



Jornada Newsletter

October 2021

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USDA-ARS Land Management Research Unit
Jornada Experimental Range,
Las Cruces, NM



United States Department of Agriculture
Agricultural Research Service



Southwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

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The Jornada

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Quadrat-based monitoring of desert grassland vegetation at the Jornada Experimental Range, New Mexico, 1915–2016

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The Jornada

Science-based Knowledge for Sustainability of Rangelands.

Our mission is to conduct long-term, collaborative research to sustain agriculture and other land uses in rangelands. Our research group is collaboration of the USDA Agricultural Research Service, New Mexico State University, and USDA Natural Resources Conservation Service in Las Cruces, New Mexico. We link site-based research on ecosystem change, innovative livestock production systems, and ecological restoration with national and global research on land health monitoring and decision support tools. We are a part of the USDA Long-Term Agroecosystem Research and Long-Term Ecological Research Networks. We host the USDA Southwest Climate Hub and collaborate with the Asombro Institute for Science Education. [See Jornada website](#)



Research Results

Recently published papers are highlighted below. We constantly update our papers and abstracts--over 3,500 of them. To view papers go to [Jornada Bibliography](#).

Ten practical questions to improve data quality

We present ten practical questions that guide data quality in monitoring and research studies. See the paper [here](#).

Sampling design workflows and tools to support adaptive monitoring and management

We present a workflow for developing sample designs in monitoring program. See the paper [here](#).

Assessing Sustainability Goals Using Big Data: Collaborative Adaptive Management in the Malpai Borderlands

The effects of collaborative adaptive management carried out by the Malpai Borderlands Group were measured by comparing several vegetation, management, and land use datasets among landscapes. See the paper [here](#).

Effects of managed fire on a swale grassland in the Chihuahuan Desert

We used 5 years of monitoring to evaluate the effects of managed fire in a productive swale grassland. See the paper [here](#).

Monitoring agroecosystem productivity and phenology at a national scale: A metric assessment framework

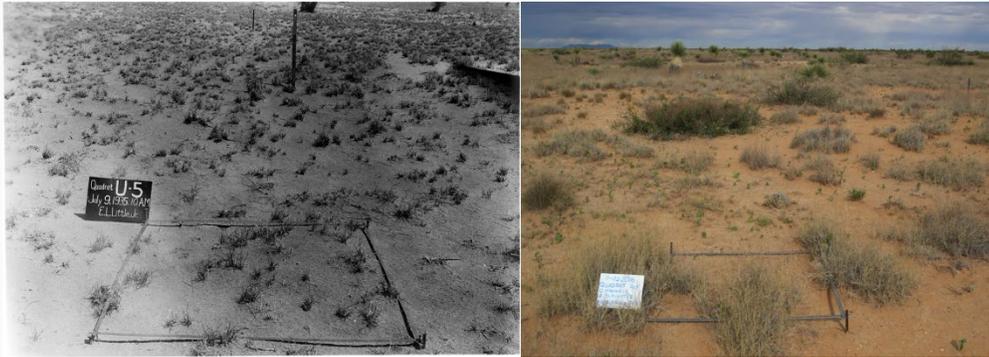
Effective measurement of seasonal variations in the timing and amount of production is critical to managing spatially heterogeneous agroecosystems in a changing climate. See the paper [here](#).



News

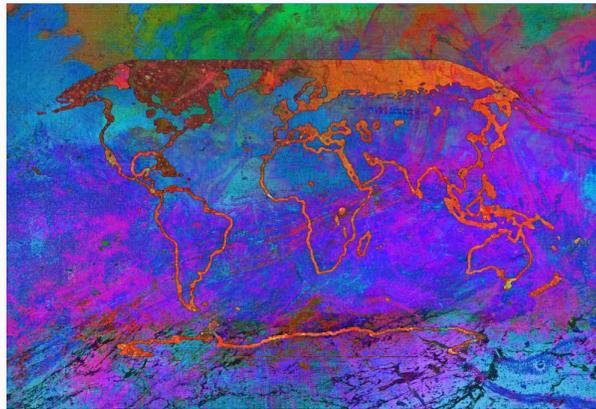
Quadrat-based monitoring of desert grassland vegetation at the Jornada Experimental Range, New Mexico, 1915–2016

by Erica Christensen



Over one hundred years of vegetation monitoring data were made freely available to the public in the journal *Ecology*. The data set (1915-2016) includes quadrat-based plant cover and size/location of plants alongside quadrat environmental information at the Jornada Experimental Range in southern New Mexico. The permanent chart quadrat project, consisting of 122 1m by 1m quadrats, was established to provide yearly monitoring data for informing science-based livestock management. The monitoring effort was suspended in 1980 but was reinstated in 1995 with records currently gathered at 5-year intervals. At each sampling event, a pantograph was used to record the location and perimeter of living perennial grasses, forbs, and shrubs within permanent quadrats. These data provide a unique opportunity to investigate changes in the plant community over 100 years of variation in climate and other environmental conditions. Previous versions of the data have also been used in investigations of plant demography, species interactions, and community transitions.

See more: [here](#)



Now Available: IPCC Sixth Assessment Report - The Physical Science Basis

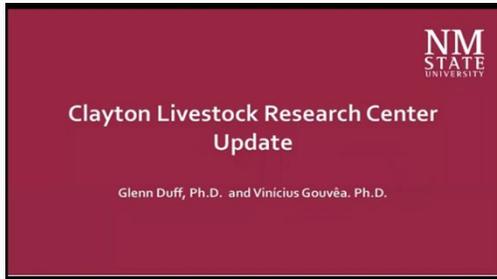
The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body charged with assessing the science related to climate change. The IPCC has three working groups: Working Group I addresses the physical science basis of climate change; Working Group II addresses impacts, adaptation, and vulnerability; and Working Group III addresses climate change mitigation. In August 2021, Working Group I published the most up-to-date understanding of climate change and the climate system in their contribution to the Sixth Assessment Report. The Working Group I report states, “Recent changes in the climate are widespread, rapid, and intensifying, and unprecedented in thousands of years”. They also recommend action, stating that “To limit global warming, strong, rapid, and sustained reductions in CO₂, methane, and other greenhouse gases are necessary”.

View the report, interactive atlas, and other materials [here](#).



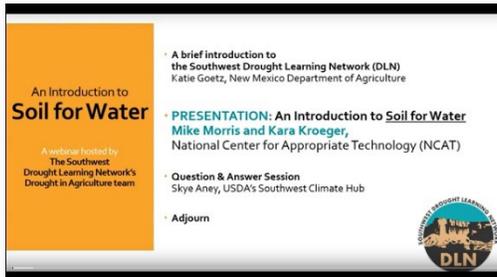
Media

Highlight of the Clayton Livestock Research Center (CLRC) - Dr. Glenn Duff, Superintendent



The Jornada collaborates with the CLRC through the Sustainable Southwest Beef Project. The Sustainable Southwest Beef Project is funded by USDA National Institute of Food and Agriculture, Agriculture and Food Research Initiative's Sustainable Agricultural Systems (SAS) program. Grant #2019-69012-29853

See video [here](#).



Introduction to the Soil for Water Project

Mike Morris and Kara Kroeger of NCAT (the National Center for Appropriate Technology) explain how their Soil for Water project is building a peer-to-peer network of innovative farmers and ranchers who are bringing degraded soils back to life and discovering ways to catch and store more water in their soils. Soil for Water (<https://soilforwater.org/>) is a project of the National Center for Appropriate Technology (<https://www.ncat.org/>).

See video [here](#).





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