



# DIVISION OF EARTH & ECOSYSTEM SCIENCES

[WWW.DRI.EDU/DEES](http://WWW.DRI.EDU/DEES)

**T**he Division of Earth and Ecosystem Sciences (DEES) is one of three scientific research divisions within DRI. Since its inception in 1999, DEES has grown steadily and built a strong program of research, development, and education in the earth and ecosystem sciences. The DEES research portfolio reflects the interplay between local, state, national, and international environmental issues, the expertise of our faculty, and the availability of research funding.

The mission of DEES is to conduct high-quality basic and applied research in the life and earth sciences, particularly those dealing with the complex interactions of geological processes, organisms, biological communities, and human societies on the earth's surface. We strive to be responsive to the scientific community through publications and service, to develop the scientific pipeline, and to help inform the general public on issues of vital environmental concern. We address our mission through multidisciplinary research and education, with a highly diverse faculty supported by graduate research assistants and technicians. DEES has approximately 80 ongoing research projects with an annual budget of close to \$12 million, primarily derived from external research sponsors.

## RESEARCH AREAS

- Anthropology, Archaeology, Paleocology
- Biological Sciences
- Health Sciences
- Geological Sciences
- Remote Sensing, GIS & Visualization
- Research Commercialization



**PHOTO CAPTIONS** Top left: Scientists work in the greenhouse at DRI in Reno, Nevada; Top right: Researchers conduct soil sampling in southern California. Bottom right: Scientist uses a UAS to collect images of soil and vegetation in central California.

## NEVADA SCIENCE, GLOBAL SOLUTIONS

The Desert Research Institute (DRI) is a recognized world leader in basic and applied interdisciplinary research. Committed to scientific excellence and integrity, DRI faculty, students, and staff have developed scientific knowledge and innovative technologies in research projects around the globe. Since 1959, DRI's research has advanced scientific knowledge, supported Nevada's diversifying economy, provided science-based educational opportunities, and informed policy makers, business leaders, and community members. With campuses in Reno and Las Vegas, DRI serves as the non-profit research arm of the Nevada System of Higher Education.

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## LABORATORIES

### RENO

Archaeobotany Lab  
DRI Luminescence Lab  
Ecologically Controlled Enclosed  
Lysimeter Labs (ECOCELLs)  
Frits Went Lab  
Laboratory of Molecular Responses  
Micro Analysis & Visualization Lab  
Molecular Microbial Ecology Lab  
Soil Characterization and  
Quaternary Pedology Lab  
Systems Microbial Ecology Lab  
Spatial Analysis Facilities

### LAS VEGAS

Archaeology Lab  
Geomicrobiology Lab  
Nevada Desert Research Center  
Spatial Analysis Facilities



**PHOTO CAPTIONS** Above: Researcher takes a soil crust measurement in southern Nevada; Top left: DEES researcher measures and catalogues archaeological samples at DRI's Las Vegas campus; Top right: Researcher measures dust in Israel using a device developed at DRI called the PI-SWERL.



## SERVICES & CAPABILITIES

### ARCHAEOLOGY, ANTHROPOLOGY & PALEOECOLOGY

- Cultural resources inventory and management
- Historic preservation of cultural sites
- Study of ancient species, ecosystems & climates

### BIOLOGICAL SCIENCES

- Astrobiology
- Biogeochemistry of extreme environments
- Plant and ecosystem ecology
- Environmental genomics
- Microbial ecology and molecular biology
- Ecosystem and agricultural sustainability

### GEOLOGICAL SCIENCES

- Geoscience support for military operations
- Dust and aerosol characterization
- Soil science and soil testing
- Geochronology and luminescence dating
- Geochemical modeling
- Quaternary geomorphology

### HEALTH SCIENCES

- Genetics and population health
- Bioinformatics and health analytics
- Personalized medicine and wearables

### REMOTE SENSING, GIS & VISUALIZATION

- Analytics, informatics, machine learning and data visualization
- Environmental forensic studies
- Species and habitat mapping
- Unmanned aerial systems (UAS) applications and development
- Water resource and water rights mapping

### RESEARCH COMMERCIALIZATION

- TuBiomics: Agricultural pharmaceutical company creating organic antifungal chemicals
- Predira: Weather intelligence platform for localized pest and disease forecasts



## PROJECT FUNDING SOURCES

### FEDERAL SPONSORS

Department of Energy  
Department of Defense  
Department of Interior  
National Aeronautics & Space Administration  
National Science Foundation  
U.S. Department of Agriculture

### STATE SPONSORS

Nevada Division of Environmental Protection  
Governor's Office of Economic Development  
Nevada System of Higher Education

### LOCAL GOVERNMENT SPONSORS

Clark County  
Nevada Tahoe Conservation District  
Southern Nevada Water Authority  
Lincoln County

### PRIVATE SPONSORS

Renown Health

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