

Professional Résumé

ROBERT R. PARMENTER
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Valles Caldera National Preserve
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I. Present Positions:

Director, Science and Education, Valles Caldera Trust
Associate Research Professor, Department of Biology, University of New Mexico
Research Associate, Division of Arthropods and Division of Mammals,
Museum of Southwestern Biology, University of New Mexico
Adjunct Professor, Department of Wildland Resources, Utah State University
Adjunct Faculty, School of Forestry, Northern Arizona University, Flagstaff

II. Education:

Ph.D., Biology/Ecology, Utah State University	1982
M.S., Zoology, University of Georgia	1978
B.A., Biology, Colorado College	1974

III. Employment History:

1982-1984: Post-doctoral Associate, Department of Biology, Utah State University
1984-1988: Assistant Professor, Research, Utah State University
1989-present: Associate Research Professor, University of New Mexico
1991-2003: Director, Sevilleta Research Field Station, University of New Mexico
2003-present: Director, Science and Education, Valles Caldera Trust

IV. Research Interests:

Ecosystem management; disturbance ecology; fire ecology; climatic influences on plant and animal populations; successional processes; plant-animal interactions; predator-prey relationships of both vertebrates and invertebrates; decomposition and nutrient cycling; ecology of zoonotic diseases.

V. Scientific Publications:

Parmenter, R. R., and J. A. MacMahon. 2009. Carrion decomposition and nutrient cycling in a semi-arid shrub-steppe ecosystem. *Ecological Monographs* (in press).

Michener, W., A. McKee, K. Bildstein, W. Hargrove, D. McClearn, R. Parmenter, and M. Stromberg. 2009. Biological field stations: Research legacies and sites for serendipity. *BioScience* 59:300-310.

Liu, F., R. Parmenter, P. D. Brooks, M. H. Conklin and R. C. Bales. 2008. Seasonal and interannual variation of streamflow pathways and biogeochemical implications in semi-arid, forested catchments in Valles Caldera, New Mexico. *Ecohydrology* 1:239-252.

- Crowl, T. A., T. O. Crist, R. R. Parmenter, G. Belovsky, and A. E. Lugo. 2008. The spread of invasive species and infectious disease as drivers of ecosystem change. *Frontiers in Ecology and the Environment* 6:238-246.
- Zlotin, R. I., and R. R. Parmenter. 2008. Patterns of mast production in pinyon and juniper woodlands along a precipitation gradient in central New Mexico (Sevilleta National Wildlife Refuge). *Journal of Arid Environments* 72:1562-1572.
- Parmenter, R. R. 2008. Long-term effects of a summer fire on desert grassland plant demographics in New Mexico. *Journal of Rangeland Ecology and Management* 61:156-168.
- Hope, A., and R. R. Parmenter. 2007. The diets of rodents inhabiting the arid and semi-arid ecosystems of central New Mexico. *Special Publications of the Museum of Southwestern Biology, University of New Mexico* 9:1-75.
- Giuggioli, L. G. M. Viswanathan, V. M. Kenkre, R. R. Parmenter, and T. L. Yates. 2007. Effects of finite probing windows on the interpretation of the multifractal properties of random walks. *European Letters Journal*, 77:40004, pp. 1-5 [electronic journal: www.epljournal.org, doi: 10.1209/0295-5075/77/40004].
- Glass, G. E., T. Shields, B. Cai, T. L. Yates, and R. Parmenter. 2007. Persistently highest risk areas for Hantavirus Pulmonary Syndrome: Potential sites for refugia. *Ecological Applications* 17:129-139.
- Parmenter, R. R., A. Steffen and C. D. Allen. 2007. An overview of the Valles Caldera National Preserve: The natural and cultural resources. Pp. 121-128, *In: Geology of the Jemez Mountains Region II*. New Mexico Geological Society, Socorro.
- Watson, R. P., K. K. Benedict, T. R. Watson, K. Menke, R. R. Parmenter. 2006. Satellite imagery and Internet mapping services in support of science-based adaptive management of grasslands in the Valles Caldera National Preserve. *Papers and Proceedings of the Applied Geography Conferences*. Tampa, FL. 2006. 8 pp.
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- Abramson, G., L. Giuggioli, V. M. Kenkre, J. Drago, R. R. Parmenter, C. A. Parmenter and T. L. Yates. 2006. Diffusion and home range parameters for rodents: *Peromyscus maniculatus* in New Mexico. *Ecological Complexity* 3:64-70.
- Glass, G. E., T. M. Shields, R. R. Parmenter, D. Goade, J. N. Mills, J. Cheek, J. Cook, and T. L. Yates. 2006. Predicted hantavirus risk in 2006 for the southwestern U.S. *Occasional Papers, Museum of Texas Tech University* 255:1-16.

- Peters, D. P. C., J. R. Gosz, W. T. Pockman, E. E. Small, R. R. Parmenter, S. L. Collins, and E. Muldavin. 2006. Integrating patch and boundary dynamics to understand and predict biotic transitions at multiple scales. *Landscape Ecology* 21:12-33.
- DiMenna, M. A., R. Bueno Jr., R. R. Parmenter, D. E Norris, J. M. Sheyka, J. L. Molina, E. M. LaBeau, E. S. Hatton and G. E. Glass. 2006. The emergence of West Nile Virus in mosquito (Diptera: Culicidae) communities of the New Mexico Rio Grande Valley. *Journal of Medical Entomology* 43:594-599.
- Giuggioli, L., G. Abramson, V. M. Kenkre, R. R. Parmenter, and T. L. Yates. 2006. Theory of home range estimation from mark-recapture measurements of animal populations. *Journal of Theoretical Biology* 240:126-135.
- McClellan, Y., R. A. August, J. R. Gosz, S. Gann, R. R. Parmenter, and M. Windsor. 2005. Vertical distribution, migration rates, and model comparison of actinium in a semi-arid environment. *Journal of Environmental Radioactivity* 86:199-211.
- Pregenzer, A., R. R. Parmenter, H. Passell, J. Vande Castle, T. K. Budge, and G. M. Bonito. 2005. Sustainability of arid grasslands. New technology applications for management. Pp. 250-265. In: M. Shashak, J. R. Gosz, S. T. A. Pickett, and A. Perevolotsky (eds.). *Biodiversity in Drylands: Toward a Unified Framework*. Oxford University Press, Oxford, UK.
- Duran, K. L., T. Lowrey, R. R. Parmenter, and P. O. Lewis. 2005. Genetic diversity in Chihuahuan Desert populations of creosotebush (Zygophyllaceae: *Larrea tridentata*). *American Journal of Botany* 92:722-729.
- Kenkre, V. M., R. R. Parmenter, I. D. Peixoto, and L. Sadasiv. 2005. A theoretical framework for the analysis of the West Nile Virus epidemic. *Mathematical and Computer Modelling*, 42:313-324.
- Parmenter, R. R., C. M. Crisafulli, N. Korbe, G. Parsons, M. Edgar, and J. A. MacMahon. 2005. Post-eruption arthropod succession on the Mount St. Helens volcano: The ground-dwelling beetle fauna (Coleoptera). Pp. 139-150. In: V. H. Dale, F. Swanson and C. M. Crisafulli, (eds.). *Ecological Recovery of Mount St. Helens after the 1980 Eruption*. Springer, New York.
- Parmenter, R. R. 2005. Patterns of decomposition and nutrient cycling across a volcanic disturbance gradient. Pp. 233-242. In: V. H. Dale, F. Swanson and C. M. Crisafulli, (eds.). *Ecological Recovery of Mount St. Helens after the 1980 Eruption*. Springer, New York.
- Crisafulli, C. M., R. R. Parmenter and J. A. MacMahon. 2005. Post-eruption successional patterns of the mammal community on the Mount St. Helens volcano, 1980-2000. Pp. 199-218. In: V. H. Dale, F. Swanson and C. M. Crisafulli, (eds.). *Ecological Recovery of Mount St. Helens after the 1980 Eruption*. Springer, New York.
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- M. Shenk, T. R. Stanley, and G. C. White. 2003. Small mammal density estimation: a field comparison of grid-based versus web-based density estimators. *Ecological Monographs*, 73:1-26.
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- Davidson, A., R. R. Parmenter, and J. R. Gosz. 2000. Responses of small mammals and vegetation to a reintroduction of Gunnison's prairie dogs. *Journal of Mammalogy*, 80:1311-1324.
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- Parmenter, R.R., and J.A. MacMahon. 1988. Factors influencing species composition and population sizes in a ground beetle community (Coleoptera; Carabidae): Predation by rodents. *Oikos*, 52:350-356.
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- Parmenter, R.R., and J.A. MacMahon. 1987. Early successional patterns of arthropod recolonization on reclaimed strip mines in southwestern Wyoming: The ground-dwelling beetle fauna (Coleoptera). *Environmental Entomology*, 16:168-177.
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- Parmenter, R.R., and J.A. MacMahon. 1983. Factors determining the abundance and distribution of rodents in a shrub-steppe ecosystem: the role of shrubs. *Oecologia*, 59:145-156.

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VI. Funded Research Grants (listed by funding agency):

A. NATIONAL SCIENCE FOUNDATION:

1. Ecological drivers of rodent-borne disease outbreaks: Trophic cascades and dispersal waves. 2003-2009. Amount: \$1,746,268. Principal Investigators: Robert R. Parmenter, Terry L. Yates, V. M. Kenkre, Gregory Glass, James Mills, Darin Carrol, Kenneth Gage, and Michael Kosoy.

2. SGER: Invasion and establishment dynamics of West Nile Virus in the Rio Grande Valley of New Mexico, Colorado and Texas. 2003-2004. Amount: \$49,999. Principal Investigators: Robert R. Parmenter, Gregory E. Glass, Rudy Bueno, and V. M. Kenkre.

3. Sevilleta LTER III: Long Term Ecological Research in a Biome Transition Zone. 2000-2006. Amount: \$4,200,000. Principal Investigators: Clifford N. Dahm, James R. Gosz, Robert R. Parmenter, William T. Pockman, Blair O. Wolf, and Terry L. Yates.

4. Sevilleta LTER II: Biome-level constraints on population, community, and ecosystem responses to climate fluctuations. 1994-2000. Amount: \$3,780,000. Principal Investigators: Bruce T. Milne, James H. Brown, James W. Brunt, Clifford N. Dahm, Donald W. Duszynski, Ann S. Evans, David C. Lightfoot, Robert R. Parmenter, Paul M. Rich, Caletton S. White and Terry L. Yates.

5. Sevilleta LTER Supplement Grant Proposals (Equipment, REU, Schoolyard LTER):

- Supplement to Sevilleta Long Term Ecological Research. 1989-1990. Amount: \$60,000.
- Supplement to Sevilleta Long Term Ecological Research. 1990-1991. Amount: \$66,000.
- Supplement to Sevilleta Long Term Ecological Research. 1991-1992. Amount: \$69,500.
- Supplement to Sevilleta Long Term Ecological Research. 1992-1993. Amount: \$74,955.
- Supplement to Sevilleta Long Term Ecological Research. 1993-1994. Amount: \$74,913.
- Supplement to Sevilleta Long Term Ecological Research. 1994-1995. Amount: \$75,000.
- Supplement to Sevilleta Long Term Ecological Research. 1995-1996. Amount: \$20,000.
- Supplement to Sevilleta Long Term Ecological Research. 1996-1997. Amount: \$20,000.
- Supplement to Sevilleta Long Term Ecological Research. 1997-1998. Amount: \$15,000.
- Supplement to Sevilleta Long Term Ecological Research. 1998-1999. Amount: \$113,960.
- Supplement to Sevilleta Long Term Ecological Research. 1999-2000. Amount: \$99,994.
- Supplement to Sevilleta Long Term Ecological Research. 2000-2001. Amount: \$55,000.
- Supplement to Sevilleta Long Term Ecological Research. 2001-2002. Amount: \$51,968.
- Intellectual Connectivity Supplement to Sevilleta Long-Term Ecological Research. 1999.

Amount: \$235,186.

6. Ecosystem Recovery Following Three Centuries of Livestock Grazing in Central New Mexico. 1992-1994. Amount: \$25,245. Principal Investigators: R. R. Parmenter and J. R. Gosz.

7. Research Experiences for Undergraduates: Establishment of an REU Site with the Sevilleta LTER Program. 1991-1992. Amount: \$49,600. Principal Investigators: J. R. Gosz and R. R. Parmenter.

8. Research Experiences for Undergraduates: Establishment of an REU Site with the Sevilleta LTER Program. 1992-94. Amount: \$151,800. Principal Investigators: R. R. Parmenter, J. R. Gosz, A. S. Evans.

9. Research Experiences for Undergraduates: The REU Site Program with the Sevilleta LTER Program. 1995-98. Amount: \$150,000. Principal Investigators: A. Evans, U. Shepard, and R. R. Parmenter.

10. Research Experiences for Undergraduates: The REU Site Program with the Sevilleta LTER Program. 1999-02. Amount: \$120,000. Principal Investigators: R. R. Parmenter and J. R. Gosz.

11. Scientific Research Experiences for Minority Undergraduates in the Sevilleta LTER Program: Career Enhancement and Training in Environmental Biology. 1993-98. Amount: \$245,000. Principal Investigators: R. R. Parmenter and J. W. Brunt.

12. Academic Research Infrastructure: Renovation and Replacement of Research and Research-Training Facilities in the Department of Biology, University of New Mexico. 1997. Amount: \$960,000. UNM Cost-share: \$2,300,000. Principal Investigators: T. L. Yates, R. R. Parmenter and H. Snell.

13. Undergraduate Mentorships in Environmental Biology (UMEB): Career Enhancement for Undergraduates in Environmental Biology. 2001-2005. Amount: \$400,000. Principal Investigators: R. R. Parmenter and W. Gannon.

14. Small mammal – vegetation interactions in an alpine tundra ecosystem (Niwoot Ridge): Rodent impacts on tundra plants and arthropods during episodes of food and shelter shortages. 1989-1991. Amount: \$50,491. Principal Investigators: James A. MacMahon and Robert R. Parmenter.

15. A Study of Ecosystem Development of Newly Perturbed Sites on Mount St. Helens. 1984-1987. Amount: \$734,996. Principal Investigators: Lawrence C. Bliss, Roger Del Moral, Fiorenzo C. Ugolini, John Edwards, Jerry Franklin, Eldon H. Franz (U. Washington), with Robert R. Parmenter and James A. MacMahon on subcontract to Utah State University for small mammal research.

NSF Field Station and Marine Laboratories facility development grants for the Sevilleta Research Field Station:

1. The Sevilleta Field Station: Development of a Regional Research Center in New Mexico. 1991. Amount: \$140,000. UNM Cost-share: \$700,000.
2. The Sevilleta Field Station: Laboratory Equipment for Ecological Research. 1992. Amount: \$119,834. UNM Cost-share: \$60,000.
3. The Sevilleta Field Station: Construction of a Desert-Plant Lath House and a Shop/Storage Building. 1993. Amount: \$74,820. UNM Cost-share: \$25,000.
4. The Sevilleta Field Station: Construction of a Library/Computer Center and Expansion of Housing for Visiting Researchers. 1994. Amount: \$175,000. UNM Cost-share: \$700,000.
5. The Sevilleta Field Station: Enhancements to Computation, Information, and Transportation. 1995. Amount: \$123,120. UNM Cost-share: \$61,560.
6. The Sevilleta Field Research Station: Expansion of Research and Educational Facilities for Multi-Organizational Environmental Programs. 1999. Amount: \$150,888 (NSF) + \$125,000 (TNC); Total = \$275,888.
7. The Sevilleta Research Field Station: Development of a Long-Term Sample Processing Laboratory and Storage Facility. 2001-2003. Amount: \$79,562. UNM Cost-share: \$20,000.
8. The Sevilleta Research Field Station: Development of water resources and a wireless cloud for remote data acquisition. 2003-2005. Amount: \$74,000. UNM Cost-share: \$25,000.

B. NATIONAL PARK SERVICE:

1. The El Malpais National Monument: Survey of Biological Resources. 1992-1994. Amount: \$90,000. Principal Investigators: R. R. Parmenter, J. R. Gosz, D. Bleakley, D. C. Lightfoot.
2. The Bandelier National Monument: Long-term Ecological Measurements of Biological Resources. 1992-1996. Amount: \$17,264. Principal Investigators: R. R. Parmenter and D. C. Lightfoot.
3. The Pecos National Historical Park: A Survey of Vertebrate and Invertebrate Fauna. 1992-1994. Amount: \$55,641. Principal Investigators: R. R. Parmenter and D. C. Lightfoot.
4. Ecosystem Recovery After Fire in a Mixed-Conifer Forest: The Arthropod Fauna of Bandelier National Monument. 1993-1994. Amount: \$8,500. Principal Investigators: R. R. Parmenter and D. C. Lightfoot.
5. The Petroglyphs National Monument: Survey of Biological Resources. 1994-1996. Amount: \$33,908. Principal Investigators: R. R. Parmenter, D. C. Lightfoot, and D. Bleakley.
6. Capulin Volcano National Monument: Survey of Listed Species. 1995-1998. Amount: \$12,372. Principal Investigators: R. R. Parmenter and D. C. Lightfoot.

C. BUREAU OF LAND MANAGEMENT

1. Joint Fire Science Program: Fire Regimes of Montane Grasslands of the Valles Caldera National Preserve, New Mexico. 2006-2009. Amount: \$244,989. Principal Investigators: D. Falk, T. Swetnam, C. Allen, and R. Parmenter.

D. USDA FOREST SERVICE

1. Application of daily MODIS remote sensing imagery to grassland fuels management in northern New Mexico. 2007-2008. Amount: \$13,500, + \$10,110 cost-share = \$24,610. Principal Investigators: R. Parmenter and K. Benedict.

2. Responses of Wild Turkey (*Meleagris gallopavo*) to forest thinning and prescribed fire in northern New Mexico. 2007-2008. Amount: \$21,740, + \$52,187 cost-share = \$73,927. Principal Investigator: R. Parmenter.

3. Ecosystem responses to prescribed fire and elk/cattle grazing in an upland watershed of the Middle Rio Grande Basin: Valles Caldera National Preserve. 2005-2008. Amount: \$199,495 + \$211,450 cost share = \$410,945. Principal Investigators: R. Parmenter, C. Allen, C. Caldwell, R. DuBey, P. Ford, G. Jacobi, D. Moore, B. Pendleton, R. Pendleton, A. Steffen, J. Tsatsaros, C White.

4. Arthropod Community Development on the Mount St. Helens Volcano, 1980-1990: The ground-dwelling beetle fauna. 1990-1991. Amount: \$2,700. CA-PNW90-695. Principal Investigator: R. R. Parmenter.

E. FEDERAL CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

1. The dynamics of small mammal populations and *Bartonella* infection in New Mexico. 2001-2003. Amount: \$61,570. Principal Investigator: R. R. Parmenter. IPA for Mr. David Tinnin.

F. DEPARTMENT OF ENERGY: LOS ALAMOS NATIONAL LABORATORY

1. Application of SPLASH hydrology model to soils in arid environments. 2002. Amount: \$12,480. Principal Investigators: R. R. Parmenter and S. Martens.

G. DEPARTMENT OF ENERGY: SANDIA NATIONAL LABORATORY

1. Scientific Research Experiences for Minority Undergraduates in the Sevilleta LTER Program: Career Enhancement and Training in Environmental Biology. 1993-98. Amount: \$80,000 (Funds matched NSF Grant listed above).

H. DEPARTMENT OF DEFENSE, U.S. AIR FORCE

1. Grassland Biodiversity After 50 Years of Livestock Exclusion on Kirtland Air Force Base. 1993-1994. Amount: \$50,000. Principal Investigator: R. R. Parmenter.
2. An Ecosystem Survey of the Air Force Melrose Range, New Mexico: Floral and Faunal Biodiversity. 1993-1994. Amount: \$60,000. Principal Investigator: R. R. Parmenter.
3. Development of a Geographical Information System for Cannon Air Force Base, Clovis, New Mexico. 1994-1996. Amount: \$220,000. Principal Investigator: R. R. Parmenter.

I. DEPARTMENT OF DEFENSE, U.S. ARMY

1. A Survey of Vegetation and Small Mammal Communities on the Dugway Proving Grounds, Utah. 1989. Amount: \$15,000. Principal Investigators: R. R. Parmenter and N. E. West.

VII. University Courses Taught:

1. University of New Mexico: Desert Field Biology, Ecosystem Research Techniques.
2. Utah State University: General Ecology, Field Ecology, Mammalogy, Herpetology, Human Physiology, General Biology, Public Health.

VIII. Other Courses Taught:

Ecosystem Sustainability and Management -- Short courses taught for the Taos and Pojoaque Pueblos' personnel dealing with environmental and resource management, New Mexico.

IX. Scientific Society Membership:

American Institute of Biological Sciences
 American Association for the Advancement of Science
 The Ecological Society of America
 International Association for Vegetation Science
 Botanical Society of America
 American Society of Foresters
 The Entomological Society of America
 The Coleopterists Society
 American Ornithologists Union
 Cooper Ornithological Society
 American Society of Mammalogists
 Society for Range Management
 The Wildlife Society
 North American Benthological Society
 American Fisheries Society
 International Association for Landscape Ecology
 Southwestern Association of Naturalists

X. Professional Service:

1. Ecological Society of America:
 - (A) Chairman, Long-Term Studies Section, 1993-1995.
 - (B) ESA Officers Nominations Committee Member, 1995.
 - (C) Local Program Chairman, ESA National Meeting in Albuquerque, August, 1997.
 - (D) Future Meetings Committee, 1999-2001.
 - (E) Associate Editor, "*Frontiers in Ecology and the Environment*", 2007.

2. American Society of Mammalogists:
 - (A) Committee member for Animal Care and Use in Research, 1997-1999.

3. National Science Foundation:
 - (A) Ecosystems Program, Review Panel Member. 1993-1996.
 - (B) Ecology Program, Review Panel Member. 1998-2000.
 - (C) Ecology of Infectious Diseases Program, Review Panel Member, 2004-2006.
 - (D) Proposal Reviewer for (1) Oceanography Program, (2) Ecology Program, (3) Field Stations and Marine Biological Laboratories Program, (4) Ecosystems Program, (5) Population/Systematics Program.
 - (E) Chairman, Workshop IV for Development of Biodiversity Observing Network (BON), 1999.
 - (F) Advisor/consultant to NEON for Network Planning and Fundamental Surveillance Unit (FSU) design and development, 2007-2008.

4. Department of Agriculture:
 - (A) Proposal Reviewer, USDA Ecosystems Research Program.
 - (B) Committee Member, USDA Forest Service, Southwest Grazing and Assessment Committee, Mammals Section, 2001.

5. Manuscript reviewer for the following scientific journals:
 - American Journal of Tropical Medicine and Hygiene*
 - Biodiversity and Conservation*
 - Biology and Fertility of Soils*
 - BioScience*
 - Coleopterists Bulletin*
 - Copeia*
 - Ecography*
 - Ecology*
 - Ecological Applications*
 - Entomologica Fennica*
 - Environmental Entomology*
 - Environmental Management*

European Journal of Wildlife Research
Journal of Applied Ecology
Journal of Arid Environments
Journal of Herpetology
Journal of Mammalogy
Journal of the North American Benthological Society
Journal of Rangeland Ecology and Management
Journal of Tropical Ecology
Journal of Wildlife Management
Oecologia
Oikos
Pedobiologia
Plant Ecology
The Prairie Naturalist
Proceedings of the Kansas Entomological Society
Proceedings of the National Academy of Sciences
The Southwestern Naturalist
The Texas Journal of Science
Western North American Naturalist

XI. Graduate student advisory committees, University of New Mexico:

Gerardo S. Azpiri (Ph.D., Biology)
Ana Davidson (Ph.D., Biology)
Robert Dello-Russo (Ph.D., Anthropology)
Sandra Brantley (Ph.D., Biology)
Charles Buxbaum (Ph.D., Biology)
Timothy Haarmann (Ph.D., Biology)
Yvonne McClellan (Ph.D., Biology)
Stephen Dwyer (Ph.D., Civil Engineering)
Steven Hockett (M.S., Biology)
Todd Thompson (M.S., Biology)
Michael Friggens (M.S., Biology)
Joslyn Garcia (M.S., Biology)
Jon Dunnum (M.S., Biology)
Kari Schmidt (M.S., Anthropology)
David Tinnin (M.S., Biology)

Other universities:

Megan Friggens (Ph.D., Forestry Science, Northern Arizona University, Flagstaff)
Suzanne Gifford (M.S., Dept. Wildland Resources, Utah State University, Logan)