

Annual Report  
to the USDA Forest Service  
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## Summary

This report presents an integrated and coordinated series of actions for \$2.4 million awarded to the ERI in Fiscal Years 2011 and 2012 under CFDA 10.694, Southwest Forest Health and Wildfire Prevention for the second and third years in a 5-year domestic grant. Also included is an update on deliverables associated with additional funding received in this period including:

- \$950,000 provided in the FY11 plan of work by the Washington Office of the Forest Service to address new information needs identified as a result of the 2011 fire season. The goal for this additional funding was to help affected entities improve management effectiveness in the face of recurring, high severity landscape scale fire (FY11 Projects 1 and 2).
- \$90,463 provided in the FY11 plan of work by the Apache-Sitgreaves National Forest to answer monitoring questions asked by the White Mountains Stewardship (WMS) Board (FY11 Project 8).
- \$175,000 provided in the FY12 provided by the Department of the Interior for a comprehensive assessment on the return on investment (ROI) in hazardous fuel treatment expenditures (FY12 Project 7).

The information provided herein reflects our annual progress as of 6/30/2012.

All of the activities (deliverables) summarized in this report respond to land manager and stakeholder requests and needs. The deliverables are informed by best available science and scientific evidence which is translated into the language and product appropriate for the target audience. The ERI actively delivers information using a variety of approaches that includes individual and group presentations and discussions, to printed and electronically accessible fact sheets, short technical reports, longer white papers and management reports, and peer reviewed archival literature.

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## FY11 Plan of Work

<b>Project 1: Evidence-Based Conservation</b>	
<b>Deliverable</b>	<b>Status</b>
<p><b>1.1. LEARN.</b> Data analysis and submission of journal article based on FY10 and FY11 field seasons.</p>	<p>✓ McGlone, C.M, M.T. Stoddard, J.D. Springer and M.L. Daniels, P.Z. Fule, W. W. Covington. In review. The Influence of nonnatives on the success of ponderosa pine forest restoration. Forest Ecology and Management. <b>Completed.</b> <a href="#">Link to Document</a></p>
<p><b>1.2. Wildlife responses.</b>            1.2a Description of a new research initiative</p> <p>1.2b one journal manuscript that synthesizes wildlife responses to restoration.</p>	<p>1.2a. Arizona Game and Fish has been and is continuing to work with various stakeholders including the Ecological Restoration Institute, Grand Canyon Trust, Salt River Project and USFS staff to develop a replicated experiment that will examine wildlife responses to different treatments proposed as part of the Four Forest Restoration Initiative (4FRI).</p> <p>1.2b. Articles</p> <p>✓ Yarborough, R.F., S. Rosenstock, C.D. Loberger, J. Gist. Wildlife responses to restoration treatments in Northern Arizona Ponderosa Pine Forests. Annual Progress Report to NAU ERI for Research Subaward #ERI 34JU-01 from Arizona Game and Fish Department. January 13, 2011 through February 24, 2012. <b>Completed.</b> <a href="#">Link to Document</a></p> <p>✓ Horncastle, V.J., R.F. Yarborough, B.C. Dickson, S. Rosenstock. DRAFT version. Summer Habitat Selection by mule deer in a Restoration-Treated Ponderosa Pine Forest. Draft submitted on February 24, 2012. <b>In review at the Wildlife Society Bulletin.</b> <a href="#">Link to Document</a></p> <p>✓ Kalies, L., S. Rosenstock. DRAFT version. Stand Structure and Breeding Birds: Implications for Restoring Ponderosa Pine Forests. <i>Draft</i> submitted on February 21, 2012. <b>In revision for Journal of Wildlife Management.</b> <a href="#">Link to Document</a></p> <p>✓ Kalies, E. L., B. G. Dickson, C. L. Chambers, and W. W. Covington. 2012. Community occupancy responses of small mammals to restoration treatments in ponderosa pine forests, northern Arizona, USA. Ecological Applications 22:204–217. <a href="http://dx.doi.org/10.1890/11-0758.1">http://dx.doi.org/10.1890/11-0758.1</a>. <a href="#">Link to Document</a></p>

## FY11 Plan of Work - Deliverables

<p><b>1.3. Rare Species.</b> One working paper that reports on restoration effects and implications for developing landscape-scale treatments that enhance rare species' habitat.</p>	<p>✓ Springer, J.D., and Egan, D. 2012. "Working Paper 25: Strategies for Enhancing and Restoring Rare Plants and Their Habitats in the Face of Climate Change and Habitat Destruction in the Intermountain West." Flagstaff, AZ. <b>Completed.</b> <a href="#">Link to Document</a></p>
<p><b>1.4. Fuel Treatments. One journal manuscript for publication.</b></p>	<p>✓ Huffman, D.W., M. Stoddard, J. Crouse, M. Daniels, J. Springer, W. Chancellor. Understory plant community responses to hazardous fuels reduction treatments in pinyon-juniper woodlands of Arizona, USA. <b>Completed and in review at Forest Ecology &amp; Management.</b> <a href="#">Link to Document</a></p>
<p><b>1.5 Treatment effects and the Wallow Fire</b></p> <ul style="list-style-type: none"> <li>a) An Analysis of treatment responses to extreme fire</li> <li>b) Update on publication for journal</li> <li>c) Working paper or similar publication interpreting results for managers</li> </ul>	<p>✓ In progress.</p>
<p><b>1.6 Identifying treatment configuration and size that will help reduce the impact of the next high severity fire and inform planning</b></p> <ul style="list-style-type: none"> <li>a) Systematic review</li> <li>b) Progress report for publication in journal</li> <li>c) Working paper interpreting results for managers</li> </ul>	<p>✓ In progress.</p>
<p><b>1.7 Managing for Restoration of and Mixed Severity fire in Mixed Conifer</b></p> <ul style="list-style-type: none"> <li>a) Completed Systematic Review analyzing what is known on management of mixed conifer in the Southwest. Particular attention will be paid to understanding what is known on dependent wildlife as well.</li> <li>b) Progress Report on analysis and journal publication describing wildfire effects in mixed conifer and how that compares in extent</li> </ul>	<p>1.7.a</p> <p>✓ Systematic Review in progress.</p> <p>1.7.b</p> <p>✓ GIS project in progress</p>

## FY11 Plan of Work - Deliverables

<p>and condition to reference conditions.</p> <p>c) Progress Report on analysis and journal publication describing the effects of treatments such as thinning, burning and other treatments where they occur on the fire behavior and ecological conditions at mixed conifer treatment sites.</p> <p>d) Working paper interpreting the scientific information generated by a-c</p>	<p>1.7.c ✓ Field study in progress</p> <p>1.7.d ✓ Pending</p>
<p><b>1.8 Managing for long-term recovery in fire damaged ecosystems.</b></p> <p>a) Systematic Review analyzing scientific literature and white papers with information about BAER treatments and their effectiveness in the Southwest.</p> <p>b) Working paper interpreting review for managers and stakeholders</p> <p>c) Short fact sheets that inform rehabilitation activities</p>	<p>1.8.a ✓ In progress</p> <p>1.8.b and c ✓ Pending</p>

## FY11 Plan of Work - Deliverables

<b>Project 2: Stewards of Place</b>	
<b>Deliverable</b>	<b>Status</b>
<p>2.1 a A working paper describing design of an adaptive management approach that includes ecological and socio-economic monitoring of restoration treatments on a landscape scale that builds upon results from the 2009 SWERI monitoring workshop and is consistent with the long-term CFRP monitoring objectives.</p>	<p>2.1.a                      ✓ Egan, D., January, 2012. "Organizing a Landscape-Scale Forest Restoration Monitoring Program" Draft Working Chapter for inclusion in a Handbook to be completed in FY 12, reported in Project 7. <a href="#">Link to Document</a></p>
<p>2.1 b A working paper describing methodologies to achieve ecological restoration at the landscape scale.</p>	<p>2.1.b                      ✓ Egan, D. January, 2012. "Implementing a Landscape-Scale Forest Restoration Project" Chapter for inclusion in a Handbook to be completed in FY 12. <a href="#">Link to Document</a></p>
<p>2.1 c Provide services to the 4FRI Stakeholder Group. <b><i>Note that the budget reduction in FY11 will result in reduced service to the 4FRI</i></b></p>	<p>2.1.c                      ✓ Greco, B., D. Vosick. 4FRI MOU Development Meeting with Forest Supervisors. Flagstaff, AZ. January 10, 2011. 15 attendees.                      ✓ Stevens, B. 4FRI Web site goes live through ERI efforts: Krista Coquia, Joe Seidenberg, Bonnie Stevens and 4FRI Communications Working Group. Flagstaff, AZ. January 19, 2011.                      ✓ Greco, B. 4FRI Firescape development meeting. Flagstaff, AZ. February 1, 2011. 12 attendees.                      ✓ Greco, B., D. Vosick. 4FRI Collaborative Meeting. Flagstaff, AZ. February 23, 2011. 30 attendees.                      ✓ Brewer, D conducted an extensive analysis for 4FRI, including data collection, analysis, development of a database &amp; report to be utilized in the 4FRI NEPA, EIS Proposed Action, and in the Forest Plan revision for the Kaibab &amp; Coconino NF's. The benefit to the FS was extensive in terms of staff time and cost. The work included:</p> <ol style="list-style-type: none"> <li>1. Development of an access database for 80 clusters for the Kaibab and 52 from the Coconino that track changes in understory species diversity from 1950 to 2010.</li> <li>2. Analysis of each cluster through the period of record looking at understory diversity and changes in ground cover separates.</li> <li>3. Determination of existing range conditions for the sites found within the project area.</li> <li>4. For the Kaibab only, reproduction of the historical photos showing the plot at the earliest and latest read date.</li> <li>5. Analysis of all clusters found in the project area and determination</li> </ol>

## FY11 Plan of Work - Deliverables

<b>Project 2: Stewards of Place</b>	
<b>Deliverable</b>	<b>Status</b>
	<p>of which ones will be used in the assessment.</p> <p>6. Development of numerous pivot tables to determine species frequency within the individual allotments, strata, TESU, and clusters. And development of a final report for the Forest Service.</p> <ul style="list-style-type: none"> <li>✓ Greco, B., D. Vosick. Attended 4 FRI Collaborative group meeting. Flagstaff, AZ. August 4, 2011. 30 attendees.</li> <li>✓ Greco, B., D. Brewer, M. Sensibaugh. Workshop for IDT (Timber Mesa Interdisciplinary Team), "Restoration Concepts, Objectives, and Principles for Ponderosa Pine and Pinyon-Juniper Forests". Lakeside, AZ. August 10, 2011. 16 attendees.</li> <li>✓ Brewer, D. Completed analysis for Bill Noble (4FRI Team) of all plants found within the clusters on the Coconino and Kaibab NF's and placed those species into the appropriate category of increaser, decreaser or invader. This document was reviewed by Judy Springer prior to sending it to Bill. September, 2011. <b>Report included.</b> <a href="#">Link to Document</a></li> <li>✓ Brewer, D. Updated analysis of Terrestrial Ecosystem Survey Units (TESU) for 4FRI Team. Identified 50 plus new soil mapping units that were not accounted for in the original documents. December, 2011.</li> <li>✓ Greco, B., M. Sensibaugh. Attended 4FRI Landscape Strategy Working Group Meetings. Ongoing in reporting period. Flagstaff, AZ.</li> <li>✓ Vosick, D. 4FRI Co-chair, 6 months.</li> <li>✓ Waltz A. and D. Huffman. Co-chairs 4FRI Science and Monitoring committee</li> <li>✓ Greer, W. Administrative Support for 4FRI. All year.</li> <li>✓ Coquia, K. Webmaster 4FRI Web site. All year</li> <li>✓ Vosick, D. and W. Greer. Assistance to Henry Provencio to help compile info for CFLRP work plan. 1/27/11</li> <li>✓ Covington, WW. Science support for large tree retention strategy</li> </ul>



## FY11 Plan of Work - Deliverables

<b>Project 2: Stewards of Place</b>	
<b>Deliverable</b>	<b>Status</b>
2.2 a Map and report describing what areas within the Wallow Fire perimeter remain vulnerable to unnatural fire using GIS analysis	2.2.a In progress
2.2 b Produce outreach publication or media release designed to inform the Wallow stakeholders of the conclusion of the GIS analysis	2.2.b Pending completion of 2.2.a
2.2c Analyze natural resource response to the Wallow Fire. Test the natural resource responses to different restoration treatments in unburned conditions in the 4FRI landscape and summarize the responses for 4FRI stakeholders in the form of a white paper, fact sheets, and other educational products designed for stakeholders and the general public.	2.2.c Pending

<b>Project 3: Ecosystem Services</b>	
<b>Deliverable</b>	<b>Status</b>
<b>1. Ecosystem Sustainability.</b> One journal manuscript for publication of pinyon-juniper ecosystem sustainability at the landscape scale. <b>Due to reduced funding in FY11 this project will be completed w/leveraged state funds (Prop 301)</b>	✓ Working title: “Historical fuels and fire behavior in ponderosa pine and pinyon-juniper ecosystems on Anderson Mesa, Arizona: implications for sustainability.” <b>In progress as of 6-25-12 (2 month delay in analysis).</b>

<b>Project 4: Climate</b>	
<b>Deliverable</b>	<b>Status</b>
<b>Cancelled in FY11</b>	

## FY11 Plan of Work - Deliverables

<b>Project 5: Economies and Job Creation</b>	
<b>Deliverable</b>	<b>Status</b>
<p>A white paper summarizing successful approaches to job creation and a white paper analyzing the tipping point between investment in restoration treatments and realizing savings in suppression costs.</p>	<ul style="list-style-type: none"> <li>✓ Combrink, T. W. Fox, J. Peterson. Edited by D. Egan. Workforce needs of the Four Forests Restoration Initiative Project: An Analysis. White paper. February 14, 2012. <b>Completed. <a href="#">Link to Document</a></b></li> <li>✓ Tipping Point (R. Fitch/Y. Kim). Working Draft submitted 6.30.12, however, the analysis was incomplete and required additional work. New draft submitted 8.6.12 and <b>in review.</b></li> </ul>

## FY11 Plan of Work - Deliverables

<b>Project 6: State and Private Forestry</b>	
<b>Deliverable</b>	<b>Status</b>
6.1 Science and technical support to Arizona State Forestry and Science support and technical assistance to tribes (Greco).	<ul style="list-style-type: none"> <li>✓ ERI outreach/research staff. Coordinated the Fisher-Rock Prescribed burn (Centennial Forest, NAU/AZ State Department of Forestry). 350 acre prescribed burn on State Land, for resource &amp; research objectives. 4/26-4/28/11.</li> <li>✓ ERI outreach/research staff. Facilitated a partner-based forum on development of a Fire-use Council for the State of Arizona. Multiple meetings were held with the FS and fire Management Organizations. 5/17/11 and ongoing.</li> <li>✓ Greco, B. Arizona Forest Health Council Meeting with Congressman Gosar. Springerville, AZ. August 11, 2011. 17 in attendance.</li> <li>✓ Covington, W.W. Member, Governor's Forest Health Council. State funded. Six meetings annually.</li> <li>✓ Vosick, D. Cam Hunter, Assistant State Forester, fulfilled request for the TNC analysis of language of fire. 4/29/11</li> <li>✓ Greco, B., W. Chancellor. Attended Prescribed Fire Coordination meeting with AZ State Forestry. Flagstaff, AZ. November 21, 2011.</li> </ul>
6.2 Analysis of a range of prioritization processes to increase hazardous fuels allocation effectiveness	<ul style="list-style-type: none"> <li>✓ Waltz A., J.Crouse and D.Vosick. Results presented to Jim Hubbard, Deputy Chief of State and Private Forestry on August 3, 2012. Follow up will include a seminar presentation in Washington D.C. in September and a journal publication. <a href="#">Link to Fact Sheet</a></li> </ul>

<b>Project 7: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
<b>Outreach to forest managers across the West.</b>	
7.1.a Continued Support for Forest Plan Revisions	<ul style="list-style-type: none"> <li>✓ Greco, B. USDA FS Coordination-Rx Fire Council Organization meeting. Flagstaff, AZ. March 21, 2011. 4 attendees.</li> <li>✓ Brewer, D conducted an extensive analysis for 4FRI, that included data collection, analysis, development of a database &amp; report that will to be utilized in the 4FRI NEPA, EIS Proposed Action, and in the Forest Plan revision for the Kaibab &amp; Coconino NF's (see 2.1c for list of services)</li> </ul>

## FY11 Plan of Work - Deliverables

<b>Project 7: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
	<p>resources on Monitoring. 4/19/11</p> <ul style="list-style-type: none"> <li>✓ Vosick, D. Paula Cote request for assistance with information about Chad Hanson papers. 4/29/11</li> <li>✓ Vosick, D. and A. Waltz. 15 hours invested to assist with the CFLR national monitoring workshop. 5/1/11</li> <li>✓ Greco, B. Ongoing support and coordination with Southwest Crown of the Continent CFLRP (Bozeman, Mt) and support to the CFLRP with a variety of place-based forums, Rapid Assessments, transfer of best-science, Systematic Reviews, etc. Initiated 5/18/11.</li> <li>✓ Vosick, D. Lucy Murfitt, request for review of HR 4200. 6/20/11</li> <li>✓ Vosick, D. Lucy Murfitt, request for more information on salvage logging. 7/1/11</li> <li>✓ Vosick, D. Request from Chandler Morse on information concerning BAER. 7/1/11</li> <li>✓ Vosick, D. Request by Jim DeVos Arizona Elk Society for link to study on the efficacy of post-fire seeding. 7/5/11</li> <li>✓ Vosick, D. Request for information from CEQ 7/18/11</li> <li>✓ Vosick, D. Dick Fleishman asked for additional information on economics and utilization pertaining to 4FRI for the CEQ. 7/25/11</li> <li>✓ Greco, B. Presentation at Natural Resource Conservation District (NRCD) conference. "Restoration Strategies to Mitigate High Intensity Wildfire in Arizona's Forests." Prescott, AZ August 8,9, 2011. 60 attendees.</li> <li>✓ Greco, B. Panel member with the AZ State Legislative Representative and President of the AZ Cattle Growers Association to discuss Mega-fires in Arizona in 2011. Prescott, AZ. August 8, 9, 2011. 60 attendees.</li> <li>✓ Covington, W.W., B. Greco, D. Vosick. Attended Needs Assessment meeting with the Prescott National Forest Leadership Team. Prescott, AZ. August 18, 2011. 25 in attendance.</li> <li>✓ Greco, B., D. Huffman. Attended Southwest Fire Science Consortium Coordination meeting. Flagstaff, AZ. August 19, 2011. 4 attendees.</li> <li>✓ Greco, B. A. Waltz, J. Crouse. Attended meeting to develop values assessment with Prescott National Forest staff. Flagstaff, AZ. August 24, 2011. 8 attendees.</li> <li>✓ Stevens, B. Healing Forests – SWERI CFLRP video news release and news article about SWERI involvement in Colorado's Uncompahgre Plateau Project. The Watch,</li> </ul>

## FY11 Plan of Work - Deliverables

<b>Project 7: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
	<p>August 24, 2011 and Montrose Daily Press, August 24, 2011.</p> <ul style="list-style-type: none"> <li>✓ Greco, B., M. Sensibaugh. Attended needs assessment meeting with the Apache/Sitgreaves National Forest Leadership Team. Springerville, AZ. August 25, 2011. 7 attendees.</li> <li>✓ Greco, B. Presentation made at White Mountain Stewardship Monitoring Board meeting. "Implementing White Mountain Stewardship Protocols." Show Low, Arizona. September 13, 2011. 15 attendees.</li> <li>✓ Covington, W.W., M. Lata, P. Summerfelt. "Managing Forests to Manage Wildfires."  <a href="http://www.npr.org/2011/09/23/140744690/managing-forests-to-manage-wildfires">http://www.npr.org/2011/09/23/140744690/managing-forests-to-manage-wildfires</a> _ NPR radio segment, Flagstaff, AZ. September 23, 2011.</li> <li>✓ SWERI E-newsletter, Fall 2011. Restoring the American West: Forest Eco-news Issues released to elected officials, media, key opinion leaders, alumni, SWERI and 4FRI partners. Topics: Unnatural Fire/Floods, Uncompahgre Plateau Landscape Scale Restoration; Job Creation and Restoration (NM Alamo Navajo Project), Overcrowded Forests, Carbon Sequestration and Restoration. Flagstaff, AZ. November 1, 2011.</li> <li>✓ Vosick, D. Facilitation assistance with the White Mountain Forest Restoration Partners. Ongoing</li> </ul>

## FY11 Plan of Work - Deliverables

<b>Project 7: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
7.1.b Rapid Assessments	<p><b><u>FY11</u></b></p> <ul style="list-style-type: none"> <li>✓ Timber Mesa Rapid Assessment (Lakeside RD, A/S NF) ERI conducted Field training &amp; 2 workshops for FS personnel. ERI collected data from several plots and identified sites for establishing LEARN research plots. ERI reestablished several long-term Range cluster sites for the FS &amp; will update FS databases. <b>Complete. <a href="#">Link to Document</a></b></li> <li>✓ Bluewater Monitoring Project (Grants RD, Cibola NF) ERI implemented a series of data collection plots and measurements to establish baseline data to monitor the Bluewater Ecosystem Management Project. A series of RA sites were established for pre &amp; post treatment monitoring. A report was prepared for the FS. The effort involved several field trips to the site for District, Forest &amp; RO Directors to view Restoration and Goshawk Guideline prescriptions &amp; treatment prescription alternatives. 50 people attended. <b>Complete. <a href="#">Link to Document</a></b></li> <li>✓ Sensibaugh, M., D. Brewer, C. Denton, D. Lund. Wells Project Final Report. (Near Williams, AZ. ) August, 2003-December, 2011. <b>Complete. <a href="#">Link to Document</a></b></li> <li>✓ Sensibaugh, M., D. Brewer. Rogers Lake, Section 4, T20N, R6E Project, Final Report. Coconino County, AZ. January, 2011- December, 2011. <b>Complete. <a href="#">Link to Document</a></b></li> <li>✓ Sensibaugh, M., D. Brewer, C. Denton, D. Lund. Bald Mesa Project Final Report. (Near Clint's Well, AZ.) August, 2005- December, 2011. <b>Complete. <a href="#">Link to Document</a></b></li> </ul>
7.1.c Information requests	<ul style="list-style-type: none"> <li>✓ Covington, W. W., B. Stevens. Conference call with western forest restoration and media relations staff, The Nature Conservancy – Colorado/NM) (Stevens, Covington) regional landscape-scale, CFLRP, SWERI projects for public awareness/media news. January 25, 2011.</li> <li>✓ Covington, W. W. B. Stevens. Conference call with Forest Service Regional Office Public Affairs Officer regional landscape-scale, CFLRP, SWERI projects for public awareness/media news. January 28, 2011.</li> <li>✓ Vosick, D. Request from TNC for citations related to water yield. 2/23/11</li> <li>✓ Vosick, D. Request from Gwen Garcylon with the Roaring Fork Project in Colorado concerning a collaborative start-up. 2/28/11</li> <li>✓ Greco, B. Congressional meeting with Congressman Gosar. Show Low, AZ March 16, 2011. 17 attendees.</li> <li>✓ Vosick, D. Mose Jones-Yellin- Dinkey Project--Request for</li> </ul>

## FY11 Plan of Work - Deliverables

<b>Project 7: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
7.1.d Three field trips/training (non-RAP related)	<ul style="list-style-type: none"> <li>✓ Greco, B. Black Mesa Restoration Workshop. Overgaard, AZ. February 10, 2011. 16 attendees.</li> <li>✓ Greco, B., D. Huffman, D. Vosick, M. Sensibaugh, B. Stevens. Recon for Rapid Assessments and Research Proposals after effects of Wallow Fire. Springerville, AZ. June 29, 2011.</li> <li>✓ Brewer, D., M. Sensibaugh. Two field trips related to the Bluewater Monitoring Project . June-July 2011.</li> </ul>
<b>Knowledge Services</b>	
7.2.a ERI and SWERI ( <i>new in FY11</i> ) websites.	<ul style="list-style-type: none"> <li>✓ Coquia, K. Summary report on ERI web support with 2011 Search Engine Optimization (SEO) and 2011 ERI website Statistic Analysis. <b>Complete. <a href="#">Link to Document</a></b></li> </ul>
7.2.b White paper(s)	<ul style="list-style-type: none"> <li>✓ Combrink, T. W. Fox, J. Peterson. Edited by D. Egan. Workforce needs of the Four Forests Restoration Initiative Project: An Analysis. <i>White paper reported in Project 5.</i> February 14, 2012. <b><a href="#">Link to Document</a></b></li> <li>✓ Pending. Working Title: “Tipping Point” based on analysis in Project 5 with final draft still in progress. (Vosick/Dubay)</li> <li>✓ Egan, D. Integrating Domestic and Wild Ungulate Grazing into Forest Restoration Plans at the Landscape Level. White Paper. Ecological Restoration Institute. March, 2012. <b>Complete. <a href="#">Link to Document</a></b></li> </ul>
7.2.c Working papers	<ul style="list-style-type: none"> <li>✓ Egan, D. "Protecting Old Trees from Prescribed Burning". Working Paper 24, Winter 2011. <b>Complete. <a href="#">Link to Document</a></b></li> <li>✓ Springer, J.D., and Egan, D. 2012. “Working Paper 25: Strategies for Enhancing and Restoring Rare Plants and Their Habitats in the Face of Climate Change and Habitat Destruction in the Intermountain West.” Flagstaff, AZ. <b>Completed and reported in Project 1.3 <a href="#">Link to Document</a></b></li> </ul>

## FY11 Plan of Work - Deliverables

<p>7.2.d Fact sheets</p>	<p>In progress (Egan, Vosick, Huffman)</p> <ul style="list-style-type: none"> <li>✓ Kalies, L. Fact Sheet: Evidence-Based Restoration Systematic Review: Effects of Restoration on Wildlife Density and Populations. <b>Complete.</b> <a href="#">Link to Document</a></li> <li>✓ Egan, D. Socio-Economic Barriers to Landscape-scale Restoration. Fact Sheet, Ecological Restoration Institute. August, 2011. <b>Complete.</b> <a href="#">Link to Document</a></li> <li>✓ Egan, D. Systematic Reviews and the Quality of Evidence. Fact Sheet, Ecological Restoration Institute. August, 2011. <b>Complete.</b> <a href="#">Link to Document</a></li> <li>✓ Stoddard, M. Historical Forest Structural Characteristics Review: Compilation of Historical Forest Structural Characteristics across the Southern Colorado Plateau. August, 2011. <b>Complete.</b> <a href="#">Link to Document</a></li> <li>✓ Crouse, J., E. Kalies, J.P. Roccaforte, P.Z. Fule. Meta-Analysis of Treatment Effects on Fire Behavior. Fact Sheet, Ecological Restoration Institute. March, 2012. <b>Complete.</b> <a href="#">Link to Document</a></li> <li>✓ Egan, D. 4 FRI Workforce Analysis. Fact Sheet, Ecological Restoration Institute. January, 2012. <b>Complete.</b> <a href="#">Link to Document</a></li> <li>✓ Greer, W. Managing Sources of Conflict. Fact Sheet, Ecological Restoration Institute. January, 2012. <b>Complete.</b> <a href="#">Link to Document</a></li> </ul>
<p>7.2.e Presentations</p>	<ul style="list-style-type: none"> <li>✓ Stevens, B. "Wallow Fire Delivers One-Two Punch", video. <a href="http://www.eri.nau.edu/en/news/8/18-wallow-fire-delivers-one-two-punch.pdf">http://www.eri.nau.edu/en/news/8/18-wallow-fire-delivers-one-two-punch.pdf</a> _Flagstaff, AZ. August 18, 2011.</li> <li>✓ Covington, W.W. Cronkite School of Journalism at Arizona</li> </ul>



## FY11 Plan of Work - Deliverables

<b>Project 7: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
	<p>State University, taped phone interview with Wally Covington, 8/13/11. "Federal Study: 'Intense' thinning best way to ease wildfires", Strande, C. Cronkite News Service. Flagstaff, AZ. August 28, 2011.  <a href="http://www.eri.nau.edu/en/news/8/28-federal-study-intense-thinning-best-way-to-ease-wildfires.pdf">http://www.eri.nau.edu/en/news/8/28-federal-study-intense-thinning-best-way-to-ease-wildfires.pdf</a></p> <ul style="list-style-type: none"> <li>✓ Chambers, C.L, E.L. Kalies. Bird communities in wildfire-burned ponderosa pine forest. Presentation at The Wildlife Society's New Mexico Chapter Conference &amp; Corridors Workshop, Albuquerque, NM. October 18, 2011. 30 attendees.</li> <li>✓ Greco, B. Presentation made at Forest Leadership Team at Apache/Sitgreaves National Forest on Wallow Fire Research &amp; Monitoring. Springerville, AZ. October 24, 2011. 10 attendees.</li> <li>✓ Chambers, C.L, E.L. Kalies. Bird communities in wildfire-burned ponderosa pine forest. Presentation at 11th Biennial Conference of Research on the Colorado Plateau, Flagstaff, AZ. October 24-27, 2011. 30 attendees.</li> <li>✓ Chambers, C.L, E.L. Kalies. Using evidence-based conservation framework in addressing landscape-scale management issues. Presentation at 11th Biennial Conference of Research on the Colorado Plateau, Flagstaff, AZ. October 24-27, 2011. 15 attendees.</li> <li>✓ Covington, W.W. Arizona Republic reporter Connor R – interview with Wally about treated areas of Wallow Fire and fire behavior. Connected with 4FRI, White Mountains Stewardship Project and GFFP. November 1, 2011.</li> <li>✓ Kalies, E.L., C.L. Chambers, and S.R. Rosenstock. 2011. Multi-season occupancy modeling: applications to avian-habitat relationships. The Wildlife Society's Arizona and New Mexico 44th Joint Annual Meeting, Pinetop, Arizona. February 3-5, 2011.</li> <li>✓ Chambers, C.L. and E.L. Kalies. 2011. Bird communities in wildfire-burned ponderosa pine landscapes 14 years post fire. Presentation to the USFS Williams District. 3/7/11. 20 attendees.</li> <li>✓ Greco, B. "Utilizing Restoration Research in Development of Fire Management Plans." Presentation made at Southwest Interagency Fuels Conference. Flagstaff, AZ. March 8, 9, 2011. 85 attendees</li> <li>✓ Greco, B. "Fire Strategies in Fire Adapted Ecosystems." Presentation made at Tri-Regional Fire Managers</li> </ul>

## FY11 Plan of Work - Deliverables

<b>Project 7: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
	<p>Conference. Flagstaff, AZ. February 24, 2011. 75 attendees.</p> <ul style="list-style-type: none"> <li>✓ Covington, W. W. "Ecological Restoration: A Practical Imperative for Arizona's Future." Presentation made to the Greater Phoenix Area Chamber of Commerce. Phoenix, AZ. April 15, 2011. 29 attendees.</li> <li>✓ Masek Lopez, S. Poster presentation at National Workshop on Climate &amp; Forests: Planning Tools and Perspectives on Adaption and Mitigation Options, sponsored by USDA Forest Service. Poster titled, "Designing Effective Forest Restoration Treatments to Augment Snow Water." Northern Arizona University. Flagstaff, AZ. May 17, 2011. 50 attendees.</li> <li>✓ Roccaforte, J.P. "Ponderosa pine ecological primer." Presentation for Grand Canyon-Parashant Partnership Workshop, St. George, UT. May 17-19, 2011. 50 participants</li> <li>✓ Huffman, D. "Pinyon-Juniper". Presentation for Grand Canyon-Parashant Partnership Workshop, St. George, UT. May 17-19, 2011</li> <li>✓ Roccaforte, J.P., J. Springer. "Ecological restoration of ponderosa pine ecosystems." Presentation for Volunteers at The Arboretum at Flagstaff. Flagstaff, AZ. July 5, 2011. 20 participants.</li> <li>✓ Covington, W.W. Science Friday – National Public Radio live broadcast. Wally Covington featured as first speaker on broadcast, as part of the Flagstaff Festival of Science discussing landscape-scale restoration and forest health. Flagstaff, AZ. September 31, 2011.</li> <li>✓ Stevens, B. Held a communications workshop on media relations tips for scientists. Premiered "Forests under Fire: The Race to Restore the American West" documentary, showcasing degraded ecosystems and landscape scale restoration projects. Society of American Foresters National Convention, Honolulu, Hawaii. November 2-6, 2011.</li> <li>✓ Stevens, B. Let's Restore – ERI Public Service Announcement, airing on NAU Television and Fox Sports – 2.5 million households across the West. September – December 2011.</li> <li>✓ Greco, B. Participated at Arizona Wildfire Forum Panel. Eagar, AZ. December 14, 2011. 35 attendees.</li> </ul>
7.2.f Field trips	<ul style="list-style-type: none"> <li>✓ Roccaforte, J.P. "Ponderosa pine ecological primer."</li> </ul>

## FY11 Plan of Work - Deliverables

<b>Project 7: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
	<p>Presentation and field trip for Grand Canyon-Parashant Partnership Workshop, St. George, UT. May 17-19, 2011. 50 participants.</p> <ul style="list-style-type: none"> <li>✓ Huffman, D., D. Smith, W. Greer. Field trip in association w/presentation on "Pinyon-Juniper". May 18, 2011</li> <li>✓ Covington, W.W., A. Springer, H. Provencio, M. Montes-Helu. National Science Writers Association Field Trip. Fire, Wind and climate Change: Applying Science to the West's Open Lands. Sponsored by ERI. Topics included: Forest Health Overview with Wally Covington; Watershed research with Abe Springer; 4FRI with Henry Provencio; Carbon Gases and Greenhouse Gases with Crown Fires with Mario Montes-Helu. Flagstaff, AZ. October 14, 2011.</li> </ul>
<p><b>7.3 Related to the Wallow Fire:</b>  <b>7.3.a.</b> Design and deliver in cooperation with Region 3 a workshop/dialogue about desired conditions. <i>(Requested by Region 3—Fall 2011)</i></p> <p><b>7.3.b.</b> Produce 4 working papers identified in the additional program of work for FY'11 year end dollars <i>(March 2013)</i>.</p> <p><b>7.3.c.</b> Produce articles and related information to inform the general public with respect to 2.2b and 2.2c <i>(December 2012)</i></p>	<p>7.3.a</p> <ul style="list-style-type: none"> <li>✓ Covington, W.W., D. Vosick, B. Greco, D. Huffman, M. Sensibaugh. USFS Region 3 Desired Conditions Workshop, facilitated by ERI. New Mexico and Arizona. September 21-22, 2011. 47 attendees.</li> <li>✓ Greco, B., M. Sensibaugh. Conference call with USFS Region 3 (with SWERI) on plans for workshop on Desired Conditions. Flagstaff, AZ. December 6, 2011. 12 people were on conference call.</li> <li>✓ Greco, B., M. Sensibaugh. Field trip with USFS to develop plans for DC Workshop field trips. Eastern Arizona. August 17-19, 2011. 10 attendees.</li> <li>✓ Covington, W.W., B. Greco, D. Vosick, D. Huffman, M. Sensibaugh. USFS Region 3 Desired Conditions Workshop. Various presentations at various sites in New Mexico and Arizona. October 26-27, 2011. 48 attendees.</li> </ul> <p>7.3b. Working papers in progress</p> <p>7.3c.</p> <ul style="list-style-type: none"> <li>✓ Covington, W.W. National Public Radio-KUAZ taped radio interview with Mark Duggan and Wally Covington regarding rehabilitation efforts in the wake of the Wallow Fire. Tucson, AZ. October 12, 2011.</li> <li>✓ Quester, B. "Experts: Managing Tribal forest helped stop Wallow Fire at reservation,  <a href="http://cronkitenewsonline.com/2011/12/experts-decades-of-logging-treatments-helped-stop-wallow-fire-at-reservation/">http://cronkitenewsonline.com/2011/12/experts-decades-of-logging-treatments-helped-stop-wallow-fire-at-reservation/</a> _</li> </ul>

## FY11 Plan of Work - Deliverables

<b>Project 7: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
<p>7.3.d. Produce Fact Sheets that can inform rehabilitation activities (March 2013)</p> <p>7.3.e. In collaboration with staff of Region 3, identify the issues and topics for future dialogue workshops related to future conditions.</p>	<p>December 8, 2011.</p> <p>7.3.d</p> <ul style="list-style-type: none"> <li>✓ Vosick, D., D. Egan. Fact Sheet: Lessons Learned from the Wallow Fire. 7/2011. <b>Complete.</b> <a href="http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/HA_SH2138.dir/doc.pdf">Link to Document or http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/HA_SH2138.dir/doc.pdf</a></li> <li>✓ Waltz.A.E.M. Fact Sheet: Impacts of fire hazard assessment and fuel reduction priorities on mega-fire outcomes. August 2012 (link)</li> <li>✓ <b>Roccaforte, J.P., and Huffman, D.W.</b> December 2011. Post-wildfire tree planting. Ecological Restoration Institute Fact Sheet. Northern Arizona University, Flagstaff, AZ. <b>Draft.</b> <a href="#">Link to Document</a></li> </ul> <p>7.3.e</p> <ul style="list-style-type: none"> <li>✓ Covington, W.W. Congressional Field Hearing re: Wallow Fire. Springerville, AZ. June 29, 2011. 25 people in attendance, including Secretary of Agriculture, Vilsack.</li> <li>✓ Greco, B., M. Sensibaugh. Conference call with USFS, Region 3 on planning of workshops on Desired Conditions. Flagstaff, AZ. August 5, 2011. 10 people were on conference call.</li> </ul>

<b>Project 8 (Additional Funding Mechanism): Science Based Approach in the A-S National Forest</b>	
<b>Deliverable</b>	<b>Status</b>
<p><b>Report to answer monitoring questions asked by the White Mountain Stewardship (WMS) Board specific to the Wallow Fire and outside of the Wallow Fire perimeter.</b></p>	<ul style="list-style-type: none"> <li>✓ Greco, B., D. Huffman, M. Sensibaugh, J.P. Roccaforte. Wrote report on Reforestation of Burned sites, a report requested by Apache/Sitgreaves National Forest. Springerville, AZ. December 7, 2011.</li> <li>✓ Field crew collecting data with monitoring report in progress (Greco/Huffman)</li> </ul>

<b>Project 9: Provide annual peer-reviewed reports</b>	
<b>Deliverable</b>	<b>Status</b>

## FY11 Plan of Work - Deliverables

<b><i>Project 9: Provide annual peer-reviewed reports</i></b>	
<b>Deliverable</b>	<b>Status</b>
<b>1.</b> Peer-reviewed report 60 days after completion of the agreement.	✓ <b>In progress.</b>

# FY12 Plan of Work - Deliverables

## FY12 Plan of Work

<b>Project 1: Science Support for Collaborative Landscape Scale Restoration</b>	
<b>Deliverable</b>	<b>Status</b>
<p><b>(1.2) Provide Support for the Four Forest Restoration Initiative (4FRI) a Collaborative Forest Landscape Restoration Act project including:</b></p> <p>a. Provide technical assistance for science and monitoring</p> <p>b. Provide leadership and technical assistance to steering committee</p> <p>c. Provide technical assistance to the landscape strategy working group</p> <p>d. Provide GIS support to ID Team for technical analyses</p> <p>e. Provide IT support for the 4FRI Website and BASECAMP (an online collaborative work space), Website and Administration (Ongoing)</p>	<ul style="list-style-type: none"> <li>✓ Vosick, D., B. Greco. Attended 4 FRI Canopy Cover Working Group Meeting with Forest Service Supervisors. Lakeside, AZ. February 21, 2012. 12 in attendance.</li> <li>✓ Vosick, D., B. Greco, A. Waltz, W. Greer. Attended 4 FRI Collaborative Monthly Meeting. Pinetop, AZ. February 22, 2012. 30 in attendance.</li> <li>✓ Brewer, D. Provided 4 FRI Strata Assessment to 4 FRI Planning Team. March 23, 2012.</li> <li>✓ Vosick, D., W. Fox. Presentation made to the Yavapai County Board of Supervisors. Presentation was on the results of the 4 FRI Work Force Gap study. Prescott, AZ. May 7, 2012. 43 attendees.</li> <li>✓ Vosick, D. Participated in a panel discussion at Cline Library on the 4FRI. The Panel discussed what citizens can expect when the 4FRI thinning work is implemented. Flagstaff, AZ. June 5, 2012. 35 participants.</li> <li>✓ Vosick, D. Made presentation of the 4FRI Workforce Study and answered questions regarding the Four Forest Restoration Initiative (4FRI), to three members of the County Board of Supervisors. Safford, Arizona. June 4, 2012. 20 attendees.</li> <li>✓ Greco, B., A. Waltz. Presentation on Protocols Monitoring for 4 FRI and White Mountain Stewardship. Springerville, AZ. June 13, 2012. 23 attendees.</li> <li>✓ Waltz, A. Developing Monitoring Questions for Landscape-Scale Restoration Projects, a peer learning session to discuss how groups are developing monitoring questions for their landscape-scale projects. This is for the CFLRP National Monitoring Network that Ms. Waltz is coordinating. Outreach is to 20 CFLRP sites. June 21, 2012. 60 attendees.</li> <li>✓ ERI Administrative support for the 4FRI Socioeconomic Monitoring Workshop. Flagstaff, AZ. June 22, 2012.</li> <li>✓ Vosick, D., W. Fox. Presentation on the results of the 4FRI Workforce Study to the Coconino Board of Supervisors. Flagstaff, AZ. July 10, 2012. 12 attendees.</li> </ul>

## FY12 Plan of Work - Deliverables

<p><b>1.2) Provide technical support for landscape scale planning and implementation in other national forests in Arizona including:</b></p> <p>a. Provide technical assistance to the Prescott National Forest to develop a collaborative strategic plan</p> <p>b. Provide technical assistance to the Coronado National Forest/Firescape effort</p> <p>c. Provide technical assistance to the Apache-Sitgreaves National Forest for Wallow Fire Recovery</p>	<p>a. In progress</p> <p>✓ Vosick, D. Presentation to the Prescott National Forest Strategic Action Planning Committee. January 31, 2012</p> <p>b. In progress</p> <p>c. In progress</p>
<p><b>1.3) Provide science and technical support for other CFLRA projects and emerging projects including:</b></p> <p>a. Compile and Publish lessons learned across the sites in order to build efficiency into CFLRP implementation. This will become a restoration handbook.</p> <p>b. Help facilitate the CFLR monitoring network.</p>	<p>a. 2 chapters in progress</p> <p>b. CFLRP monitoring</p>

<b>Project 2: Evidence-Based Restoration</b>	
<b>Deliverable</b>	<b>Status</b>
<p><b>2.1) Two systematic reviews</b> summarizing and methodically analyzing published literature, “gray” literature (reports not rigorously peer reviewed), and expert opinion on a key issue of concern for forest restoration. Under previous work plans and external funding, the ERI has completed or is presently carrying out systematic reviews on treatment effects on crown fire behavior, restoration effects on goshawk prey species, use of native seeds for post-wildfire, and pinyon-juniper fire ecology.</p>	<p>✓ Deliverable: A systematic review evaluating silviculture prescriptions that achieve ecological restoration.</p> <p>✓ Deliverable: A systematic review of the benefits of old growth.</p>

## FY12 Plan of Work - Deliverables

<b>Project 3: Monitoring, Evaluation and Adaptive Management</b>	
<b>Deliverable</b>	<b>Status</b>
<p><b>3.1) Analysis of biophysical monitoring data from LEARN sites the Southwest</b> (March 2013)</p> <p>a. Deliverable: Analysis and publication of results biophysical responses to ecological restoration treatments.</p>	<p>✓ In progress (Huffman)</p>
<p><b>3.2) Analysis of how socio-politically based adjustments to ecological restoration treatments affected ecological outcomes</b> (Fall 2012)</p> <p>a. Deliverable: Analysis and publication designed for stakeholders and land managers.</p>	<p>✓ In progress (Vosick/Alicia B)</p>
<p><b>3.3) Monitor Wildlife Responses to restoration treatments in the 4FRI Analysis Area</b> (March 2013)</p> <p>a. Deliverable: Two manuscripts for peer reviewed publication</p>	<p>✓ In progress</p>

<b>Project 4: Restoration-based Economic Opportunities</b>	
<b>Deliverable</b>	<b>Status</b>
<p><b>4.1) Provide technical assistance to partnerships exploring alternative approaches to supporting treatments</b> (March 2013)</p> <p>a. Deliverable: Technical support to stakeholders involved in the White Mountain Forest Restoration Partnership.</p>	<p>✓ Vosick. In progress. WMFRP has slowed down. Will provide technical assistance for payment of watershed services work in Flagstaff.</p> <p>✓ Vosick, D. Attended meetings to support statewide efforts to develop alternative funding approaches for forest restoration. The informal group is working to create the Arizona Forest and Watershed Restoration Fund. January 4, 2012. Phoenix, AZ; 4/26/12 (via teleconference); June 12, 2012, Tucson, AZ.</p>
<p><b>4.2) Scientific support to advance efforts to mainstream the economic value of ecosystem services</b> (March 2013)</p> <p>a. Deliverable: Provide scientific support to stakeholders, the Forest Service and the City of Flagstaff to capture the benefits of ecosystem services.</p>	<p>✓ Mueller, J.M. Estimating Flagstaff Residents Willingness to Pay for Forest Restoration in the Lake Mary and Upper Rio de Flag Watersheds: A Pilot Study. Flagstaff, AZ. June 29, 2012.</p> <p>✓ Covington, W. W., B. Greco. City of Flagstaff Presentation and Facilitation. "Payment for Watershed Services Workshop". Covington presentation on Watershed Restoration Principles. Flagstaff, AZ. March 8, 2012. 35 in attendance.</p> <p>✓ Vosick, D. Attended meetings to develop materials for the</p>



## FY12 Plan of Work - Deliverables

<b>Project 4: Restoration-based Economic Opportunities</b>	
<b>Deliverable</b>	<b>Status</b>
	<p>Flagstaff City Council deliberation on the Payment for Watershed Services issue. 5/31/12, 6/7/12, 6/21/12, 7/12/12.</p> <p>✓ Vosick, D. Coconino County Supervisors. Presentation and Facilitation. "Payment for Watershed Services Workshop". Vosick presentation on Watershed Restoration Principles. Flagstaff, AZ. June 19, 2012. 12 in attendance.</p>

<b>Project 5: State, Tribal and Private Forestry – The All Lands Approach</b>	
<b>Deliverable</b>	<b>Status</b>
<p><b>5.1) Provide scientific support to affected entities with a focus on State Forests(ongoing)</b></p> <p>a. Deliverable: Report on scientific support to state forests and other affected entities</p>	<p>✓ Vosick, D., B. Greco, A. Waltz, J.P. Roccaforte. Attended BLM/ERI Annual Coordination Meeting. St. George, UT. February 7, 8, 2012. 12 in attendance.</p> <p>✓ Greco, B. Mini-DC Workshop with the USFS RO Directors for the Bureau of Indian Affairs and Tribal representatives. Grants and Zuni Mountains, NM. July 10, 2012. 39 participants</p> <p>✓ Ongoing (Greco). Revision to Forest Health Assessment &amp; Strategic Plan for State of Arizona. This is affected by the Farm Bill, which Greco is tracking.</p>

## FY12 Plan of Work - Deliverables

<b>Project 6: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
<p><b>6.1) Provide support to Forest Service Land Managers with program planning and implementation</b>            a. Deliverable: Technical assistance to Forest Service land managers (this includes field trips, Rapid Assessments, workshops and science support)  <b>Note:</b> an additional request to plan and implement 6 desired conditions workshops was funded as a separate program under USFS 12-CR-11031600-020</p>	<ul style="list-style-type: none"> <li>✓ Greco, B. Attended Rx Fire Council Coordination Meeting. Flagstaff, AZ. January 30, 2012.</li> <li>✓ Stevens, B. Communications workshop , "Communication: Cameras, Competition, and Clarity." Audience was from the Kaibab National Forest, Bureau of Land Management, National Park Service and Rocky Mountain Research Station. Fredonia, AZ. February 21, 2012. 15 attendees.</li> <li>✓ Crouse, J. Provided photographs and a map to Gary Snider of the Kaibab National Forest for a presentation he gave at a Society of Foresters meeting. March 1, 2012. Flagstaff, AZ.</li> <li>✓ Huffman, D.W., Email response to Rory Steinke (US Forest Service). Coarse woody recommendations for pinyon-juniper woodlands. March 5, 2012.</li> <li>✓ Sensibaugh, M. Provided scientific summary report on Burning sequence for Alligator Juniper to the Lakeside Ranger District ID team. March 21, 2012.</li> <li>✓ Greco, B., M. Sensibaugh, D. Brewer. Rapid Assessment, Jemez Springs, NM. May 6, 2012.</li> <li>✓ Greco, B. Desired Conditions workshop on Southwest mixed conifer and ponderosa pine ecosystems. Santa Fe, NM. June 19, 2012. 35 attendees.</li> <li>✓ Greco, B. Needs assessment with Forest Leadership Team, Santa Fe National Forest. Santa Fe, NM. June 20, 2012. 17 attendees.</li> </ul>
<p><b>6.2) Assistance with Forest Plan Revisions</b>            a. Deliverable: Technical assistance and science support for Forest Plan revisions</p>	<ul style="list-style-type: none"> <li>✓ Crouse, J. Provided GIS data layers to Susan Lamb Bean of the Flagstaff Citizens Advisory Committee for Revision of the Flagstaff Area Regional Land Use and Transportation Plan. March 1, 2012. Flagstaff, AZ</li> <li>✓ Crouse, J. Provided GIS data layers to Susan Lamb Bean of the Citizens Advisory Committee (CAC) for Revision of the Flagstaff Area Regional Land Use and Transportation Plan ("Regional Plan"). Flagstaff, AZ. March, 15, 2012.</li> <li>✓ Greco, B., M. Sensibaugh. Needs assessment presentation with Forest Leadership Team, Tonto National Forest. Phoenix, AZ. April 2, 2012. 10 attendees.</li> <li>✓ Vosick, D. Made presentation of the 4FRI Workforce Study and answered questions regarding the Four Forest Restoration Initiative (4FRI), to three members of the County Board of Supervisors. Safford, Arizona. June 4, 2012. 20 attendees.</li> </ul>
<p><b>6.3) Web support for ERI, SWERI and the 4FRI</b>            a. Deliverable: Technical support for ERI, SWERI and 4FRI</p>	<ul style="list-style-type: none"> <li>✓</li> </ul>

## FY12 Plan of Work - Deliverables

<b>Project 6: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
websites	
<p><b>6.4) Translate biophysical and social-political-economic information for affected entities</b></p> <p>a. Deliverable: Editorial support for 1 white paper</p> <p>b. Deliverable: Editorial support for 2 Working Papers</p> <p>c. Deliverable: Translate and disseminate 15 Scientific Abstracts for managers</p> <p>d. Deliverable: 4 Fact Sheets</p>	<p><b><u>6.4.a/b White Paper/Working Papers</u></b> - Pending</p> <p><b><u>6.4.c Scientific Abstracts</u></b> - Pending</p> <p><b><u>6.4.d Fact Sheets</u></b></p> <ul style="list-style-type: none"> <li>✓ Allen, J.A., and Ramstead, K. 2012. "Fact Sheet: Evidence-based Conservation Systematic Review: Effectiveness of Wet Meadow Restoration Projects." Ecological Restoration Institute. Flagstaff, AZ. <b>Complete</b></li> <li>✓ Vosick, D. (Ed.). "Estimating Flagstaff Residents' Willingness to Pay for Forest Restoration in the Lake May and Upper Rio de Flag Watersheds: A Pilot Study." Fact Sheet, Ecological Restoration Institute. July 2012. <b>Complete</b></li> <li>✓ Springer, J.D. Exotic Species Management at Landscape Scales. Fact Sheet, Ecological Restoration Institute. July 2012. <b>Complete.</b></li> <li>✓ Springer, J.D. Conserving Rare Plants in National Parks and Protected Areas. Fact Sheet, Ecological Restoration Institute. July 2012. <b>Complete</b></li> </ul>
<p><b>6.5) Conduct Field Trips and Presentations as requested by affected entities</b></p> <p>a. Deliverable: Presentations for affected entities</p> <p>b. Deliverable: Field Trips for affected entities</p>	<ul style="list-style-type: none"> <li>✓ Brewer, D. Computer Modeling for Fuels Specialist Reports. Web presentation for the Southwest Fire Science Consortium Workshops. Participants were from USFS, Arizona State Forestry, Grand Canyon National Park, NAU, U of A, and NMHU. Flagstaff, AZ. January 19, 2012. 25 participants. <b>Copy of presentation included as report.</b></li> <li>✓ Smith, H.B. Doc. Presentation for the Coconino Rural Environmental Core (CREC) on January 24, 2012. Title of presentation was "Southwestern Ecosystems and Restoration." Flagstaff, AZ. January 24, 2012. 32 participants.</li> <li>✓ Smith, H.B. Doc. Field trip for the Coconino Rural Environmental Core (CREC) to show examples of Southwestern ecosystems and restoration results. Flagstaff, AZ. January 25, 2012. 35 participants.</li> <li>✓ Covington, W.W. Presentation at Community Breakfast at Flagstaff High Country Conference Center on 4 FRI. Flagstaff, AZ. February 22, 2012. 80 attendees.</li> </ul>

## FY12 Plan of Work - Deliverables

<b>Project 6: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
	<ul style="list-style-type: none"> <li>✓ Stevens, B. Communications workshop , "Communication: Cameras, Competition, and Clarity." Audience was from the Kaibab National Forest, Bureau of Land Management, National Park Service and Rocky Mountain Research Station. Williams, AZ. February 23, 2012. 31 attendees.</li> <li>✓ Vosick, D. Facilitation of Forest Business Network- "Just \$1 can change the future of the Apache-Sitgreaves National Forest." WMFRP and National Forest Foundation. February 27, 2012.</li> <li>✓ Normandin, D. Presentation to the Willow Bend Environmental Education Workshop, Introduction to Dendrochronology. Flagstaff, AZ. March 15, 2012. 13 participants.</li> <li>✓ Greco, B. Presentation on ERI's White Mountain Stewardship Monitoring strategy for the Apache-Sitgreaves National Forest. Springerville, AZ. April 3, 2012. 18 attendees.</li> <li>✓ Waltz, A. Organized and presented at the first in a series of peer learning sessions focused on the CFLR Program, sponsored by Forest Management of the Forest Service and offered in partnership with the National Forest Foundation. Flagstaff, AZ. April 12, 2012. 75 participants.</li> <li>✓ Brewer, D. Presentation made to National Park Service at Grand Canyon National Park on Forest Restoration. Grand Canyon, AZ. April 17, 2012. 10 attendees.</li> <li>✓ Covington, W. W. Dr. Covington presented a briefing on Capitol Hill on Reducing Wildfire Dangers and Restoring Healthy Forests. Also presenting were McRee Anderson from The Nature Conservancy and Steven Brink from CA Forestry Association. Presentation was made at the US House of Representatives, Washington, D.C. April 20, 2012.</li> <li>✓ Covington, W. W. Panel presentation: Four Forest Restoration Initiative. Valley Forward Association. Sheraton Hotel, Phoenix, AZ. May 1, 2012. 70 attendees.</li> <li>✓ Vosick, D. Presentation at the Smallwood Conference in Flagstaff, AZ. Presentation entitled: The Four Forest Restoration Initiative: Working at the Pace and Scale of the Problem. Flagstaff, AZ. May 1, 2012. 35 attendees.</li> <li>✓ Smith, H.B. Field trip at Gus Pearson Experimental Plots for USFS San Dimas Tree Marking committee entitled, "Introduction to Ecological Restoration." Flagstaff, AZ. May 15, 2012. 20 participants.</li> <li>✓ Brewer, D. Review of Soil and Water Effects Analysis for 4 FRI. Flagstaff, AZ. May, 18, 2012. <b>Report included.</b></li> <li>✓ Smith, H.B. Took Junior Forester Academy students on 2 hour field trip entitled, "Introduction to Ecological Restoration."</li> </ul>

## FY12 Plan of Work - Deliverables

<b>Project 6: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
	<p>Flagstaff, AZ. June 11, 2012. 19 participants.</p> <ul style="list-style-type: none"> <li>✓ Waltz, A. Developing Monitoring Questions for Landscape-Scale Restoration Projects, a peer learning session to discuss how groups are developing monitoring questions for their landscape-scale projects. This is for the CFLRP National Monitoring Network that Dr. Waltz is coordinating. Outreach is to 20 CFLRP sites. June 21, 2012. 60 attendees.</li> </ul>
<p><b>6.6) Educate the General Public</b></p> <p>a. Deliverable: 4 newspaper articles to inform the general public on the benefits of restoration</p>	<ul style="list-style-type: none"> <li>✓ Stevens, B. NAU article by Bonnie Stevens titled "Possibilities flow from lost spring sites." <a href="http://www.eri.nau.edu/en/news/1/30-possibilities-flow-from-lost-spring-sites.pdf">http://www.eri.nau.edu/en/news/1/30-possibilities-flow-from-lost-spring-sites.pdf</a> Flagstaff, AZ. January 30, 2012.</li> <li>✓ Stevens, B. NAU article by Bonnie Stevens titled "Babbitts help build NAU's Stewardship Mission." <a href="http://www.eri.nau.edu/en/news/2/14-babbitts-help-build-naus-stewardship-mission.pdf">http://www.eri.nau.edu/en/news/2/14-babbitts-help-build-naus-stewardship-mission.pdf</a> Flagstaff, AZ. February 14, 2012.</li> <li>✓ Stevens, B. Arizona Daily Sun article on "Academic tiff over wildfires rekindled." <a href="http://www.eri.nau.edu/en/news/2/21-academic-tiff-over-wildfires-rekindled.pdf">http://www.eri.nau.edu/en/news/2/21-academic-tiff-over-wildfires-rekindled.pdf</a> Flagstaff, AZ. February 21, 2012.</li> <li>✓ Stevens, B. "After dry winter, Arizona's forests looking at tough wildfire season", article by Jessica Testa from the Cronkite News, KTAR.com. February 28, 2012.</li> <li>✓ Vosick, Diane. Diane Vosick was quoted in article titled "Forest Health Council examines bills that seek more state control over federal lands". Prescott, AZ. March 15, 2012. <a href="http://www.eri.nau.edu/en/news/3/15-forest-health-council-examines-bills-that-seek-more-state-control-over-federal-lands">http://www.eri.nau.edu/en/news/3/15-forest-health-council-examines-bills-that-seek-more-state-control-over-federal-lands</a></li> <li>✓ Stevens, B. "SRP and ERI to study effects of forest restoration on watersheds." <a href="http://www.eri.nau.edu/en/news/5/3-srp-and-nau-to-study-effects-of-forest-restoration">http://www.eri.nau.edu/en/news/5/3-srp-and-nau-to-study-effects-of-forest-restoration</a>. Flagstaff, AZ. May 3, 2012.</li> <li>✓ Stevens, B. Article on "An Era of Mega fires" <a href="http://www.eri.nau.edu/en/news/5/14-an-era-of-mega-fires">http://www.eri.nau.edu/en/news/5/14-an-era-of-mega-fires</a> Flagstaff, AZ. May 14, 2012.</li> <li>✓ Stevens, B. "Why Arizona gets scorched by severe wildfires." by Wynne Parry, LiveScience Senior Writer. <a href="http://www.eri.nau.edu/en/news/5/16-why-arizona-gets-scorched-by-severe-wildfires.pdf">http://www.eri.nau.edu/en/news/5/16-why-arizona-gets-scorched-by-severe-wildfires.pdf</a> Flagstaff, AZ. May 16, 2012.</li> <li>✓ Stevens, B. "Experts: climate change makes big wildfires inevitable", Laurel Morales, Fronteras Desk   Arizona Public Media. NPR 98.1. May 19, 2012.</li> <li>✓ Stevens, B. "Conditions in place for severe wildfire season", article by Stever Ayers of the Verde Independent newspaper. Camp Verde, AZ. May 19, 2012.</li> </ul>

## FY12 Plan of Work - Deliverables

<b>Project 6: Services to the Intermountain West</b>	
<b>Deliverable</b>	<b>Status</b>
	<ul style="list-style-type: none"> <li>✓ Vosick, D. Appearance on "Arizona Horizon" to talk about the relationship between forest management policies and catastrophic wildfires, focusing on efforts to reform those policies and repair some of the damage they have caused the forests. Phoenix, AZ. May 22, 2012. Television audience.</li> <li>✓ Covington, W.W. "Healthy-forest efforts will uplift Arizona", opinion piece in Arizona Republic. Phoenix, AZ. May 27, 2012.</li> <li>✓ Berwyn, B. "Whitewater-Baldy fire in New Mexico burns to record size". Summit County Citizens Voice. Summit County, Colorado. May 30, 2012.</li> <li>✓ Waltz, A. Represented the ERI at a workshop for Ranchers where she described the work of the ERI. Flagstaff, AZ. June 1, 2012. 25 attendees.</li> <li>✓ Crouse, J. Produced two maps for an Arizona Republic article on Arizona fires: <a href="http://www.azcentral.com/projects/news/arizona-wildfires/rodeo-chediski/">http://www.azcentral.com/projects/news/arizona-wildfires/rodeo-chediski/</a> Flagstaff, AZ. June 4, 2012.</li> <li>✓ Dubay, T. AZ Central. "Saving Arizona's Ponderosas." June 17, 2012. <a href="http://www.azcentral.com/projects/news/arizona-wildfires/rodeo-chediski/">http://www.azcentral.com/projects/news/arizona-wildfires/rodeo-chediski/</a></li> <li>✓ McKinnon, S., T. Dubay "Fear of the Next Fire", Arizona Republic Special Report, The Land We Love. 6/17/12</li> <li>✓ Dubay, T. AZ Central. "Arizona fire damage brings forests closer to collapse." June 18, 2012. <a href="http://www.azcentral.com/news/articles/2012/06/18/20120618arizona-fire-damage-forests.html">http://www.azcentral.com/news/articles/2012/06/18/20120618arizona-fire-damage-forests.html</a></li> <li>✓ McKinnon, S., T. Dubay "Rodeo-Chediski: Painful Memories Linger", Arizona Republic Special Report, The Land We Love. 6/18/12.</li> <li>✓ Dubay, T. AZ Central. "Forest-thinning strategy credited for saving Alpine from 2011 fire." June 20, 2012. <a href="http://www.azcentral.com/news/articles/2012/06/19/20120619arizona-forest-thinning-credited-saving-alpine-2011-fire.html">http://www.azcentral.com/news/articles/2012/06/19/20120619arizona-forest-thinning-credited-saving-alpine-2011-fire.html</a></li> <li>✓ McKinnon, S., T. Dubay "A Testament to Forest Thinning", Arizona Republic Special Report, The Land We Love. 6/20/12</li> </ul>

<b>Project 7 (Additional Funding Mechanism): ROI Workshop</b>	
<b>Deliverable</b>	<b>Status</b>
1. Preliminary budgetary analysis of treatment costs versus suppression costs for the past 10 years and next 10 years.	✓ <b>In progress</b>

## FY12 Plan of Work - Deliverables

<b><i>Project 8: Duty 5 under the ACT. Provide annual progress reports</i></b>	
7.1) Complete annual progress report on June 30 <sup>th</sup> , 2012 and June 30 <sup>th</sup> , 2013	✓ <b>In progress.</b>