

2012 Annual Report
to the USDA Forest Service
under Sponsor Award #10-DG-11031600-050 for **2012 and 2013**
plus balance of **additional funds received in 2011**



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**See correction FY12-Project 2.2 deliverable 4/3/15*

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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 2012 and 2013 under CFDA 10.694, Southwest Forest Health and Wildfire Prevention for the third and fourth 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, 2 and 7).
- \$90,463 provided in the FY11 plan of work by the Apache-Sitgreaves National Forests to answer monitoring questions asked by the White Mountains Stewardship Monitoring (WMS) Board (FY11 Project 8).
- \$175,000 provided in the FY12 plan of work 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 9/30/2013 and demonstrates completion of the 2011 Year-End (Wallow) and 2012 funding.

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.

Annual Report to the USDA Forest Service
for 2012 & 2013 *plus* balance of + funds received in 2011

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USFS FY11 Plan of Work (Year-End Funding)

USFS FY11 Plan of Work (Year-End Funding)

Project 1: Evidence-Based Conservation	
Deliverable	Status
1.5 Treatment effects and the Wallow Fire	
<ul style="list-style-type: none"> a) An Analysis of treatment responses to extreme fire b) Update on publication for journal c) Working paper or similar publication interpreting results for managers 	<ul style="list-style-type: none"> a) Analysis Complete as of 8-27-13 b) PIPO manuscript (Stoddard) planned submission to <i>Fire Management Today</i> by 12/31/13. Complete. c) “Do Fuel Treatments Reduce fire Severity in Ponderosa Pine Forests? Tree Mortality Patterns One Year after the Wallow Fire.” Complete. Link to document.
1.6 Identify treatment priorities on the Apache-Sitgreaves National Forest to help inform out-year planning (Revised to Combine with 2.2, link to explanatory memo).	
<ul style="list-style-type: none"> a) Map of high restoration need, associated GIS layers from reclassification of R3 midscale vegetation analysis. b) Tables of acres of “priority” by ranger district and by additional priorities/ values (WUI, etc). c) Potential workshop as needed; or working paper 	<ul style="list-style-type: none"> a) Map of high restoration need, associated GIS layers from reclassification of R3 mid-scale vegetation analysis. Completed and presented. b) Tables of acres of “priority” by district ranger and by additional priorities/values (WUI, etc.). Completed. Link to report. c) Completed. Presentation to the Apache-Sitgreaves National Forests on 11/12/2013 included: the 1.6 and 2.2 deliverables (Crouse), the Black Mesa fire history work and the Wallow treatment effectiveness in the mixed conifer work performed by Stoddard and Waltz (Huffman). Reviewed LEARN project and gave an update on the WMSP work conducted in the 2013 summer field season (Sensibaugh). 15 attendees. Link to presentation

USFS FY11 Plan of Work (Year-End Funding)

Project 1: Evidence-Based Conservation	
Deliverable	Status
1.7 Managing for Restoration of and Mixed Severity fire in Mixed Conifer	
<p>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.</p> <p>b) Progress Report on analysis and journal publication describing wildfire effects in mixed conifer and how that compares in extent 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 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>a) Although available information on management of mixed conifer in the southwest precluded the use of a Systematic Review it did present an opportunity for a Working Paper: Margolis, E.Q., D.W., Huffman, and J.M. Iñiguez. “Southwestern Mixed-Conifer Forests: Evaluating Reference Conditions to Guide Ecological Restoration Treatments.” Working Paper 28, October, 2013. Complete. Reference Section 7.3.b or link to http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2013020.dir/doc.pdf</p> <p>b) Roccaforte, John Paul. The Wallow Fire and its effects on mixed conifer forest: a comparison with reference conditions. Complete. Link to Document</p> <p>c) Journal Manuscript in final internal review before submission. progress (Stoddard/Waltz/Springer/Kalies).</p> <p>d) “Managed fire as a restoration treatment alternative for mixed conifer forests” is in progress and scheduled for completion on 12/31/13.</p>

USFS FY11 Plan of Work (Year-End Funding)

Project 1: Evidence-Based Conservation	
Deliverable	Status
1.8 Managing for long-term recovery in fire damaged ecosystems.	
<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>a) Kalies, E. Rehabilitative Restoration Pilot Review. Completed. Link to document</p> <p>b) “Rehabilitation principles” in progress and out for review. (Huffman/Springer). Due to scheduling constraints this deliverable is in progress and scheduled for completion by 12/31/13.</p> <p>c) Fact sheet based on 1.8b working paper is in progress and scheduled for completion by 12/31/13 (dependent on 1.8b).</p>

Project 2: Stewards of Place	
2.2 Identify areas in need of treatment within the Wallow Fire Perimeter (Revised to Combine with 1.6, link to explanatory memo).	
Deliverable	Status
<p>a) Map of high restoration need within Wallow extent, with operational “no-go” areas (>%40 slope; wilderness).</p> <p>b) Table with acres of “priority” by forest type</p>	<p>a) Map of high restoration need within Wallow extent, with operational “no-go” areas (>%40 slope; wilderness). Completed and presented.</p> <p>b) Table with acres of “priority” by forest type. Completed. Link to Report.</p>

USFS FY11 Plan of Work (Year-End Funding)

Project 7: Services to the Intermountain West	
Deliverable	Status
7.3 Related to the Wallow Fire	
<p>a) Design and deliver in cooperation with Region 3 a workshop/dialogue about desired conditions (<i>Requested by Region 3—Fall 2011</i>)</p>	<ul style="list-style-type: none"> ✓ 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. ✓ 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. ✓ Greco, B., M. Sensibaugh. Field trip with USFS to develop plans for DC Workshop field trips. Eastern Arizona. August 17-19, 2011. 10 attendees. ✓ 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. ✓ Greco, B. Presentation for DC Workshop – SW MC & PP Ecosystems. Requested by Pat Jackson, Chief of Staff, R-3 USFS. Santa Fe, NM. June 19, 2012. 35 attendees.
<p>b) Produce 4 working papers identified in the additional program of work for FY'11 year end dollars</p>	<p><u>Working Papers</u></p> <ul style="list-style-type: none"> ✓ Margolis, E.Q., D.W., Huffman, and J.M. Iñiguez. “Southwestern Mixed-Conifer Forests: Evaluating Reference Conditions to Guide Ecological Restoration Treatments.” Working Paper 28, October, 2013 link to: http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2013020.dir/doc.pdf ✓ Production of deliverable 1.8c, “Rehabilitation principles” in progress and out for review. Scheduled for completion by 12/31/13. ✓ Production of deliverable 1.5c, “Do Fuel Treatments Reduce fire Severity in Ponderosa Pine Forests? Tree Mortality Patterns One Year after the Wallow Fire.” Complete. Link to document. ✓ Production of deliverable 1.6c, presentation to the Apache-Sitgreaves National Forests on 11/12/13. Link to presentation ✓ Production of deliverable 1.7d, “Managed fire as a restoration treatment alternative for mixed conifer forests” is in progress and scheduled for completion by 12/31/13.
<p>c) Produce articles and related information to inform the general public with respect to 2.2b and 2.2c</p>	<p><u>Articles/Related Information</u></p> <ul style="list-style-type: none"> ✓ ERI Newsletter, Spring 2011. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2011001.dir/doc.pdf ✓ 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.

USFS FY11 Plan of Work (Year-End Funding)

Project 7: Services to the Intermountain West	
Deliverable	Status
<p>d) Produce Fact Sheets that can inform rehabilitation activities</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>October 12, 2011.</p> <p>✓ Quester, B. “Experts: Managing Tribal forest helped stop Wallow Fire at reservation,” http://cronkitenewsonline.com/2011/12/experts-decades-of-logging-treatments-helped-stop-wallow-fire-at-reservation/ _ December 8, 2011.</p> <p>Fact Sheets</p> <p>✓ Vosick, D., D. Egan. “Lessons Learned from the Wallow Fire.” 7/2011. Complete http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/HASH0181/4e347f63.dir/doc.pdf</p> <p>✓ Waltz, A.E.M. “Impacts of fire hazard assessment and fuel reduction priorities on mega-fire outcomes. August 2012” http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/HASH9cc9.dir/doc.pdf</p> <p>Issues/Topics</p> <p>✓ Covington, W.W. Congressional Field Hearing re: Wallow Fire. Springerville, AZ. June 29, 2011. 25 people in attendance, including Secretary of Agriculture, Vilsack.</p> <p>✓ 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.</p>

Project 8 (Additional Funding Mechanism): Science Based Approach in the A-S National Forest	
Deliverable	Status
<p>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.</p>	<p>✓ Greco, B., D. Huffman, M. Sensibaugh, J.P. Roccaforte. Wrote report on reforestation of burned sites, a report requested by Apache/Sitgreaves National Forests. Springerville, AZ. December 7, 2011. Link to report</p> <p>✓ Field crew collecting data with monitoring report in progress (Greco/Huffman)</p> <p>✓ White Mountain Stewardship Program Monitoring Report. March 2013. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2013016.dir/doc.pdf</p>

USFS FY12 Plan of Work - Deliverables

FY12 Plan of Work

Project 1: Science Support for Collaborative Landscape-Scale Restoration	
Deliverable	Status
(1.1) Provide Support for the Four Forest Restoration Initiative (4FRI) a Collaborative Forest Landscape Restoration Act project including:	
a. Provide technical assistance for science and monitoring	✓ Vosick, D., B. Greco. Provide technical assistance to the 4 FRI Canopy Cover Working Group Meeting with Forest Service Supervisors. Lakeside, AZ. February 21, 2012. 12 in attendance.
b. Provide leadership and technical assistance to steering committee	✓ Vosick, D., B. Greco, A. Waltz, W. Greer. Provide administrative support to the 4 FRI Collaborative at Bi-Weekly Steering Committee and Monthly Stakeholder Meetings. Bi-Weekly/Monthly. 5-10 and 20-40 attendees respectively.
c. Provide technical assistance to the landscape strategy working group	✓ Vosick, D. 4FRI Co-Chair. 6 months.
d. Provide GIS support to ID Team for technical analyses	✓ Brewer, D. Provided 4 FRI Strata Assessment to 4 FRI Planning Team. March 23, 2012.
e. Provide IT support for the 4FRI Website and BASECAMP (an online collaborative work space), Website and Administration (Ongoing)	✓ 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.
	✓ Brewer, D. Review of Soil and Water Effects Analysis for 4 FRI. Flagstaff, AZ. May, 18, 2012.
	✓ 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.
	✓ 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.
	✓ Vosick, D. Made presentation of the 4FRI Workforce Study and answered questions regarding the Four Forest Restoration Initiative (4FRI), to three members of the Graham County Board of Supervisors. Safford, Arizona. June 4, 2012. 20 attendees.
	✓ Greco, B., A. Waltz. Presentation on monitoring protocols for 4 FRI and White Mountain Stewardship. Springerville, AZ. June 13, 2012. 23 attendees.
	✓ ERI Administrative support for the 4FRI Socioeconomic Monitoring Workshop. Flagstaff, AZ. June 22, 2012.
	✓ 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.
	✓ Greer, W. Information Request from Steve Campbell, 4FRI regarding questions on collaboration. August 28, 2012
	✓ Vosick, D. Information request from Paulie Begay and Linda Morrow, Apache County and Navajo County Superintendents regarding job opportunities associated with the 4FRI. September 12, 2012
	✓ Vosick, D. Request for information from Hunter Moore on the Southwest Crown of the Continent Litigation. December 27, 2012
✓ Vosick, D. Request for information from Yavapai Broadcasting regarding 4FRI outreach. April 11, 2013	

USFS FY12 Plan of Work - Deliverables

Project 1: Science Support for Collaborative Landscape-Scale Restoration	
Deliverable	Status
1.2) Provide technical support for landscape-scale planning and implementation in other national forests in Arizona including:	
<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 Forests for Wallow Fire Recovery</p>	<p>a. Vosick, D. Presentation to the Prescott National Forest Strategic Action Planning Committee. January 31, 2012 Planning effort was halted in 2012 due to staffing changes.</p> <p>b. Greco, B. Met with the Safford Ranger District ID Team Leader (Craig Wilcox – Forest Silviculturist, Coronado NF) and conducted a field visit to the Ecosystem Restoration blocks on the Pineleno Ecosystem Restoration Project (PERP). September 4, 2012</p> <p>c. Greco, B. Re-analysis of the Eager South restoration treatments (photo-points, re-measurements, analysis). Link to report.</p>
1.3) Provide science and technical support for other CFLRA projects and emerging projects including:	
<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. Complete. Egan, D. and T. Dubay, eds. 2013. Breaking Barriers, Building Bridges: Collaborative Forest Landscape Restoration Handbook. Ecological Restoration Institute, Northern Arizona University. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/dubayega_dir/doc.pdf</p> <p>b. CFLR Monitoring Network http://www.nationalforests.org/conserves/peer/collaborative-forest-landscape-restoration-program</p> <ul style="list-style-type: none"> • Waltz, A. SW Association for Fire Ecology Conference Session: Landscape Monitoring Session to support lessons learned across CFLRP landscape and other landscape-level sites. Feb. 27 – March 1 (session on Feb 28). 50 attendees; 8 speakers – 5 from CFLRP funded projects. • 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. • 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. • Waltz, A. Speaker at CFLR Peer Learning webinar sponsored by Forest Management of the Forest Service and offered in partnership with the National Forest Foundation. August 9, 2012. 50-70 attendees. • Waltz, A. CFLRP National Monitoring Network: Remote Sensing Tools for Landscape Restoration. Webinar series

USFS FY12 Plan of Work - Deliverables

Project 1: Science Support for Collaborative Landscape-Scale Restoration	
Deliverable	Status
	<p>organized by Waltz and west-wide team. November 1, 2012. 60 attendees.</p> <ul style="list-style-type: none"> • Waltz, A. “CFLR National Indicators”, presented with Mary Mitsos, NFF, to Region 6 CFLRP Conference hosted by Sustainable NW. April 18, 2013 • Waltz, A. “Impacts of Fuel Reduction Priorities” Webinar given for SW Fire Science Consortium. April 25, 2013. 60 attendees.

Project 2: Evidence-Based Restoration	
Deliverable	Status
<p>2.1) Two systematic reviews 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>	<ul style="list-style-type: none"> ✓ Complete. Sánchez Meador, A.J., E. Kalies, K. Waring. 2013. Impacts of diameter caps on multiple forest resource responses in the context of 4FRI: Results from the Forest Vegetation Simulator. Link to Report ✓ Complete. Kalies, E., W. Covington. 2013. What are the consequences of cutting old ponderosa pine trees? A systematic review. Submitted to the Journal for Nature Conservation. Link to Report
<p>2.2) Filling one knowledge gap. Using field data collected in 2011 we will leverage state funding to fill a critical information gap related to historical reference conditions in dry mixed-conifer forests of the Southwest. a. Deliverable: Report on conclusions of research to reconstruct fire history and forest structure of a mixed conifer site on the Mogollon Rim. (March 2013)</p>	<ul style="list-style-type: none"> ✓ Huffman, D.W., T.J. Zegler, and P.Z. Fulé. 2015. Fire history of a mixed conifer forest on the Mogollon Rim, northern Arizona, USA. International Journal of Wildland Fire, http://dx.doi.org/10.1071/WF14005 <p>Note: this deliverable had been unintentionally dropped from the submitted final report.</p>

USFS FY12 Plan of Work - Deliverables

<i>Project 3: Monitoring, Evaluation and Adaptive Management</i>	
Deliverable	Status
3.1) Analysis of biophysical monitoring data from LEARN sites the Southwest	
a. Deliverable: Analysis and publication of results biophysical responses to ecological restoration treatments	✓ Roccaforte, Stoddard and Fule: Preliminary Results from the Mineral Ecosystem Management Area (EMA) Experimental Block Study: One-Year Post-Treatment. Completed. Link to manuscript
3.2) Analysis of how socio-politically based adjustments to ecological restoration treatments affected ecological outcomes	
a. Deliverable: Analysis and publication designed for stakeholders and land managers	✓ Ft. Valley Analysis complete and manuscript in final review.
3.3) Monitor Wildlife Responses to restoration treatments in the 4FRI Analysis Area	
a. Deliverable: Two manuscripts for peer reviewed publication	<ol style="list-style-type: none"> 1. Yarborough, R.F., J. Gist, C. Loberger, and S. Rosenstock. Habitat use by tassel-eared squirrels in managed forests along the wildland urban interface. June, 2013. Completed. Link to manuscript 2. Yarborough, R.F., M. Stoddard and S. Rosenstock. Foraging patterns of tassel-eared squirrels in managed forests along the wildland urban interface. June 25, 2013. Completed. Link to manuscript

USFS FY12 Plan of Work - Deliverables

Project 4: Restoration-based Economic Opportunities	
Deliverable	Status
4.1) Provide technical assistance to partnerships exploring alternative approaches to supporting treatments	
<p>a. Deliverable: Technical support to stakeholders involved in the White Mountain Forest Restoration Partnership</p>	<ul style="list-style-type: none"> ✓ Vosick, D. WMFRP has slowed down, however provided technical assistance for payment of watershed services work in Flagstaff. ✓ 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; April 26, 2012 (via teleconference); June 12, 2012, Tucson, AZ.
4.2) Scientific support to advance efforts to mainstream the economic value of ecosystem services	
<p>a. Deliverable: Provide scientific support to stakeholders, the Forest Service and the City of Flagstaff to capture the benefits of ecosystem services</p>	<ul style="list-style-type: none"> ✓ 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. ✓ 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. ✓ Vosick, D. Attended meetings to develop materials for the Flagstaff City Council deliberation on the Payment for Watershed Services issue. May 31, 2012, June 7, 2012, June 21, 2012 and July 12, 2012. ✓ Vosick, D. Coconino County Supervisors. Presentation on outcomes from "Payment for Watershed Services Workshop." Flagstaff, AZ. June 19, 2012. 12 in attendance. ✓ Vosick, D. Request for information from Butch Blazer regarding Prop 405. October 12, 2012 ✓ Vosick, D. Request for information/update on Flagstaff Bond. December 27, 2012

USFS FY12 Plan of Work - Deliverables

Project 5: State, Tribal and Private Forestry – The All Lands Approach	
Deliverable	Status
5.1) Provide scientific support to affected entities with a focus on State Forests(ongoing)	
<p>a. Deliverable: Report on scientific support to state forests and other affected entities</p>	<ul style="list-style-type: none"> ✓ Greco, B. Co-Chair of AZ State Prescribed Fire Council Development Team. Monthly. ✓ Vosick, D., B. Greco, A. Waltz, J.P. Roccaforte. Attended BLM/ERI Annual Coordination Meeting. St. George, UT. February 7 and 8, 2012. 12 in attendance. ✓ 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. ✓ Greco, B. Provide technical support at monthly AZ Prescribed Fire Council Meeting. Requested by USFS R-3 Fire & Aviation. Flagstaff, AZ. January 22, 2013. 6 attendees.

USFS FY12 Plan of Work - Deliverables

Project 6: Services to the Intermountain West	
Deliverable	Status
6.1) Provide support to Forest Service Land Managers with program planning and implementation	
<p>a. Deliverable: Technical assistance to Forest Service land managers (this includes field trips, Rapid Assessments, workshops and science support)</p> <p>Note: 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"> ✓ 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. ✓ Greco, B. Attended Rx Fire Council Coordination Meeting. Flagstaff, AZ. January 30, 2012. ✓ 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. ✓ 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. ✓ 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. ✓ Huffman, D.W., Email response to Rory Steinke (US Forest Service). Coarse woody recommendations for pinyon-juniper woodlands. March 5, 2012. ✓ Sensibaugh, M. Provided scientific summary report on Burning sequence for Alligator Juniper to the Lakeside Ranger District ID team. March 21, 2012. ✓ Greco, B. Presentation on ERI’s White Mountain Stewardship Monitoring strategy for the Apache-Sitgreaves National Forests. Springerville, AZ. April 3, 2012. 18 attendees. ✓ Greco, B., M. Sensibaugh, D. Brewer. Rapid Assessment, Jemez Springs, NM. May 6, 2012. Link to RAP Report ✓ Huffman, D., M. Sensibaugh, A. Sanchez Meador, B. Greco. Field Site Visit at Rim Lakes, A-S NF for DC Workshop requested by R-3, June 12, 2012. 5 attendees. ✓ Waltz, A., B. Greco. Springerville, AZ. Present and discuss monitoring protocols for 4FRI & WMS. Requested by Don Berry, WMS Monitoring Board chairperson. June 13, 2012. 23 attendees. ✓ Greco, B. Desired Conditions workshop on Southwest mixed conifer and ponderosa pine ecosystems. Santa Fe, NM. June 19, 2012. 35 attendees. ✓ Greco, B. Needs assessment with Forest Leadership Team, Santa Fe National Forest. Santa Fe, NM. June 20, 2012. 17 attendees. ✓ Greco, B., M. Sensibaugh. Rim Lakes Restoration Marking Field Trip, Requested by Dee Hines, District Ranger. Black Mesa, AZ. August 2, 2012. 11 attendees.

USFS FY12 Plan of Work - Deliverables

Project 6: Services to the Intermountain West	
Deliverable	Status
	<ul style="list-style-type: none"> ✓ Sensibaugh, M., D. Huffman, D. Brewer, B. Greco. Workshop and field trip “AZ Internal FS Mixed-Conifer Desired Conditions.” Requested by Corbin Newman, R-3 Regional Forester. A-S National Forest, AZ. October 10-11, 2012. 45 attendees. ✓ Sensibaugh, M., D. Huffman, D. Brewer, B. Greco. Workshop and field trip “AZ Internal FS Mixed-Conifer Desired Conditions”. Requested by Corbin Newman, R-3 Regional Forester. A-S National Forest, AZ. October 17-18, 2012. 45 attendees. ✓ Waltz, A. Fill in for W. Covington as speaker at Vegetation Management Workshop, Prescott, AZ. November 7, 2012. ✓ Sensibaugh, M., D. Brewer. Technical assistance and field trip with Prescott National Forest Fire Staff. Prescott, AZ. November 13, 2012. 5 attendees. ✓ Waltz, A. “Impacts of Fuel Reduction Priorities on Large Wildfires”, presented at Association for Fire Ecologist International Congress, Portland, OR. December 6, 2012 ✓ Waltz, A. “Mega-Fires: Testing Today’s Priorities”, Presented at National Conference on Science, Policy and the Environment, Washington, DC. January 16, 2013 ✓ Greco, B. Technical assistance to USFS, Flagstaff Ranger District at request of District Ranger Mike Elson. Flagstaff, AZ. January 29, 2013. 4 Attendees. ✓ Sensibaugh, M., D. Huffman. Presentation to Mike Elson, Peaks District Ranger regarding Flag Bond project, monitoring, LEARN plots and RA work. Flagstaff, AZ. January 29, 2013. 4 attendees. ✓ Sensibaugh, Rogers Lake Collaborative WUI Project – Rapid Assessment. Flagstaff, AZ. 2/3/13. Link to Report ✓ Greco, B. and D. Smith. Workshop to Coconino County on Ecological Restoration. Flagstaff, AZ February 15, 2013. 18 attendees ✓ Huffman, D., A. Waltz, B. Greco. Presentation to A-S Forest Leadership team requested by Jim Zornes, Forest Supervisor. Springerville, AZ. March 6, 2013. 20 attendees. ✓ Greco, B. Presentation to Natural Resource Working Group forum and field trip. Springerville, AZ. March 19, 2013. 13 attendees. ✓ Huffman, D., J. Springer, M. Sensibaugh, B. Greco. BLM Annual Coordination Meeting. St. George, UT. March 16-17, 2013. 10 attendees. ✓ Sensibaugh, M. Information request from Chris James, Black Mesa District Ranger. Assistance with coordinating work on Larson project and Black Mesa research work. Flagstaff, AZ. March 27, 2013 ✓ Dubai, T. Request for Schultz Fire photos from Nicole Woodman, City of Flagstaff. March 28, 2013 ✓ Sensibaugh, M. Information request from Marcia Pleiderer (Springerville, RD) regarding LEARN Plots (Mineral). April 8, 2013 ✓ Sensibaugh, M., A. Sanchez Meador. LEARN presentation to 4FRI Planning team. Kaibab NF, May 15, 2013. 20 attendees. ✓ Greco, B., M. Sensibaugh, D. Huffman. Meeting with Tonto National

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Project 6: Services to the Intermountain West	
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	<p>Forest FLT, Forest Plan Revision. May 17, 2013</p> <ul style="list-style-type: none"> ✓ Sensibaugh, M. Technical Assistance to Kaibab National Forest. Williams, AZ. May 28, 2013 ✓ Greco, B., M. Sensibaugh. Meeting with Larson IDT & Black Mesa RD Staff. Overgaard, AZ, June 6, 2013 ✓ Sensibaugh, M. and B. Greco. USFS Field Trip to Larson Restoration Project. Overgaard, AZ June 27, 2013
6.2) Assistance with Forest Plan Revisions	
a. Deliverable: Technical assistance and science support for Forest Plan revisions	<ul style="list-style-type: none"> ✓ Greco, B., M. Sensibaugh. Needs assessment presentation with Forest Leadership Team, Tonto National Forest. Phoenix, AZ. April 2, 2012. 10 attendees. ✓ Greco, B. Needs Assessment with Forest Leadership Team (FLT) Requested by Maria Garcia, Forest Supervisor, Santa Fe NF, Santa Fe, NM. June 20, 2012. 17 attendees. ✓ Greco, B. Review/Comments on 2012 Planning Rule, USFS WO, May 30, 2013
6.3) Web support for ERI, SWERI and the 4FRI	
a. Deliverable: Technical support for ERI, SWERI and 4FRI websites	<ul style="list-style-type: none"> ✓ Norton, H. Summary report on ERI web support with 2013 Search Engine Optimization (SEO) and 2013 website Statistic Analysis. Complete. Link to report. ✓ ERI Newsletter, Spring 2012. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2012002.dir/doc.pdf ✓ ERI Newsletter, Fall 2012 http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2012003.dir/doc.pdf
6.4) Translate biophysical and social-political-economic information for affected entities	
a. Deliverable: Editorial support for 1 white paper	a) Complete. Moote, A. 2013. Closing the Feedback Loop: Evaluation and Adaptation in Collaborative Resource Management. Ecological Restoration Institute, Northern Arizona University. 44 pp. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2013003.dir/doc.pdf
b. Deliverable: Editorial support for 2 Working Papers	<p>b) 1. Reif, S., R.F. Yarborough, S.S. Rosenstock, E.L. Kalies, and S. Hedwall. 2013. Wildlife Habitat Values and Forest Structure in Southwestern Ponderosa Pine: Implications for Restoration. Ecological Restoration Institute, Northern Arizona University. Working Paper 26, 8 p. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/HASH8e44.dir/doc.pdf</p> <p>2. Yocom, L. Fuel Treatment Longevity. Working Paper 27, October, 2013. Link to working paper</p>

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<p>c. Deliverable: Translate and disseminate 15 Scientific Abstracts for managers</p> <p>d. Deliverable: 4 Fact Sheets</p>	<p>c) ERI sent two mailings (“Parashant mailings”) to a small group (39) of users regarding work at Mount Trumbull. They were sent August 10, 2011 and February 6, 2012. Link to abstract</p> <p>The first mailing (ERI Trumbull on August 10) was to 38 recipients. 11 opened the email (30%), and 26 did not (70% - not sure what happened to the other 1). Two people clicked through from the mailing to our website (5%). No one unsubscribed.</p> <p>February 6 there were 39 recipients, 11 who opened the email (29%), and 27 who did not (71%). Four people clicked through to our website (10%). No one unsubscribed.</p> <p>d) Fact Sheets</p> <ul style="list-style-type: none"> ✓ Allen, J.A., and Ramstead, K. 2012. “Evidence-based Conservation Systematic Review: Effectiveness of Wet Meadow Restoration Projects.” Ecological Restoration Institute. Flagstaff, AZ http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/HASH01ee.dir/doc.pdf ✓ Mueller, J.M. 2012. “Estimating Flagstaff residents’ willingness to pay for forest restoration in the Lake May and Upper Rio de Flag watersheds: A pilot study.” Ecological Restoration Institute and W.A. Franke College of Business, Northern Arizona University. 2 p. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2013041.dir/doc.pdf ✓ Springer, J.D. Exotic Species Management at Landscape Scales. Ecological Restoration Institute. July 2012. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/HASH01fi/3fbc47d0.dir/doc.pdf ✓ Springer, J.D. Conserving Rare Plants in National Parks and Protected Areas. Ecological Restoration Institute. July 2012. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/HASH0163/0609046c.dir/doc.pdf
6.5) Conduct Field Trips and Presentations as requested by affected entities	
<p>a. Deliverable: Presentations for affected entities</p> <p>b. Deliverable: Field Trips for affected entities</p>	<ul style="list-style-type: none"> ✓ 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. ✓ 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. ✓ Covington, W.W. Presentation at Community Breakfast at Flagstaff High Country Conference Center on 4 FRI. Flagstaff, AZ. February 22, 2012. 80 attendees.

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Deliverable	Status
	<ul style="list-style-type: none"> ✓ 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. https://www.forestbusinessnetwork.com/14167/just-1-can-change-the-future-of-the-apache-sitgreaves-national-forest/ ✓ 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 ✓ 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. ✓ Normandin, D. Presentation to the Willow Bend Environmental Education Workshop, Introduction to Dendrochronology. Flagstaff, AZ. March 15, 2012. 13 participants. ✓ Brewer, D. Presentation made to National Park Service at Grand Canyon National Park on Forest Restoration. Grand Canyon, AZ. April 17, 2012. 10 attendees. ✓ 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. ✓ Covington, W. W. Panel presentation: Four Forest Restoration Initiative. Valley Forward Association. Sheraton Hotel, Phoenix, AZ. May 1, 2012. 70 attendees. ✓ Vosick, D. Presentation at the Smallwood Conference in Flagstaff, AZ. Presentation titled: The Four Forest Restoration Initiative: Working at the Pace and Scale of the Problem. Flagstaff, AZ. May 1, 2012. 35 attendees. ✓ Smith, H.B. Field trip at Gus Pearson Experimental Plots for USFS San Dimas Tree Marking committee titled, “Introduction to Ecological Restoration.” Flagstaff, AZ. May 15, 2012. 20 participants. ✓ 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. ✓ Smith, H.B. Took Junior Forester Academy students on 2-hour field trip titled, “Introduction to Ecological Restoration.” Flagstaff, AZ. June 11, 2012. 19 participants. ✓ 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.

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Deliverable	Status
	<ul style="list-style-type: none"> ✓ Greco, B., M. Sensibaugh. Presentation, workshop and field trip. “BIA/Tribal Leaders Desired Conditions.” Requested by Pat Jackson, Chief of Staff, R-3 USFS. Grants, NM. July 10, 2012. 40 attendees. ✓ Vosick, D. Information request from Tom Tuckman, US Forest Capitol regarding questions about 4FRI. August 23, 2012 ✓ Vosick, D. Presentation on Restoration at Monthly Meeting of the Northern AZ Audubon Chapter. Flagstaff, AZ, September 12, 2012 ✓ Youtz, J., Sánchez Meador, A.J., Jackson, P., Nicolet, T., Reynolds, R.T. 2012. Desired conditions for restoring the resilience of southwestern frequent-fire forests. Oral presentation at the National Convention of the Society of America Foresters, Spokane, WA. October 2012- approximately 50 attendees ✓ Greco, B. Presentation to White Mountain Stewardship Monitoring Board requested by Jim Zornes, A-S NF Supervisor. Show Low, AZ. October 9, 2012. 12 attendees. ✓ Vosick, D. Request for information from Chris Topik to discuss economic expertise. October 12, 2012 ✓ Vosick, D. Request for information from Scott Hunt – slides for forest presentation. February 1, 2013 ✓ Vosick, D. Request for information from Jeremy Harrell on Schultz Fire. February 1, 2013 ✓ Vosick, D. Request for information from Megan Conklin regarding economic study in progress. February 13, 2013 ✓ Greco, B. Presentation to Natural Resource Working Group forum requested by USFS Apache-Sitgreaves NF. Springerville, AZ. March 19, 2013 13 attendees ✓ Vosick, D. Request for information from Kris Kiefer on fire liability. March 28, 2013 ✓ Sánchez Meador, A.J. 2013. Watershed impacts from the White Fire. Oral presentation to the Southwest Fire Science Consortium, Ruidoso, NM. April 2013 - approximately 30 attendees ✓ Sánchez Meador, A.J. 2013. An overview of LEARN. Oral presentation to the Kaibab National Forest, Williams, AZ. May 2013 - approximately 25 attendees. ✓ Greco, B., M. Sensibaugh, D. Huffman. Field Trip for NRWG Field Review of White Mountain Stewardship. Springerville, AZ May 29, 2013 ✓ Sensibaugh, M. Field Trip at Rogers Lake Restoration Project – post treatment data collection. Flagstaff, AZ, June 13, 2013 ✓ Sánchez Meador, A.J. and Moore, M.M. 2013. Application of gap and non-gap detection methods for quantifying reference conditions in western North American forests. Poster presentation at the 2nd Conference on Spatial Statistics, Columbus, OH. June 2013 - approximately 200 attendees ✓ Greco, B. Presentation to Natural Resources Working Group. Springerville, AZ. July 16, 2013. 23 attendees

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Project 6: Services to the Intermountain West	
Deliverable	Status
6.6) Educate the General Public	
<p>a. Deliverable: 4 newspaper articles to inform the general public on the benefits of restoration</p>	<ul style="list-style-type: none"> ✓ NAU article by Bonnie Stevens titled “Possibilities flow from lost spring sites.” http://nau.edu/ERI/Publications-Media/News-Archive/01/30/12--Possibilities-flow-from-lost-spring-sites/ Flagstaff, AZ. January 30, 2012. ✓ Arizona Daily Sun article on “Academic tiff over wildfires rekindled.” http://nau.edu/ERI/Publications-Media/News-Archive/02/21/12--Academic-tiff-over-wildfires-rekindled/ Flagstaff, AZ. February 21, 2012. ✓ “After dry winter, Arizona’s forests looking at tough wildfire season,” article by Jessica Testa from the Cronkite News, KTAR.com. http://nau.edu/ERI/Publications-Media/News-Archive/02/28/12--After-dry-winter/ February 28, 2012. ✓ Vosick, D. Quoted in article titled “Forest Health Council examines bills that seek more state control over federal lands.” Prescott, AZ. March 15, 2012. http://nau.edu/ERI/Publications-Media/News-Archive/03/15/12--Forest-Health-Council-examines-bills/ ✓ Stevens, B. “SRP and ERI to study effects of forest restoration on watersheds.” http://nau.edu/ERI/Publications-Media/News-Archive/05/03/12--SRP-and-ERI/. Flagstaff, AZ. May 3, 2012. ✓ Article on “An Era of Mega fires” http://nau.edu/ERI/Publications-Media/News-Archive/05/14/12--An-era-of-mega-fires/ Flagstaff, AZ. May 14, 2012. ✓ “Why Arizona gets scorched by severe wildfires.” by Wynne Parry, LiveScience Senior Writer. http://nau.edu/ERI/Publications-Media/News-Archive/05/16/12--Arizona-gets-scorched/ Flagstaff, AZ. May 16, 2012. ✓ “Experts: climate change makes big wildfires inevitable,” Laurel Morales, Fronteras Desk Arizona Public Media. NPR 98.1. May 19, 2012. ✓ "Conditions in place for severe wildfire season", article by Steve Ayers of the Verde Independent newspaper. http://nau.edu/ERI/Publications-Media/News-Archive/05/19/12--Conditions-in-place-for-severe-wildfire-season/ Camp Verde, AZ. May 19, 2012. ✓ 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. ✓ Covington, W.W. “Healthy-forest efforts will uplift Arizona,” opinion piece in Arizona Republic. http://nau.edu/ERI/Publications-Media/News-Archive/05/27/12--Healthy-forest-efforts/ Phoenix, AZ. May 27, 2012. ✓ Berwyn, B. “Whitewater-Baldy fire in New Mexico burns to record size.” Summit County Citizens Voice. http://nau.edu/ERI/Publications-Media/News-Archive/05/30/12--Whitewater-Baldy-fire-in-New-Mexico/ Summit County, Colorado. May 30, 2012.

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	<ul style="list-style-type: none"> ✓ Crouse, J. Produced two maps for an Arizona Republic article on Arizona fires: http://www.azcentral.com/projects/news/arizona-wildfires/rodeo-chediski/ Flagstaff, AZ. June 4, 2012. ✓ AZ Central. "Arizona fire damage brings forests closer to collapse." June 16, 2012. http://nau.edu/ERI/Publications-Media/News-Archive/06/16/12--Arizona-fire-damage/ ✓ McKinnon, S. Quoting Wally Covington in "Saving Arizona's Ponderosas." June 17, 2012. http://www.azcentral.com/projects/news/arizona-wildfires/rodeo-chediski/ or http://www.azcentral.com/projects/news/arizona-wildfires/rodeo-chediski/index.php ✓ McKinnon, S. "Rodeo-Chediski: Painful Memories Linger," Arizona Republic Special Report, The Land We Love. June 18, 2012 (<i>ERI not quoted</i>) ✓ AZ Central. "Forest-thinning strategy credited for saving Alpine from 2011 fire." June 20, 2012. http://www.azcentral.com/news/articles/2012/06/19/20120619arizona-forest-thinning-credited-saving-alpine-2011-fire.html ✓ McKinnon, S. Quoting Wally Covington in "A Testament to Forest Thinning," Arizona Republic Special Report, The Land We Love. June 20, 2012. ✓ Note: the Special Report, The Land We Love may be viewed at http://www.azcentral.com/projects/news/arizona-wildfires/rodeo-chediski/index.php ✓ Vosick, D. Film screening of <i>Forests Under Fire: The Race to Restore the American West</i>, produced by the ERI. Followed by discussion and Q&A. Museum of Northern Arizona. August 8, 2012 ✓ Vosick, D. Information request from Chris Joyce, NPR re: Data on Appeals. Flagstaff, AZ August 23, 2012 ✓ Joyce, C., T. Dubay. NPR. "Is it too late to diffuse the danger of megafires?" August 24, 2012

Project 7 (Additional Funding Mechanism): ROI Workshop	
Deliverable	Status
1. Preliminary budgetary analysis of treatment costs versus suppression costs for the past 10 years and next 10 years.	<ul style="list-style-type: none"> ✓ Ecological Restoration Institute. 2013. The efficacy of hazardous fuel treatments: A rapid assessment of the economic and ecologic consequences of alternative hazardous fuel treatments: A document for policy makers. Northern Arizona University. 28 pp. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2013004.dir/doc.pdf

Project 8: Duty 5 under the ACT. Provide annual progress reports	
7.1) Complete annual progress report on June 30, 2012 and June 30, 2013	✓ Complete through funding period end of 9/30/13.

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FY13 Plan of Work

Project 1: Science Support for Collaborative Restoration and Conservation from the Local to the Landscape Scale	
Deliverable	Status
1.1) Provide Support for the Four Forest Restoration Initiative (4FRI), a Collaborative Forest Landscape Restoration Act project.	
<ul style="list-style-type: none"> a. 1 Report on technical assistance for science and monitoring b. 1 Report on leadership and administrative assistance to steering committee c. Report on IT support for the 4FRI Website and BASECAMP (an online collaborative work space), Website and Administration 	<ul style="list-style-type: none"> a. Waltz, A. 4FRI Collaborative: Small group leadership, meetings 2X/month. Ongoing. b. In progress c. In progress
1.2) Provide support on science and technical support for other CFLR pilots and emerging projects	
<ul style="list-style-type: none"> a. Provide support and coordinate monitoring across landscape scale restoration projects. Deliverable: 1 Report on activities b. In cooperation with other entities, coordinate a regional CFLR workshop <ul style="list-style-type: none"> i. Planning ii. Proposed date: October 2-4 in Phoenix, Arizona 	<ul style="list-style-type: none"> a. In progress b. Waltz, A. CFLRP National Monitoring Network: “Who’s Afraid of the Big Bad Desired Conditions.” Webinar series organized by Waltz and west-side team. May 13, 2013. 100 attendees.
1.3) Identify and coordinate scientists in the West who are willing to provide scientific support for landscape-scale restoration	
<ul style="list-style-type: none"> a. Identify science needs across CFLR projects b. Identify scientists 	In progress as of 12/1/13

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Project 2: Evidence-Based Conservation	
Deliverable	Status
2.1) Evidence-based review of best available science to inform the Forest Service and partners in implementing the new Forest Planning Rule	
<ul style="list-style-type: none"> a. Deliverable: Evidence-based review of best available science 	In progress as of 12/1/13
2.2) Respond to management questions	
<ul style="list-style-type: none"> a. Deliverable: Synthesis of the literature to understand understory responses to treatments in ponderosa pine and related woodlands which have shrubby understory vegetation. This was requested by the Prescott National Forest and stakeholders b. Deliverable: Synthesis of literature related to understanding the relationship between restoration treatments, resilience and climate change c. Deliverable: Report to be delivered to requestor and published on the web 	All deliverables are in progress as of 12/1/13

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Project 3: Monitoring and Evaluation for Adaptive Ecosystem Management	
Deliverable	Status
3.1) Publications and related outputs from Re-measurement of LEARN sites	
<ul style="list-style-type: none"> a. Preparation for field season. b. Manuscript for publication describing relative effectiveness of burn-only and evidence-based restoration treatments in affecting potential fire behavior, fuels, stand structure, and understory plant community in a high-elevation ponderosa pine forest (A-S Mineral). c. Manuscript for publication describing differences between burn-only and evidence-based restoration treatments in terms of overstory tree mortality and regeneration patterns, with implications for long-term composition changes in a dry mixed-conifer forest (Lower Middle Mountain (Pagosa), San Juan). d. Fact sheets (2) summarizing results and implications of FY13 FY12 LEARN analyses. 	<ul style="list-style-type: none"> a. Mineral Analysis. Completed. b. In progress. Field data collected. c. In progress. Field data collected. d. Both of these will be LEARN based and will be based on the recently completed FY12 LEARN analysis.
3.2) Mixed Conifer Outputs	
<ul style="list-style-type: none"> a. Preparation for field season b. Deliverable: Progress report on tree spatial pattern reconstruction c. Deliverable: Field visits with local agency staff and stakeholders d. Deliverable: Fact sheet describing research results and restoration implications of historical tree spatial patterns 	<ul style="list-style-type: none"> a. Completed. b. In progress. Field data collected. c. Scoping. d. In progress as of 12/1/13.
3.3) A study plan (developed in cooperation with land managers) to test different restoration treatments for post-wildfire landscapes	
<ul style="list-style-type: none"> a. Study plan and implementation planning (3) (\$800K additional) b. Re-measurement of planting in previous wildfire area. Deliverable: Fact Sheet 	<ul style="list-style-type: none"> b. Fact sheet of post-fire tree planting in progress.
3.4) Not included	
3.5) Outputs from wildlife monitoring of species relevant to needs assessment	
<ul style="list-style-type: none"> a. Deliverable: Report on activities b. Deliverable: Fact sheets from published work from FY 2013 (Fort Valley/squirrels and MV/habitat use) 	<ul style="list-style-type: none"> a. In progress as of 12/1/13. b. In progress as of 12/1/13.

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<i>Project 4: Understanding and Solving the Economic, Social and Political Issues and Opportunities of Ecological Restoration</i>	
Deliverable	Status
4.1) Report assessing increases in understanding of novel funding approaches for achieving forest restoration and wildfire risk reduction.	
<p>a. Provide technical support to implement the Flagstaff Watershed Protection Project that authorized \$10 million in bonding authority to plan for and implement treatments designed to protect Flagstaff's municipal water supply and prevent post-fire flooding. Deliverable: Report on activities to support implementation</p> <p>b. Coordinate in partnership with the University of Arizona and the Arizona Watershed and Forest Investment Fund a one-day workshop focused on implementers exploring how to implement novel funding approaches</p> <ul style="list-style-type: none"> i. Plan event ii. Deliver workshop 	<p>4.1a ✓ News release about recent efforts on the Flagstaff Watershed Protection Project. High resolution photos are on the FWPP Flickr page at: http://www.flickr.com/photos/flagstaffwatershedprotecti on</p> <p>4.1b In progress</p>
4.2) Not included (\$800K additional)	
4.3) Analyze the relationship of fuels treatment, restoration and wildfire on real estate values	
<p>a. Deliverable: manuscript submitted for journal publication and either a white paper or fact sheet summary for general audiences.</p>	<p>Formal change requested by D. Vosick to W. Dunn for change to Economic Analysis of Owl Habitat (Snider)</p>

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Project 5: State, Tribal and Private Forestry – The All Lands Approach	
Deliverable	Status
5.1) Co-chair the Exploratory Committee for the Arizona Prescribed Fire Council a. Deliverable: Report on assistance	✓ Greco, B. Co-Chair of AZ State Prescribed Fire Council Development Team. Monthly.

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Deliverable	Status
6.1) Provide support to Forest Service and Department of Interior Land Managers with program planning and implementation	
a. Deliverable: Report on technical assistance to Forest Service and Department of Interior land managers b. Deliverable: Report on Rapid Assessments provided to Forest Service and DOI managers c. Deliverable: Report on workshops provided to Forest Service and DOI managers	a. Technical Assistance ✓ Greco, B. Meet with Coconino National Forest to review Revised Draft Forest Land Management Plan. Flagstaff, AZ. 8/8/13 ✓ Sensibaugh, M. Meet with Coconino National Forest to review Flagstaff Watershed Protection Project Data Collection. Flagstaff, AZ. 8/20/13 ✓ Greco, B. Meet with Coronado NF-Safford RD to discuss the Pinaleno Ecosystem Restoration Project. Safford, AZ 9/19/13 ✓ Greco, B., D. Huffman, A. Sanchez Meador. Field Trip & Meeting with Coconino National Forest on the Mixed Conifer LEARN. Happy Jack, AZ. 9/26/13 b. Rapid Assessment ✓ Sensibaugh, M., B. Greco, W. Chancellor and M. Stoddard. “Larson Forest Restoration Project Historic Range of Variation (HRV Reference Conditions) Assessment Report. October, 2013 Link to Document c. Workshops ✓ Greco, B. and M. Sensibaugh. Rim Lakes Ecosystem Restoration Project Workshop to the Apache-Sitgreaves NF Black Mesa RD. Overgaard, AZ. 7/19/13. 17 attendees ✓ Greco, B. and A. Waltz. 4FRI Bridge Monitoring Workshop to Apache-Sitgreaves NF/NRWG. Eagar, AZ. 8/14/13. 11 attendees.

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Project 6: Services to the Intermountain West	
Deliverable	Status
<p>6.2) Provide Web support for ERI, SWERI, 4FRI and Parashant Partnership a Deliverable: Report on technical support for ERI, SWERI and 4FRI websites</p>	In progress
6.3) Translate biophysical and social-political-economic information for affected entities	
<p>a. Deliverable: Editorial support for 1 white paper b. Deliverable: Editorial support for 2 working papers c. Deliverable: 8 fact sheets</p>	<p>6.3.a: 4FRI case study in progress (Vosick) 6.3b1 Gaylord, Monica “Impact of Forest Restoration Treatments on Southwestern Ponderosa Pine Tree Resistance to Bark Beetle Attacks” In progress. 6.3b 2 Gaylord, Monica Beetles & Climate Change” In progress.</p>
6.4) Initiate and facilitate knowledge services and science support through workshops, field trips, filling information requests and presentations	
<p>a. Deliverable: Report on workshops for affected entities b. Deliverable: Report on field trips for affected entities c. Deliverable: Report on presentations and information requests for affected entities.</p>	<p>a) Workshops</p> <ul style="list-style-type: none"> • Greco, B. AZ Prescribed Fire Council Workshop. Phoenix, AZ. July 11, 2013. 18 attendees • Greco, B. AZ Co-Op Extension Service Strategic Planning Workshop requested by the University of Arizona. Flagstaff, AZ. September 11, 2013. 26 attendees. • Greco, B. Malapai-Borderlands Collaborative Workshop-Presentation. Requested by The Nature Conservancy in Tucson. Douglas, AZ. September 20-21, 2013. 40 attendees. <p>b) Field Trips</p> <ul style="list-style-type: none"> • Greco, B. Larson Ecosystem Restoration – Workshop/Field Trip. Overgaard, AZ. September 10, 2013 • Roccaforte, J.P. and E. Lauren-Bernstein. Field tour and ecological restoration discussion with Society of American Foresters (SAF) and Association of Mexican Professional Foresters (AMPF) at GPNA restoration site, Flagstaff, AZ. October 11, 2013. 80 participants. <p>c) Presentations and Information Requests</p> <ul style="list-style-type: none"> • Greco, B. Presentation to the WMS Monitoring Board. Springerville, AZ. September 17, 2013. 9 attendees • Greco, B. Presentation to the 4FRI Bridge Monitoring Working Group-Chairman. Springerville, AZ. September 25, 2013
<p>6.5) Educate the General Public a. Deliverable: 2 Newspaper articles</p>	In progress

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Project 6: Services to the Intermountain West	
Deliverable	Status
6.6) Examine and test new approaches to provide knowledge support and services. a. Examine, evaluate, and report on different continuing education and information delivery formats.	In progress

Project 7: Duty 5 under the ACT. Provide annual progress reports	
Deliverable	Status
7.1) Complete annual progress report on June 30, 2013 and June 30, 2014	✓ Complete through 9/30/13.