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CAREER SUMMARY

Over 20 years experience in designing and managing ecological research and monitoring programs. Research experience in ecological genetics, animal behavior and population ecology, plant population dynamics and community, ecosystem and landscape ecology. Experience in experimental and sampling design, quantitative analysis of complex data sets, database design and program management. Created and ran two research grants programs that together distributed over \$1,500,000 in research funds each year. Developed several training courses on ecological monitoring and the analysis of ecological data which have been integrated into the core training of The Nature Conservancy, the USDA Forest Service, Bureau of Land Management. Co-created a curriculum of training for the US Army Army Environmental Center. Created and directed the Aridlands Grazing Network a 13 State initiative to foster cross-site learning and adaptive management throughout the arid west. Currently co-directs the Grassland Conservancy Network, a tri-national conservation effort to protect threatened and endangered grassland nesting birds throughout North America. Primary-, or Co-Primary Investigator on several research programs; currently co-investigator on a \$2.8 million, multifaceted study on the ecology of encephalitis viruses in the southeastern US.

PROFESSIONAL EXPERIENCE

Sound Science LLC, Boise, Idaho 2003-present

Managing Partner

- Sound Science provides consulting services in ecological monitoring, experimental design and implementation for land management effects, ecological modeling for management planning and assessment, and the analysis of complex data.
- Customers include US Departments of Defense, Bureau of Land Management, and USDA Forest Service, Colorado Department of Agriculture, and Idaho Fish and Game.

University of Alabama, Birmingham, Alabama 2004-present

Research Assistant Professor

- Collaborator on several research projects studying the ecology and epidemiology of Eastern Equine Encephalitis and West Nile Virus
- Serves on academic advisory committees of 2 graduate students
- Teaches annual short course on ecological modeling
- Co-Investigator, *Ecology of Encephalitis Viruses in the USA*, \$2,859,615.

The Nature Conservancy, Boise, Idaho 1999-2002

National Director of Ecological Monitoring.

- Created and directed the Aridlands Grazing Network, a network of over 30 ranches across 13 western states that are working together to build a scientific framework for integrating biodiversity conservation and livestock production.
- Headed a task force to develop protocols for measuring changes in ecosystems and assessing ecological integrity of natural landscapes
- Directed the Rodney Johnson and Katharine Ordway Stewardship Endowment Programs, a research grants program that annually distributes over \$400,000 in funding for monitoring, research, and stewardship on conservation lands.
- Directed the National Research and Monitoring Program, a program offering training, consultation, and data analysis services to Conservancy Field Offices and collaborating Natural

Heritage Programs. Provided consultative services on experimental design for ecological research on topics ranging from dynamics of rare plant populations to ecological change in natural landscapes

The Nature Conservancy, Fairfax, Virginia 1990-1999

National Director of Biological Management.

- Directed the National Research and Monitoring Program, a program offering training, consultation, and data analysis services to Conservancy Field Offices and collaborating Natural Heritage Programs.
- Designed and directed the Ecosystem Research Program, a research grants program that annually distributed more than \$1,000,000 in research funds.
- Headed a multi-division team that developed a weeklong workshop, *Vegetation Monitoring in a Management Context*. Worked with the U.S. Forest Service Continuing Education Program and the Bureau of Land Management to have this course incorporated into their core training programs. Provided consultative services on monitoring plant and animal populations and ecological communities.
- Provided scientific expertise in designing many landscape conservation projects including, Smoke-hole / North Fork Mountain, West Virginia; Peconic Bay, New York; Delaware Bayshores, New Jersey; Baraboo Hills, Wisconsin; and Tallgrass Prairie, Oklahoma.

National Director of Stewardship, Acting.

- Directed a department comprising 5 programs and 23 staff.

Adjunct Faculty, Boston University.

- Served on academic advisory committee of Dr. Douglas Muchony

Assistant Professor, Adjunct. University of Maine, Orono.

- Served as graduate advisor to Ms. Marcia Summers.

Assistant Professor, Adjunct. George Mason University.

- Served as graduate advisor to Ms. Laura Pyle.

The Nature Conservancy, Boston, Massachusetts 1987-1990

Director, Lucius Pond Ordway Preserve/Devil's Den and Katharine Ordway Preserves.

- Successfully negotiated a land management partnership between The Nature Conservancy and the town of Weston, Connecticut.
- Negotiated the purchase of inholdings with the Conservancy's ownership.
- Successfully raised \$1,000,000 for land purchases.

Regional Research and Monitoring Technical Advisor.

- Provided consultation services for TNC Field Offices in the Eastern Region on issues of ecological monitoring and research.

The Nature Conservancy, Cold Spring Harbor, NY 1984-1987

Resident Caretaker, David Weld Sanctuary.

- Responsible for land management and visitor services.

State University of New York, Stony Brook, NY 1982-1987

Research Associate

- Supervised one staff and several research projects on geographic patterns of evolution.

EDUCATION

- Ph.D. Evolutionary Ecology.** 1990
Department of Ecology and Evolution, State University of New York at Stony Brook.
President's Award for Excellence in Research. 1987.
Jesse Smith Noyes Fellow, 1984
- M.S. Ecology** 1983
Graduate Group in Ecology, Rutgers University
- B.S. Wildlife Ecology** 1978
Cook College, Rutgers University. Graduated cum laude; George H. Cook Scholar.

Organization for Tropical Studies. Tropical Biology
Steven Covey & Associates. Time Management
Buckley School of Public Speaking, Public Speaking & Working with the Press
Accelerated Learning Institute. Design of training workshops for adults.
Boise State University. ArcView GIS

PROFESSIONAL ACTIVITIES AND SERVICES

CURRENT

- **Science and Conservation Advisory Board, Lava Lake Land and Livestock 2002 – present.**
 - Lava Lake Land and Livestock owns three ranches, totaling over one million acres of land in southern Idaho. Their goal is to produce wool and lamb products in an environmentally sustainable fashion.
- **Science Advisory Board, Malpai Borderlands Group 2003 – present.**
 - The Malpai Borderlands Group is a collaboration of private ranch owners in Southwestern New Mexico whose goal is to manage this several million acre working landscape in a ecologically sustainable manner.
- **Science Advisory Board, Babbitt Ranches 2003 – present.**
 - Together, the Babbitt Ranches own or manage close to 1.5 million acres of land in northern Arizona. The ranches are striving to produce cattle while improving the ecological integrity of their rangelands.
- **Strategic Advisory Board, USGS Geographic Analysis and Monitoring (GAM) Program. 2003 – present.**
 - The GAM program is responsible for assessing and understanding the rates, causes, and the human and environmental consequences of land surface change worldwide.
- **LANDFIRE Fire Regime Condition Class Modeling for the Great Basin and Sage-Steppe ecosystems. 2004 –2006.**
 - Project co-lead to develop ecological models for over 100 ecosystems within the region. LANDFIRE is a multi-agency effort to map the departure from natural fire regime for all ecosystems within the United States.

COMPLETED

- Sustainable Rangelands Roundtable, USDA 2001- 2005.
- Board of Directors, ANSER Charter School. 2003 – 2005.
- Steering Committee, Fairfax Cooperative Extension, Agriculture and Natural Resources Division 1997-1999.
- Editorial Board, Renewable Resources Journal 1996-2000.
- The National Science and Technology Council, Committee on Environmental Monitoring 1994-1999.
- Board of Directors, Renewable Natural Resources Foundation 1994-1999.
- Natural Resources Conservation Service, Blue Ribbon Panel on Natural Resource Inventory and Performance Measurement 1994-1995.
- Scientific Board of Advisors, The Potomac Conservancy. 1992-1999.
- Ecological Society of America, Committee on Ecological Conservation, 1992-1999.
- President's Council on Environmental Quality 1992-1993.
- Board of Governors, Fairfax Audubon Society 1991-1994.
- Consultant, National Park Service, Southeast Region 1991-1995

- Organized and chaired symposia for Ecological Society of America (1992) and Society for Conservation Biology (1991).
- Reviewer for NATURAL AREAS JOURNAL, ECOLOGY, BIOTROPICA, THE AUK, National Science Foundation, National Geographic.

SELECTED PUBLICATIONS

- Unnasch, R.S., Cupp, E.W. and Unnasch, T.R., (2004) Host selection and its role in transmission of arboviral encephalitides, in: *Disease Ecology: Community Structure and Pathogen Dynamics*, S.K. Collinge and C. Ray, Editors. Oxford University Press, Oxford, UK. in press.
- Unnasch, R.S., T. Springer, C.R. Katholi, E.W. Cupp, G.E. Hall, and T.R. Unnasch. A dynamic transmission model of eastern equine encephalomyelitis virus. *Ecological Modelling* 192:425-440..
- Braun, D.P., Unnasch, R.S., J. Parrish. When is conservation action enough? Challenges in setting goals and measuring success in biodiversity conservation. In Preparation.
- Maddox, G.D. and R.S. Unnasch. The Floristic Quality Index and the detection of change in plant communities: Results from field and simulation studies. In preparation.
- Parrish, J.D, D.B. Braun and R.S. Unnasch. 2003. Are we conserving what we say we are? Measuring ecological integrity within protected areas. *Bioscience* 53:851-860.
- Unnasch, R.S., S.K. Rust, D. Leptick, R.C. Martin, G. Servheen, M. Terra-Berns. 2003. Monitoring and Evaluation Plan for Idaho Wildlife Mitigation Projects. Idaho Dept. of Fish and Game.
- Unnasch, R.S., Braun, D.B., Parrish, J.P., J. Brown, M. Beck, J. Hardesty. 2002. Ecological integrity assessment: A framework for conservation planning and measuring success. The Nature Conservancy.
- Muchoney, D. and R.S. Unnasch. 2001. Speaking the Language of Remote Sensing: How to use change detection techniques for monitoring. *Conservation Biology in Practice* 2:35-38.
- Unnasch, R.S. and C.A. Langtimm. 2000. Mice, birds, and pollination of *Blakea chlorantha*. In: Wheelwright, N.A. and N. Nadkarni eds. *The Natural History of Monteverde*. Oxford University Press.
- Unnasch, R.S., Maddox, G.D., and K. Poiani. 1999. Evaluating Management Success: Using ecological models to ask the right monitoring questions. In: Sexton, W.T. et al. *Ecological Stewardship: A common reference for Ecosystem Management*..
- Sokal, R.R., R.S. Unnasch, and B.A. Thomson. 1991. *Pemphigus* revisited: Changes in geographic variation by constancy in variability and covariation. *Evolution* 45:1585-1605.
- Gurevitch, J., and R.S. Unnasch. 1989. Experimental removal of a dominant species at two levels of soil fertility. *Can. J. Bot.* 1989:321-340.
- Sokal, R.R., and R.S. Unnasch. 1988. Geographic variation of hosts and parasites: evidence from *Populus* and *Pemphigus*. *Z. Zool. Syst. Evolut.-forsch.* 26:73-88.
- Sokal, R.R., T.J. Crovello, and R.S. Unnasch. 1986. Geographic variation of vegetative characters of *Populus deltoides*. *Systematic Botany* 11:419-432.
- Harder, L.D., J.D. Thomson, M.B. Cruzan, and R.S. Unnasch. 1985. Sexual reproduction and variation in floral morphology in an ephemeral vernal lily, *Erythronium americanum*. *Oecologia* 67:286-291.

INVITED SEMINARS AND PAPERS PRESENTED

- Over 100 invited seminars and papers presented since 1981.

RESEARCH EXPERIENCE

The Nature Conservancy. 2002-present. Interaction of prescribed fire and grazing management on the ecological integrity and restoration of arid rangelands.

The Nature Conservancy. 1995-2000. Sampling design for change detection in communities and ecosystems.

The Nature Conservancy. 1990 – 1995. Sampling designs for population estimation of rare plants.

The Nature Conservancy. 1989 -- 1991. Effects of white-tailed deer on the herbaceous flora of the eastern deciduous forest.

Ecology and Evolution Department, S.U.N.Y. at Stony Brook. Dissertation Research.

January, 1982 -- May 1987. Performed research on the populations dynamics and recruitment of forest trees. Also performed research on life history and population dynamics of Curculionid weevils and small mammals. Ecology and Evolution Department, S.U.N.Y. at Stony Brook.

Research Assistant with B. Bentley. August, 1986 -- January, 1987. Performed electrophoretic analyses of Venezuelan termite populations. Ecology and Evolution Department, S.U.N.Y. at Stony Brook.

Research Assistant with R. Sokal. September, 1981 -- September, 1986. Computer programming and statistical analysis of data with emphasis on analysis of spatial patterns of variation in natural populations.

Organization for Tropical Studies. Winter, 1984. Performed research on the pollination ecology of *Blakea chlorantha*.

Department of Entomology and Economic Zoology, Rutgers University.

September, 1979 -- June, 1980. Research Assistant with D. Caccamise. Performed vegetation analyses and surveys of roosting blackbirds.

Department of Entomology and Economic Zoology, Rutgers University. Thesis research.

September, 1978 -- June 1981. Performed behavioral studies on red-winged blackbirds, *Agelaius phoeniceus*.

TEACHING EXPERIENCE

USDOD, Department of the Army. Designing and Implementing RTLA programs. 2003 – present.

Boise State University. 2000. *Seminar in Applied Conservation*.

The Nature Conservancy / USDA Forest Service. 1990 -- present. *Vegetation Monitoring in a Management Context*.

The Nature Conservancy. 1995- present. *Biometrics for Natural Lands Managers, Ecological Methods, Ecological Models, Natural Heritage Methodology*.

The Nature Conservancy. 1989 -- 1999. *Natural Heritage Orientation*. Designed and taught two half day sessions for weeklong workshop.

S.U.N.Y. at Stony Brook, Department of Ecology and Evolution. Spring 1987.

Biometry (graduate level).

Rutgers University, Horticulture Department, Forestry and Wildlife Section. 1978 -- 1981.

Instructed laboratory sections in *Dendrology* and *General Ecology*.