

Division of Earth and Ecosystem Sciences



The 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 next generation of scientists, 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 approximately \$14 million, primarily derived from external research sponsors.

RESEARCH AREAS

- Archaeology & Anthropology
- Cultural Resources Management
- Architectural History
- Data Analytics & Spatial Analysis (GIS, Remote Sensing, UAS)
- Ecology, Ecohydrology, Conservation Ecology & Land Management
- Microbial Sciences, Life in Extreme Environments & Biotechnology
- Quaternary Paleoecology
- Soil Biogeochemistry & Carbon Dynamics
- STEM Education & Citizen Science
- Terrain Analysis/Geomorphology/Geochronology
- Traditional Ecological Knowledge & Climate Change



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DRI IS PART OF THE NEVADA SYSTEM OF HIGHER EDUCATION

Left: A historic ranching cabin at an archaeological site in Nye County, NV.

Right: DRI Researchers conducting native plant research in the Eastern Mojave Desert, NV.

Bottom: Drone (a.k.a. UAS) equipped with a multispectral camera for image collection during a test flight over the DRI campus.



SERVICES & CAPABILITIES

Archaeology & Anthropology

Archaeological material analysis; Archaeological photogrammetry; Geoarchaeology; Historic preservation of cultural sites; Study of ancient species; Ecosystems & climates

Architectural History

Federal rehabilitation tax credit applications; Historic context statements; Historic district surveys; Historic structure reports; National register of historic places evaluations and nominations; Secretary of the Interior' standards compliance reports

Cultural Resources Management

Cultural places and constructions of importance to tribes; Cultural resources inventory and recording; Early history Euro-American entry and occupation; Section 106 and 110 of the National Historic Preservation Act Compliance Reports; Section 106 agreement documents (MOAs; PAs); Tribal consultation and engagement assistance



Data Analytics and Spatial Analysis (GIS; Remote Sensing; UAS)

3D point-cloud modeling; Analytics, informatics, machine learning and data visualization; Medical resources access evaluation and mapping; Species distribution modeling and habitat mapping; Unmanned aircraft systems (UAS) applications and development; Water resources and water rights mapping

Ecology; Ecohydrology; Conservation Ecology and Land Management

Desert land restoration and management; Plant and ecosystem ecology; Rare plant ecology; Wetland identification and restoration

Microbial Sciences; Life in Extreme Environments and Biotechnology

Astrobiology; Biogeochemistry of extreme environments; Environmental genomics and bioinformatic analysis; Microbial diversity of aquatic, cryosphere, and arid ecosystems; Microbial natural products; Microscopy and flow cytometric analysis of aquatic microorganisms; Molecular microbial ecology

Soil Biogeochemistry & Carbon Dynamics

Ecosystem and agricultural sustainability; Ecosystem flux measurements (H_2O ; CH_4 ; CO_2 ; N_2O); Wildfire ecology

STEM Education & Citizen Science

All-ages education; Educator Professional Development Trainings; Community and citizen science engagement; K-12 STEM education; Workforce Development

Terrain Analysis/Geomorphology/Geochronology

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

Traditional Ecological Knowledge & Climate Change

Climate resilience on native lands; Native and indigenous agriculture and food sovereignty; Sharing indigenous climate knowledge and stories; Sustaining water and natural resources on native lands



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We are Nevada's non-profit research institute, founded in 1959 to empower experts to focus on science that matters. We work with communities across the state — and the world — to address their most pressing scientific questions. We're proud that our scientists continuously produce solutions that better human and environmental health. At DRI, science isn't merely academic — it's the key to future-proofing our communities and building a better world. For more information, please visit www.dri.edu.

Science that matters now.™