



Ecological Restoration Institute

Ecological Restoration Institute Work Plan: Developing Knowledge for West-wide Application Fiscal Year 2015 for \$1.2 Million

Approved by Executive Team with green edits
4/22/15

The *Ecological Restoration Institute (ERI) at Northern Arizona University* is nationally and internationally recognized for expertise and leadership in science-based forest restoration and fire. In 2004 Congress passed the Southwest Forest Health and Wildfire Prevention Act (PL108-317) that authorized the ERI to be one of three ecological restoration institutes focused on developing and providing the best available science to land managers, practitioners and stakeholders in order to restore forests and reduce fire risk at the landscape scale. The Institutes represent a proactive strategy for bridging the gap between scientific research and practical application to achieve desired land management outcomes. In a 2005 implementation memo to the regions, then Chief of the Forest Service Dale Bosworth called the new law “unique and groundbreaking.”

The work of the Institutes is focused on the importance of place-based science application and does not duplicate the work of the United States Forest Service (USFS) Research Stations. Whereas the research stations produce primary science and some synthesis, the Institutes provide a suite of services that focus on the translation and transfer of best available science to aid land managers and others in specific place-based settings. In addition, most of our field work is dedicated to monitoring in order to understand treatment outcomes. When the ERI conducts primary research it does so by leveraging state funding, competitive grants, and other sources. The work of the ERI is complementary to the Research Stations in that primary literature is incorporated in many of our translation products, such as the evidence-based systematic reviews that interprets science for practitioners, stakeholders, and policymakers.

This annual work plan strives to address current and emerging information needs and service. The Institutes strike a balance between responding to immediate information and service needs, and anticipating future needs based on emerging trends. For example, the ERI began recommending landscape-scale forest restoration in the early 1990s, long before the approach was adopted by the land management community. Early testing and monitoring of restoration treatments in the 1990s contributed to the scientific logic pointing the way to large-scale restoration. Most recently, we worked with the Southwest Joint Fire Science Consortium to produce a Working Paper to help managers navigate conflicting science with respect to determining historic fire regimes. Mary Lata, forest ecologist for the 4FRI Interdisciplinary Team, sent us this unsolicited email about the working paper:

— “*ERI Working Paper #32: Outstanding...not to mention VERY helpful in reviewing Objections to the Final 4FRI EIS.*”

The FY 2015 Work Plan for \$1.2 million is divided into six project areas with specific actions and deliverables described in detail. *Together these actions provide the interdisciplinary constellation of knowledge and services to advance landscape scale restoration in the West.*

Project 1: Science Support for Collaborative Restoration and Conservation from the Local to the Landscape Scale

The Institutes’ enabling legislation identifies seven purposes of the Act. Project 1 addresses the purpose “... to provide technical assistance to collaborative efforts by affected entities to develop, implement, and monitor adaptive ecosystem management restoration treatments that are ecologically sound, economically viable, and socially responsible ...”

The activities proposed for Project 1 help stakeholders and agency partners design and implement forest restoration projects in the pilots chosen under the Collaborative Forest Landscape Restoration Act (CFLRA).

Specifically, the ERI provides leadership, technical assistance and support to the Four Forest Restoration Initiative (4FRI). In addition, we actively collaborated with the stakeholders and the 4FRI Forest Service Interdisciplinary Team to develop a robust Final Environmental Impact Statement for the first one million-acre analysis area. The 4FRI has explored innovative approaches to collaborate through NEPA and we have contributed extensively to this effort.

The ERI extends its reach throughout the West by assisting CFLR pilots in Regions 2, 3, and 6 of the U.S. Forest Service to design and implement biophysical monitoring. The ERI leads or participates in several efforts designed to achieve the goals of the CFLR Act.

Project 1: Science Support for Collaborative Restoration and Conservation	
Fulfills Duties under the Act: 1,2,3,4	
Action	Requested by
1.1. Provide support for the 4FRI, an approved CFLRA project. Actions include: support for integrating science, monitoring and adaptive management in planning and implementation; assistance in the organization and leadership of the 4FRI Stakeholder Group; assistance to develop landscape planning approaches that are scalable down to the treatment level.	<u>Requestor:</u> The 4FRI stakeholders <u>Outcome:</u> Successful collaboration and implementation at the landscape scale
1.2 Assist the 4FRI Stakeholder Group to design and conduct a workshop that will reflect on the successes and lessons of the last five years of collaboration and position the group to improve collaboration during the next EIS analysis.	<u>Need anticipated</u> by ERI, broad support among stakeholders for this project <u>Outcome:</u> Successful collaboration and implementation at the landscape scale
1.3. Provide support for CFLR projects and emerging projects.	<u>Requestor:</u> The 23 Projects of the CFLR, National Forest Foundation, WO of USFS <u>Outcome:</u> Learning and greater efficiency across CFLRP pilots

Deliverables

1.1) Provide support for the Four Forest Restoration Initiative (4FRI), a Collaborative Forest Landscape Restoration Act project.

- a) Deliverable: Report on technical assistance to: the multi-party monitoring board; the Forest Service as EIS#1 proceeds to implementation; and, support for EIS#2 analysis.
- b) Deliverable: Report on activities completed as co-chair and assistance provided to create an efficient working relationship between the Natural Resources Working Group (NRWG) and the 4FRI Stakeholder Group.
- c) Deliverable: Report on IT support for the 4FRI Website and BASECAMP (an online collaborative work space) and administrative support including minutes and agendas.

1.2) Assist in the planning, coordination and delivery of a 1.5 day workshop for 4FRI Stakeholders and the Forest Service.

- a) Deliver workshop.
- b) Publish white paper that: compiles lessons learned, recommendations for the second analysis area, and a [discussion of why the NEPA and Objection process worked](#) (editorial support appears in deliverable 6.4)

1.3) Provide scientific and technical support for CFLRP pilots and emerging projects.

- a) Deliverable: Report on activities to support the national CFLRP monitoring network.
 - i. Report on responses to information requests
 - ii. Co-produce (with NFF) a webinar describing the outcomes of the 5-Year Monitoring Plan
- b) Deliverable: Report on assistance to the National Forest Foundation and the Washington Office of the USFS to plan and deliver a national CFLRP conference. Discussions are underway for this conference. It is possible that the conference will actually occur in FY 2016.

Project 2: Information Analysis to Assist Evidence-Based Conservation

Project 2 meets the second purpose of the enabling legislation to “... synthesize and adapt scientific findings from conventional research programs to the implementation of forest and woodland restoration on a landscape scale ...”

A key service of the Ecological Restoration Institute is to consolidate and translate highly technical scientific research into forms accessible to land managers and other affected entities. These systematic analyses of scientific evidence provide managers, interdisciplinary teams, and others the information they need to make informed decisions based on best scientific information. The topic for these information products usually responds to questions identified by local land managers, stakeholder groups, scientists and other professionals. Periodically, the ERI anticipates the need for information on an emerging land management topic such as our pioneering work in the restoration of dry mixed-conifer forests. However, even ERI-derived questions are framed by what land managers will *need* to know — not what we as scientists would *like* to know.

Based on the urgency of the question and the quantity and quality of the information available, the ERI produces various products. For example, rapid reviews of key information sources, produced in a matter of weeks may be needed to respond to highly urgent questions; whereas rigorous comprehensive reviews that require a greater level of effort may be needed to answer broader questions. For all review efforts, the ERI will follow a systematic, evidence-based approach to assemble, evaluate, and weigh findings from scientific research, practitioner experience, and gray literature to objectively identify the best evidence for making management decisions. This approach can help diminish the controversy over seemingly

“conflicting” science by determining the “best available science” by analyzing the strength of the evidence presented in scientific studies and other sources.

In FY 2015 we will conduct a literature or systematic review (what approach we take is determined by how much literature is available) analyzing restoration treatments and outcomes for ponderosa pine forests with a shrub/woody understory. This work is important because following forest thinning shrubs and woodland species can increase in lower elevation forests. How to reduce tree density without encouraging an increase in flammable vegetation is an important question for forest managers.

Project 2: Evidence-based Conservation	
Fulfills Duties under the Act: 1,2	
Action	Requestor
2.1. Literature or Systematic Review examining restoration treatments appropriate for Ponderosa Pine with shrub/woodland understory	Requestor: Prescott, Kaibab and Tonto National Forests Outcome: Strategies to restore ponderosa pine forests with shrub understory

Deliverables

2.1) Literature or Systematic Review of restoration treatments to restore Ponderosa Pine Forests with shrub understory.

- a.) Deliverable: Completed review and draft manuscript or technical report.
 - i. Presentation to appropriate staff from the Prescott, Tonto and Kaibab National Forests.

Project 3: Ecological Monitoring and Evaluation for Adaptive Management

Project 3 responds to the enabling legislation purpose number one, “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 ...”

At both regional and national levels, information is critically needed on the following: 1) restoration and conservation of frequent-fire, mixed conifer ecosystems; 2) conserving habitat for important wildlife species as changing climate produces larger, more severe wildfires; 3) cost-effective, ecologically sound modes for treating large areas quickly; and 4) restoration planning and treatment effectiveness monitoring across large landscapes.

When based on scientific methodologies, ecological monitoring can provide sound, supported information concerning long-term responses to forest restoration and hazardous fuels treatments. In addition, when used in an adaptive framework, well planned monitoring can illuminate a solution for addressing immediate management needs in the face of uncertainty. The Ecological Restoration Institute utilizes a network of statistically robust, long-term studies, located at sites throughout the Southwest, to develop new information concerning on-the-ground restoration and conservation applications. We also conduct short-term studies to address critical science questions where appropriate with leveraged funding. Lastly, the ERI provides technical support in the design of monitoring strategies for collaborative landscape-scale

restoration, such as our partnership with the Salt River Project (leveraged funding), to understand watershed and natural resource responses in the 4FRI Project.

In FY 2015, we will continue to engage in activities that respond to these key science needs identified by land managers, stakeholders, and researchers. Specifically we will: 1) continue planning and implementation of a long-term ecological assessment and restoration network (LEARN) project at a warm/dry mixed-conifer site on the Mogollon Rim Ranger District (Coconino National Forest); 2) monitor responses of key wildlife species to restoration and hazardous fuels reduction treatments as a part of the FWPP (Flagstaff Watershed Protection Project) in cooperation with the City of Flagstaff, Coconino National Forest, and US Fish and Wildlife Service; 3) examine the efficacy of managed wildfire for moving frequent-fire landscapes toward desired conditions; 4) test the use of state-of-the-art, high-resolution, spatial data (LIDAR) for developing landscape reference conditions, characterizing current conditions, and modeling treatment outcomes; 5) identify the appropriate metrics for monitoring landscape-scale desired conditions in fire-adapted forests; and, 6) develop information and outreach for managers based on outcomes from the San Juan Fire.

Information produced from activities completed under Project 3 will be highly valuable and relevant to resource managers, and will aid in planning for restoration and conservation of dry forest landscapes of the western United States. Furthermore, as this work will be done in support of science needs for 4FRI and the Flagstaff Watershed Protection Project, activities completed under Project 3 will be particularly important to managers in the Southwest. Science delivery from these activities will target not only resource managers but also researchers, interested stakeholders, policy makers, and the public.

Project 3: Monitoring and Evaluation for Adaptive Management	
Fulfills Duties under the Act: 1,2,3	
Action	Requestor
3.1 Continue development of long-term study in a mixed-conifer forest on the Mogollon Rim Ranger District of the Coconino National Forest (Build from FY14)	<p><u>Requestor</u>: 4FRI ID Team: Dick Fleishman and Bill Noble. These interests date back to the original 2006 East Clear Creek project. Outlined in the 2006 FONSI are requests for more analysis of thinning and burning in mixed conifer. This request was made by the Grand Canyon Wildlands Council and Grand Canyon Trust. Jim Youtz, regional silviculturalist.</p> <p><u>Outcome</u>: Best available science to inform development of restoration treatment prescriptions.</p>
3.2 Mexican Spotted Owl responses to hazardous fuel reduction treatments in the Flagstaff Watershed Protection Project	<p><u>Requestor</u>: City of Flagstaff, USFWS, USFS Coconino National Forest</p> <p><u>Outcome</u>: Best available science provided to inform action</p>

Project 3: Monitoring and Evaluation for Adaptive Management	
Fulfills Duties under the Act: 1,2,3	
<p>3.3 Examine the efficacy of wildfires managed for resource benefit to achieve desired conditions</p>	<p><u>Requestor:</u> This anticipates need, and is consistent with the Southwest Fire Science Consortium interest in the topic of using fire to meet ecological objectives. A proposal to JSFP had letters of support written by – William Van Bruggen, Kelly Russell, Mike Williams, Linda Chappell. Linda Wadleigh (via email). 4FRI is planning fire only treatments, however, there is very little data available. This does not overlap with work that Pepe is doing, although we are talking about ways we might collaborate. Jim Youtz, regional silviculturalist also supports this project.</p> <p><u>Outcome:</u> Best available science provided to inform action</p>
<p>3.4 Test high-resolution spatial data for developing landscape reference conditions. Include an analysis of cost effectiveness as compared to conventional approaches for determining landscape level reference conditions.</p>	<p><u>Requestor:</u> 4FRI Monitoring. We are testing to see how to use LiDAR for planning analysis, monitoring and as a guide to restore landscape characteristics. To date very little information is available concerning historical patterns and reference conditions at the landscape scale. Nearly all reference information to guide landscape restoration is from stand scale studies. This does not overlap with work RMRS is doing – i.e., no one is trying to reconstruct and quantify landscape scale historical reference conditions using LiDAR.</p> <p><u>Outcome:</u> Evaluation and analysis of tools and techniques</p>
<p>3.5 Identify the appropriate metrics for monitoring landscape-scale desired conditions in fire-adapted forests.</p>	<p><u>Requestors:</u> 4FRI Science and Monitoring and Multi-party Monitoring group members. This project will be complementary to the work underway in the Broad scale Monitoring project</p> <p><u>Outcome:</u> Evaluation and analysis of tools and techniques</p>
<p>3.6 Re-measurement of study units in the San Juan Fire</p>	<p><u>Requestors:</u> 4FRI Stakeholders, 4FRI ID Team, Staff on the Apache Sitgreaves NF.</p> <p><u>Outcome:</u> Best available science provided to inform action</p>

Deliverables

3.1) Continue development of long-term study in a mixed-conifer forest on the Mogollon Rim Ranger District of the Coconino National Forest (build from FY14).

- a) Deliverable: Report on progress with:
 - i. Coconino National Forest to complete NEPA requirements.
 - ii. Coconino National Forest to develop treatment prescriptions.
 - iii. Coconino National Forest to train crews and implement treatment marking.

3.2) Wildlife responses to restoration and hazardous fuels reduction treatments.

- a) Deliverable: Report on pretreatment conditions and progress of the Flagstaff Watershed Protection Project (FWPP) wildlife monitoring (in FY15 work will be at the Mormon Mountain site on the Coconino National Forest).

3.3) Examine the efficacy of wildfires managed for resource benefit to achieve desired conditions.

- a) Deliverable: Present findings at a professional conference, or a workshop for resource managers, or a stakeholder event.
 - i. Initiate study – identify study fires, develop maps, develop study methodology, and seek field work permits.
 - ii. Collect field data.
 - iii. Analyze spatial and field-based data.

3.4) Test high-resolution spatial data for developing landscape reference conditions and analyzing forest management and disturbance dynamics. Include an analysis of cost effectiveness as compared to conventional approaches for determining landscape level reference conditions.

- a) Deliverable: Final Report and presentation at a national conference.
 - i. Develop data layers
 - ii. Analyses performed at two sites along the Mogollon Rim (Black Mesa and LEARN Blocks 2-6).

3.5) Identify the appropriate metrics for monitoring landscape-scale desired conditions in fire-adapted forests, including, but not limited to, forest cover and opening proportions, spatial configuration, and group size. Assess how each metric performs at different scales. This work will be coordinated with Jamie Barbour and the Broad-scale Monitoring Project in Regions 2 and 3.

- a) Deliverables: Final Report or manuscript, presentation to 4FRI Stakeholder Group, presentation to CFLRP Peer Learning Group.

3.6) Re-measurement of study units in the San Juan Fire to determine the outcomes of different treatment approaches implemented prior to this mixed-severity fire and include in this analysis the survivability of trees.

- a) Deliverables: Presentation to land managers and Fact Sheet.

Project 4: Understanding and Solving the Economic, Social and Political Issues and Opportunities of Ecological Restoration

Project 4 achieves the legislated purpose “... to facilitate the transfer of interdisciplinary knowledge required to understand the socioeconomic and environmental impacts of wildfire on ecosystems and landscapes ...”

In the face of an uncertain economy and inadequate federal budgets, communities and stakeholders are exploring new ways to leverage funding to accelerate restoration. In FY 2015, the ERI will continue to work with the Salt River Project, [the National Forest Foundation](#) and others to develop new approaches for expanding financial and human resources to achieve restoration on federal land and other land ownerships.

Modern forest harvesting and wood product manufacturing require contemporary skills that presently don't exist in the workforce in many areas of the country where the wood sector left in the 1990s. The ERI is facilitating cooperation between industry, state and county government, and community colleges to develop a training program(s) to fill a serious gap in the current workforce. It is our hope that this can serve as a model for other rural communities.

Project 4: Understanding and Solving Social, Political and Economic Issues	
Fulfills Duties under the Act: 6,7	
Action	Benefit
4.1 Increase understanding of innovative funding mechanisms for achieving restoration and wildfire risk reduction	<u>Requestor:</u> The ERI is assisting the City of Flagstaff, the Salt River Project, and Coronado NF. Creating new funding streams is a focus of the USDA Undersecretary for Environment and Natural Resources <u>Outcomes:</u> Innovative approaches to funding are developed across the West
4.2 Facilitate cooperative efforts to meet work force training needs	<u>Requestor:</u> Need identified by New Pac Fiber and Campbell Global <u>Outcome:</u> Contributes to the revitalization of the wood sector and rural economic recovery

Deliverables

- 4.1) Actions to increase understanding of innovative funding approaches for achieving forest restoration and wildfire risk reduction.** These alternative funding approaches include the Northern Arizona Forest Fund (SRP and NFF) and emerging efforts to support the Coronado National Forest by creating an “opt-in” program for resorts in Southeastern Arizona.
- a) Deliverable: Report on actions that support the Northern Arizona Forest Fund and creation of an “opt-in” resort fee on the Coronado National Forest.
- 4.2) Continue to facilitate work force training development.** Participants include industry (Campbell Global, Good Earth Power and New Pac Fiber), Community Colleges (Northland Pioneer College and Coconino Community College), Coconino County Employment Services, Northern Arizona University- School of Forestry, The Nature Conservancy, and the Arizona Department of Forestry.

Work force training includes workforce readiness, retention, safety and harvest and manufacturing skills development.

- a) Deliverable: Report on actions and outcomes.

Project 5: State, Tribal and Private Forestry – The All-Lands Approach

At the core of the Southwest Forest Health and Wildfire Prevention Act is the recognition that solving the problems of degraded forest health and catastrophic fire will require an all-lands approach and coordinated, cross-jurisdictional action. Although PL108-317 is managed through the U.S. Forest Service, Congressional intent is clear that the Institutes should provide service to all affected entities including: state, tribal, and private land managers. Purpose five of the Act specifically outlines actions to be taken with all land managers.

The ERI helps to advance restoration approaches across all jurisdictions through participation in, and web management for, the Arizona Prescribed Fire Council. The council promotes education, coordination and support of managed fire and smoke management objectives across multi-jurisdictional lands in Arizona. In addition, this action supports the objectives identified in the Arizona Forest Resource Assessment and Strategic Plan. These plans were required by the 2008 Farm Bill as a prerequisite to receiving funding through the USFS State and Private Forestry Program. The ERI played a major role assisting the Arizona State Forester to produce these plans in 2008. Over the last year, ERI has met with the Deputy Chief for State and Private Forestry as well as the Arizona State Forester to explore how to revise the plan (required every five years) to comport with the National Cohesive Strategy.

The ERI would like to provide greater assistance to the tribes. Many tribal resource professionals from throughout the West graduated from Northern Arizona University and have reached out to NAU for on-going technical assistance. The Navajo, Hopi and White Mountain Apache tribes of northern Arizona have specifically requested help in order to be aligned with the 4FRI. In FY 2015, we will meet with tribal forestry experts to explore how we can serve their technical needs and link them to the 4FRI.

Project 5: State, Tribal and Private Lands—An All Lands Approach	
Fulfills Duties of the Act: 1, 3, 4	
Action	Requestor
5.1 Service to the Arizona Prescribed Fire Council	<u>Requestor</u> : Members of the Prescribed Fire Council <u>Outcomes</u> : Education, increased use of prescribed fire, smoke management and coordination
5.2 Assist in the rewrite of the Arizona State Assessment and Strategic Plan as required by the 2008 Farm Bill	<u>Requestor</u> : Deputy Chief for State and Private Forestry, Discussions with State Forester <u>Outcomes</u> : State Strategy aligned with the National Cohesive Strategy
5.2 Examine how technical assistance can be provided to the tribes in order to assist implementation restoration	<u>Requestor</u> : Navajo, Hopi, White Mountain Apache, San Carlos Apache

treatments and integrate all-lands policy initiatives such as the Cohesive Strategy.	Outcomes: Partnerships, science transfer and landscape resilience across all jurisdictions
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Deliverables

5.1) Assist the Arizona Prescribed Fire Council. The mission and purpose of the Arizona Prescribed Fire Council is to serve as a forum for all prescribed fire practitioners (government, academic institutes, tribes, coalitions and individuals) in order to work collectively to promote, protect, conserve, and expand the responsible use of prescribed fire in Arizona’s fire-dependent ecosystems.
 a.) Deliverable: Report on technical support provided to the council and website services.

5.2) In collaboration with the Arizona State Forester and in consultation with the USFS Deputy Chief for State and Private Forestry, revise the Arizona Statewide Strategy to comport with the National Cohesive Strategy.
 a.) Deliverable: Report on actions toward revising strategy. The ERI will seek leveraged funding to complement this action.

5.3) Consult with the tribes to assess how assistance can be provided to them in the face of limited financial resources. Priority will be given to work with tribes adjacent to the 4FRI landscape.
 a.) Deliverable: Report on options to help serve tribes. Particular emphasis will be on tribes adjacent to the 4FRI landscape.

Project 6: Services to the Intermountain West

The services under Project 6 fulfill purposes four and seven of the Act: “... to collaborate with Federal agencies ...” and “... to assist Federal and non-Federal land managers in providing information to the public on the role of fire and fire management in dry forest and woodland ecosystems in the interior West ...”

The ERI proactively serves the information needs of federal land managers and other affected entities through a variety of outreach and education strategies. In FY 2015, the ERI will continue to work to make the best available science “user friendly” so it can be mobilized to support treatment design and implementation. Field staff will provide technical assistance to help managers understand historic and desired forest conditions and treatment options through services such as Rapid Assessments (RAPs), workshops, field trips, and planning and monitoring support.

Rapid Assessments are particularly valuable to land managers. A RAP includes data gathering to localize science and provide information about historic and current conditions. This information is then used to develop a Purpose and Need for action, to guide treatment prescriptions and for outreach and education. The ERI is also using these sites to provide on-the-ground training for land managers.

This assistance helps the federal agencies implement the many initiatives and policies addressing a broad range of actions designed to restore the health of the lands and waters of the National Forest System. These include: Forest Plan revisions, the Watershed Condition Framework, stewardship contracting, the National Cohesive Strategy, and the Chief’s plan to accelerate restoration. ERI’s emphasis in providing program support to help meet these objectives remains a high priority.

Project 6: Service to the Intermountain West	
Fulfills Duties of the Act: 1, 2, 3, 4	
Action	Requestors
6.1 Provide support to federal land managers with technical assistance, rapid assessments, workshops, and presentations	<u>Requestors</u> : See below <u>Outcomes</u> : RAPs, workshops, field trips, transfer of best available science
6.2 Assist with forest plan revisions and plan implementation	<u>Requestor</u> : Tonto, Carson, Cibola, Santa Fe, Prescott, Lincoln NF <u>Outcomes</u> : Forest plans use best available information
6.3 Maintain and transfer science through the website for land managers and all affected entities	<u>Requestors</u> : 4FRI Stakeholders, USFS (SWERI), Scientific and Stakeholder community <u>Outcomes</u> : Best available science used to inform action
6.4 Translate and summarize scientific and journal articles for land managers and affected entities	<u>Affected entities</u> : Land Managers, stakeholders <u>Outcomes</u> : Knowledge transfer and best available science used to inform action
6.5 Transfer science to non-federal entities using field trips, filling information requests, and making presentations	<u>Affected entities</u> : Stakeholders, general public <u>Outcomes</u> : Knowledge to inform action
6.6 Educate the general public	<u>Affected entities</u> : General public <u>Outcomes</u> : Raise awareness and support for restoration

Deliverables

6.1) Provide support to federal land managers with treatment planning and implementation

- a) Deliverable: Report on actions to support project assessments, data collection, treatment design, and use of best available science by federal land managers to achieve desired conditions and outcomes.
 - i. A combination of 10 total services based on previous and anticipated demand that may include: workshops, technical assistance, science support, field trips, and presentations.
 - ii. Three Rapid Assessments (RAPs) are presently planned to support landscape restoration projects at the forest level. The RAPs are site-based analyses of historic and current conditions designed to inform Purpose and Need and restoration treatment development.
 - 1. Apache-Sitgreaves NF: Escudilla East Restoration Project (RAP) report
 - 2. Prescott NF: Restoration Alternatives in MSO PACs (RAP) report
 - 3. Carson NF: Tusas-San Antonio Restoration Project (RAP) report
 - iii. We are finalizing establishment of a restoration treatment demonstration area on the Coronado National Forest.

6.2) Assist with forest planning and implementation by recommending best available science and program support. Science and timing of support are variable for each national forest based on its individual planning schedule.

- a) Deliverable: Report on actions to support forest plan revisions.
 - i. Tonto National Forest:
 - 1. Report on development of public participation process.
 - 2. Report on data collection for assessment of reference conditions on the Payson and Pleasant Valley Ranger Districts.
 - 3. Report on science and knowledge synthesis and translation and transfer of best available science to support assessment of current conditions and need for change.
 - 4. Report on support, as requested, with public meetings, presentations, field trips and technical support in Forestry, Fuels, Watershed, and Fire program areas.
 - ii. Carson National Forest:
 - 1. Report on data collection to assess applicability of reference condition synthesis for assessment of current conditions and need for change.
 - 2. Report on knowledge gaps with the forest to determine needs to provide science synthesis, translation, or transfer.
 - iii. Santa Fe, Cibola, Prescott, Lincoln National Forests:
 - 1. Report on outreach efforts to determine opportunities for ERI to provide best available science or other support to plan revision.

6.3) Provide website support for ERI, SWERI, 4FRI (see Project 5 for support to the Arizona Prescribed Fire Council)

- a) Deliverable: Report on technical support for ERI, SWERI, and 4FRI websites.

6.4) Translate biophysical and social-political-economic information for affected entities.

- a) Deliverable: Editorial support for a total of 3 white papers and or working papers
 - i. White paper compiling lessons learned from 4FRI Retreat on May 27, 28
 - ii. Working paper on climate change and fire in the Southwest
 - iii. Working paper on carbon cycling in southwestern forests
- b) Deliverable: 8 fact sheets **that translate and summarize scientific papers and journal articles**

6.5) Initiate and facilitate knowledge services and science support for non-federal entities through field trips, filling information requests, and presentations for affected entities. These numbers may vary based on demand.

- a) Deliverable: Report on actions to educate and support affected entities. Provide a minimum of 12 services that may include field trips, presentations, and information requests.

6.6) Use media to educate the general public.

- a) Deliverable: 2 newspaper articles in response to fire events to education the general public about the need for forest restoration to restore frequent fire forests.

Project 7: Duty 5 under the ACT. Provide annual progress reports

The legislation establishing the Institutes requires an annual progress report.

Deliverable

7.1) Complete annual progress report on June 30, 2015 and June 30, 2016.

Budget

FY15 Budget \$1,200,000

	Project 1: Science Support for Collaborative Restoration and Conservation from the Local to the Landscape Scale	Project 2: Information Analysis to Assist Evidence-Based Conservation	Project 3: Ecological Monitoring and Evaluation for Adaptive Management	Project 4: Understanding and Solving the Economic, Social, and Political Issues and Opportunities of Ecological Restoration	Project 5: State, Tribal and Private Forestry - The All Lands Approach	Project 6: Services to the Intermountain West	Total
Personnel:	\$ 178,490	\$ 54,285	\$ 432,130	\$ 38,517	\$ 74,317	\$ 238,958	\$ 1,016,697
Travel:	\$ 1,112	\$ -	\$ 15,285	\$ 1,070	\$ -	\$ 10,075	\$ 27,542
Operations & Supplies:	\$ 3,570	\$ 814	\$ 19,807	\$ 1,323	\$ -	\$ 9,156	\$ 34,670
Outside Services:	\$ 7,000	\$ -	\$ -	\$ 5,000	\$ -	\$ -	\$ 12,000
Total Direct Costs:	\$ 190,172	\$ 55,099	\$ 467,222	\$ 45,910	\$ 74,317	\$ 258,189	\$ 1,090,909
Indirects:	\$ 19,017	\$ 5,510	\$ 46,722	\$ 4,591	\$ 7,432	\$ 25,819	\$ 109,091
Total Requested:	\$ 209,189	\$ 60,609	\$ 513,944	\$ 50,501	\$ 81,749	\$ 284,008	\$ 1,200,000