JORNADA TRAILS

Jornada Basin Long-Term Ecological Research Program

Volume 7, Issue 2, November 2001

Seeing With New Eyes

Remote Sensing Yields Insight Into Jornada History

by Dr. Al Rango
USDA-ARS Jornada Experimental Range

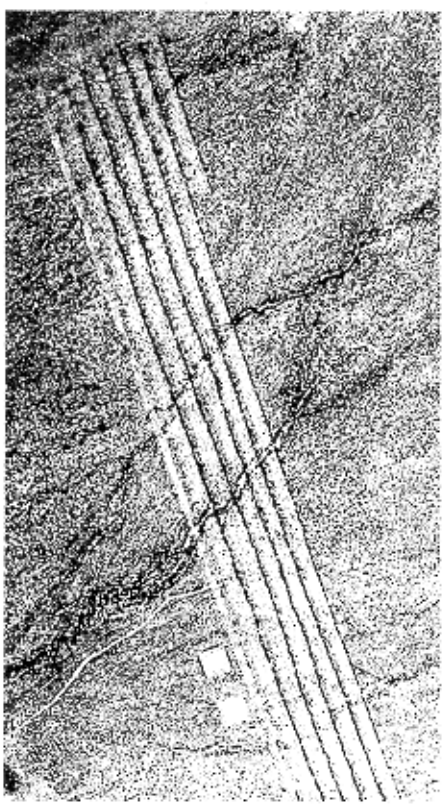
Editor's note: Al Rango recently joined the staff at the Jornada Experiment Range after beginning research here several years ago as a scientist with the ARS Hydrology Laboratory in Beltsville, Md. The following is his firsthand account of bringing new perspectives to bear on features of the landscape that have long puzzled many of the rest of us.

In 2000, I spent a sabbatical at the Jornada Experimental Range, and while in residence I was able to examine some aerial photos from 1937, 1974, and 1986. It was apparent that land cover had changed greatly in fifty years, and there were unusual features that could not be accounted for by grazing pattern and pasture boundaries. These features were tentatively identified as rangeland remediation treatments. To confirm that they were treatments and to monitor their change with time, I sought out additional aerial photography from air photo archiving facilities.

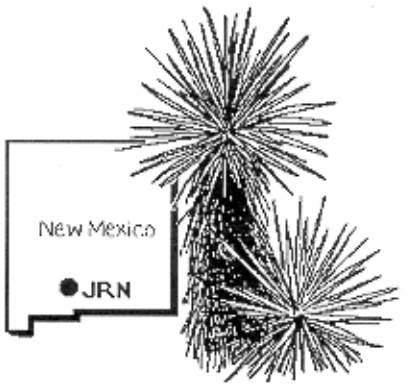
There are three such major archives—the National Archives in Washington,

(continued on page 2)

Historic aerial photos allow assessment of various rangeland treatments, help explain unusual features of Jornada landscape



Strips resulting from 1936 manual clearing of creosote bush, north and east of Doña Ana Mountains, in a 1937 aerial photograph.



The Jornada Basin LTER Program is an NSF-funded project.

Friends of the Jornada Gather Again

by Dr. William H. Schlesinger
Duke University

More than 100 scientists, land managers, and Chihuahuan desert naturalists gathered on July 12 for the Eleventh Annual Friends of the Jornada Symposium at New Mexico State University. With a special format this year, featuring a smaller selection of oral presentations, the symposium also featured more than 40 posters reporting on a broad range of activities by student and faculty researchers.

A keynote presentation by Harold Dregne of Texas Tech University captured the theme of the symposium—how do we recognize when the degradation of arid lands has passed a point of no return? Dr. Dregne, perhaps the world's leading

(continued on page 3)

inside...

Seeing With New Eyes: Remote Sensing Yields Insight Into Jornada History

(Continued from page 1)

D.C., the USGS EROS Data Center in Sioux Falls, S.D., and the USDA Aerial Photo Field Office in Salt Lake City, Ut. Small archives, like the one at Whittier College, also had pertinent data.

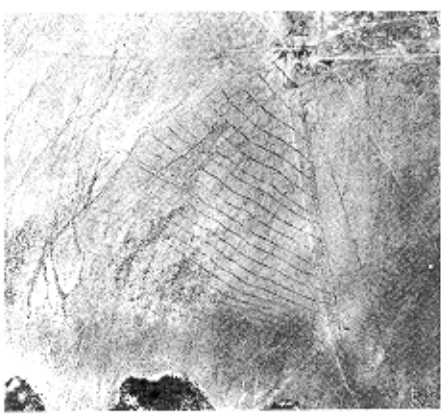
Eventually data were obtained for all or parts of the Jornada Basin for the years 1935, 1936, 1937, 1947, 1948, 1955, 1960, 1963, 1967, 1972, 1973, 1974, 1977, 1979, 1980, 1986, 1991, 1996, and 1998.

Analysis of these data has permitted temporal viewing and assessment of the longevity of rangeland treatments. These include the parallel pattern of grubbed strips (removal of creosote and mesquite shrubs in 1936 by Civilian Conservation Corps labor) on the Chihuahuan Desert Rangeland Research Center (see photo, page 1), and clear identification of water-ponding dikes.

These last may be the most effective rangeland treatment; that is, these dikes may result in greater, and longer-lasting, modification of vegetation than many of the more "intensive" remediation approaches.

More data, including military air photos, are currently being acquired from these archives and other sources. Approximately 3000 historical aerial photos will eventually be acquired for the Jornada Basin.

These data are being digitized and indexed; in the future, researchers will be able to search an interactive database for aerial photography covering their current or proposed study sites.



Terraces near the Mt. Summerford bajada, in a 1937 aerial photograp h. Terraces formed by Civilian Conservation Corps personnel in 1935.

J·O·R·N·A·D·A T·R·A·I·L·S

Jornada Trails **is a biannual publication of the Jornada Basin Long-Term Ecological Research (LTER) Program, sponsored by the National Science Foundation. Stories and story ideas are welcome! Send them to:**

Laura F. Huenneke, Editor
Jornada Trails
Department of Biology, MSC 3AF
New Mexico State University
Las Cruces, NM 88003-8001
Email: lhuennek@nmsu.edu
Phone: 505-646-3933
Fax: 505-646-5665

Jornada Trails **also appears on the World Wide Web at http://jornada.nmsu.edu**

Newsletter by Lisa M. Dellwo

Jornada Basin Scientists Lead Scaling Workshops

by Dr. Debra Peters
USDA-ARS Jornada Experimental Range

A series of workshops related to extrapolating information across multiple spatial and temporal scales has been conducted over the past 13 months with support from the LTER Network office. Three workshops held during the 2000 LTER All Scientists meeting in Snowbird, Ut., provided the foundation for developing a network of researchers interested in scaling information from plots to landscapes, regions, and the globe.

A continuation workshop held in April 2001 and three working group meetings to be held over the next several months have promoted the coalescence of these participants into an integrative group. This group represents a broad range of terrestrial ecosystem types (forests, grasslands, deserts, ecotones), levels of organization (populations, communities, ecosystems), focus of study (plants, animals, soils, climate, and their feedbacks), and approach (experimentalists, theoreticians, and simulation modelers).

This integrative group has the potential to address a range of issues involved in working with landscapes, and to develop general scaling relationships and guidelines for new research. Four manuscripts are being written as part of this effort, and a symposium was submitted for inclusion in the 2002 ESA meetings.

Jornada LTER researchers Debra Peters, Jeff Herrick, Kris Havstad, and Curtis Monger have been instrumental in leading this effort.