

# **Southwestern Ecological Restoration Institutes (SWERI)**

**2-Year Review  
August 3, 2006**

**Prepared by:**

SWERI Executive Team

## **Executive Summary**

The Southwest Forest Health and Wildfire Prevention Act (P.L. 108-317) establishes a unique program of applied research and service via three restoration institutes:

- The Ecological Restoration Institute (ERI) at Northern Arizona University;
- The Colorado Forest Restoration Institute (CFRI) at Colorado State University; and
- The New Mexico Forest and Watershed Restoration Institute (NMFWRI) at New Mexico Highlands University.

The central focus for the Southwestern Ecological Restoration Institutes (SWERI) is to develop, translate and provide the best available science to the land managers, practitioners and stakeholders designing and implementing forest restoration and hazardous fuel reduction treatments.

In recognition of interest expressed by other universities to be included in the original bill, Congress included a provision for a 2-Year Review of the restoration institute model (“the model”). The 2-Year Review is intended to provide the Secretary of Agriculture, in consultation with the Secretary of the Interior, the opportunity to consider creating additional institutes if the model and associated activities contribute to the design and implementation of effective treatments.

### **2-Year Review Findings**

- The Institutes are making progress toward fulfilling the purposes of the Act, although that progress has been limited by available funding; while ERI has received Federal appropriations, CFRI and NMFWRI have received limited Federal funding.
- Federal funds are successfully being leveraged - state funding commitments in AZ and NM are significant, and CFRI has received funds from a non-government entity.
- SWERI is successfully moving forward with the funded portions of their work plans.
- Collaboration among the Institutes is exceptional; they are working closely and effectively together, rather than in competition. The three have identified common and unique niches, and develop complimentary work plans that maximize their strengths. Work plans are the result of a collaborative planning process that emphasizes addressing the assessed needs of stakeholders.
- Stakeholders have expressed their support for the restoration institute model and have expectations for information delivery and customer assistance.

### **Conclusions**

The restoration institute model provides a credible and valued vehicle for developing, translating, and providing the best available science to land managers, practitioners, and stakeholders designing and implementing forest restoration and hazardous fuel reduction treatments. However, until the three Institutes are adequately funded, creating additional institutes would be premature.

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## Legislative Language for 2 Year Review

*If after 2 years after the date of the enactment of this Act, the Secretary finds that the Institute model established at the locations named in subsection (b)(2) would be constructive for other interior west States<sup>1</sup>, the Secretary may establish 1 institute in each of those states.*

*- Southwest Forest Health and Wildfire Prevention Act of 2004 (P.L. 108-317)*

## Introduction

The Southwest Forest Health and Wildfire Prevention Act (P.L. 108-317) establishes a unique program of applied research and service via three restoration institutes. The central focus for the Southwestern Ecological Restoration Institutes (SWERI) is to develop, translate and provide the best available science to the land managers, practitioners and stakeholders designing and implementing forest restoration and hazardous fuel reduction treatments.

During deliberation of the Act, Congress chose to limit the number of institutes in the original legislation to the following:

- The Ecological Restoration Institute (ERI) at Northern Arizona University (NAU);
- The Colorado Forest Restoration Institute (CFRI) at Colorado State University (CSU); and
- The New Mexico Forest and Watershed Restoration Institute (NMFWRI) at New Mexico Highlands University (NMHU).

Annually, the Institutes develop work plans that are reviewed by a Development Team and approved by an Executive Team. These teams include representatives from the USDA Forest Service, Bureau of Land Management, US Fish and Wildlife Service, Bureau of Indian Affairs, State Foresters from each state, and the three Institutes (Appendix A). The Development Team and Executive Team also address other SWERI issues, such as implementation of key provisions of the Act.

In recognition of interest expressed by other universities to be included in the original bill, Congress included a provision for a 2-Year Review of the restoration institute model (“the model”). The 2-Year Review provides the Secretary of Agriculture (acting through the Chief of the Forest Service and in consultation with the Secretary of the Interior) the opportunity to consider adding more institutes if the model and associated activities contribute to the design and implementation of effective treatments. The 2-Year Review process is not an evaluation of the performance of the Institutes (this will happen after 5 years) but rather a determination of whether or not it is appropriate to add additional institutes from other states at this time.

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<sup>1</sup> In addition to Arizona, Colorado, and New Mexico, P.L. 108-317 defines the Interior West as including the states of Idaho, Nevada and Utah.

## Situation Analysis

A fair assessment of the model's efficacy requires the consideration of several important variables that have influenced progress. These include:

ERI was established in 1999 and therefore had existing capacity to deliver field directed service prior to passage of the legislation;

P.L. 108-317 authorized up to \$15,000,000 per each fiscal year for SWERI.

Federal funding for the Institutes has been limited:

- o The legislation was passed in October of 2004; therefore, the Institutes' funding authorization was too late to be considered in the FY 2005 appropriation cycle by Congress;
- o The timing of the passage prevented inclusion of SWERI funding in the President's FY 2006 budget, which was in final draft during October 2004.
- o Only ERI received congressionally appropriated Federal funds in FY 2006.
- o The Forest Service provided \$500,000 of FY 2005 carryover funding to CFRI and NMFWRI. However, this funding did not become available to the Institutes until mid-June 2006.

Federal funding made available to the Institutes, particularly CFRI and NMFWRI, has covered only a fraction of the activities identified in the SWERI work plans. The work plans have been adjusted each year to accommodate these reduced funding levels.

Given the above factors, it is difficult to assess the efficacy of model in Colorado and New Mexico because funding has been inadequate to build fully operational programs. However, considering the experiences of CFRI and NMFWRI along with those of the more established ERI is important given what the two have accomplished using limited funds and the extensive interactions of the two Institutes with clients/affected entities.

Despite their limitations, the Institutes have done a lot with limited funding to meet the objectives of the Act. Stakeholder interest in Colorado and New Mexico is high as a result of the Stakeholder Needs Assessments that were conducted in 2005.

Finally, it is important to note that the Act stimulated interest and support at the state level. The Act has led to coordination among the three states to plan actions that capitalize on complementarities and improve efficiency. On June 13th, 2005 the Governors of Colorado, New Mexico and Arizona, along with the SWERI host Universities, signed a Charter formalizing the roles of the States and universities to provide a framework for collaboration and implementation. The Charter establishes the SWERI Coordinating Committee which includes representatives of the three Governors, the three State Foresters, directors of the Institutes, and a representative of the Western Governors Association.

This interest and support has also enabled the Institutes to leverage state funding. New Mexico recently passed legislation to provide \$250,000 in 2006-2007 for NMFWRI. Arizona is committed to increasing funding for the ERI, and Colorado is exploring ways to increase funding as well. These successes reflect the multi-jurisdictional commitment to addressing the wildfire crisis and improving forest health using the best-available science.

## Criteria for Determining the Efficacy of the Model

In response to the legislative language requiring a 2-year assessment of the models efficacy, the Executive Team identified 12 questions for considering the value of the restoration institute model. The Institutes collaborated to provide responses to each question. In addition, several questions from the list were selected for stakeholder consideration and to provide an opportunity for the Institute’s “customers” to provide comment<sup>2</sup>. Selected stakeholder comments are highlighted at the end of relevant questions; a complete synthesis of stakeholder feedback may be found in Appendix B.

## Criteria Findings

### 1. What levels of Federal<sup>3</sup> and state funding did the three Institutes receive?

**Table 1. FY 2005 and FY 2006 SWERI Funding**

	FY 2005			FY 2006		
	SWERI Work Plan	Federal	State	SWERI Work Plan	Federal	State
<b>ERI</b>	\$2,000,000	\$300,000*	\$1,000,000	\$2,500,000	\$1,600,000	\$1,000,000
<b>CFRI</b>	\$ 50,000	\$ 50,000*	\$ 60,000	\$1,250,000	\$ 250,000	\$ 60,000
<b>NMFWRI</b>	\$ 50,000	\$ 50,000*	\$ 182,000	\$1,250,000	\$ 250,000	\$ 250,000

\* In FY 2005, prior to the enactment of the legislation, ERI received \$400,000 in redirected USDA Forest Service funds. Of this, ERI provided \$50,000 each to CFRI and NMFWRI.

- o For FY 2006, the Executive Team approved the Institute’s proposed Work Plans for a combined total of \$5,500,000 (\$1.25 million each for CFRI and NMFWRI and \$2.5 million for ERI). ERI received a Federal appropriations earmark of \$1,600,000; CFRI and NMFWRI received no appropriated funds. The Forest Service made \$250,000 in FY 2005 carryover funds available in FY 2006 to both CFRI and NMFWRI. Work plans were adjusted to accommodate reduced funding.

**Table 2. FY 2007 SWERI Federal Funding**

	SWERI Work Plan	President’s Budget	House Report 109-465 <sup>4</sup>	Senate Report 109-275 <sup>5</sup>	Conference Report
<b>ERI</b>	\$2,700,000	\$0	\$0	\$2,700,000	N/A*
<b>CFRI</b>	\$1,400,000	\$0	\$0	\$0	N/A*
<b>NMFWRI</b>	\$1,400,000	\$0	\$0	\$400,000	N/A*

\* The FY 2007 Interior and Related Agencies Appropriations Conference Report is not yet available.

<sup>2</sup> A complete set of the comments received is provided in Appendix A.

<sup>3</sup> P.L. 108-317 authorizes up to \$15,000,000 per each fiscal year for implementation of the Act.

<sup>4</sup> House Report 109-465 - DEPARTMENT OF THE INTERIOR, ENVIRONMENT, AND RELATED AGENCIES APPROPRIATION BILL, 2007

<sup>5</sup> Senate Report 109-275 - DEPARTMENT OF THE INTERIOR, ENVIRONMENT, AND RELATED AGENCIES APPROPRIATIONS BILL, 2007

- o For FY 2007, the Executive Team approved the Institutes' Work Plans for a total of \$5.5 million (\$1.4 million each for CFRI and NMFWRI and \$2.7 million for ERI).

## 2. What has been accomplished towards fulfilling the Act?

- o **Arizona:** Working collaboratively with the CFRI and the NMFWRI, the ERI continues to provide services approved by the Executive Team. These services include: developing and monitoring restoration treatments; providing assistance on collaboration and restoration to communities and stakeholders including completion of collaboratively identified prioritization areas for treatments on over 4 million acres; service to the Governor's Forest Health Councils; translating science into communication tools (publications, web, white papers) appropriate for each audience; advancing small wood utilization in Arizona; and, collaborating on the development of a statewide 20 Year Strategic Vision for restoring Arizona's forests.

Stakeholder comment:

*Through direct action or providing resources to other entities, ERI brings the best science available and new analytical tools to our collaborative deliberations on how to best restore forest ecosystems and protect communities from wildfire. Without their involvement, the design, implementation, evaluation and promotion of a diverse array of science-based restoration treatments and approaches would be significantly limited.*

- o **Colorado:** CFRI has completed the Colorado Needs Assessment as described in the approved FY 2005 work plan. Designed to elicit input regarding affected entities' information and technical assistance needs, the Needs Assessment provided the necessary information for developing the FY 2006 and FY 2007 work plans. The creation of CFRI has also led to increased interaction among forest restoration practitioners and researchers across the state (including CSU professors).

CFRI received Federal FY 2006 funding in mid-June of 2006 and is in the process of initiating implementation of its Work Plan. Additionally, State funds have supported CFRI's first short-course on Ecological Restoration (with assistance from the ERI); a Historic Range of Variation Report was published; a first-stage workshop has been held to develop a consensus document on historic conditions in piñon-juniper woodlands (in collaboration with The Nature Conservancy); the CFRI web page has been launched; and work is progressing on outreach products for Colorado (including assessments of barriers to use of prescribed fire on private lands).

Stakeholder comment:

*The initial accomplishments of the CFRI are the establishment and coordination of restoration activities along a common path. Baseline education regarding ecological processes and their variability has been conducted.*

- o **New Mexico:** In 2005, NMFWRI hosted four facilitated stakeholder meetings for land managers and others involved with dryland, fire-prone forests. In June, 2006, a separate stakeholder meeting for tribal partners was hosted in Albuquerque, NM. The information and technical assistance needs of stakeholders that can facilitate implementation of restoration-based hazardous fuels reduction treatments were elicited at these meetings.

Also in 2005, a Town Hall meeting, facilitated by NM First, was conducted at NMHU. Collaborators included NM Energy, Minerals, and Natural Resources Department; the NM Department of Agriculture; NMFWRI; and NMHU. The Town Hall focused on strategies to implement the NM Forest and Watershed Health Plan (FWHP), the NM Watershed and Non-native Phreatophyte Management Plan, and the NMFWRI. In particular, strategies to integrate the three initiatives into a comprehensive approach to forest and watershed restoration were solicited from participants. The 125 participants represented Federal and State agencies; restoration collaboratives; environmental advocacy groups; and counties and municipalities in fire prone areas.

**3. Has creation of the Institutes stimulated state governmental activity for restoration?**

- o **Arizona:** In FY 2006, the ERI, in cooperation with the Arizona Governor’s Forest Health Advisory Council, the joint legislative Healthy Forests Task Force and other partners is providing technical assistance to develop a 20 Year Strategy for Restoration.

Stakeholder comment:

*The value of ERI as a non-governmental education/research based entity cannot be overstated and has allowed for better collaboration with interest groups, better communication with the research community and increased internal dialogue on the range of options to reverse forest health decline and provide for meaningful comprehensive and holistic vegetative management treatments at an appropriate scale with broad implications.*

- o **Colorado:** In 2005, state-level activity was stimulated by several field trips (with stakeholders from county, state, and federal organizations, as well as representatives of industry and conservation organizations), and our first forest restoration training short-course (produced in collaboration with the Colorado State Forest Service). Our track record is not yet long enough to identify substantive increases in state government activity for restoration.

Stakeholder Comment:

*Perhaps more than stimulated activity (much was going on prior to the authorization to establish CFRI) CFRI has helped prioritize restoration activities and provided the credible basis for conducting restoration treatments. It also has identified local needs and gaps in knowledge.*

- o **New Mexico:** The NMFWRI continues to collaborate with NGO’s and State and Federal agencies on efforts to lower state forest worker’s compensation rates; hosted a state-wide meeting (along with multiple State government agencies) to identify the services required to implement the New Mexico Forest and Watershed Restoration Plan; and acquired a line-item for state appropriations. NMFWRI is also in the process of hiring a full-time Director for the Institute.

Stakeholder Comment:

*The establishment of NMFWRI is helping our state to generate interest, awareness, and momentum for the principles of forest restoration.*

**4. Have the Institutes leveraged funds? The Institutes are successfully leveraging funds through private and public sources.**



- o **Arizona:** The Governor and University are working to increase state funding to \$1.75 million by 2009.
- o **Colorado:** Colorado State University has committed to advancing funding for CFRI. In 2006, a private land owner donated \$75,000 to CFRI to support work on developing prescribed fire use on private lands.
- o **New Mexico:** The New Mexico state legislature has demonstrated its commitment by providing \$250,000 in FY 2007 to NMFWRI.

**5. Is the collaboration between the Institutes effective? SWERI is maximizing the existing skill sets and resources of each Institute across jurisdictional state boundaries. This is in stark contrast to the often competitive stances taken between different academic institutions. Collaboration between the three Institutes has been highly effective, as demonstrated by the sharing of funds in the first year of SWERI. In FY 2005, ERI received \$400,000 in redirected Forest Service funds, prior to the enactment of the Act. To encourage capacity-building and create momentum within the two new Institutes, ERI provided \$50,000 of these funds to both CFRI and NMFWRI.**

A second example that highlights successful collaboration between the Institutes and their respective states is the adoption of the SWERI Charter. Signed by the Governors of all three states and the Presidents of the three hosting universities, the Charter defines expectations and roles among the states and universities.

The Institutes are also collaborating on the development of their annual Work Plans. In developing their FY 2007 Work Plans, the Institutes identified needs that are best fulfilled by all three Institutes and those that are best fulfilled by the individual Institutes, given their niches.

**6. Have affected entities' interests been addressed in the development of work plans? In the initial implementation of the Act, resources were directed towards identifying the specific needs of the Institutes' affected entities. These affected entities include land managers, practitioners, stakeholders and the public—in essence the customers for the Institutes' work. In 2005, each Institute sought input from land managers, stakeholders and the public to identify and prioritize important information and service needs. The activities included in SWERI's FY 2006 and FY 2007 Work Plans were explicitly tied to these collaboratively identified needs.**

Stakeholder Comment:

*The focus on the ponderosa pine community is very appropriate for the vegetation/fuel types we deal with on a daily basis in Douglas County (CO).*

Stakeholder Comment:

*Absolutely. We communicate regularly on upcoming research and are asked for input into this research. In addition, each cooperating agency meets twice each year together and discuss ongoing research and upcoming research. The BLM feels free to offer suggestions on proposed research to help us get answers to ecological concerns as well as management problems.*

**7. Are the Institute work plans being implemented?**

Activities funded in the FY 2005 SWERI Work Plans are largely complete. In FY 2006, the Executive Team-approved SWERI Work Plans substantially exceeded the funds that were ultimately obtained. The Work Plans were revised to reflect the appropriated funds, and implementation of these activities is underway. Implementation of the approved FY 2007 work plans is contingent upon FY 2007 Federal and State appropriations. Of note are the on-going capacity-building efforts that are occurring at CFRI and NMFWRI. For example, NMFWRI is in the process of hiring a full-time Institute Director, and CFRI has launched a web page to increase outreach and improve communications.

#### **8. Are the affected entities supportive of the Institute model?**

- o **Arizona:** Yes; The ERI is engaged with on-the-ground treatment designs in 11 National Forests in the Southwest. Community assistance is provided to 13 communities. Additionally, the ERI provides information services to the Arizona State Legislature, the Governor's Office, Congressional Offices, State Forester, BLM, Navajo, Mescalero Apache, White Mountain Apache, Hualapai tribe and other Native American tribes. The ForestERA GIS information tool has supported practitioners, stakeholders and land managers in the prioritization of treatment locations on over 4 million acres along the Mogollon rim using a collaborative process that explicitly incorporates the best available science for the region.

Stakeholder Comment:

*Most emphatically!! As the line officer for the Mt. Taylor District (Cibola National Forest), I have required a part of the training curricula for the field crews from program staff to preparation foresters to "timber" markers or designators and implementation crew (thinning crew), include attendance at one of ERI's practitioner workshops. I have developed demonstration areas to be able to visualize restoration treatments "on-the-ground".*

- o **Colorado:** Yes; the stakeholder input gathered in the 2005 CFRI Needs Assessment clearly supported an Institute that would provide the best available science to meet the expressed needs of land managers. Stakeholders identified the key role of CFRI as serving as a source of useful, reliable assessments of forest management impacts, especially the potential for expediting on-the-ground treatments.

Stakeholder Comment:

*I do support the model in its application. I believe a niche for CFRI is in producing and communicating credible basis for the need for restoration from the standpoint of process modeling and variation. Being able to demonstrate ecological process historical variation and the extent to which current processes may vary outside of this historical range allows common ground to be established. [In CFRI] Colorado has now central source for restoration activities and results among various private and public land jurisdictions.*

- o **New Mexico:** Yes; the tremendous number and diversity of needs expressed by various stakeholder groups indicates the support and need for the Institute. Furthermore, NM Energy, Minerals, and Natural Resources Department and the NM State Forestry Division have been very supportive of the Institute model and its goals. The State has identified NMFWRI as a key partner in the implementation of the NM Forest and Watershed Health Plan.

**9. Are demonstration projects on the ground or in planning that show good science and effective treatments?**

- o **Arizona:** ERI has long-established demonstration projects and experiments to test different restoration treatments throughout the Southwest. These treatments are designed in response to requests from community collaborative groups, local National Forest Districts, and to answer relevant scientific questions. Examples of recent activities include ERI's initiation of three different treatments interpreting Goshawk guidelines on the Kaibab National Forest and continued assistance to the Wahoo Watershed Group in New Mexico.
- o **Colorado:** Demonstration projects were included in the CFRI FY 2006 work plan. However, funds were insufficient to execute the project. Demonstration sites were included in the FY 2007 Work Plan and will be implemented if funding is obtained. CFRI is engaged in assessing the ecological effectiveness of restoration treatments in existing demonstration forests and has the potential to implement other demonstration projects as funding becomes available.
- o **New Mexico:** The NFMWRI FY 2006 Work Plan includes the task of identifying four 1,000-acre demonstration units across the state of New Mexico. These demonstration sites are a component of a larger project centered on restoration-based hazardous fuel reduction prescription planning, implementation and monitoring. The NFMWRI FY 2007 Work Plan includes the implementation and continued monitoring of these prescriptions on the identified demonstration units.

**10. Has a collaborative planning process worked for the development, approval, and implementation of Institute work plans (Development team, Executive Team, stakeholder involvement)? The SWERI Development and Executive Teams include representatives from the USDA Forest Service, Bureau of Land Management (BLM), US Fish and Wildlife Service (FWS), State Foresters from each state, and the three Institutes. These teams meet regularly, and emphasize the inclusion of the full-range of affected entities in the development of the SWERI proposed activities. This collaborative planning process has provided beneficial input and guidance during the development of the Institutes work plans.**

Likewise, the Institutes recognize the value in collaboratively constructing their work plans. The SWERI FY 2007 Work Plan is a consolidated document that includes projects that emphasize the unique niches of each Institute. The three also consult regularly on the implementation of their work plans, opportunities for resource sharing, and strategies for increasing capacity.

**11. What is the niche of the existing Institutes?**

The Institutes were created to:

Enhance the capacity to develop, transfer, apply, monitor and regularly update practical science-based forest restoration treatments that will reduce the risk of severe wildfires, and improve the health of dry forest and woodland ecosystems in the interior West. (Pub. Law 108-317, Sec. 3.1)

That said, each of the Institutes has unique expertise and resources available for carrying out this purpose.

- o **Arizona:** The ERI works to bring the best available ecological and social science to the land managers, stakeholders and practitioners that need it. No other academic institution in Arizona seeks to integrate and align the variety of expertise and discipline required to improve forest health on a landscape scale. The ERI is unlike many other academic units in that it directly provides these services to communities, stakeholders and land management professionals.

Stakeholder Comment:

*They bring cutting edge science to the table and provide a neutral forum for discussion, evaluation, solutions, decisions, and landscape implementation of workable projects. Additionally, they have immense credibility with the public at large and are an entity that allows for reasonable discussion without resort to appeals and litigation on the part of those with a stake in landscape scale resource management and preservation.*

- o **Colorado:** CFRI provides, translates and transfers science in support of forest restoration treatments. These services range from short-courses on ecological restoration, to synthesis and education products, to research on the impacts of treatments. The Institute can provide mortar to support the “bricks” of the range of restoration efforts and collaborations around the state.

Stakeholder Comment:

*The key role for the institute would be as source of unbiased, best-available knowledge for forest management. Success in this area will not look like a silver bullet; it will be built from a range of incremental successes that are valuable to us. The USDA Forest Service cannot be the sole source of reliable information, especially when the Forest Service is across the table from skeptical people and groups. Timber contract officers often require specific activities that appear to have no justifiable rationale; we need information about whether such practices are valuable or just a waste of everyone’s efforts. There is no source of information that could “cut through the dogma.”*

- o **New Mexico:** NMHU has a niche as the only higher education institution in the state with a 4-year Forestry degree program. This program, along with the NMFWRRI, provides, for the first time, technical Forestry support to private, State and Federal entities for the implementation of scientifically credible treatments for restoration-based hazardous fuels reduction treatments with a focus on the ecological, economic and cultural realities of the State.

## 12. What contributions would a new Institute make?

Numerous Federal, State, and local policies (e.g., the Healthy Forests Restoration Act<sup>6</sup>, the 10-Year Implementation Strategy<sup>7</sup>, the new Forest Service Planning Rule<sup>8</sup>, the New Mexico Forest

<sup>6</sup> Healthy Forests Restoration Act of 2003 (P.L. 108-148)

<sup>7</sup> A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy ([www.fireplan.gov](http://www.fireplan.gov))

<sup>8</sup> The 2005 NFMA Planning Rule (<http://www.fs.fed.us/emc/nfma/index.htm>)

and Watershed Health Plan<sup>9</sup>, etc) advocate for use of the best available science, yet many treatments fall short of meeting comprehensive restoration and hazardous fuel reduction goals.

Due to its longer tenure and greater resources, the ERI has been particularly successful in terms of providing a technical bridge between science-based restoration and on-the-ground management. The progress made by CFRI and NMFWRRI indicate that they, too, are moving towards establishing themselves as valuable liaisons between scientists and land managers. This suggests that additional institutes could further the goal of transferring the best available social and ecological science to practitioners outside of the service area covered by the three Institutes. However, given current Federal funding realities, it may be premature to add additional institutes at this time.

## **Conclusion**

The SWERI Executive Team finds that the restoration institute model provides a credible and valued vehicle for developing, translating, and providing the best available science to land managers, practitioners, and stakeholders designing and implementing forest restoration and hazardous fuel reduction treatments. However, until the three Institutes are adequately funded, creating additional institutes would be premature.

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<sup>9</sup> The NM Forest and Watershed Health Plan  
(<http://www.emnrd.state.nm.us/emnrd/forestry/FWHPlan/FWHPlanMain.htm>)

## Appendix A: SWERI Executive and Development Team Members

### SWERI Executive Team

Organization	Name
USDA Forest Service	Ann Bartuska
USDA Forest Service	Harv Forsgren
USDA Forest Service	Dave Cleaves
Bureau of Land Management	Ed Shepard
Bureau of Land Management	Elaine Zielinski
US Fish and Wildlife Service	Dale Hall
Bureau of Indian Affairs	Larry Morrin
Northern Arizona University, Ecological Restoration Institute	Dr. Wally Covington
New Mexico Highlands University	President
Colorado State University	Joyce Berry
Colorado State Forest Service	Jeff Jhanke
New Mexico State Forestry	Butch Blazer
Arizona State Land Department, Division of Forestry	Kirk Rowdabaugh
New Mexico Energy, Minerals and Natural Resources Division	Reese Fullerton

### SWERI Development Team

Organization	Name
USDA Forest Service	Walter Dunn
USDA Forest Service	Claudia Regan
USDA Forest Service	Allison Hill
Bureau of Land Management	McKinley-Ben Miller
US Fish and Wildlife Service	Delfinia Montano
Bureau of Indian Affairs	John Waconda
Northern Arizona University, Ecological Restoration Institute	Diane Vosick
New Mexico Highlands University, New Mexico Forest and Watershed Restoration Institute	Dr. Ken Bentson
Colorado State University, Colorado Forest Restoration Institute	Dr. Dan Binkley
Colorado State Forest Service	Bob Sturtevant
New Mexico State Forestry	Todd Haines
Arizona State Land Department, Division of Forestry	Al Hendricks

## Appendix B: Comments from Stakeholders on the Restoration Institute Model

Comments on five of the evaluation criteria were solicited from stakeholders representing SWERI's affected entities<sup>10</sup>. Respondents included:

Craig Paddock, Douglas County (CO)  
Tim Reader, Colorado State Forest Service  
Kathryn Hardgrave, Colorado State Forest Service  
Sam Burns, Fort Lewis College (CO)  
Lori Faeth, Natural Resources Advisor to Governor Napolitano (AZ)  
Deb Hill, Coconino County (AZ)  
Ken Moore, Bureau of Land Management (AZ)  
Chuck Hagerdon, USDA Forest Service (NM)  
Steve Campbell, The White Mountains Natural Resources Working Group (AZ)  
Steve Gatewood, Greater Flagstaff Forests Partnership (AZ)  
Todd Haines, New Mexico State Forestry Division  
Kristin Garrison, Colorado State Forest Service  
Chuck Dennis, Colorado State Forest Service  
Art Goodtimes, San Miguel County Commissioner (CO)

### 13. What has been accomplished towards fulfilling the Act?

- The highest visibility work has been engaging CSU professors with groups around the state, including field trips (such as this one), and last year's ponderosa pine field trip in the San Juans and Front Range.
- I am not qualified to fully answer this question, however, there have been a number of useful seminars and publications conducted and the web page is now up and running.
- I view the initial accomplishments of the CFRI as being the establishment and coordination of restoration activities along a common path. Baseline education of ecological processes and their variability has been conducted.
- It would appear that some additional transferable knowledge in the form of ecological science has been made available in Arizona, especially in the Flagstaff area. Far less has been accomplished with regard to social, economic, and human dimensions—but is improving. While it is often said that these latter dimensions are not the primary foci of the Act, it is nevertheless clear that these represent some of the major barriers to implementing forest restoration, rather than merely a lack of applied ecological science.
- The ERI has implemented treatment projects on the ground which provide a basis for ongoing research in regard to hazardous fuels reductions. They are a key player in the Governors forest health councils which are stakeholder based and rely on sound science.

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<sup>10</sup> Questionnaires, along with a cover letter describing the 2-Year Review and a copy of the FY 2007 SWERI Work Plan, were sent by email to several dozen stakeholders. These stakeholders were past participants in SWERI workshops, short courses and field trips. Stakeholders were invited to send their responses via email to either the Institutes directly or to a Forest Service representative.

- ERI has been active in this region as well as state-wide providing study results and findings from field research on forest health including various thinning practices and their impacts (both good and bad). ERI is seen as a primary source of such information for this region.
- In the eleven years I have been involved with NAU/ERI, this has been their goal. Both the BLM and ERI have recognized that we are learning through research how to improve land health and bring natural ecosystems back to a sustainable process.
- My initial and primary involvement with ERI has been through participation in the 2-3 day Forest Service Practitioners Workshops, in Flagstaff, April 19-22, 2004 and in Grants, May 24-25, 2005 as well as attending the Southwest Fire Initiative Conference in Flagstaff. This technology transfer has encouraged and resulted in strengthened NEPA documentation and implementation of science based restoration prescriptions at the field level. The treatment of areas with restoration based applications/prescriptions extends from WUI treatments at the stand level to 5<sup>th</sup> code watershed assessments on the Mt. Taylor RD.
- The Ecological Restoration Institute has been essential to our efforts to deal with both the social and scientific issues critical to the efforts of the Natural Resource Working Group in the White Mountains. They have provided state of the art science to the design and implementation of restoration efforts on both private and public lands in the region. Additionally, they have facilitated resource training efforts, mapping and resource evaluation, and social evaluations that are critical to meeting both scientific and societal issues representing high priorities with respect to both community and landscape needs.
- The NAU/ERI has been an integral part of the GFFP and in accomplishing our objectives, most of which are very similar to the activities outlined in the Act. Through direct action or providing resources to other entities, ERI brings the best science available and new analytical tools to our collaborative deliberations on how to best restore forest ecosystems and protect communities from wildfire. Without their involvement, the design, implementation, evaluation and promotion of a diverse array of science-based restoration treatments and approaches would be significantly limited.
- The Colorado Forest Restoration Institute has been established and has provided a training session for field foresters on Forest Restoration in Ponderosa Pine. This was a good example of getting the scientific knowledge to those on the ground who are implementing projects. CFRI has also provided opportunities for feedback from field foresters on what our needs are when dealing with restoration projects.
- The Institute has held several statewide meetings, and has facilitated a workshop session on a national forestry study that I had the good fortune to participate in.

**14. Has creation of the Institutes stimulated state governmental activity for restoration?**

- Not much yet; current state governmental activity in restoration is limited to activities of the Colorado State Forest Service.
- Speaking only for Douglas County, there has not yet been any forest management work, either on the ground or planned, that can be directly attributed to the Institutes. Their presence does provide an opportunity to investigate new projects and substantiate currently planned activities by providing cutting edge research and expertise.



– Perhaps more than stimulated activity (much was going on prior to the authorization to establish CFRI) CFRI has helped prioritize restoration activities and provided the credible basis for conducting restoration treatments. Also has identified local needs and gaps in knowledge.

– I don't know the answer to this question, but my guess is, the state land board is revenue-driven. Partial restoration may be the result of forest management work, but I don't see restoration being the driving force as much as forest health even though results can be the same or very similar.

– There is little evidence that the Institutes have played much of a role in stimulating state government activity. Considerable state action was fostered by the Four Corners Sustainable Forest Partnership in the Southwest during the period 1999-2004. NAU-ERI has been active with the Arizona Governor's Forest Health Advisory Committee in a few initiatives. State government in Colorado, including the Colorado State Forest Service, is woefully un-involved in forest restoration, including assisting in the formation of community wildfire protection plans.

– Absolutely.

– Yes, both directly and indirectly. Under the category of direct results, principals in ERI serve on various state commissions in a capacity of recommending necessary actions to Governor's office and informing the State Legislature.

– This certainly has stimulated state government interest in restoration. The state is proud of NAU/ERI and its ability to work with other state agencies such as the Arizona Game and Fish Department as well as with federal agencies.

– I believe so. The value of ERI as a non-governmental education/research based entity cannot be overstated and has allowed for better collaboration with interest groups, better communication with the research community and increased internal dialogue on the range of options to reverse forest health decline and provide for meaningful comprehensive and holistic vegetative management treatments at an appropriate scale with broad implications.

– Yes! The Institute has been significantly engaged in both the Governor's and the Legislature's Forest Health and Wildfire Mitigation efforts in Arizona. Institute members are involved and provide leadership as co-chair of the Governor's Forest Health Advisory Council and provide the leadership for development of the combined Legislative and Governor's Statewide Forest Strategy. The Director of the ERI, Dr. Covington, is actively involved with both the Executive and Legislative efforts to deal constructively with the issues of forest health and wildfire mitigation in Arizona. These efforts are critical to the long term development and implementation of a coherent Forest Health and Wildfire Mitigation Strategy for Arizona. And, by inference, the entire Southwestern Region will benefit from what is being accomplished in Arizona.

– Yes. Partially because of their involvement in statewide forest restoration activities and the resources they bring to bear, the state last year created a State Forester position and new agency structure. In addition, their participation in the GFFP has helped us acquire State Fire Assistance funding through the AZ State Land Department.

– The state government, mainly CSFS, has been involved in restoration activities for a number of years before the creation of the CFRI.

– Yes and No. CSFS had undertaken forest restoration projects prior to the formation of the Institute, primarily centered in the Upper South Platte Project (but in other small locations as well). These early efforts helped confirm that forest restoration techniques, especially in ponderosa pine, were an important tool for managing our forests. The fledgling Institute in Colorado has raised awareness, brought focus and provided important information, training and research needs.

– It has certainly motivated local governments and the regional collaboratives I've been involved in to re-examine our policies and programs relating to forest health and restoration.

**15. 3. Have your interests, or the interests of a group you represent, been addressed in the development of work plans?**

– Yes; engaging with Colorado Wood is a key part of the approved work plans.

– Yes. The focus on the ponderosa pine community is very appropriate for the vegetation/fuel types we deal with on a daily basis in Douglas County.

– My particular professional interests involve utilization of wood and product flows that result from restoration treatments. This need has been reflected in CFRI strategies and work planning.

– Yes, particularly wood chip assessment, COWood, and PJ restoration.

– In some very, very broad conceptual senses the interests of restoration have been addressed in Southwest Colorado through efforts to identify future needs. However, possibilities for implementation appear to be more heavily focused in geographic areas other than this region. Program efforts are being concentrated on capacity building within the university setting, which may bear fruit in some situations in the long term. However, one might wonder whether a more intense bottoms-up approach might not be more effective, intensively networked with existing community-public land partnerships that have a track record of performance.

– Yes, as noted above, they are a key player in the Governors forest health councils and we have a tremendous partnership with the ERI.

– Yes, under Projects 5 and 6 –information will be provided that will assist decision makers at the County level to create policy that will have a beneficial impact on forest health as well as protecting public health, safety and welfare. The review of economic development centered around forest products will help to improve local economies.

– Absolutely. We communicate regularly on upcoming research and are asked for input into this research. In addition, each cooperating agency meets twice each year together and discuss ongoing research and upcoming research. The BLM feels free to offer suggestions on proposed research to help us get answers to ecological concerns as well as management problems.

– The work plan appears to represent a very solid and comprehensive program that spans the relevant needs regionally to meet the intent of “the Act”:

Project 7 stands out as one of the most lacking or weakest areas in treatment and follow thru, in the action agencies, to allow for subsequent learning and adaptive management. I am keenly interested in the development of well designed monitoring that provides meaningful documentation.

Project 6 is imperative, although some headway has been made and continues to be made, at the regional level, value added, small wood utilization businesses are still not postured to be significant players with respect to effecting restoration based treatments, especially at the landscape/watershed scale.

Project 2 represents an area that perhaps generates the most concern with restoration treatments, or treatments at all, in some of the research community and environmental community. The assessment that little is known on one of the predominant vegetation types in the southwest is acutely on target.

– Yes. In fact, the issues and needs of our area were inputs that helped to frame the Work Plan’s focus and priorities.

– Yes. We require someone of the stature and credibility represented by the ERI to evaluate and assist in the development and implementation of resource related projects in our area.

– Yes. Partially because of their involvement in statewide forest restoration activities and the resources they bring to bear, the state last year created a State Forester position and new agency structure. In addition, their participation in the GFFP has helped us acquire State Fire Assistance funding through the AZ State Land Department.

– The establishment of NMFWRI is helping our state to generate interest, awareness, and momentum for the principles of forest restoration.

– Yes. The information presented in the work plan for 2007 does address my interests and the interests of the group I represent. CFRI has taken the time to listen and make work plans based on feedback from the field, which will make the Institute more credible. Seeing projects with monitoring, wood chip studies, etc. will be a benefit to implementers on the ground. Having a viable, user friendly Web site will also help with information transfer, especially when it comes to getting the scientific information to the field.

– For the most part, yes. The Institute worked hard at gathering information and input in the development of their work plans.

– The Public Land Partnership, of which I am a member of the Executive Committee, were very much represented in the development of work plans.

**16. Are you, or the group you represent, supportive of the Institute model?**

– Yes. This approach seems to be addressing our needs.

– I do support the model in its application. I believe a niche for CFRI is in producing and communicating credible basis for the need for restoration from the standpoint of process modeling and variation.

– Yes.

– Most practitioners, managers, and advocates of forest restoration will only be supportive of the Institute model if it provides them direct assistance with on-the-ground work. It is currently very difficult to tell if the projects being contemplated in the 2007 will meet this criterion. Conceptually they appear to address the appropriate “broad or generic themes” of restoration, but

at the same time do not have a feel or tone of being grounded in local and regional situations. Other than a reference here and there to the Front Range Fuel Initiative, Grand County, and ten counties in Southwest Colorado, one does not have a sense of concrete, project level involvement. The model appears to be university based, rather than community based. Virtually all Institute resources are being placed in a scientific institution, rather than being utilized to energize social, economic, and restoration partnerships within communities through specific collaborative activities. There may be many products produced, but it is unclear if there will be significant sustainable capacity built around the state.

- Yes, they are an important partner in Arizona for restoring our forests and protecting our forested communities.
- Yes, absolutely. This information is important for the County so that we can make informed policy.
- This is the main goal of ERI. The BLM needs the ERI to find answers to ecological problems through science and research and then transfer this information to the agency (as well as other agencies). We can then confidently change our management strategies to improve the health of these ecosystems. If we did not have the ERI do this, we would just be guessing what would work.
- Most emphatically!! As the line officer for the Mt. Taylor District, I have required a part of the training curricula for the field crews from program staff to preparation foresters to “timber” markers or designators and implementation crew (thinning crew), include attendance at one of ERI’s practitioner workshops. I have developed demonstration areas to be able to visualize restoration treatments “on-the-ground”.
- Yes. We require someone of the stature and credibility represented by the ERI to evaluate and assist in the development and implementation of resource related projects in our area.
- Yes. Even though we have enlightened land managers and a very supportive community regarding forest restoration, including the use of prescribed fire, we are constantly in need of new information development and transfer approaches. Several ERI publications and programs, like the “Working Papers in Southwestern Ponderosa Pine Forest Restoration” and proceedings from their conferences, have been extremely valuable in outreach, education and decision making.
- Yes. I think it will be a valuable tool for us to do our jobs on the ground and lend some credibility to what we are doing by basing our treatments on scientific information.
- Most definitely!
- Yes, I would say the Public Land Partnership (and myself personally) are strongly supportive.

**17. What is the niche for the existing Institute in Colorado?**

- The key role for the institute would be as source of unbiased, best-available knowledge for forest management. Success in this area will not look like a silver bullet; it will be built from a range of incremental successes that are valuable to us. The USDA Forest Service cannot be the sole source of reliable information, especially when the Forest Service is across the table from skeptical people and groups. Timber contract officers often require specific activities that appear to have no justifiable rationale; we need information about whether such practices are valuable or

just a waste of everyone's efforts. There is no source of information that could "cut through the dogma."

– Being able to demonstrate ecological process historical variation and the extent to which current processes may vary outside of this historical range allows common ground to be established. Colorado has now central source for restoration activities and results among various private and public land jurisdictions. This is a role CFRI can certainly fill as well.

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– The link between research and implementation.

– The niche in Colorado could or should be to take a community-based approach, to affiliate with numerous community restoration initiatives, and to utilize the Institute's resources in a deeply catalytic paradigm. Staff resources could be de-centralized, working directly through multi-stakeholder coalition efforts within 6-8 sub-regions through out the state. In some limited cases this appears to be occurring in locales relatively near CSU. The ERI-NAU model, being highly concentrated (See ER staff list on their website.) in Flagstaff, appears to be the accepted model, as indicated objectives in the 2007 work plan. While this has some technical or scientific merits, it does not provide for adequate connections with community based restoration efforts. Colorado could evaluate taking a more innovative, community capacity building approach, and still provide the needed ecological science, but in a more holistic fashion.

– The ERI brings unique resources to the table in regard to scientific expertise, long-range thinking and implementing research projects so we can all better understand what needs to be done in Arizona to restore healthy forests. They are an important partner.

– ERI's most important role is R&D – testing and reporting outcomes for various forest health practices while keeping the region informed of best practices and opportunities for improving the safety of our communities while maintaining the integrity of the forest ecosystems.

– Other comments: The Coconino County Board of Supervisors supports the work of the ERI. Through their research and public outreach we are making improvements in the way our communities and forest resources are managed. Their work is very important for those of us charged with the welfare of citizens that live in this region, in the largest contiguous ponderosa forest in the world.

– This question is pretty much answered in question 4 above. All through the work on the Mt. Trumbull Ecosystem Restoration, BLM's role has been the operational part and ERI has been the research side. ERI has used science and research to develop proposed actions for different study units. The BLM completed these actions through thinning of vegetation and other physical on the ground activities including burning and in some cases reseeding of native vegetation.

– Interface with the practitioners (private, industry, state and federal government) as a conduit for connecting the science/research to the application, fomenting science based decision making and field implementation to meet landowners restoration management objectives.

- Following the proposed program of work for FY07, which represents a very effective program consistent with current regional needs and is well iterated.
- They provide expertise in terms of resource needs and issues and in the quantification of these needs and issues. They bring cutting edge science to the table and provide a neutral forum for discussion, evaluation, solutions, decisions, and landscape implementation of workable projects. Additionally, they have immense credibility with the public at large and are an entity that allows for reasonable discussion without resort to appeals and litigation on the part of those with a stake in landscape scale resource management and preservation.
- Exactly as outlined in the Act, especially acting as a conduit for resources, both financial and through technical assistance, for the agencies and organizations that plan, implement and monitor forest restoration on-the-ground.
- Research, Training & Technology Transfer
- Providing information exchange with the scientific community and the field implementers. Also, gearing research to what is needed by the field implementers instead of just gearing scientific research to political issues.
- It provides a statewide clearinghouse for scientific information relating to forest restoration and a networking umbrella for the many collaboratives currently operating in the state.

**Other comments:**

- NAU/ERI have been excellent to work with over the years. It has been a good association and we have both learned a great deal from each other. I hope this can continue for many years to come. The research set up in the Mt. Trumbull area is designed to be long-term so changes can be measured decades from now.
- While some may find fault with the specter of one entity having the level of influence enjoyed by the ERI; it is in effect essential that there be an entity where the majority of information is collected and made available to decision makers and interested public alike. Further, this entity must be neutral with respect to the political debate and broad based with respect to accurate and cutting edge scientific knowledge as well as the needs of the resource and resource dependant communities. The ERI manages to meet and exceed the requirements of this very high bar.
- I believe more Restoration Institutes should be located throughout the country and that their role should be expanded beyond “dry forest & woodland ecosystems in the interior West” to full science-based ecological/ecosystem restoration for all regional habitat types.
- Need to remember that we don't have to reinvent the wheel. I saw there was something in the work plan about visible demonstration sites. There is one very visible demonstration site established at Trumbull that has been used for legislative tours, landowner tours, and school groups.