

The Santa Rita Experimental Range Turns 100

Vegetation and wildlife studies assist range management

By Joanne Littlefield



M. McClaran

Vegetation on the range near Pyramid Hill in 2000.

The air is crisp and clean, the sky clear and blue. Thirty miles away from the bustle of city life in Tucson acres and acres of undeveloped rangeland roll to the base of the Santa Rita Mountains. Since 1903, University of Arizona scientists have gone there to gain a working knowledge of the land: what grows there, how climate changes affect it and much more.

At the turn of the 19th century more than 51,000 acres of land in what was then the territory of Arizona were set aside to research the effects of cattle grazing. One hundred years later the Santa Rita Experimental Range (SRER) still provides answers to some of the most pressing environmental questions of the day. Researchers there are looking at things such as carbon storage by plants; the effects of fire, noxious weeds and overuse on public lands; and the changing vegetative face of lands in the Southwest.

Mitchel McClaran, professor of range management in the School of Renewable Natural Resources at the UA College of Agriculture and Life Sciences (CALs), has been monitoring vegetative

changes at the Santa Rita since 1986. He has noticed two dramatic changes.

“In 1903 the mesquite was largely restricted to washes and now it’s on nearly every part of the station,” McClaran says. The other large change resulted from the introduction of Lehmann lovegrass from Africa in the 1930s, with deliberate periodic seeding of it on about one per cent of the range up until the 1960s. “That grass has been so successful that it is now probably present on about 85 percent of the Santa Rita,” he says. (Both mesquite and Lehmann lovegrass can crowd out other native plant species more desirable for grazing.)

Because of its proximity to campus, scientists from many CALs departments use the experimental range for research fieldwork and for outdoor class laboratory sessions. Projects include ornithology studies on both game and non-game birds; large game studies in cooperation with the Arizona Game and Fish Department; and even small mammal studies looking for the presence of hanta virus. The Forest Service is investigating termite colonies to

determine how many termites are affected by different kinds of termiticide.

About 700 head of cattle are used in long-term grazing research studies. Researchers are evaluating the response of vegetation to grazing rates, seasons of grazing and the rotation of the seasons.

“Some of these treatments started in the 1950s, so we have what’s approaching 50 years of information of vegetation response to these practices,” McClaran says. A private rancher pays grazing fees to run the livestock but CALs researchers determine how many cattle can be supported on the land, where to put them and for how long.

McClaran takes his range management classes out to the SRER twice a year. Its location just south of Tucson makes it convenient to visit.

“We can be on the ground and doing things within 45-60 minutes — it’s a great facility for educational purposes,” McClaran says. “So in a three-hour lab we can be out and back and get things done — all year round.”

The SRER was originally federal land administered by the United States For-



D. Griffiths

Historic photo shows vegetation near Pyramid Hill as it appeared on the Santa Rita Range in 1902.

est Service until 1988. A land exchange that created the Buenos Aires National Wildlife Refuge brought the Santa Rita under CALS administration as state land. McClaran chairs the research advisory committee.

“When the the college acquired the experimental range we didn’t receive any money to run it,” McClaran says, “although there was a dedicated budget when it was administered by the Forest Service. When we got it we did not receive a dedicated budget from the state, so we’ve been sort of on a shoestring to run it.” For this reason, fund raising activities will be held in conjunction with the upcoming centennial celebration to establish an endowment for operating the Santa Rita “at a little bit higher level of presence and assistance to researchers and educators than we have had before,” McClaran says. The official centennial celebration will include a three-day conference beginning October 29, 2003, with field tours following on November 2.

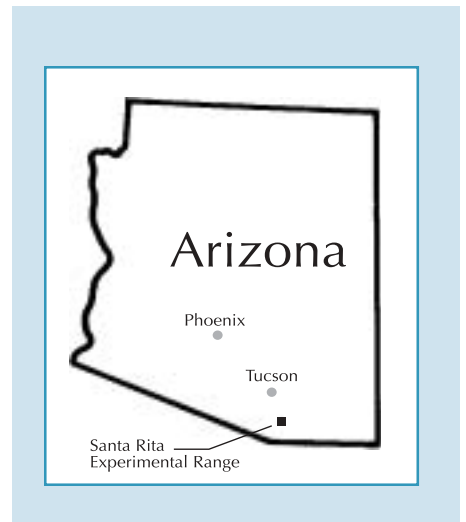
Looking toward the future, McClaran is currently working on a project in cooperation with NASA to

evaluate how land use practices affect the ability of plants to sequester carbon into the soil by pulling it from the atmosphere.

“NASA is interested in it because we’re using satellite imagery to extrapolate small study area findings to a larger area in the Southwest, evaluating the ability of remote sensing imagery to detect differences in vegetation and the associated carbon in the soil,” he says. By using historical photos and documentation, the project is evaluating mesquite killing treatments that took place in the 1930s and the 1960s.

“Because we know how long mesquite trees have been present and how long ago they were killed, we can begin to put together the rates of carbon accumulation under mesquite trees,” McClaran says.

Another project, funded by the National Research Initiative, is evaluating the role of seasonal rainfall in forecasting the effect various climate changes may have on vegetation. ☀



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For more information on the Santa Rita Experimental Range and the Centennial conference:
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