

# Canyonlands Research Center

*Communities that rely on the lands of the Colorado Plateau and waters of the Colorado River are facing a crisis. Increasing temperatures and prolonged droughts, coupled with increasing human impacts and demands, will dramatically affect this landscape and its resources in the near future. Yet scientists, policy makers, land managers and ranchers lack adequate information to make decisions about how best to prepare for the looming ecological and water supply changes.*

## Science-Based Solutions

The Canyonlands Research Center will establish an innovative science collaborative and research site to provide decision-makers with information about climate and land use interactions on the Colorado Plateau. Based at the Conservancy's iconic Dugout Ranch, the Canyonlands Research Center will help to inform and influence arid land use policies, addressing issues such as diminished Colorado River water quantity and quality, species loss and invasive species. The Center will also develop and share new, sustainable land use practices to help protect the natural and human communities of the Colorado Plateau and other arid land systems around the world.



## Colorado Plateau: Nowhere Else on Earth

The Colorado Plateau is becoming one of our country's most popular and conflicted regions – a coveted remnant of American wilderness, a hotbed of growing human pressures and an at-risk home for unique species and systems.

Flanked by the Rocky Mountains on the east and the Great Basin on the west, the Colorado Plateau spans 76,000 square miles across southeastern Utah, northern Arizona, northwestern New Mexico and southwestern Colorado. Elevation ranges are steep, stretching from below 2,000 feet to almost 13,000 feet. And although it is a desert, the Plateau contains two of the continent's largest rivers, the Colorado and the Green, channeling water to millions of people in seven U.S. states and Mexico. With five of the country's fastest-growing cities ringing the region, tourism and recreation are growing exponentially.

By virtue of its complex geology and specialized land forms, the Plateau supports numerous species found nowhere else in the world. Plants are the most biologically diverse group, with 300 endemic species found only on the Plateau. The region also provides critical habitat for some of the West's most charismatic species including desert bighorn sheep, pronghorn and mountain lions as well as a wealth of aquatic species, such as the endangered Colorado pikeminnow and humpback chub.

## Crisis in the Making

Decades of change and use are taking their toll on the Plateau, and mounting ecological problems are now compromising this region's lands and waters. Invasive plants and animals, recreation, development and inappropriate grazing are disrupting ecosystems, threatening water resources and devastating native species. More than 150 of the Plateau's plant and animal species are considered at risk, and 27 species are currently listed as Endangered or Threatened.

Scientists predict that the Colorado River Basin is on track for severe drought, far worse than at any time in the last century. Higher temperatures, combined with prolonged droughts, will reduce soil moisture causing a decrease in plant cover and soil stability on



lands that are already compromised by activities such as grazing and recreation. Loose soils lead to more wind-deposited dust on western snowpacks, accelerating snowmelt and decreasing runoff—threatening the quality and quantity of Colorado River water. Decreased soil moisture will also lead to a loss of native vegetation and wildlife habitat, as well as an explosion of invasive species such as cheatgrass.

## New Hope & Real Answers

Designed to address the most pressing challenges facing rural Utah, the Canyonlands Research Center will provide new information about how temperature, rainfall and land uses combine to effect the productivity and health of natural resources on the Colorado Plateau. Researchers are focusing on the relationships between climate and local issues such as Colorado River water supplies, grazing, recreation and invasive species. Scientists and stakeholders will use this outdoor laboratory to develop land management strategies that aid ranchers, communities, agencies and policy makers in their efforts to sustain the region's lands and waters.

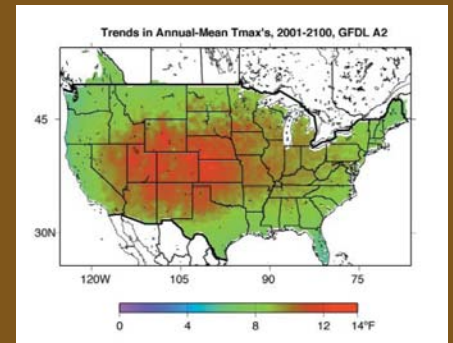
- **Ideal Location:** With The Nature Conservancy's Dugout Ranch at its core, the Canyonlands Research Center site spans lands managed by the USDA Forest Service, Bureau of Land Management and Canyonlands National Park, giving scientists the opportunity to study wide gradients of elevation, ecology and land-use histories. The Center is also situated along the boundary of the Southwestern monsoon climate zone, making it particularly sensitive to climatic variation.
- **The Right Science:** The Center brings together scientists, public land managers, ranchers and other local stakeholders to answer the questions that will define the future of this region's environment and economy. Research topics are designed to translate into land management tactics and strategies that will produce tangible results. Answers generated at the Center will help rural Utah as it strives to:
  - Maintain multiple land uses that meet human needs in an ecologically-sustainable fashion.
  - Ensure adequate water quantity and quality.
  - Control invasive species, which promote massive fires and degrade streams and soils.

- **Powerful Partnerships:** The Center is formed by a suite of diverse partners who support the importance of its mission and research. Current partners include: The Nature Conservancy, Utah State University, U.S. Geological Survey, National Park Service, USDA Forest Service, Bureau of Land Management and Indian Creek Cattle Company.

## For More Information:

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## More Rapid Warming in the West



According to the Rocky Mountain Climate Organization and the Natural Resources Defense Council, the American West has warmed 70 percent more than the planet as a whole. The West's most pronounced temperature increase is in the Colorado River Basin, which has warmed more than twice as much as the global average.

Without science-based answers and new actions to prepare for higher temperatures and longer droughts, this region's natural resources could falter. The Canyonlands Research Center will provide practical solutions to help Utahns adapt now and sustain livelihoods and communities as well as critical lands and waters.

*Graphic courtesy of U.S. Geological Survey*