

Gary W. Roemer  
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**Positions Held**

2007 - Present Associate Professor, Dept. of Fishery & Wildlife Sciences, New Mexico State University  
2001 – 2007 Assistant Professor, Dept. of Fishery & Wildlife Sciences, New Mexico State University  
1999 – 2000 Post-doctoral researcher/Lecturer, Dept. of Biology, UCLA, Advisor: Dr. Charles Taylor  
1985 – 2000 Research Biologist, Institute for Wildlife Studies, Arcata, CA.

**Education**

University of California, Los Angeles, CA, Ph.D., Biology (1999)

Dissertation title: *The Ecology and Conservation of the Island Fox*, Advisor: Dr. Robert K. Wayne

Humboldt State University, Arcata, CA, M.S., Natural Resources, Wildlife Emphasis (1989)

Thesis title: *Comparative Metabolism in Allopatric Populations of the California Ground Squirrel: The Effects of Climate*  
Advisor: Dr. Richard T. Golightly

University of Wisconsin-Parkside, Kenosha, WI, B.S., Major: Life Science, Minor: Biochemistry (1982)

**Awards**

2006, Southwestern Association of Naturalists - George Miksch Sutton Award in Conservation Research for our paper Coonan, T.C. et al. 2005. *Southwestern Naturalist* 50(1):32-41.

2004-2005, Distinguished Research Award, College of Agriculture & Home Economics, New Mexico State University

1999, Robert C. Lasiewski Award for Outstanding Research Accomplishments in Organismic Biology, Received from the Department of Biology, UCLA for my Ph.D. research.

**Grants and Contracts Awarded**

Point Reyes National Seashore (Co-PI, 1988)	\$ 29,000
California Dept. of Fish and Game (Co-PI, 1989)	\$ 180,000
Genetic Resources Conservation Grant (1992)	\$ 2,000
National Park Service Cost-Share Program (1993 - 1995)	\$ 35,000
Theodore Roosevelt Memorial Fund (1993)	\$ 980
Sigma Xi Grants-in-Aid of Research (1993)	\$ 395
Organismic Biology Fund - UCLA (1993, 94 & 96)	\$ 1,363
National Geographic Society (1994)	\$ 25,000
Mildred Mathias Graduate Student Research Grant (1994 & 95)	\$ 3,985
UCLA Biology Departmental Fellowship (1994 & 95)	\$ 10,000
University Research Expeditions Program (1996)	\$ 12,935
Canon in the Parks (1997 & 98)	\$ 50,000
University-Wide Mosquito Research Program (1999)	\$ 12,000
Channel Islands National Park (2000)	\$ 40,733
Point Mugu Naval Weapons Station - San Nicolas Island (2000)	\$ 30,000
T & E, Inc. (2002, 2004, 2005, 2006, 2007)	\$ 23,664
USFS Rocky Mountain Research Station (2002 - 2005)	\$ 55,000
International Arid Lands Consortium (2002)	\$ 100,000

International Arid Lands Consortium (Co-PI, 2002)	\$ 99,000
New Mexico Dept. of Game & Fish (Co-PI, 2002)	\$ 260,200
Big Bend National Park (2002 - 2006)	\$ 58,000
Carlsbad Caverns National Park (2003 & 2004)	\$ 24,500
SW Regional GAP Analysis (Co-PI, 2004)	\$ 271,946
USGS Invasive Species Project at Big Bend NP (Co-PI, 2004 –2005)	\$ 109,466
International Arid Lands Consortium (Co-PI, 2005)	\$ 100,000
Arizona Game & Fish Department (2005)	\$ 40,000
National Park Service – DSCESU (2006 & 2007)	\$ 32,100
Biosciences Cluster Award, New Mexico State University (Co-PI, 2005)	\$ 25,000
National Park Service – IRIMCO (2006 & 2007)	\$ 83,322
<b>Total</b>	<b>\$1,714,089</b>

### ***Courses Taught***

UCLA - Department of Organismic Biology, Ecology and Evolution

- Mammalogy (OBEE c115)
- Conservation Biology (OBEE 116)

NMSU - Department of Fishery & Wildlife Sciences

- Natural History of the Vertebrates (WLSC 230)
- Wildlife Law, Policy and Administration (WLSC 447/547)
- Techniques of Natural Resource Management (WLSC 355)
- Lake Ecology (WLSC 450)
- Undergraduate Seminar (WLSC 402)
  - "Trophic Dynamics in Aquatic and Terrestrial Communities"
  - "Wildlife Biology and Conservation Ecology in the Age of Genomics"
  - "Host-Pathogen Interactions and Wildlife Population Dynamics"
- Graduate Seminar (WLSC 515)
  - "The ESA and Conservation Conflicts in the 21st Century"

### ***Graduate Student Mentorship***

Completed

- Mr. Aaron Facka (M.Sc.) – "Vitality Important: The role of demography in assessing the current and future status of black-tailed prairie dogs" (August 2006)
- Ms. Verity Mathis (M.Sc.) – "Inbreeding avoidance alters the environmental potential for polygamy in the banner-tailed kangaroo rat *Dipodomys spectabilis*" (August 2006)

Current

- Mr. Aaron Bueno Cabrera (Ph.D.) – A test of landscape connectivity using carnivore phylogeography
- Mr. Andrea Campanella (Ph.D.) – Demography of small mammals across an ecotone
- Mr. Darren James (M.Sc.) – Landscape vegetation dynamics associated with oryx introduction
- Mr. Robert Lonsinger (M.Sc.) – Landscape ecology and carnivore phylogeography in the southwest
- Mr. Martin Moses (M.Sc.) – Metapopulation dynamics of banner-tailed kangaroo rats

### ***Presentations***

American Society of Mammalogists, Albuquerque, NM June 2007

Southwestern Association of Naturalists, Texas, April 2007

Rocky Mountain Biological Laboratory, Gothic, CO, August 2006

San Clemente Island fox Workshop, San Diego, CA, January 2006

Southwest Carnivore Committee Conference, Tucson, AZ, December 2005

American Association of Laboratory Animal Science, New Mexico State University, Las Cruces, NM, August 2005

Society for Conservation Biology 19th Annual Meeting, Brasilia, Brazil, July 2005

Black-footed Ferret Subcommittee Meeting, Fort Collins, Colorado, January 2005

Department of Fisheries and Wildlife Science, University of Missouri, Columbia, December 2004

IUCN/SSC Canid Specialists Group, Carnivores 2004, Santa Fe, NM, November 2004

Academy for Learning in Retirement, Las Cruces, NM, September 2004

Department of Biology, University of New Mexico, Albuquerque, September 2004  
 USDA Jornada LTER 14th Annual Symposium, Las Cruces, NM, July 2004  
 American Museum of Natural History, SW Biological Research Station, Portal AZ, June 2004  
 Fishery and Wildlife Sciences Departmental Seminar, New Mexico State University, NM, October 2003  
 California Conservation Science Program - The Nature Conservancy, Santa Barbara, CA, September 2003  
 US Fish and Wildlife Service Seminar Series, Albuquerque, NM, July 2003  
 Carnivores 2002, Defenders of Wildlife, Monterey, CA, November 2002  
 Wildlife Biology Program, University of Montana, Missoula, October 2002  
 Dept. of Zoology and Physiology, University of Wyoming, Laramie, September 2002  
 3<sup>rd</sup> International Conference, Stable Isotope Techniques in Ecology, Flagstaff, AZ, April 2002  
 Biology Departmental Seminar, New Mexico State University, Las Cruces, March 2002  
 IUCN Canid Specialists Group, Oxford University, UK, September 2001  
 Carnivores 2000, Defenders of Wildlife, Denver, CO, November 2000  
 Museum of Vertebrate Zoology, University of California, Berkeley, September 2000  
 Society for Conservation Biology, 14th Annual Meeting, Missoula, MT, June 2000  
 Biology Departmental Seminar, University of California, Los Angeles, June 2000  
 Center for Environmental Analysis Seminar, California State University, Los Angeles, May 2000  
 Loggerhead Shrike Symposium, Hubbs-Sea World Research Institute, San Diego, CA, November 1999  
 Department of Biology, California State University, Long Beach, October 1999  
 National Center for Ecological Analysis and Synthesis, Santa Barbara, CA, September 1998  
 The Third Annual Wildlife Society Meeting, Portland, OR, October 1996  
 The Fourth California Islands Symposium, Santa Barbara, CA, March 1994

#### ***Professional Affiliations and Synergistic Activities***

Member, The Ecological Society of America, 2007-Present  
 Scientific Advisory Board Member, Advanced Conservation Strategies, 2006-Present  
 Member, The Wildlife Society, 2006-Present  
 Member, Scientific Advisory Committee, Defenders of Wildlife, Washington, D.C., 2004-Present  
 Invited Research Scientist, USDA – ARS and NSF Jornada Long-Term Ecological Research station, 2004-Present  
 Member, Technical Advisory Committee, New Mexico River Otter Working Group, 2002-Present  
 Member of the American Association for the Advancement of Science, 2002-Present  
 Co-Faculty Advisor, NMSU Student Chapter of The Wildlife Society, 2001-Present  
 Coordinator, Island fox Working Group, IUCN-SSC Canid Specialist Group, 2001-Present  
 Chairman, Wild Population Management Expertise Group, Island fox Recovery Team, USFWS, 2004-2006  
 Elected Participant, NSF ADVANCE, ADVANCING Leaders Program, NMSU, 2004-2005  
 Reviewer, NSF Division of Environmental Biology, Population and Evolution Processes Cluster, 2005, 2006, 2007  
 Reviewer, NSF Doctoral Dissertation Improvement Grants, Ecological & Evolutionary Physiology, 2004  
 Session Moderator, Defenders of Wildlife Carnivores 2002 & 2004  
 Invited Participant, Gordon Research Conference, “The Metabolic Basis of Ecology”, 2004  
 Co-organizer, Workshop “The Role of Ecological History in North American Conservation Strategies”, 2004

#### ***Publications***

28. Northcott, J., M. C. Andersen, **G. W. Roemer**, E. L. Fredrickson, M. DeMers & J. Truett. *In press*. Spatial analysis of effects of mowing and burning on colony expansion in reintroduced *Cynomys ludovicianus* (Black-tailed prairie dog).

*Restoration Ecology*.

27. Knowlton, J., C. Josh Donlan, **G. W. Roemer**, A. Samaniego-Herrera, B. S. Keitt, B. Wood, A. Aguirre-Muñoz, K. R. Faulkner & B. R. Tershey. *In press*. Non-native mammal eradications and the status of insular mammals on the California Channel Islands, U.S.A. and Pacific Baja California Islands, México. *Southwestern Naturalist*.

26. Ford, P. L., M. C. Andersen, E. L. Fredrickson, J. Truett, and **G. W. Roemer**. *In press*. Effects of fire and mowing on expansion of re-established black-tailed prairie dog colonies in Chihuahuan Desert Grassland. In: Narog, M.G., ed. Proceedings of the 2002 Fire Conference on Managing fire and fuels in the remaining wildlands and open spaces of the southwestern United States. Gen. Tech. Rep. PSW-189, Albany, CA: Pacific Southwest Research Station, USDA Forest Service, 7 pp.

25. Angula, E., **G. W. Roemer**, L. Berec, J. Gascoigne and F. Courchamp. 2007. Double Allee effects and extinction in the island fox. *Conservation Biology* 21(4): 1082-1091.
24. Donlan, C. J., P. S. Martin, & **G. W. Roemer**. 2007. Lessons from land: Present and past signs of ecological decay and the overture to the Earth's 6th mass extinction. Pages 14-26 *In* J. A. Estes, D.P. DeMaster, D.F. Doak, T.M. Williams & R.L. Brownell, Jr., Eds. Whales, Whaling and Ocean Ecosystems. University of California Press. Berkeley.
23. Donlan, C.J., J. Berger, C. E. Bock, J. H. Bock, D. A. Burney, J. A. Estes, D. Foreman, P. S. Martin, **G. W. Roemer**, F. A. Smith, M. E. Soulé and H. W. Greene. 2006. Pleistocene rewilding: An optimistic agenda for 21st Century conservation. *American Naturalist* 168(5): 660-681.
22. Caut, S., **G. W. Roemer**, C. J. Donlan & F. Courchamp. 2006. Coupling stable isotopes with bioenergetics to estimate interspecific interactions. *Ecological Applications* 16: 1893-1900.
21. **Roemer, G. W.** & C. J. Donlan. 2005. Biology, policy and law in endangered species conservation: II. A case history in adaptive management of the island fox on Santa Catalina Island, California. *Endangered Species UPDATE* 22:144-156.
20. Donlan, C. J., H. W. Greene, J. Berger, C. E. Bock, J. H. Bock, D. A. Burney, J. A. Estes, D. Foreman, P. S. Martin, **G. W. Roemer**, F. A. Smith, and M. E. Soulé. 2005. Re-wilding North America. *Nature* 436:913-914.
19. Coonan, T. J., C. A. Schwemm, **G. W. Roemer**, D. K. Garcelon & L. Munson. 2005. Decline of an island fox subspecies to near extinction. *Southwestern Naturalist* 50(1):32-41.
18. Andersen, M. C., B. Martin, & **G. W. Roemer**. 2004. Use of matrix population models to estimate the efficacy of euthanasia versus trap-neuter-return for management of free-roaming cats. *Journal of the American Veterinary Medical Association* 225(12):1871-1876.
17. **Roemer, G. W.**, T. J. Coonan, L. Munson & R. K. Wayne. 2004. The Island fox. Pages 97-105 *In*: C. Sillero-Zubiri, M. Hoffman and D. W. Macdonald, eds. Canids: Foxes, wolves, jackals and dogs, Status survey and conservation action plan, 2nd edition. IUCN/SSC Canid Specialists Group, The World Conservation Union. Gland, Switzerland.
16. **Roemer, G. W.**, R. Woodroffe & F. Courchamp. 2004. Predators and prey in the Channel Islands – Response to Dratch *et al.* and Helgen. *Science* 305:778.
15. **Roemer, G. W.** 2004. Evolution, behavioural ecology, and conservation of island foxes. Pages 173 – 183 *in* D. W. Macdonald and C. Sillero-Zubiri, eds. The Biology and Conservation of Wild Canids, Oxford University Press, 432 pp.
14. **Roemer, G. W.** & C. Josh Donlan. 2004. Biology, policy and law in endangered species conservation: I. The case history of the island fox on the northern Channel Islands. *Endangered Species UPDATE* 21(1):23-31.
13. Aguilar, A. **G. Roemer**, S. Debenham, M. Binns, D. Garcelon, & R. K. Wayne. 2004. High MHC diversity maintained by balancing selection in an otherwise genetically monomorphic mammal. *Proceedings of the National Academy of Sciences, USA* 101:3490-3494.
12. Courchamp, F., R. Woodroffe & **G. Roemer**. 2003. Removing protected populations to save endangered species. *Science* 302:1532.
11. **Roemer, G. W.** & R. K. Wayne. 2003. Conservation in conflict: The tale of two endangered species. *Conservation Biology* 17(5):1251-1260.
10. **Roemer, G. W.**, C. J. Donlan & F. Courchamp. 2002. Golden eagles, feral pigs and insular carnivores: How exotic species turn native predators into prey. *Proceedings of the National Academy of Sciences, USA* 99: 791-796.
9. **Roemer, G. W.**, T. J. Coonan, D. K. Garcelon, J. Bascompte, & L. Laughrin. 2001. Feral pigs facilitate hyperpredation by golden eagles and indirectly cause the decline of the island fox. *Animal Conservation* 4: 307-318.

8. **Roemer, G. W.**, D. A. Smith, D. K. Garcelon, & R. K. Wayne. 2001. Behavioural ecology of the island fox. *Journal of Zoology* 255: 1-14.
7. **Roemer, G. W.**, T. J. Coonan, D. K. Garcelon, C. H. Starbird & J. W. McCall. 2000. Spatial and temporal variation in the seroprevalence of canine heartworm antigen in the island fox. *Journal of Wildlife Diseases* 36(4):723-728.
6. Coonan, T. J., C. A. Schwemm, **G. W. Roemer**, & G. Austin. 2000. Population decline of island foxes (*Urocyon littoralis*) on San Miguel Island. Pages 289-297 in D. R. Browne, K. L. Mitchell, and H. W. Chaney, eds. Proceedings of the Fifth Channel Islands Symposium. U.S. Department of the Interior, Minerals Management Service, Pacific OCS Region, Camarillo, California.
5. Goldstein, D.B, **G.W. Roemer**, D.A. Smith, D.E. Reich, A. Bergman, & R.K. Wayne. 1999. The use of microsatellite variation to infer patterns of migration, population structure and demographic history: An evaluation of methods in a natural model system. *Genetics* 151:797-801.
4. Garcelon, D.K., **G.W. Roemer**, R.B. Philips & T.J. Coonan. 1999. Food provisioning by island foxes, *Urocyon littoralis*, to conspecifics caught in traps. *Southwestern Naturalist* 44(1):83-86.
3. **Roemer, G.W.**, D.K. Garcelon, T.J. Coonan, & C. Schwemm. 1994. The use of capture-recapture methods for estimating, monitoring, and conserving island fox populations. Pages 387-400 in W.L. Halvorsen and G.J. Maender, eds. The Fourth California Islands Symposium: update on the status of resources. Santa Barbara Museum of Natural History, Santa Barbara, California.
2. Garcelon, D. K., & **G. W. Roemer**. 1990. The reintroduction of bald eagles on Santa Catalina Island. Pages 63-68 in P.J. Bryant and J. Remington, eds. Endangered Wildlife and Habitats in Southern California. Memoirs of the Natural History Foundation of Orange County, Volume 3. Newport Beach, California.
1. Garcelon, D. K., & **G. W. Roemer**, Editors. 1988. Proceedings of the International Symposium on Raptor Reintroduction, 1985. Institute for Wildlife Studies, Arcata, California. 148 pp.

#### ***Selected Technical Reports***

Young, K. E., T. S. Schrader, K. G. Boykin, C. Caldwell & **G. W. Roemer**. 2007. Early Detection of Invasive Species in Big Bend National Park: Remote Sensing and GIS Strategies. New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, NM. 103 pp. + Appendices.

**Roemer, G. W.**, D. Auerbach, M. Andersen & K. Young. 2006. Draft Environmental Assessment for the Management of Invasive Vertebrates (Feral pigs, Aoudad, Nutria and Bullfrogs). Big Bend National Park, TX.

Newsom, C. & **G. W. Roemer**. 2004. Carlsbad Caverns Herpetofauna Inventory: Year 2, Summer 2004. Annual Report, Carlsbad Caverns National Park, NM

Woolman, M. & **G. W. Roemer**. 2003. Carlsbad Caverns Herpetological Inventory Year 1, Summer 2003. Annual Report, Carlsbad Caverns National Park, NM

#### ***Manuscripts In Review***

Facka, A.N., P.L. Ford, & **G. W. Roemer**. *Revision submitted*. A novel approach for assessing density and range-wide abundance of prairie dogs. Submitted to *Journal of Mammalogy*.

Bakker, V.J., D. Doak, **G.W. Roemer**, D. Garcelon, T. Coonan, S. A. Morrison, C. Lynch, K. Ralls and R. Shaw. *In Review*. Estimating and incorporating ecological drivers and parameter uncertainty into a demographic population viability analysis for the Island Fox (*Urocyon littoralis*). Submitted to *Ecological Monographs*.

#### ***Manuscripts in Preparation***

**Roemer, G. W.**, C.J. Donlan & E. Danner. Botflies and rodents: Parasitism or proto cooperation? To be submitted to *American Naturalist* (Natural History Miscellany).

**Roemer, G. W.**, A. Facka, M. Kam, & E. Geffen. The influence of energy and water on reproduction in a desert herbivore. To be submitted to *Ecology*.

Donlan, C.J. & **G.W. Roemer**, & E. Danner. The effects of productivity and climate on rodent population dynamics across elevational gradients. To be submitted to *Oecologia*.

Facka, A & **G. W. Roemer**. Ecological correlates influencing survival and demography of black-tailed prairie dog colonies. To be submitted to the *Journal of Animal Ecology*.

Mathis, V., J. Maldonado, R. Fleischer, & **G. W. Roemer**. Spatial autocorrelation and phylogeographic structure of banner-tailed kangaroo rats in New Mexico. To be submitted to *Conservation Genetics*.

Mathis, V., J. Maldonado, R. Fleischer, & **G. W. Roemer**. The role of inbreeding avoidance and density on dictating the mating system of banner-tailed kangaroo rats. To be submitted to *Molecular Ecology*.

### ***Current Research Projects***

1. Demography and Ecophysiology of the Black-tailed Prairie dog (PI)
2. The Effect of Inbreeding Avoidance and Population Density on the Mating Behavior of Banner-tailed Kangaroo Rats (PI)
3. Landscape Genetics: A Test of Landscape Connectivity using Carnivore Phylogeographic Patterns (PI)
4. Risk Assessment and Conservation Strategy for Invasive Species Threatening Big Bend National Park, Texas (PI)
5. Botfly Parasitism and its Effects on Woodrat Natural History (PI)
6. Landscape Impacts and Vegetation Dynamics associated with Herbivory by an Introduced Oryx Population (PI)
7. Phylogeography and Metapopulation Dynamics of Banner-tailed Kangaroo Rats (Co – PI)
8. Influence of Fluctuating Resources on Rodent Population Dynamics Across an Elevation Gradient (Co – PI)
9. Ecological Dynamics of Desert Rodents inhabiting Ecotones (Co – PI)
10. Remote Sensing and Identification of Invasive Plants in Big Bend National Park, Texas (Co – PI)