

Curriculum Vitae

Peter B. Pearman

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Unit Land Use Dynamics

Education

- 1991 Duke University. Doctor of Philosophy, Zoology. Dissertation: Ecology of Patchy Habitat: Effects of Pond Size on Experimental Tadpole Populations.
- 1988 Duke University. Master of Arts, Zoology. Minor: Mathematics (Statistics). Thesis: Dynamics of Populations Exploiting a Subdivided, Uniform Resource: A Simulation Model.
- 1981 University of Colorado, Boulder. Bachelor of Arts, Biology, with distinction.

Non-degree Education

- 2006 University of Zurich, Zoological Institute. 'Hierarchical modeling'
- 2002 Marine Biological Laboratory, Woods Hole, Massachusetts. 'Workshop in Molecular Evolution'.
- 1989 Organization For Tropical Studies, Costa Rica. 'Tropical Biology'.

Research Support

- 2009 Spatially Explicit Evolution of Diversity, SPEED. Swiss National Fund SFr. 964,000, with N. Salamin, P. Linder and N. E. Zimmermann
- 2008 Evolutionary Niche dyNamics of Invasive Species, ENNIS. Swiss National Fund SFr. 240,000, with N. Salamin.
- 2005 Ecological distribution of the state-listed salamander, *Ambystoma texanum*. Michigan Department of Natural Resources \$43,000.
- 2004 Genetic Rescue and The Interactions Among Population Genetics, Environmental Toxins and Disease in The Endangered Frog, *Rana latastei*. (with T. W. J. Garner) Declining Amphibian Populations Task Force (DAPTF) seed grant, \$2,000 USD.
- 2003 Comprehensive wildlife conservation plan - monitoring concept. Michigan Department of Natural Resources – Wildlife Division. \$29,982
- 1993-95 Center for Conservation Biology, Stanford University, Development of Methods of Multi-taxonomic Monitoring for Conservation, with funds from the MacArthur Foundation. Twenty-four months; \$50,000 USD total.

- 1992 Center for Conservation Biology, Stanford University, Ecology of an Amazonian Herpetofauna,. \$10,000 USD.
- 1991, 1992 World Wildlife Fund/USAID, Population Ecology and Conservation Biology: A Postgraduate Field Course (co-PI). \$45,000 USD total.

Journal Publications (Peer-reviewed)

- Randin, C. F., R. Engler, S. Normand, M. Zappa, N. E. Zimmermann, P. B. Pearman, P. Vittoz, W. Thuiller, and A. Guisan. In-press. Climate change and plant distribution: local models predict high-elevation persistence. *Global Change Biology*.
- Pearman, P. B., C. F. Randin, O. Broennimann, P. Vittoz, W. O. van der Knaap, R. Engler, G. Le Lay, N. Zimmerman and A. Guisan. (2008) Prediction of plant species distribution across six millennia. ***Ecology Letters*** 11:357-369.
- Pearman, P. B., A. Guisan, O. Broennimann and C. F. Randin (2008) Niche dynamics in space and time. ***Trends in Ecology and Evolution*** 23:149-158.
- Pearman, P. B. and D. Weber. 2007. Common species determine richness patterns in biodiversity indicator taxa: errata. ***Biological Conservation*** 141:5.
- Pearman, P. B. and D. Weber. 2007. Common species determine richness patterns in biodiversity indicator taxa. ***Biological Conservation*** 138:109-119.
- Hettyey, A. and P. B. Pearman. 2006. Testing experimental results in the field: comment on Ficetola and DiBernardi (2005). ***Ethology*** 112:930-931.
- Pearman, P. B., E. Schools, M. Penskar and H. Enander. 2006. Identifying potential indicators of conservation value using Natural Heritage occurrence data. ***Ecological Applications***. 16(1):186-201
- Pearman, P. B. and T. W. J. Garner. 2005. Susceptibility of Italian Agile Frog populations to an emerging strain of *Ranavirus* parallels population genetic diversity. ***Ecology Letters*** 8:401-408
- Pearman, P. B., T. W. J. Garner, M. Straub, and U. F. Greber. 2004. Response of the Italian agile frog (*Rana latastei*) to a *Ranavirus*, frog virus 3: a model for viral emergence in naive populations. ***Journal of Wildlife Diseases*** 40:600-609.
- Garner, T. W.J., P. B Pearman, P. T. Gregory, G. Tomio, S. G. Wischniowski and D. J. Hosken. 2004. Microsatellite markers developed from *Thamnophis elegans* and *Thamnophis sirtalis* and their utility in three species of garter snakes. ***Molecular Ecology Notes*** 4:369-371.
- Garner, T. W. J., P. B. Pearman and S. Angelone. 2004. Genetic diversity across a vertebrate species' range: A test of the central-peripheral hypothesis. ***Molecular Ecology*** 13:1047-1053.

- Garner, T. W. J., S. Angelone, and P. B. Pearman. 2003. Genetic depletion in Swiss populations of *Rana latastei*, conservation implications. **Biological Conservation** 114:371-376.
- Hettyey, A., and P. B. Pearman. 2003. Social environment and reproductive interference affect reproductive success in the frog *Rana latastei*. **Behavioral Ecology** 14:294-300.
- Sommer, S. and P. B. Pearman 2003. Quantitative genetic analysis of larval life history traits in two alpine populations of *Rana temporaria*. **Genetica** 118:1-10.
- Pearman, P. B. 2002. Developing regional conservation priorities using red lists: A hypothetical example from the Swiss lowlands. **Biodiversity and Conservation** 11:469-485.
- Pearman, P. B. 2002. The scale of community structure: Habitat variation and avian guilds in tropical forest understory. **Ecological Monographs** 72:19-39
- Pearman, P. B. 2002. Interactions between *Ambystoma* salamanders: Evidence for competitive inequality. **Herpetologica** 58:156-165.
- Pearman, P. B. 2001. The conservation value of independently evolving units: Sacred cow or testable hypothesis? **Conservation Biology** 15:780-783.
- Wilson C. R. and P. B. Pearman. 2000. Sampling characteristics of aquatic funnel traps for monitoring populations of adult rough-skinned newts (*Taricha granulosa*) in lentic habitats. **Northwestern Naturalist** 81:31-34.
- Pearman, P. B. 1997. Correlates of amphibian diversity in an altered landscape of Amazonian Ecuador. **Conservation Biology** 11:1211-1225.
- Marsh, D. M. and P. B. Pearman. 1997. Effects of habitat fragmentation on the abundance of two species of Leptodactylid frog in an andean montane forest. **Conservation Biology** 11:1323-1328.
- Pearman, P. B. 1995. An agenda for conservation research and its application, with a case-study from Amazonian Ecuador. **Environmental Conservation** 22:39-43.
- Pearman, P. B. 1995. Effects of pond size and consequent predator density on two species of tadpoles. **Oecologia** 102:1-8.
- Pearman, P. B., A. M. Velasco and A. López. 1995. Herpetofauna monitoring: a comparison of methods for detecting inter-site variation in species composition. **Herpetologica** 51:325-337.
- Pearman, P. B. 1993. Effects of habitat size on tadpole populations. **Ecology** 74(7):1982-1991.

Pearman, P. B. and H. M. Wilbur. 1990. Changes in population dynamics resulting from oviposition in a subdivided habitat. **American Naturalist** 135:708-723.

Book Chapters

Randin, C. F., R. Engler, P. B. Pearman, P. Vittoz and A. Guisan. In press. Using georeferenced databases to assess the effect of climate change on alpine plant species and diversity. In C. Körner and E. Spehn (eds.) *Data Mining for Global Trends in Mountain Biodiversity*. Taylor & Francis Group, Boca Raton, Florida.

Guralnick, R. and P. B. Pearman In press. Using species occurrence databases to determine niche dynamics of montane and lowland species since the last glacial maximum. In C. Körner and E. Spehn (eds.) *Data Mining for Global Trends in Mountain Biodiversity*. Taylor & Francis Group, Boca Raton, Florida.

Invited Talks

- 2007 What can predictive modeling tell us about invasive species and plant responses to climate change?
Zoological Society of London, United Kingdom
- 2005 The use of variation at marker loci to form testable hypotheses on potentially adaptive genetic variation in species of conservation concern.
Department of Animal Science, University of Turin, Italy
- 2004 Population genetics and immunocompetence: The case of *Rana latastei*. (Garner, T. W. J. and P. B. Pearman)
University of Ljubljana, Ljubljana, Slovenia
- 2003 “Genetic diversity and reduced probability of persistence in *Rana latastei*: Patterns at marker loci predict immunocompetence in an endangered anuran.”
Italian Zoological Society Meetings, University of Insubria, Varese, Italy.
- 2002 “From Gene to landscape: A multidisciplinary approach to wildlife disease.”
Department of Animal Science, University of Turin, Italy.
- “Genetic depletion, reproductive failure, and habitat-specific competitive effects in the endangered anuran, *Rana latastei*.”
Special lecture. Fourth Italian Congress of Herpetology, Ercolano.
- “Behavioral and molecular approaches to conservation biology: The case of a red listed amphibian, *Rana latastei*.”
University of Galway, Ireland
Section of Ecology and Systematics, Cornell University, Ithaca, NY
Department of Biology, Bowling Green University, Ohio
- 2001 “From Gene to landscape: A multidisciplinary approach to wildlife disease.”
Department of Zoology University of North Dakota, Grand Forks.
Department of Biology, University of New Orleans, Louisiana

“The scale of community structure: avian guilds in a tropical forest understory.”
Konrad Lorenz Institute, Vienna, Austria.
Swiss National Bird Observatory, Sempach, Switzerland.

“Experimental and molecular approaches to conservation biology.”
Institute of Wildlife Ecology, Vienna, Austria.

“Diverse approaches to four central questions in conservation biology.”
Zoological Institute, University of Basel, Basel, Switzerland.

1997 “The amphibian fauna of a tropical forest in Amazonian Ecuador.”
Nisqually National Wildlife Refuge, Nisqually, Washington.

“Local adaptation: Integrating ecological and evolutionary processes in heterogeneous landscapes.”
Zoological Institute, University of Zurich, Switzerland

1996 “Habitat/species diversity relationships: Amphibians in a forest disturbance mosaic.”
Museum of Vertebrate Zoology, Univ. of California, Berkeley
Montana State University, Bozeman, Montana

“How to be an Angiosperm.”
Evergreen State College, Olympia, Washington

“La relación hábitat/biodiversidad de especies: Anfibios en un mosaico forestal.”
Universidad San Carlos. Ciudad de Guatemala, Guatemala, in Spanish

Meeting Presentations

2007 Pearman, P. B. Power comparison of alternative monitoring designs : one- and five-year sampling rotation intervals. International conference ‘Monitoring the effectiveness of nature conservation’. Zurich, Switzerland.

Pearman, P. B. et al. Modelling climate threat to mountain plants in Europe : the EUROMOUNT project. GBIF-GMBI workshop. Copenhagen, Denmark.

Pearman, P.B., et al. Backprojection of plant distribution over six millenia. International Biogeography Society, Tenerife, Spain.

2006 Pearman, P. B., et al. Backprojection of mid-Holocene plant distributions in Europe. First European Congress of Conservation Biology, Egger, Hungary.

2005 Pearman, P. B. and T. W. J. Garner. Resistance of an emerging lethal virus parallels diversity at microsatellite loci in the red-listed Italian Agile Frog, *Rana latastei*. University of Fribourg, Switzerland.

2004 Pearman, P. B., T. W. J. Garner, M. Straub, and U. F. Greber. Susceptibility of a red-listed anuran to an emerging virus predicted by population genetic diversity.

Annual Meeting of the Society for Conservation Biology, Columbia University, New York City.

Penskar, M. R., E. H. Schools, P. B. Pearman, H. D. Enander, M. A. Kost, and D. L. Cuthrell. A resampling method for identifying biological indicators of landscape condition using natural heritage data on rare species. Annual Meeting of the Society for Conservation Biology, Columbia University, New York City.

Garner, T. W. G, P. B. Pearman, A.A. Cunningham, and M. C. Fisher. Population genetics and disease threats across the entire range of *Rana latastei*. 5th Congresso della Societas Herpetologica Italica, Calci, Pisa, Italy

2003 Pearman, P. B., T. W. J. Garner, S. Angelone, and D. Seglia. Population genetic diversity predicts susceptibility of an endangered anuran to a viral pathogen. First Conservation Genetics Meeting of the American Genetics Association, Front Royal, Virginia, USA.

2002 Hettyey A. and P.B. Pearman. Frequency-dependence of sexual isolation in a red-listed frog (*Rana latastei*) - a new factor in the protection of endangered species. Hungarian Conservation Biology Conference, Sopron, Hungary.

Pearman, P. B., and A. Hettyey. The influence of social environment on the reproductive success of the frog *Rana latastei*. Twentieth Congress of the Italian Ethological Society, Turin, Italy.

Pearman, P. B., T. W. J. Garner, and S. Angelone. Genetic depletion in *Rana latastei* populations: mechanisms and provisional recommendations. Sixteenth Annual Meeting of the Society for Conservation Biology, Canterbury, England.

Garner, T. W. J., S. Angelone, P. B. Pearman. Geographic variation in genetic depletion across a species range: The case of the Italian Agile frog, *Rana latastei*. Population Genetics Group Meeting, British Genetics Society, 2002, University of Leeds, UK.

2001 Garner, T. W. J., and P. B. Pearman. Reduced genetic variability in Swiss populations of the Red-listed frog, *Rana latastei*. Meetings of the Schweizer Zoologisches Gesellschaft, Neuchatel, Switzerland.

1997 Sandler, B. C., P. B. Pearman, M. Guerrero G., and K. Levy. 1997. Using a GIS to assess spatial scale of taxonomic richness in Amazonian Ecuador. ESRI User Conference.

1996 Pearman, P. B. Response of amphibians to habitat variation in Amazonian Ecuador. Ecological Society of America Annual Meetings.

1995 Pearman, P. B., M. Guerrero G., T. D. Sisk, and D. D. Murphy. Correlation patterns among groups proposed as biological indicators: What do they indicate? Ecological Society of America Annual Meetings.

Guerrero G., M., P. B. Pearman, C. Canaday, B. Bochan, T. D. Sisk, D. D. Murphy and P. R. Ehrlich. Methods for evaluating avian biodiversity produce uncorrelated results: Implications for avian bioindicators. Ecological Society of America Annual Meetings.

Guerrero G., M., P. B. Pearman, T. D. Sisk, C. L. Boggs, D. D. Murphy, and P. R. Ehrlich. Training indigenous persons for biodiversity research in the Upper Amazon Basin of Ecuador. Ecological Society of America Annual Meetings.

1991 Pearman, P. B. Patch-size mediated predation pressure changes the relative larval performance of two anurans. Ecological Society of America Annual Meetings.

1990 Pearman, P. B. Spatial and Population Dynamics of Several South American Frogs. Ecological Society of America Annual Meetings.

Pearman, P. B. Population estimates from mark-recapture data of several Amazonian hylid frogs. Annual Meeting of the American Society for Ichthyology and Herpetology.

Research Positions

2008- present Scientist, Project Leader, Land Use Dynamics, Federal Research Institute WSL. Responsible for research in species distribution modeling and niche stability analysis.

2006-2007 Project Manager (Senior Scientist), Department of Ecology and Evolution, University of Lausanne. Responsible for research on stability of the ecological niche and the transferability of predictive species distribution models over time. Continuing research on species distribution modeling, biodiversity distributions and indicators.

2003-2005 Program leader-Zoology. Michigan Natural Features Inventory, School of Agriculture and Natural Resources, Michigan State University, Lansing, Michigan. Responsible for research on rare and declining species. Responsible for directing the zoological program, developing program direction and vision, supervising program growth over two years from four to seven full-time staff zoologists, 15 seasonal employees, interacting with Michigan Department of Natural Resources staff, and overseeing program annual budgets that increased from \$270,000 to over \$450,000 USD.

1998-2003 Research Associate, Zoological Institute, University of Zürich, Zürich, Switzerland. Initiated interdisciplinary research on IUCN red-listed frog with international team. Discovered genetic depletion in part of species' range, and that reproductive interference from a congener leads to reproductive failure. Initiated research on susceptibility of anuran tadpoles to viral infection. Position equivalent to Research Assistant Professor in the USA.

1994-1995 Postdoctoral Research Scientist, Center for Conservation Biology, Stanford University Coordinated research (50%) and in-country training (50%) activities in

Ecuador. One year in-residence at Stanford to work on academic component and publish data resulting from project (below).

Masters Theses Mentored

Sommer, S. 2000. Control of larval development in the Common frog, *Rana temporaria*. A quantitative genetic analysis. Masters thesis. University of Zürich.

Angelone, S. 2002. Population genetic analysis of *Rana latastei*: a comparison of genetic structure in central and peripheral populations. Masters thesis. University of Zürich.

Teaching Positions

1998-2001 Research Associate, Zoological Institute, University of Zürich, Zürich, Switzerland. Led field exercises, gave lectures, held discussions and mentored students during independent projects during a 15-week, team-taught course in ecology and conservation biology for graduate students.

1996-1998 Assistant Professor, The Evergreen State College, Olympia, WA, USA
Responsible for teaching ecology and conservation biology within team-taught, interdisciplinary programs for undergraduate students. During 1996-97, I taught in an interdisciplinary program on the American West, treating the region's society, ecology and literature. This program was primarily for students in 1st and 2nd years (18-19 year olds) in a university program. During 1997-98, I taught an ecology and conservation component in an interdisciplinary program entitled 'Introduction to Environmental Studies'. This program was for students in the 2nd and 3rd years of a North American university program.

Collegiate Honors

1981 Phi Beta Kappa.

1976-1981 Dean's List, University of Colorado, 8 semesters.

1976-1981 Chancellor's List, University of Colorado, 7 semesters.

Committees/Professional Service since 1990

2005 Policy committee member, European Section, Society for Conservation Biology

2004 Organizer of the invited symposium "Amphibian and reptile conservation in human-dominated landscapes: Patterns, processes, and solutions" Annual Meeting of the Society for Conservation Biology, New York City.

2002-2003 Secretary, Board of Governors, European Section, Society for Conservation Biology

1990- 2009 Editorial referee for technical articles in professional scientific journals

1993 Research Review Committee, Jatun Sacha Biological Station, Ecuador

1993 Biodiversity sampling design workshop member, SUBIR Project, Ecuador

1991 Chairperson, Awards Committee, Sigma Xi, Duke Chapter

Languages

English, mother language; Spanish (fluently spoken and written); Standard German (good) and Swiss dialect (good)

