

Mark Clifton Grover

EDUCATION

Ph. D., Biology, Ecology emphasis, University of Virginia, Charlottesville, VA, 1996.
Dissertation: The influence of species interactions and moisture gradients on the distribution and habitat use of plethodontid salamanders.

M.S., Zoology, Ecology emphasis, Brigham Young University, Provo, UT, 1992.
Thesis: Microhabitat use and thermal ecology of two syntopic *Sceloporus* lizards.

Bachelor of Science in Zoology, Brigham Young University, Provo, UT, 1989,
Cum Laude. GPA 3.75

WORK EXPERIENCE

Colorado River Basin Native Fish Coordinator, February 2018 – July 2020

Employer: Arizona Game and Fish Department

Responsibilities:

- Arizona state lead for projects and management activities involving endangered, threatened, and rare fishes of the Colorado River Basin and their habitats.
- Writing monitoring and management reports and assisting in the writing and review of watershed management plans, species status assessments, and official comments to regulatory agencies regarding impacts of proposed water projects and developments on freshwater ecosystems.
- Proposing and coordinating projects to address management needs of native fishes of the Little Colorado River basin, including a recently initiated grant-funded study (2019-2021) on sucker phylogenetics aimed at identifying unique lineages and informing efforts to conserve genetic diversity.

Conservation & Service Director, September 2014 – February 2018

(Includes 5 months of overlap with previous job when I worked at both jobs)

Employer: Canyon Country Discovery Center, Monticello, Utah

Responsibilities:

- Working with the BLM Colorado Plateau Native Plant Program, under a cooperative agreement, to collect seeds of native plants used in ecological restoration for propagation and research, develop native plant gardens at the Canyon Country Discovery Center, propagate milkweed and other nectar-bearing plants, and create educational programs dealing with native plants and pollinators.
- Working with project partners (e.g., Dolores River Restoration Partnership, BLM, USFS, NPS,) to plan and coordinate projects dealing with riparian restoration, spring restoration, grassland restoration, and woodland fuels reduction.
- Planning and overseeing citizen science activities.
- Supervising four full-time employees in the Canyon Country Youth Corps and Seeds of Success programs at the Canyon Country Discovery Center.

Native Aquatics Biologist (Biologist II), September 2009 - February 2015

Employer: Utah Division of Wildlife Resources, Department of Natural Resources

Responsibilities:

- Monitoring and management of populations and habitats of sensitive and candidate species of fish, amphibians, and mollusks in central and western Utah.

- Restoration of springs and wetlands, with emphases on removal of nonnative vegetation (e.g., Russian olives), stabilization of banks, reduction in rates of sedimentation, improvement of water quality, and restoration of pool morphology.
- USFWS-funded research (2012-2014) examining relationships between groundwater levels, surface water parameters, and habitat associations of Least Chub (*Iotichthys phlegethontis*) in the Snake Valley of Utah. This project addressed potential impacts of groundwater pumping from aquifers in western Utah and eastern Nevada on habitats of a species that was being considered for listing as endangered under the Endangered Species Act.
- Coordinating and conducting educational seminars for the public (including university students and conservation groups, such as Audubon Society) and leading service learning/citizen science efforts involving wetland habitat restoration and amphibian monitoring.
- Writing monitoring and management reports, grant proposals, and program work plans.
- Presenting data, evaluating accomplishments related to management objectives in conservation agreements, and planning management strategies at meetings of multi-agency conservation teams.
- Supervising a crew of seasonal biological technicians.

Assistant Professor of Biology, August 2003 to May 2009

Employer: Southern Utah University, Cedar City, Utah

Responsibilities:

- Teaching a variety of biology courses including General Biology, Ecology, Conservation Biology, Invertebrate Zoology, and Ichthyology.
- Mentoring undergraduate students involved in ecological research projects.
- Supervising students participating in service learning projects coordinated with local, state, and federal wildlife and land management agencies.
- Faculty advisor to interdisciplinary environmental science majors and biology majors, many of whom now work for state and federal wildlife and land management agencies.

Biologist (Summer NPS term position while at SUU), May-September, 2008 & 2009

Employer: Great Basin National Park, Baker, Nevada

Responsibilities:

- Vegetation surveys aimed at mapping plant communities and plant species distributions throughout Great Basin National Park using NatureServe protocols.
- Monitoring water quality and physical habitat parameters of lakes and streams (as well as helping to develop the monitoring protocol), as well as aquatic invertebrate and fish populations.
- Breeding bird surveys, as well as compilation and submission of avian survey data.
- Live trapping, ear tagging, and collecting blood and hair samples from small mammals for capture-recapture population estimates and isotope analysis.
- Radio telemetry on movements of Rocky Mountain bighorn sheep and Great Basin rattlesnakes.

Instructor and Director of Wildlife & Fisheries Program, August 1998 - June 2003

Employer: Feather River College, Quincy, California

Responsibilities:

- Teaching core biology classes (General Biology, Ecology, Zoology), as well as introductory courses in fisheries biology, aquaculture, and wildlife field techniques.
- Managing a campus trout hatchery – propagation and stocking of salmonid fishes, maintenance of hatchery facilities, management of hatchery finances, coordination of outreach activities, and supervision of student hatchery workers.
- Developing an interdisciplinary environmental science program emphasizing natural resource management and involving the Wildlife, Forestry, and Hydrology programs.
- Coordinating and leading service learning activities involving students in research and monitoring projects in collaboration with the U.S. Forest Service and California Department of Fish & Game. Projects included monitoring of rare fish and amphibian populations and a long-term research project on population and life history trends of kokanee salmon.
- Service on the Feather River College (FRC) curriculum and facilities committees, as well as the accreditation committee of the North American Wildlife Technology Association (NAWTA), of which FRC was a member.

Publications (only lead-author, peer-reviewed publications are shown)

- Grover, M.C. 2019. Effects of groundwater fluctuations on the distribution and population structure of two cyprinid fishes in a desert spring complex. *Journal of Freshwater Ecology* 34:167-187, DOI: 10.1080/02705060.2019.1578699
- Grover, M.C. 2016. Relationships of groundwater levels to surface water fluctuations and habitat associations of Least Chub (*Lotichthys phlegethontis*) in a Great Basin spring complex, Pages 247-272 in Comer JB, Inkenbrandt PC, Krahulec KA, and Pinnell ML (eds.). *Resources and Geology of Utah's West Desert*. Utah Geological Association Publication 45.
- Grover, M.C. 2006. Comparative effectiveness of nighttime transect surveys and area-constrained cover object searches in detecting salamanders. *Herpetological Conservation and Biology* 1:93-99.
- Grover, M.C. 2006. Evaluation of a negative relationship between abundance during spawning and size at maturity in kokanee. *Transactions of the American Fisheries Society* 135:870-879.
- Grover, MC. 2005. Changes in size and age at maturity in a population of kokanee *Oncorhynchus nerka* during a period of declining growth conditions. *Journal of Fish Biology* 66:122-134.
- Grover, M.C. and H.M. 2002. Ecology of ecotones: interactions between salamanders on a complex environmental gradient. *Ecology* 83:2112-2123.
- Grover, M.C. 2000. Determinants of salamander distributions along moisture gradients. *Copeia* 2000:156-168.
- Grover, M.C. 1998. Influence of cover and moisture on abundance of the terrestrial salamanders *Plethodon cinereus* and *Plethodon glutinosus*. *Journal of Herpetology* 32:489-497.
- Grover, M.C. 1996. Microhabitat use and thermal ecology of two narrowly sympatric *Sceloporus* (Phrynosomatidae) lizards. *Journal of Herpetology* 30:152-160. (Winner of the 1997 Kennedy Award for best paper authored by a student in the *Journal of Herpetology*)
- Grover, M.C., and L.A. DeFalco. 1995. Desert tortoise (*Gopherus agassizii*) status-of-knowledge outline with references. U.S. Forest Service, Intermountain Research Station. General Technical Report INT-GTR-316. 134 pp.

Recent Successful Grant Proposals

- 2017 proposal for a cooperative agreement between the Canyon Country Discovery Center and U.S. Bureau of Land Management to support seed collection, propagation, development of demonstration gardens, and educational programs dealing with native plants of the Colorado Plateau. The award was \$85,952 during 2017 and is renewable on an annual basis through 2022.
- Two 2016 grant proposals for riparian restoration work from Watershed Restoration Initiative (WRI): one for \$144,000 in funding to support tamarisk and Russian olive removal on the Dolores River at remote locations identified as high priority restoration sites by the Dolores River Restoration Partnership and another for \$28,000 to support restoration of a side-channel of the middle San Juan River as potential juvenile habitat for endangered Razorback Suckers (*Xyrauchen texanus*) and Colorado Pikeminnow (*Ptychocheilus lucius*).