

# Zane L. Marshall

## Work Contact Information

Southern Nevada Water Authority  
Groundwater Resources Department  
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## ACADEMIC HISTORY

University of Nevada Las Vegas  
4505 S. Maryland Parkway.  
Las Vegas, NV 89154-5012  
(702) 895-3399

**2006**      Master of Arts in Science in Biology and Statistics  
Graduate Research Project: "Phylogeography and Conservation Biology of the  
Desert Pocket Mouse (*Chaetodipus penicillatus sobrinus*)"

**1996**      Bachelor of Arts in Environmental Studies, Minor in Biology

### Awards and Scholarships

Dean's Honor List  
National Dean's List  
University President's Scholarship

### Scholastic Organizations

The Honor Society of Phi Kappa Phi  
UNLV Alumni Association

## WORK HISTORY

**2006-Present** Environmental Resources Division Manager  
Southern Nevada Water Authority  
Environmental Resources Division  
Groundwater Resources Department

Professional Staff Supervision and Project Team Leadership

Supervise a team of up to 20 professional environmental staff, conduct staff performance evaluations, prepare staffing plans and carry out staff management activities. Lead multidisciplinary research teams, which include senior professional staff, on various environmental and water resource related projects.

Project Management

Administer research, planning and construction projects dealing with sensitive, threatened and endangered species, and national and international environmental policy with total annual budgets exceeding \$3,000,000. Prepare budget proposals and manage approved budgets. Lead and/or participate in field research activities. Interpret research results and give presentations, both written and oral, to internal management, outside agencies, professional organizations and the public.

Environmental Policy and Planning

Actively participate in environmental planning processes such as multi-species conservation programs and Endangered Species Act (ESA) recovery teams. Review and address environmental documents, position papers, legal briefs and court decisions. Coordinate and participate in educational tours and workshops concerning environmental issues such as the Colorado River Delta in Mexico and the Salton Sea.

Environmental Compliance

Conduct environmental investigations and associated analyses, and prepare reports and other documentation required by the National Environmental Policy Act, Endangered Species Act, Clean Water Act and Federal Land Policy Management Act. Interpret environmental laws, regulations and policies relevant to the agency's mission.

Interagency Coordination and Cooperation

Establish relationships with state and federal agencies and other stakeholders, both in the United States and Mexico, and work in teams to identify problems and develop cooperative solutions concerning sensitive biological resources.

**2002-2006**

Senior Biologist

Southern Nevada Water Authority  
Environmental Resources Division  
Groundwater Resources Department

Biological Studies Principal Investigator

Design and implement scientific investigations concerning the distribution, status and ecology of sensitive biological resources, including the following taxonomic groups: small mammals, bats, raptors, passerines, fish, amphibians and vascular plants.

Nevada State Engineer Expert Witness in Biological Resources

Prepared and provided expert testimony concerning biological resources and their association with groundwater development in Spring Valley.

**1996-2002**    Environmental Biologist I/II  
Southern Nevada Water Authority  
Resources Department

Conducted field surveys for sensitive, threatened and endangered species. Managed environmental consultant contracts. Reviewed and contributed to biological research reports. Participated as a member of several ESA recovery teams and as a technical member of multiple committees during the development of the Clark County Multi-Species Habitat Conservation Plan and Lower Colorado River Multi-Species Conservation Program.

**1995-1996**    Environmental Intern  
Las Vegas Valley Water District  
Research Department  
1001 S. Valley View Blvd.  
Las Vegas, Nevada 89153  
(702) 870-2011

Supported technical staff in conducting biological resource investigations. Participated in field surveys for sensitive, threatened and endangered species. Worked with environmental consultants. Reviewed and summarized publications and reports concerning biological resources.

**1994-1995**    Environmental Intern  
Southwest Gas Corporation, Inc.  
Corporate Office, Staff Engineering Department  
5241 Spring Mountain Road  
Las Vegas, Nevada 89103  
(702) 876-6405

Produced State Fire Marshal reports. Assisted in storm water runoff management and permitting, waste storage facility audits, underground storage tank compliance, and hazardous and special waste management. Aided in the management of environmental contractors. Worked to design and implement a corporation-wide environmental compliance program.

**1992-1994**    Environmental Technician  
Dames & Moore, Inc.  
Las Vegas Office, Environmental Department  
4220 South Maryland Parkway

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Las Vegas, Nevada 89119  
(702) 796-7800

Performed paleoenvironmental analyses using packrat middens, sediment core samples, and pollen samples. Conducted sensitive, threatened and endangered species surveys for plants, birds, reptiles, and small mammals. Participated in cultural resource surveys and prepared artifacts for museum curation.

## **MILITARY HISTORY**

**1990-1998** Sergeant (Honorably Discharged)  
United States Marine Corps Reserve  
3<sup>rd</sup> Platoon, Fox Company, 2<sup>nd</sup> Battalion, 23<sup>rd</sup> Marines, 4<sup>th</sup> Marine Division  
5755 Blytheville Road, Building 1032, Las Vegas, Nevada 89115  
(702) 632-1501

Completed Marine Corps Boot Camp, School of Infantry and Anti-tank TOW Missile Weapon System School. Participated in infantry training exercises and performed volunteer duties as a member of the Honor Guard and Color Guard. Supervised up to 40 marines with limited oversight during Desert Storm. Developed and conducted military training courses in infantry combat techniques, combat first aid and leadership.

Badges, medals and awards include: Meritorious Unit Citation, Selected Marine Corps Reserve and National Defense Service medals; six Expert Rifleman badges; meritorious promotions to Private First Class and Corporal; and, three meritorious awards for outstanding leadership and performance.

## **VOLUNTEER HISTORY**

**2007-Present** UNLV Department of Environmental Studies Advisory Board Member  
University of Nevada, Las Vegas  
Environmental Studies Department  
4505 S. Maryland Pkwy.  
Las Vegas, NV 89154  
(702) 895-4457

**2004-Present** Volunteer Biologist  
North American Breeding Bird Survey  
USGS Patuxent Wildlife Research Center  
Laurel, MD 20708

Conduct breeding bird surveys on established transects in the Great Basin Desert as part of a nation-wide program.

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**2003-Present** Board Member (Director)

Great Basin Bird Observatory  
1755 E. Plumb Lane, Ste. 256 A  
Reno, NV 89502  
(775) 323-4226

Provide organizational oversight, review and approve budgets and expenditures, and provide technical advice concerning research methods.

**2003-Present** Volunteer Biologist

Great Basin Bird Observatory  
1755 E. Plumb Lane, Ste. 256 A  
Reno, NV 89502  
(775) 323-4226

Conduct breeding bird monitoring surveys in the Mojave and Great Basin Deserts as part of a statewide program.

**2001-Present** Research/Technical Cave Diver

Death Valley National Park  
Devils Hole Research Dive Team  
Resources Management Division  
Death Valley, CA 92328  
(760) 786-3252

Participate in population counts and various research and monitoring activities concerning the endangered Devils Hole pupfish (*Cyprinodon diabolis*), and continued exploration of Devils Hole. Provide technical recommendations concerning Devils Hole to the Ash Meadows Recovery Team.

**1992-1993** Field Technician

University of Nevada, Las Vegas  
Geological Sciences Department  
4505 S. Maryland Pkwy.  
Las Vegas, NV 89154  
(702) 895-3262

Assisted graduate students in collecting and analyzing water samples from springs in remote backcountry locations within Grand Canyon National Park.

**1992-1993** Biology Research Assistant

University of Nevada, Las Vegas  
Department of Biological Sciences  
4505 S. Maryland Pkwy.  
Las Vegas, NV 89154

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Assisted graduate students in phylogenetic studies of sensitive, threatened and endangered species in a DNA sequencing laboratory. Prepared mitochondrial DNA (mtDNA) samples for amplification in polymerase chain reaction equipment. Labeled mtDNA samples with radioactive isotopes. Prepared polyacrylamide gels and ran amplified mtDNA samples through gel electrophoresis.

## **POSTERS AND PRESENTATIONS**

American Society of Mammalogists. June 2007. Albuquerque, NM. Poster: "Phylogeography of the Desert Pocket Mouse (*Chaetodipus penicillatus*)."

American Society of Mammalogists. June 2007. Albuquerque, NM. Poster: "Bat and Small Mammal Species Inventory of Several Valleys in East-central Nevada and West-central Utah."

Nevada State Engineer's Spring Valley Hearing. September 2006. Carson City, NV. Presentation: "Biological Resource Investigations, Effects Analyses and Mitigation Planning."

Society of Independent Professional Earth Scientists. June 2006. South Lake Tahoe, NV. Presentation: "Planning for a sustainable Nevada."

Bonneville Chapter of American Fisheries Society. March 2006. Park City, UT. Presentation: "Planning for a sustainable Nevada."

Nevada Water Resources Association, Annual Meeting. February 2006. Mesquite, NV. Panel Moderator: "Biological Topics in Basin and Range Hydrogeology."

Nevada Water Resources Association, Colorado River Symposium. October 2005. Las Vegas, NV. Presentation: "Importance of the Colorado River to environmental resources".

Bureau of Land Management, Cooperating Agency Biological Resources Technical Committee for the Clark, Lincoln and White Pine Counties Groundwater Development Project. June 2005. Las Vegas, NV. Presentations: "Biological resource investigations overview", "Mojave Desert wetland, riparian and aquatic ecosystems and associated sensitive resources occurring within the biological resources study area" and "Great Basin terrestrial wildlife."

Desert Fishes Council. November 2004. Tucson, AZ. Presentation: "In-state water resource planning and development."

American Society of Mammalogists. June 2004. Arcata, CA. Presentation: "Phylogeography of the Desert Pocket Mouse (*Chaetodipus penicillatus*) with emphasis on the conservation of *C. p. sobrinus*."

Devils Hole Workshop. June 2004. Pahrump, NV. Presentation: "Research and management

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concerning the Devils Hole pupfish – A status update.”

University of Nevada, Las Vegas, Department of Biological Sciences, Student Symposium. October 2003. Las Vegas, NV. Presentation: “Phylogeography and conservation biology of the Desert Pocket Mouse (*Chaetodipus penicillatus sobrinus*).”

The Wildlife Society. September 1997. Snowmass, CO. Poster: “Vegetation classification of Great Basin and Mohave Desert vegetation using satellite images, GIS, and ERDAS imaging software.”

Nevada Water Resources Association. 1996. Las Vegas, NV. Presentation: “Environmental resource investigations in the lower Virgin River.”

## **PROFESSIONAL ORGANIZATIONS, COMMITTEES AND RECOVERY TEAMS**

### Professional Organizations

Cooper Ornithological Society  
Desert Fishes Council  
Ecological Society of America  
Great Basin Bird Observatory  
Nevada Water Resources Association  
Society of Conservation Biology  
Southwestern Association of Naturalists

### Natural Resource Committees

Clark County Multi-Species Conservation Plan Implementation and Monitoring Committee  
Lower Colorado River Multi-Species Conservation Program (LCR MSCP) Steering Committee  
LCR MSCP Adaptive Management Subcommittee (Chair)  
LCR Native Fishes Workgroup

### Conservation and Recovery Teams

Ash Meadows Recovery Team  
Big Springs Spinedace Recovery Implementation Team  
Lower Virgin River Recovery Implementation Team  
Muddy River Recovery Implementation Team  
Railroad Valley Recovery Implementation Team  
Relict Leopard Frog Conservation Team  
Southwestern Willow Flycatcher Regional Recovery Implementation Team  
Virgin River Fishes Recovery Team  
White River Recovery Implementation Team

## **SPECIAL TRAINING**

### Leadership Training/Certifications

Las Vegas Valley Water District Leadership Academy

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NAUI Dive Master

USMC Non-commissioned Officer Leadership Course

Technical Training/Certifications

HEP500, Habitat Evaluation Procedures

Population Viability Analysis Methods

Desert Tortoise Ecology and Survey Techniques

Southwestern Willow Flycatcher Ecology and Survey Techniques

Fisheries Field Techniques

Mammalogy Field Techniques

Vascular Plant Taxonomy

Plant Ecology

Habit Conservation Planning

Population Genetic

Multivariate Statistics

Statistical Research Design

Nitrox and Advanced Nitrox SCUBA

Decompression Diver SCUBA

Full Cave SCUBA

CPR/First Aid

Swiftwater Rescue Technician