mammalogists meeting.

Professional Service and Outreach:

- 2009 Coordinator, American Society of Mammalogists African Graduate Students Program.
- 2009 Host, Breakfast With A Scientist mixer, American Society of Mammalogists.
- 2009 Reviewer, Murdock Trust Life Sciences grant proposal.
- 2008 Evaluator of Presentations, Canadian Society for Ecology and Evolution meeting.
- 2008-present Member, International Relations Committee, American Society of Mammalogists.
- 2008-present Member, Publications Committee, Ecological Society of America.
- 2007-present Member, International Review Panel, African Journal of Ecology/East African Wildlife Society.
- 2007-present Member, Scientific Advisory Council, Mpala Research Centre.
- 2007 External Committee Examiner, University of KwaZulu-Natal, South Africa.
- 2007,10 Session Chair, American Society of Mammalogists meeting.
- 2007,09 Reviewer, National Geographic Society grant proposal.

- 2006,08,10 Presenter, Laikipia Wildlife Forum meeting, Laikipia, Kenya.
- 2006-present Member, Grants-in-Aid Committee, American Society of Mammalogists.
- 2005 Reviewer, National Science Foundation International Research fellowship proposal.
- 2005-2007 Elected Member, American Society of Mammalogists Board of Directors.
- 2003 Judge, Albuquerque Public Schools Science Fair.
- 2003-present Evaluator of presentations, American Society of Mammalogists meetings.
- 2001,05,07 Reviewer, National Science Foundation grant proposal.
- 2000,01 Group leader, Project Future (an outreach program to inform middle school students about careers in science), Purdue Univ.
- 2000-2006 Member, Education and Graduate Students Committee, American Society of Mammalogists.
- 1999-2006 Member, Conservation of Land Mammals Committee, American Society of Mammalogists.

Manuscript Reviews:

Acta Theriologica, African Journal of Ecology, African Zoology, American Midland Naturalist, American Naturalist, Biological Conservation, Biological Invasions, Canadian Journal of Zoology, Ecological Modeling, Ecology, Ecography, Ecoscience, Forest Ecology & Management, Functional Ecology, Global Ecology and Biogeography, Journal of Animal Ecology, Journal of Applied Ecology, Journal of Ecology, Journal of Mammalogy, Journal of Tropical Ecology, Oecologia, Oikos, Plant Ecology, Rangeland Ecology & Management, Western North American Naturalist

Memberships in Professional Societies:

American Society of Mammalogists (life member since 2006)
 Central Plains Mammalogists Society
 Ecological Society of America
 Laikipia Wildlife Forum
 Society for Conservation Biology
 The Wildlife Society

Student and Personnel Training:

- 2008-present Ms. Janet Maclean, PhD student, Univ. British Columbia (co-advised with R. Turkington).
- 2009-present Ms. Bridget Conneely, MSc student, Univ. British Columbia.
- 2010-present Mr. Adam Ford, PhD student, Univ. British Columbia (co-advised with P. Arcese).
- 2010-present Mr. Abdullahi Ali Hussein, PhD student, Univ. Wyoming.
- 2010-present Mr. Stephen Nyaga, MSc student, Moi Univ. (co-advised with G. Wahungu).
- 2002-present Mr. Abdikadir Ali Hassan, field technician, Mpala Research Centre.
- 2008-present Mr. Jackson Lima, field technician, Mpala Research Centre.
- 2005-present Mr. Simon Lima, field technician, Mpala Research Centre.
- 2008 Mr. Nolan Bett, undergraduate independent studies student, Univ. British Columbia.
- 2008 Ms. Linda Lin, undergraduate GIS technician, Univ. British Columbia.
- 2008 Ms. Caitlin McLagan, undergraduate practicum for Mammalogy, Univ. British Columbia.
- 2008 Mr. Ceecil Otieno, undergraduate GIS and remote sensing technician, Mpala Research Centre and Kenya Institute of Surveys and Mapping.
- 2008-2009 Mr. Eric Sum, undergraduate GIS technician, Univ. British Columbia.