In a series of program interest surveys conducted in Gila County since 1995, range monitoring has been one of the highest priorities identified by clientele. Range monitoring workshops have been offered for several years by the University of Arizona, yet range monitoring as a standard operating procedure on Arizona ranches had been sporadically adopted. In 2000, a USDA grant, *Reading the Range* was obtained and demonstration ranches for range monitoring were established with technical assistance provided. In a time honored and proven Extension technique, it was hoped that establishment of demonstration ranches for range monitoring would encourage neighboring ranches to consider implementing similar practices on their ranches. Seaman Knapp, the father of Extension said, "*What a man hears, he may doubt; what he sees, he may also doubt; but what he does he cannot doubt.*"

Excellence in Extension has been defined by the Extension Council on Organization and Policy as the attainment of knowledge, attitudes, skills, and aspirations that cause a shift in behavior and actual implementation of important principles taught (2007; [http://www.joe.org/joe/2007february/tt1.php](http://www.joe.org/joe/2007february/tt1.php) [http://excellenceinextension.tamu.edu/ECOP.pdf](http://excellenceinextension.tamu.edu/ECOP.pdf)). Adoption of a collaborative range monitoring program by ranchers and agency employees and using the data generated to assist in management signifies a change of behavior and is evidence of program impact on the highest level.

In 2003, the University of Arizona Cooperative Extension *Rangeland Monitoring Program Evaluation Report* was conducted by Maria Fernandez-Gimenez (Rangeland Ecology & Management 58:89-98; Jan. 2005). The purpose of this extensive evaluation was to determine the impact of Extension's current rangeland monitoring program, and identify ways to improve it. The Conclusions and Recommendations section identified the following (among other items): 1.) The demand for Extension's rangeland monitoring services far exceeds supply with the main improvement suggested to increase program staffing. 2.) If future resources allow, the Rangeland Monitoring Program should develop a more integrated approach to monitoring education.

Immense benefits come from “rubbing shoulders together” as data is collected on the ground by agency and university employees, ranchers, and other interested citizens. In the survey referred to immediately above, 142 ranchers in five counties with United States Forest Service (USFS) grazing allotments, reported that their relationship with the USFS had greatly improved as a result of monitoring (13%) or that their relationship with USFS had somewhat improved (26%). For agency employees (n = 100), they reported that as a result of permittee or landowner participation in monitoring, relationships with permittees had greatly improved in 37% of the cases and had somewhat improved in 46% of the cases.

The *Reading the Range* monitoring program has been a collaborative venture between the Natural Resources Conservation Service (NRCS), the USFS, the University of Arizona (U of A) School of Natural Resources and the Environment, Gila County Cattle Growers, Gila County Board of Supervisors, U of A Cooperative Extension, and the Tonto Natural Resources Conservation District (TNRCD). Funding for *Reading the Range* has been provided by the NRCS, Gila County Board of Supervisors, TNRCD, USDA, U of A, USFS, and area ranchers. Additional support for software development (VGS data collection software) has been provided to the University of Arizona by Region III, USFS.
The **Reading the Range** monitoring program has been able to expand exponentially from 4 allotments in 2001 on 100,000 acres to now include 50 allotments on 1.23 million acres. On the Tonto National Forest, 48% of grazing allotments are now enrolled in **Reading the Range** and USFS officials recommend involvement in the program for new ranch owners. Data from **Reading the Range** are being collected from 225 key areas and the results are being incorporated into NEPA documents and annual operating instructions on the Tonto National Forest.

Due to the extensive expansion of **Reading the Range** and the increased data compilation and summary necessitated by an expanding program, we worked with the TNRCD, NRCS, and local ranchers to secure grant funds to purchase 8 military grade touchpad computers for field data entry. Dr. Del Despain, of Mohave County Cooperative Extension, wrote the VGS software we use for data entry. The touchpad computers have been successfully integrated into range monitoring by clientele from 9 to 69 years old. We have had several instances of ranchers who have never used a computer using the computers in the course of data collection.

Through **Reading the Range**, we have documented statistical improvements in improved plant diversity and a concurrent reduction in undesirable exotic species as a result of vegetation treatments applied by the rancher and the USFS. We have also documented improvements in plant species composition (from 8% perennial grasses to 40% over 8 years) on a degraded site on a hotly contested grazing allotment due to a requested range improvement (new cross fence); increased resiliency for a grazed site compared to an excluded site following the extreme drought of 2002; the ineffectiveness of winter moisture in increasing perennial grass forage production for Arizona sites heavily dominated by warm season grasses; the resiliency of grassland savanna sites to fire if moderate rains follow the wildfire; and the need for adaptive management due to extreme variation in forage production both spatially and across years. An abstract entitled *Change on the Range: Ten Years Rangeland Monitoring on the Tonto National Forest* presented some of these findings at the 64th Annual Society for Range Management meeting in Billings, MT in February 2011. Additionally, the **Reading the Range** program was the Western Region Winner in the Extension Education Poster Session for the National Association of County Agricultural Agents in 2008 and was part of a University of Arizona national team award from the USFS for Rangeland Research and Development in 2013.

Since 2001, there have been 125 range monitoring reports compiled on the Tonto National Forest, for a total of 34,148 pages. Five peer reviewed abstracts, 1 peer reviewed proceedings paper, 1 peer reviewed journal article, 2 peer reviewed posters, 2 non-peer reviewed posters, 3 non-peer reviewed range monitoring spreadsheets, and 10 non-peer reviewed articles in proceedings or newsletters have been published from **Reading the Range**. For the 2000 to 2012 period, I have organized or co-organized 29 workshops related to range management and range monitoring throughout the state. At these and other workshops, I have made approximately 70 presentations on various topics. Additionally, there have been 35 workshops related to range livestock production, nutrition, and grazing behavior topics that I have organized or co-organized throughout the state. At these and other workshops, I have made approximately 43 presentations.

Another four year cooperative project I was involved in was the **NEPA for Ranchers** guidebook to take some of the mystery out of the NEPA process for permittees and to show agency employees how they should be working with the permittee through the process. This guidebook has been published and is available at [https://extension.arizona.edu/sites/extension.arizona.edu/files/resourcefile/resource/mblock/gila-nepa-for-ranchers.pdf](https://extension.arizona.edu/sites/extension.arizona.edu/files/resourcefile/resource/mblock/gila-nepa-for-ranchers.pdf).