

COLORADO FOREST RESTORATION INSTITUTE

Annual Report 2006

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Background

Colorado has 23 million acres of forests, with federal lands comprising about 2/3 of the forested area. Over 200,000 private land owners control 9 million acres. Forest landscapes in Colorado are complex mosaics of forest types and ownerships, with nearly 1 million people living in the “red zone” area with high risk of catastrophic fires, largely as a result of unnatural changes in our forests. Direct costs for fire suppression totaled over \$200 million since 2000. The total cost of 500,000 burned acres is much greater than the suppression costs alone, including damaged forests, watersheds, communities, and lives. Declining forest health may decrease the diversity of species in Colorado forests, increase the risks of outbreaks of insects and diseases, and reduce the flow of rivers that provide water to all the states of the southwest. These issues led Congress to pass the Southwest Forest Health and Wildfire Prevention Act in 2004, authorizing establishment of forest restoration institutes in Colorado, Arizona, and New Mexico.

The Colorado Forest Restoration Institute (CFRI) was established in 2005 in the Warner College of Natural Resources (WCNR), with the mission to restore the health of Colorado forests and reduce severe wildfires. Our goal is to provide the best-available science in forest ecology, restoration, and management, in ways that are readily usable by the diverse group of land owners and managers in Colorado. CFRI helps federal, state, and private land owners develop and implement the strategies of the Healthy Forest Restoration Act, National Fire Plan, and the Forest Service’s Strategic Plan.

Organization

The Colorado Forest Restoration Institute is a unit within the Warner College of Natural Resources, and also a member of the Southwest Ecological Restoration Institutes (SWERI) chartered by the Governors of Colorado, Arizona, and New Mexico. The Director of CFRI reports to the Dean of the WCNR, and is responsible for overall operations of the Institute,



including budgeting, planning, administration, and generating products. The Associate Director for Research is responsible for overseeing and conducting projects to fill gaps in knowledge that limit the effective restoration of forests and reduction of fire hazards. The Associate Director for Outreach develops and conducts diverse efforts to translate and communicate the state of knowledge to the full range of stakeholders. The staff of CFRI will expand as resources become available.

The activities of CFRI are developed in response to stakeholder discussions, coallated into an annually updated "Colorado Forest Restoration Needs Assessment." An oversight process has been developed to meet the requirements of the Southwest Forest Health and Wildfire Prevention Act. The USDA Forest Service's Southwest Regional Forester convenes an Executive Team (with multi-agency state and federal representatives) to approve annual workplans developed in collaboration with another multi-agency Development Team. The CFRI also engages in forest restoration that go beyond the defined responsibilities of the Act, using other funding sources.



Restoration treatment in the South Platte Watershed (left). CFRI is investigating the quantity of material added to the soils as wood chips and chunks, and monitoring possible effects on understory vegetation and soil nutrient supply.

2006 Support

Federal funding of \$250,000 was provided through the USDA Forest Service. Other sources of support included the National Council for Science and Sustainable Forestry (\$10,000), and private donations (\$1,200). The Colorado State Forest Service provided 6 months of support for the Associate Director of Outreach, and the WCNR contributed 3 months of support for the Director.

Projects Completed in 2006

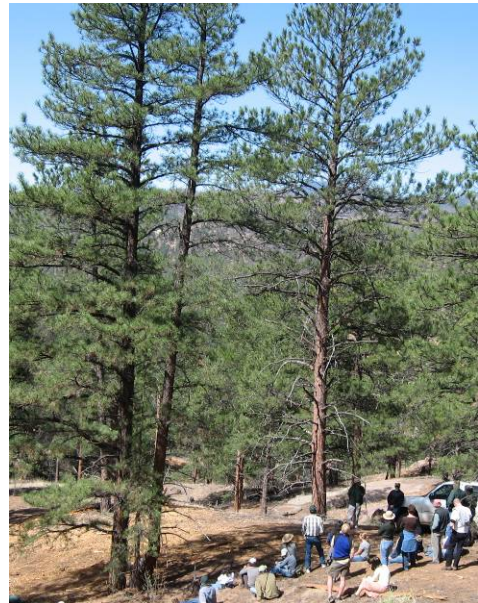
The Annual Reports from CFRI track activities on a calendar-year basis, even though federal support is based on federal fiscal years. Not all the projects authorized in the CFRI FY2006 Workplan were completed in the calendar year 2006 (federal funds did not arrive until June of 2006).

1. Workshops

- A. “Future Range of Variation in Colorado’s Forests” (supported by CFRI and the National Council for Science and Sustainable Forestry), Glenwood Springs, Colorado, April 2006. Participants included land managers, scientists, county commissioners, writers, historians, and conservationists to discuss historic conditions in Colorado’s Forests, and how new factors will lead to major changes in future forests. Products: a book chapter in review.
- B. “Evidence-Based Approaches in Forestry, Restoration, and Conservation (supported by CFRI, the Ecological Restoration Institute at Northern Arizona University, and the USDA Forest Service Rocky Mountain Research Station), Keystone, Colorado, September 2006. Medicine and health care fields have developed formal systems to ensure that practitioners have the best, quality-assured information available for making health-care recommendations on an individual-patient basis. We discussed how these approaches could be adapted for use in land management, and charted some ideas about next steps that will be included in CFRI’s 2008 workplan. Participants came from forest management agencies, universities, and the Congressional Research Service. Products: in development.
- C. “Synthesis of historical fire regimes in pinyon-juniper woodlands” (supported by CFRI and The Nature Conservancy), June 2006, Boulder, Colorado. Participants included scientists from across the West with expertise in pinyon-juniper woodlands. Products: presentation at Fire Learning Network workshop in Las Cruces; other products under development.

2. Training/shortcourses

- A. Front Range Forest Restoration, 2-day training course/field trip, Deckers, Colorado, April 2006. The course was aimed primarily at Colorado State Forest Service personnel, but also including some county and federal people. Support was provided by CFRI, the Colorado State Forest Service, and the Ecological Restoration Institute at NAU. Thirty-six people attended the workshop. Product: information on CFRI web (<http://www.cfri.colostate.edu/workshops.htm>)
- B. Forest Landowner Workshop, 2-day training and equipment demonstration, Nederland, Colorado, June 2006. In collaboration with Colorado-Wood we presented two sessions to this gathering of landowners and contractors – “Forest Restoration” and “Working with Contractors.”



3. *Practitioner-focused publications*

Historical fire regimes in ponderosa pine forests of the Colorado Front Range, and recommendations for ecological restoration and fuels management, by Merrill Kaufmann, Tom Veblen, and Bill Romme. Published in collaboration with The Nature Conservancy, The USDA Forest Service Rocky Mountain Research Station, WCNR and CFRI
http://www.cfri.colostate.edu/docs/cfri_ponderosa.pdf

How Have Forest Conditions Changed in the Laramie Foothills of Colorado during the past 60 years? Published in collaboration with The Nature Conservancy, The Natural Resource Ecology Laboratory (WCNR), and CFRI.
http://www.cfri.colostate.edu/docs/lf_ponderosa_pine_research_brochure.pdf

Recent Forest Insect Outbreaks and Fire Risk in Colorado Forests: A Brief Synthesis of Relevant Research, by Bill Romme, Jessica Clement, Jeff Hicke, Dominik Kulakowski, Lee MacDonald, Tania Schoennagel, and Tom Veblen. Printing supported by WCNR.
http://www.cfri.colostate.edu/docs/cfri_insect.pdf

Historical Range of Variability for Forest Vegetation of the Grand Mesa National Forest, Colorado, by Dominik Kulakowski and Tom Veblen (funded by USDA Forest Service Region 2 through the University of Colorado, Boulder)
http://www.cfri.colostate.edu/docs/cfri_grand_mesa.pdf

Historical Range of Variability for Forest Vegetation of the National Forests of the Colorado Front Range, by Tom Veblen and Joseph Donnegan (funded by USDA Forest Service Region 2 through the University of Colorado, Boulder)
http://www.cfri.colostate.edu/docs/hrv_frontrange_veblen.pdf

4. *Other interactions with stakeholders*

Field trips:

- 2-day field trip with the Colorado Timber Industry Association, central Colorado
- 2-day field trip with Phil Kemp, Cara Gilder and colleagues, Dolores District
- Uncompahgre Plateau Partnership annual field day, Montrose
- 1-day field trip with Boulder County Open Space, Chad Julian
- Fire Learning Network field trips, Las Cruces
- Reconnaissance field day, northern New Mexico
- TNC field trip to Phantom Canyon, northern Colorado

Non-CFRI meetings

- Conference on old-growth forests in frequent-fire landscapes, Flagstaff
- SWERI-sponsored workshop on ecological restoration, Flagstaff
- Biennial meeting of Association for Fire Ecology, San Diego
- TNC-sponsored workshop on global fire regimes, Berkeley

Meetings with stakeholders, individually and in small groups

- The Nature Conservancy regional office, Boulder Colorado

Western Governors Association, Paul Orbuch, Denver
 USDA Forest Service regional headquarters, Denver
 SWERI Development Team, R3 headquarters, Albuquerque
 National Bioenergy and Wood Products Conference, Denver
 Banded Peak Ranch; Tercio Ranch; discussions on issues of fire/forest/restoration
 issues on private land.

Summit County, citizens meeting on forest insect issues
 San Juan Public Lands Center, USFS and BLM personnel
 Colorado Dept. of Natural Resources, Russ George (Director), Denver
 Meeting with Colorado forest leadership group (Rick Cables, Dave Cleaves, Jeff
 Jahnke), San Diego

Other projects continuing from 2006 into 2007

1. Developing better estimates of bulk density of ponderosa pine canopies to improve modeling of fire behavior. Field work has been completed for developing regression equations to predict crown structure (including bulk density of fuel classes). Work is continuing on sample and data processing.



2. Developing protocols for sampling the quantity, distribution, and sizes of woody debris produced in chipping/mastication fuel treatments.

Field work is completed, data analysis and synthesis will continue through the spring, with a final report by June 2007. This project is part of a larger, on-going collaboration with USDA Forest Service Rocky Mountain Research Station on impacts of mechanical fuels treatments.

Fire behavior depends strongly on the density of fine fuels in canopies. CFRI is developing ways to estimate these fuels more accurately, both before and after restoration treatments.

