



*New Mexico Forest and Watershed*

*Restoration Institute*

*Annual Report 2013-2014*

The New Mexico Forest and Watershed Restoration Institute (FWRI) exists to promote practices that reduce the risk of catastrophic wildfire and enhance ecosystem function. We have pursued this through four program areas: the biology of restoration treatments, or which tree to cut and which to leave, with an emphasis on the need to burn treated areas; the mechanics of treatments, or how to operate safely and efficiently, a program area that was most active 2008-2010 but currently is dormant; support from geographic information systems (GIS) to field work by FWRI and our partners, which usually involves maps; and monitoring, or how to determine if treatments are effective, and is the subject which accounts for most of our partner's requests for technical assistance.

This report is organized into three broad areas: technical assistance and monitoring, restoration-based economic development, and watershed restoration partnerships. These areas are further subdivided as needed.

This report focuses on the period 1 October 2013 through 30 September 2014, with activities outside of that period mentioned as needed for context. This period was one of transition for FWRI. First, the previous Director, Andy Egan, left in May 2013 to become Dean of Science at a university in Canada, and the FWRI forester stepped in as Interim Director. Second, an employee resigned unexpectedly at the end of September 2013. We took this opportunity to restructure two positions as program directors for restoration monitoring and for collaboration. These positions were advertised in July 2014. In addition, our Administrative Associate missed six months due to a serious illness. This means we were short-handed for almost the entire period covered in this report. Some of that capacity was covered by contractors. In addition to the full-time staff, we employ Highlands' undergraduates as work-studies and to assist with summer field work. Finally, Kent Reid, who had been a forester with FWRI since 2007, was selected as Director in October 2013.

## TECHNICAL ASSISTANCE AND MONITORING

In order to both mitigate the potential for catastrophic wildfire and restore natural watershed functions, the NMFWRI provides (a) technical assistance with fuel treatments and restoration prescriptions; (b) short- and long-term monitoring to inform adaptive management; and (c) technical assistance with Geographic Information Systems and mapping. These technical assistance efforts extend beyond individual land ownerships and jurisdictions.

### *Outreach in treatments and prescriptions*

#### Workshops

A major effort during this reporting period was FWRI's involvement with the Southwest Jemez Mountains (SWJM) Collaborative Forest Landscape Restoration (CFLR) program. Associated with this was a one-day public meeting titled "Living with Fire in Northern New Mexico: Fire, Forests, and Communities" at the Santa Fe Community College on 16 November 2013. FWRI was involved with the planning from the beginning, in September, and assisted with moderation of the afternoon session. For more information, see <http://swfireconsortium.org/living-fire-northern-new-mexico-fire-forests-communities/>.

Also as part of our involvement with the SWJM CFLR, FWRI was one of the planners of a three-day meeting in Montrose, CO, in October 2013. The workshop brought together those involved with all the CFLR projects in Region 2 and Region 3, and focused on the role of partner engagement at the mid-point of the first-round CFLRs. FWRI gave one of the presentations and moderated one of the sessions. This planning was led by ERI, and began in July.

And again, because of the SWJM CFLR, FWRI was one of the planners (beginning in July and also involving the other two SWERI Institutes) of a three-day meeting in Montrose, CO, on 28-30 October 2013. The workshop brought together those involved with all the CFLR projects in Region 2 and Region, and focused on the role of partner engagement at the mid-point of the first-round CFLRs. FWRI gave one of the presentations and moderated one of the sessions. The report is at <https://www.nationalforests.org/collaboration-resources/cflrp>.

Another workshop was held in Tucson on 25-27 February 2014. Titled "Fostering resilience in Southwestern ecosystems: A problem-solving workshop", planning started in July and also involved ERI. FWRI helped with developing discussion topics, took notes, presented discussion summaries, and has been involved in post-workshop document preparation. Information is at the website <http://swfireconsortium.org/fire-and-resiliency-ecology-workshop/>.

#### Teacher's Camp

In the summer of 2014, FWRI partnered with the Highlands' Natural Resources Department and the Environmental Education Association of New Mexico to host a three-day teacher's camp on the Highlands campus. Called the Forestry and Fire Ecology Academy, it presented a condensed overview of issues and research surrounding forest restoration and fire management in New Mexico. Classes included fire laboratory activities, a Simtable demonstration, orientations to dendrochronology and to Project Learning Tree, and tours of a sawmill and of the demonstration area at the Pritzlaff ranch. About 20 educators participated, including an equal mix of high school teachers and nature center operators. FWRI contributed our time and participants were funded by a grant from State Forestry.

## Statewide

Water Town Hall – New Mexico First organized a large-scale discussion of water issues in NM in April 2014 in Albuquerque, with about 300 participants. FWRI was involved in the Watershed Restoration breakout group, which was given the discussion topic Keep Watersheds and Ecosystems Healthy. FWRI reported back to the plenary for the group. Recommendations initiated by the watershed group and passed by the Town Hall were: Fund and implement long-term, collaborative, comprehensive watershed-scale restoration projects to foster healthy ecosystem function and resilience; and create a 20-year wildfire and water source protection plan, and establish sustainable funding that leverages federal, local, and private resources for watershed-scale restoration.

NM Interstate Stream Commission – The ISC convened a one-day, invitation-only discussion of issues related to land management and water relations. Presentations were made by representatives from the NM Environment Department, NAU, the Valles Caldera National Preserve, New Mexico Tech, the Rocky Mountain Research Station, SWCA Environmental Consultants, and a consulting hydrologist who had worked in the Santa Fe watershed. FWRI presented on the Little Bear and Track fires. The meeting was in Albuquerque in April 2014

Army Corps of Engineers – On 17 Sept 2013 and 24 June 2014, the Army Corps of Engineers held two public meetings, required for their planning, on management of the entire Rio Grande basin. As is usual for civil engineers, watershed management planning principally meant plans to control and move water. Treatments in the upper watershed were considered during the discussions, especially during the first meeting, but traditional ACE projects were the only ones that made the final planning list.

Partnership to Work with the Legislature - In mid-2013, the Interim Water and Natural Resources Committee of the NM Legislature asked FWRI to organize a discussion on state-wide watershed restoration efforts. We involved representatives from the Forest Service, NM State Forestry, the NM Association of Counties, The Nature Conservancy, and the NM Forest Industry Association. The presentation and question-and-answer session took place at the Interim WNR meeting at Clovis in July 2013.

As a result, the Legislature passed two Memorials during the 2014 Session that recognized the urgency of the need for watershed restoration. They requested “the appropriate interim committee of the Legislature to develop a long-term funding plan for federal, state, local and tribal agencies and diverse stakeholders to cooperate on forest and watershed restoration work in New Mexico”. On 1 July 2014, at a meeting in Albuquerque, the Interim Water and Natural Resources Committee assigned this task to FWRI. We called a meeting at the BLM office in Santa Fe in early August. More than 25 people representing 19 organizations (state and federal agencies, universities, tribes, soil and water conservation districts, and a few individuals) participated. This group discussed what was being done in funding of watershed restoration, what needed to be done, and what was needed to cover that gap.

A smaller group was appointed by this full group. This smaller group had a series of conference calls that solidified our agreement on the two basic issues of promoting forest and watershed function, and protecting water sources by reducing the risk of catastrophic fire. This small group settled on \$15 million as the needed annual level of funding. It also developed a list of criteria

that emphasizes on-the-ground work but allows for planning, especially when collaboration and the opportunity for leveraging are included. At no time was funding FWRI included in the bill; as mentioned above, the emphasis was on completing vegetation treatments.

We were required to present to the Interim Water and Natural Resources Committee at a meeting in October 2014. The areas we agreed on, like appropriate projects and the selection criteria, were discussed, but the emphasis was on three new ideas: establishing a Forest and Watershed Restoration Fund, the control of the Fund, and finding money for the Fund. After this October discussion, a bill was drafted and presented to the Interim Committee at a meeting in December. Three of us (a representative from an NGO, from industry, and the FWRI Director) presented the proposed legislation and answered questions for almost an hour. The committee members had questions about the funding, the Federal role, what is a healthy forest, how widespread is the support, etc. The draft was voted on and endorsed as a committee-sponsored bill for the 2015 Session.

#### Other

- Gabe Romero sivilculturist exam. In July 2013, the Forest Service asked Kent Reid to be an outside committee member to sit on the review committee for Mr Romero, the West Zone forester for the Carson National Forest.
- Aspen workshop – In July 2013, FWRI participated in the aspen restoration workshop held in the Jemez Mountains by the Forest Service.
- Regional water planning, an initiative of the Office of the State Engineer, began September 2014. FWRI is participating in the Mora-San Miguel-Guadalupe plan.
- KFUN interview – Kent Reid was interviewed on-air on the privately owned local radio station by a NMHU public relations person on 17 Sept 2013.
- Fire benefits presentations – as part of the public education effort of the Las Vegas National Wildlife Refuge, FWRI presented two talks on the benefits of fire in NM ecosystems in November 2013.
- Philmont demonstration area – in March 2014, a group of people from the Forest Service, New Mexico State Forestry, New Mexico State University, FWRI, and Philmont Scout Ranch spent two days with Philmont staff at their demonstration forest near Cimarron. We discussed how to incorporate desired conditions into the current forest management based on harvest of mature trees, into the camping program, and future restoration efforts on Philmont.
- NM Incident Command Group – This group is made up of agency representatives that coordinate policies regarding fire and smoke. FWRI has been a member since 2012.

#### *Monitoring technical assistance for CFRP and other restoration projects.*

##### Socioeconomic Monitoring

While some core ecological indicators have been developed and widely used to evaluate the effectiveness of restoration projects, efforts to systematically develop and apply indicators related to the social and economic outcomes of projects historically have been limited.

Beginning soon after he arrived in 2010, FWRI's former director recognized this shortcoming and worked to standardize protocols for collecting and evaluating socioeconomic monitoring data. This was discussed in last year's annual report. The full technical report and a user's

guide are available on our website at <http://www.nmfwri.org/for-land-managers>. As would be suspected, job creation ranked highest of all the indicators. This year, this work resulted in the following publication:

Egan, A. and V. Estrada. 2013. Socio-economic indicators for forest restoration. *Ecological Restoration*. 31:303-316.

#### Statewide

CROP - FWRI was involved in the state-level discussion of the Coordinated Resource Offering Protocol (CROP) that culminated in a webinar in November 2013. This web-based tool was seen as a possible way to track biomass offerings, but for a variety of reasons, the decision was made to not pursue CROP for New Mexico.

Biomass App for Smartphones - From July through January, a well-intentioned group of people in the state thought they could develop a smartphone app that would return stand-level biomass volumes in real time. They reached the point of having a bill in the 2014 legislative session to fund it. The effort fell apart when they asked for FWRI endorsement; our GIS group said this was impossible, and we did not endorse the idea.

#### Other

Little Bear Fire – The Little Bear Fire ignited from a lightning strike in June 2012 in the Lincoln National Forest outside of Ruidoso. Prior to the fire, various hazardous fuel reduction treatments were implemented on private, municipal, and federally managed land. Funds from the Washington Office of the Forest Service became available in 2012, and agency stakeholders asked FWRI to evaluate the effectiveness of these treatments. A draft report is under review.

Mastication - This Washington Office funding was made available to FWRI during 2012, but discussions on how best to spend it lasted until early 2013. Several areas of interest were discussed with the Forest Service and other stakeholders, including NM State Forestry and the BLM. In the end, fire behavior in masticated material was determined to be the most tractable and of the most interest to the Forest Service. Three sites were chosen: for piñon-juniper, the Lincoln National Forest near Ruidoso, NM; for ponderosa pine, the Tonto National Forest near Payson, AZ; and for chaparral, the Prescott National Forest near Prescott, AZ. This work is ongoing. Significantly, a fire researcher from NM State University has brought her own resources to cooperate in this work.

Coleman Ranch Water Budget Study - FWRI teamed with the Lower Pecos Watershed Alliance and New Mexico Tech in the development of a project designed to examine how thinning in a mixed conifer stand would impact the surface and subsurface water budget. NMFWRRI conducted the pre-treatment monitoring in 2008, and the post-treatment monitoring in 2013. NM Tech continues to collect and analyze water data. This project was partially supported with funding from NM Tech.

#### *GIS/spatial data analysis technical assistance.*

Highlands University is the center of restoration-based GIS and GPS expertise in northern New Mexico. In 2012, FWRI lost a long-time employee to another office at Highlands. Joe Zebrowski left our GIS group to head the Geospatial Applications in Natural Sciences (GAINS)

Laboratory. He has continued to work closely with FWRI since he left, including with some of the work listed below.

The FWRI GIS group is involved in training. They assisted in GPS training for Highlands' students helping with CFRP projects. They also provided direct support to CFRP grantees if FWRI was in the grant. They have guest-lectured for the Remote Sensing class and the Introductory and Advanced GIS class. They assisted students and faculty with creating maps and posters, researching and downloading imagery, and with support for GIS certificate final projects. They provided technical assistance and loaned equipment to the Hermits Peak Watershed Alliance, and provided GIS and GPS technical assistance for the noxious weed program of Tierra Y Montes S&WCD.

The GIS group also provides maps, including:

- Vegetation mapping of the Rio Mora National Wildlife Refuge using LIDAR and eCognition
- Tierra Y Montes SWCD
- Hermits Peak Watershed Alliance
- Biophilia Foundation (Pritzlaff Ranch)
- Alamo Navajo IRMP
- Greater Rio Grande Watershed Alliance

And internal mapping support all of FWRI's work, including:

- Interim WNR committee meeting in Clovis in July 2013
- CFRP work to characterize the habitat of the Jemez Mountain Salamander, including to a meeting to summarize all work to date in November 2013.
- The presentation on fire benefits at Las Vegas National Wildlife Refuge in November 2013
- Office of the State Engineer background day in April 2014
- Watershed Health Office Consultative Group

Vegetation treatment database - FWRI is developing a statewide geospatial database of planned watershed treatments, identifying planned private, state, tribal, and federal forest and woodland projects for all of New Mexico. New Mexico State Forestry began a small-scale version of this with a list of treatments planned by the State and the Forest Service. As a result of a discussion at a mid-2014 meeting of the Watershed Health Office Consultative Group, FWRI took over this effort, paying for it with state funds.

Development of this database involves working collaboratively with and receiving data from NM State Forestry, USDA-Forest Service, BLM, the State Land Office, NRCS, and a host of other agencies. The collected data populates an integrated database. Pulling together this information from different State and Federal agencies is aided by FWRI's GIS capabilities and by its unique position as an active but neutral participant in statewide projects. The end product is the geospatial database which will be robust enough to be able to be used to produce digital and hard-copy maps for meetings and presentations.

## **RESTORATION-BASED ECONOMIC DEVELOPMENT**

FWRI continued to work with Alamo Navajo. As the Alamo field crew received more technical training in monitoring, deficiencies in understanding geometry became apparent, especially related to area and volume calculations. FWRI worked with the crew to overcome these deficiencies, including a day of face-to-face instruction at Alamo, and three months of daily quizzes that were supplied by FWRI and administered by a local math teacher.

In January 2014, FWRI loaned six chainsaws to the thinning crew. This was done under the existing agreement governing the loan of our equipment acquired under an old state workforce grant.

## **WATERSHED RESTORATION PARTNERSHIPS**

### **National Forests**

A major effort during this reporting period has been FWRI's involvement with the SWJM CFLR. Meetings of the collaborative associated with the SWJM CFLR generally were held monthly at various locations in Santa Fe.

The form of this association has changed over the years, from one where the Santa Fe National Forest was first among equals, to the current model of a group of organizations that watches what the Santa Fe is doing, with the Santa Fe cordially listening to the group and explaining to the group, but taking the position they can not be a member of the collaborative. The collaboration around the SWJM CFLR has received national attention, as have all the CFLR organizations, and at least one researcher has concluded that SWJM's current arrangement is appropriate. For FWRI, the new arrangement has meant that advice and assistance seems less direct than in the past. This opinion was expressed during reviews by personnel of the GAO in March 2014 and the Forest Service's Washington Office in May 2014; both meetings were at the Supervisor's Office of the Santa Fe National Forest.

To a much lesser degree, FWRI is involved in the Zuni CFLR. We attended collaborative meetings in January and April 2014, both at the Cibola National Forest Supervisor's Office in Albuquerque.

As part of this project, FWRI participated in the 2014 public meetings of the initial phase of the Forest Plan Revision process under the 2012 Planning Rule for the Santa Fe and Carson National Forests. For the Santa Fe, we participated in meetings in Santa Fe in January, a large coordination meeting at Santa Fe Community College in February, in Santa Fe in April, and in Pecos in May. For the Carson, we participated in meetings in February and in June in Peñasco. Public meetings will start up again after the Forests release their draft Plans.

### **Statewide**

- WHO CG – The Watershed Health Office Consultative Group is made up of agencies and other institutions that are involved with land and water management in NM. It is convened by the Watershed Health Office of State Forestry, and meets quarterly to

discuss coordination and on-going projects. FWRI has participated in these meetings since 2007.

- Vigil Tree Farm, Gascon, October 2013 – The Vigil Tree Farm outside of Gascon was selected as State Tree Farm of the year, and FWRI participated in the field day when they received that recognition. The Tree Farm program, administered by State Forestry, is one way FWRI outreaches to private forest landowners.
- Wind River Ranch/ Rio Mora NWR – Highlands University has been involved in this more directly than has FWRI, but FWRI participated in on-campus and on-Refuge meetings about research, management, etc.
- San Juan-Chama partnership, Dulce, January 2014 – FWRI participated in the roll-out meeting of the San-Juan Chama collaborators group. This landscape spans the Colorado-New Mexico line, comprises a mix of private, state, and private land managers, and is considered to provide the long-term, sustainable answer to water for the human population of the middle Rio Grande.
- WUI Summit Taos, April 2014 – FWRI participated in this state-wide annual meeting organized by the Association of Counties, including staffing a booth.
- WUI summit Ruidoso, April 2014 – FWRI participated in this regional annual meeting, sponsored by Eastern New Mexico University-Ruidoso, including staffing a booth.
- Rio Grande Water Fund, ongoing – FWRI is a member of the Advisory Board for this TNC-led effort, and has participated in several events during the year.

## Other

### Santa Clara Canyon

Santa Clara Canyon was severely burned during the Las Conchas Fire and subject to catastrophic flooding afterwards. In January 2014, as one of a group of representatives from state and federal agencies, we participated in a field tour organized by FEMA and the NRCS to recommend post-fire rehabilitation treatments to the Pueblo. Every water and land manager in New Mexico should visit Santa Clara Canyon.

### Partnerships in Southern NM

Washington office money was made available to FWRI, and our involvement with the Otero County Working Group and the Grant County Eco-Watershed Planning Group was initiated in the fall of 2014. Membership and participation in these groups included representatives from State Forestry, USDA Forest Service, tribes (in Otero County), State Land Office, conservation and environmental organizations, forest industry, contractors, citizens, and city and county representatives.

### AllAboutWatersheds.org

This portal, a forest and watershed restoration health information clearinghouse, is a joint effort with the Forest and Watershed Health Office of State Forestry. This web-based portal contain links, postings, and videos related to not only prescriptions, but groups, funding sources, monitoring protocols, etc., from across the State. It is used by groups (e.g., the Zuni Mountain Landscape CFLR) and agencies (e.g., the NM Environment Department). Planning was supported by Federal funds, and start-up funding for the portal was from State Forestry.

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