

2015 Annual Report

to the USDA Forest Service under Sponsor Award

#15-DG-11031600-073 for 2015 (NAU Projects 1002742-1002747) and

#16-DG-11031600-009 for 2016 (NAU Projects 1003026-1003031)



Submitted by:

W. W. Covington

Ecological Restoration Institute
Northern Arizona University

P. O. Box 15017 • Flagstaff • AZ • 86011
Tel 928-523-7854 • Fax 928-523-0296 • Email Tiffany.Woods@nau.edu

Summary

This report presents an integrated and coordinated series of actions for \$2.4 million awarded to the ERI in Fiscal Years 2015 and 2016 under CFDA 10.694, Southwest Forest Health and Wildfire Prevention.

The information provided herein reflects our annual progress as of 07/01/2016 and comprises the final report for 2015 deliverables under #15-DG-11031600-073 (NAU Projects 1002742-1002747). It also includes a progress report for deliverables received under 16-DG-11031600-009 (NAU Projects 1003026-1003031).

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 2015 and 2016

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FY15 Deliverables (Final) - #15-DG-11031600-073

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.	
<p>a) Report on technical assistance to: the multi-party monitoring board (MPMB); the Forest Service as EIS No.1 proceeds to implementation; and, support for the Rim Country EIS (second one million acres).</p>	<p>a) Technical Assistance:</p> <ul style="list-style-type: none"> i. Multi-Party Monitoring Board: <ul style="list-style-type: none"> • Esch, B. Co-chair for MPMB; lead group in first pilot of field plots; modified protocol to meet 4FRI questions; helped train TNC field staff. • Waltz, A. provided science support to MPMB for invasive species monitoring, fuels monitoring and plot design; assisted with contract development for remote-sensing assessment and plot stratification. • Waltz, A. developed and implemented with MPMB a “state of the science” workshop for the MSO with speakers from USFS R3, USFWS, RMRS and NAU researchers. 50 attendees. ii. Implementation of EIS No. 1: <ul style="list-style-type: none"> • Implementation of EIS No. 1 was just beginning in FY15. The ERI is providing technical assistance to this process in FY16. iii. Support for the Rim Country EIS: <ul style="list-style-type: none"> • Greco, B. Providing science support as a member (representing ERI) on the Rim Country Analysis Planning Work Group. Work group meetings are held twice monthly in the White Mountains area, AZ. Contributions include, meeting participation, presentations, data compilation and analysis, best-science support, document writing, etc. ONGOING. • Springer, J. Debra Crisp (Coconino NF botanist) has requested for information regarding sensitive plants within the 2nd 4FRI analysis area. September 15, 2015.

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<p>b) Report on activities completed as co-chair and assistance provided to create an efficient working relationship between the Natural Resources Working Group (NRWG) and the 4FRI Stakeholder Group.</p> <p>c) Report on IT support for the 4FRI Website and BASECAMP (an online collaborative work space) and administrative support including minutes and agendas.</p>	<ul style="list-style-type: none"> • Huffman, D., and A. Sánchez-Meador. Dry mixed-conifer reference conditions, restoration and science needs. Classroom presentation to the 4FRI Stakeholder Group. May 25, 2016. 43 attendees. • Huffman, D. and A. Sánchez-Meador. Dry mixed-conifer reference conditions, restoration and science needs. Field Trip for the 4FRI Stakeholder Group. June 8, 2016. 25 attendees. <p>b) Support for:</p> <p>i. Co-chair:</p> <ul style="list-style-type: none"> • Vosick D. An increasing number of volunteers has led to longer gaps between co-chair terms. ERI did not provide a co-chair during the reporting period. The ERI helped organize one training meeting with the new co-chairs. • Vosick, D. The ERI actively participated on the steering committee during the reporting period. The steering committee meets by phone once or twice monthly to set agendas and manage emerging issues. • Greco, B. ERI has participated in several meetings to facilitate communication between the Natural Resources Working Group (NRWG) and 4FRI. • Greco, B. Serves as ERI’s representative as a member of the Natural Resources Working Group (NRWG) at monthly meetings in the White Mountains area. Support includes presentations, field trips, science support and participation on work groups. ONGOING. <p>c) IT and Administrative Support:</p> <p>i. IT Support:</p> <ul style="list-style-type: none"> • Year-round updating and maintenance of the 4FRI website. <p>ii. Administrative Support:</p> <ul style="list-style-type: none"> • Agenda preparation, minutes, site scheduling and management for stakeholder group general meetings. Monthly.
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	<ul style="list-style-type: none"> • Management of BASECAMP an internal on-line communication tool. Ongoing. • Agenda preparation and minutes for steering committee calls. Steering committee calls generally occur on the 2nd and 3rd Tuesday of the month and last 1.5 hours.
<p>1.2) Assist in the planning, coordination and delivery of a 1.5 day workshop for 4FRI Stakeholders and the Forest Service.</p>	
<p>a) Deliver workshop.</p> <p>b) Publish white paper that: compiles lessons learned, recommendations for the second analysis area, and a discussion of why the NEPA and how the new objection process worked (editorial support appears in deliverable 6.4)</p>	<p>a) Workshop completed May 2015.</p> <p>i. ERI worked with Southwest Decision Resources, the 4FRI facilitator and the stakeholder group to design and conduct the workshop. ERI also provided logistical support.</p> <p>b) Esch, B., and D. Vosick. 2016. The Four Forest Restoration Initiative (4FRI): The Role of Collaboration in Achieving Outcomes. ERI White Paper—Issues in Forest Restoration. Ecological Restoration Institute, Northern Arizona University. 15p.</p>
<p>1.3) Provide scientific and technical support for CFLRP pilots and emerging projects.</p>	
<p>a) Report on activities to support the national CFLRP monitoring network</p> <p>i. Report on responses to information requests.</p> <p>ii. Co-produce (with NFF) a webinar describing the outcomes of the 5-Year Monitoring Plan</p> <p>b) Report on assistance to the National Forest Foundation and the Washington Office of the USFS to plan and deliver a national CFLRP conference. Discussions are underway for this conference. It is possible that the conference will actually occur in FY16.</p>	<p>a) Activities to support the national CFLRP monitoring network:</p> <p>i. Responses to information requests.</p> <ul style="list-style-type: none"> • Waltz, A. Initiated a special session for SW Assoc. for Fire Ecology, November 2016, with J. Briggs (USGS) to report on “landscape impacts of 6 years of collaborative restoration.” IN PROGRESS <p>ii. Outcomes of the 5-Year Monitoring Plan were included as a session in the Collaborative Restoration Workshop co-delivered with the National Forest Foundation (NFF) and reported in deliverable 1.3 b.</p> <p>b) Collaborative Restoration Workshop: Working Toward Resilient Landscapes and Communities. Co-produced with the National Forest Foundation. April 26-27. Denver, CO. 300 attendees.</p> <ul style="list-style-type: none"> • Waltz, Amy. Participate on steering committee for National Collaboration Workshop, August 2015 to May 2016. Coordinated with WO office staff, NFF, and

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	<p>partners to structure five (5) concurrent monitoring sessions.</p> <ul style="list-style-type: none"> • Vosick, D. Participated in the design and recruitment of speakers for an implementation learning session at the National Collaboration Workshop. • Waltz, A. Monitoring Session coordinator for National Collaboration Workshop on Adaptive Management, recruited speakers and moderated session. April 26, 2016. • Waltz, A. Presenter at Collaborative Restoration Workshop (see 1.3b). Denver, CO. April 26-27, 2016. <i>Presentation in Science Application, on 4FRI Monitoring Plan</i>
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Project 2: Information Analysis to Assist Evidence-Based Conservation	
Deliverable	Status
2.1) Literature or Systematic Review of restoration treatments to restore Ponderosa Pine Forests with shrub understory.	
<p>a) Completed review and draft manuscript or technical report.</p> <p>i. Presentation to appropriate staff from the Prescott, Tonto and Kaibab National Forests.</p>	<p>a) Huffman, D., J.D. Springer, J.E. Crouse. "Reference Conditions and Restoration of Transitional Ponderosa Pine Forests in the Southwest." Manuscript completed (Will be submitted for publication).</p> <p>i. Presentations:</p> <ul style="list-style-type: none"> • Huffman, D.W. Meeting with Prescott National Forest on restoration approaches and science needs for transitional ponderosa pine forests. Prescott, AZ. November 17, 2016. 8 participants. • Huffman, D.W. Meeting with Prescott National Forest on fuels treatments, reference conditions, and restoration principles. Prescott, AZ. April 22, 2016. 12 participants. • Sensibaugh, M., Greco, B. Presentation on "Restoration Strategies of Ecological Response Units" on the Payson and Pleasant Valley Ranger Districts, Tonto National Forest. Payson, AZ. February 9, 2016. 5 participants.

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Project 3: Ecological Monitoring and Evaluation for Adaptive Management	
Deliverable	Status
3.1) Continue development of long-term study in a mixed-conifer forest on the Mogollon Rim Ranger District of the Coconino National Forest (build from FY14).	
<p>a) Report on progress with:</p> <p style="margin-left: 20px;">i. Coconino National Forest to complete NEPA requirements.</p> <p style="margin-left: 20px;">ii. Coconino National Forest to develop treatment prescriptions.</p> <p style="margin-left: 20px;">iii. Coconino National Forest to train crews and implement treatment marking.</p>	<p>a) Report on progress.</p> <p style="margin-left: 20px;">i. Report on actions with the Coconino National Forest to complete NEPA requirements. LINK TO DOCUMENT</p> <ul style="list-style-type: none"> • Sensibaugh, M. Ongoing telephone calls, emails and data submissions to/from USFS Coconino NF personnel to design implementation activities and outcomes to complete Chapter 18 NEPA review, develop marking guidelines and implementation logistics for the mixed-conifer LEARN project. Mogollon Rim RD, Coconino NF. November 2015. <p style="margin-left: 20px;">ii. Report on assistance to Coconino National Forest to develop treatment prescriptions.</p> <ul style="list-style-type: none"> • Sensibaugh, M., Huffman, D. Meeting and presentation with Mogollon Rim RD personnel to determine marking guidelines or the mixed-conifer LEARN treatments. Coconino NF, June 22, 2015. 7 participants. • Sensibaugh, M. Conducted a conference call with USFS personnel on the Mogollon Rim RD, Coconino NF to finalize framework for marking prescriptions in MSO habitat on the mixed-conifer LEARN sites. September 23, 2015. 7 participants. <p style="margin-left: 20px;">iii. Report on Coconino National Forest to train crews and implement treatment marking.</p> <ul style="list-style-type: none"> • This has been delayed to accommodate University of Montana bird research. One more field season was requested (2016). Marking and training to be pushed to fall 2016. • Huffman, D., and B. Greco. December 4, 2015 conference call to discuss project timelines, outreach and project updates, and cooperation with other researchers working at field site.

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	<ul style="list-style-type: none"> Sensibaugh, M. January 26, 2016 email and phone correspondence with Mogollon Rim District to update status of project and schedule coordination meeting to validate 2016 work items Note, district received add capacity from 4FRI silviculturist to aid in prescription development, July–Aug. 2016. LINK TO DOCUMENT
3.2) Wildlife responses to restoration and hazardous fuels reduction treatments.	
<p>a) Report on pretreatment conditions and progress of the Flagstaff Watershed Protection Project (FWPP) wildlife monitoring (in FY15 work will be at the Mormon Mountain site on the Coconino National Forest)</p>	<ul style="list-style-type: none"> W.W. Chancellor, J.E. Crouse, D.W. Huffman, M.T. Stoddard, J.P. Roccaforte. Mexican Spotted Owl Habitat Monitoring Flagstaff Watershed Protection Project, Mormon Mountain Area. Report (link) describes pretreatment data collection and summaries of analysis for Mexican Spotted Owl monitoring sites in Mormon Mountain area of the Flagstaff Watershed Protection Project.
3.3) Examine the efficacy of wildfires managed for resource benefit to achieve desired conditions	
<p>a) Present findings at a professional conference, or a workshop for resource managers, or a stakeholder event.</p> <p>i. Initiate study – identify study fires, develop maps, develop study methodology, and seek field work permits.</p> <p>ii. Collect field data.</p> <p>iii. Analyze spatial and field-based data.</p>	<p>a) Presented findings of complete study (field methods, results of analysis, management implications) to Coconino National Forest, Grand Canyon National Park and Kaibab National Forest</p> <ul style="list-style-type: none"> Huffman, D.W. Efficacy of resource objective wildfires for restoration ponderosa pine ecosystems of northern Arizona. Presentation to Coconino National Forest, Mogollon Rim Ranger District staff. March 8, 2016. 14 attendees (including District Ranger). Huffman, D.W. Efficacy of resource objective wildfires for restoration ponderosa pine ecosystems of northern Arizona. Presentation to Kaibab National Forest (Tusayan Ranger District) and Grand Canyon National Park staff. March 31, 2016. 13 attendees. <p>i. Initiated Study – Complete</p> <p>ii. Collected field data – Complete</p> <p>iii. Analyzed spatial and field-based data – Complete</p>

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<p>3.4) Test high-resolution spatial data for developing landscape reference conditions and analyzing forest management and disturbance dynamics. Include an analysis of cost effectiveness as compared to conventional approaches for determining landscape level reference conditions.</p>	
<p>a) Final Report and presentation at a national conference.</p> <p style="margin-left: 20px;">i. Develop data layers. Completed</p> <p style="margin-left: 20px;">ii. Analyses performed at two sites along the Mogollon Rim (Black Mesa and LEARN Blocks 2-6). Completed</p> <p style="margin-left: 20px;">iii. Cost effectiveness analysis performed at two sites. Completed and included in the report</p>	<ul style="list-style-type: none"> • Sánchez Meador, A. “Evaluation of Airborne Light Detection and Ranging (LiDAR) for Quantifying Landscape Reference Conditions. Link to Document • Fine-scale forest patterns and landscape ecology of Powell Plateau, Grand Canyon National Park. Sánchez Meador, A.J., T.Z. Wasserman, M.T. Stoddard, and J.P. Roccaforte. Oral presentation at the 13th Biennial Conference of Science and Management on the Colorado Plateau, Flagstaff, AZ. Thursday, October 8, 2015. ~ 35 attendees.
<p>3.5) Identify the appropriate metrics for monitoring landscape-scale desired conditions in fire-adapted forests, including, but not limited to, forest cover and opening proportions, spatial configuration, and group size. Assess how each metric performs at different scales. This work will be coordinated with Jamie Barbour and the Broad-scale Monitoring Project in Regions 2 and 3.</p>	
<p>a) Final report or manuscript, presentation to 4FRI Stakeholder Group, presentation to CFLRP Peer Learning Group.</p>	<p>a) Final report completed and presentation to 4FRI stakeholders.</p> <ul style="list-style-type: none"> • Wasserman, T., A. Sánchez Meador, A. Waltz. “Identifying the appropriate metrics for monitoring landscape-scale desired conditions in fire-adapted forests.” June 2016 Link to Report. • Waltz, A. Presented results of “Identifying the appropriate metrics for monitoring landscape-scale desired conditions in fire-adapted forests” to the 4FRI Multi-Party Monitoring Board. Flagstaff, AZ. June, 2016. 10 attendees.
<p>3.6) Re-measurement of study units in the San Juan Fire to determine the outcomes of different treatment approaches implemented prior to this mixed-severity fire and include in this analysis the survivability of trees.</p>	
<p>a) Presentation to land managers and Fact Sheet</p>	<p>a) Roccaforte, J.P. “Evaluating treatment effectiveness following the 2014 San Juan Fire, White Mountains, Arizona.” Apache-Sitgreaves National Forests Staff Meeting, Springerville, AZ. May 25, 2016. 30 participants. Completed</p> <ul style="list-style-type: none"> ❖ See Fact Sheet #5 in deliverable 6.4 that provided a summary of this analysis.

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Project 4: Understanding and Solving the Economic, Social and Political Issues and Opportunities of Ecological Restoration	
Deliverable	Status
<p>4.1) Actions to increase understanding of innovative funding approaches for achieving forest restoration and wildfire risk reduction. These alternative funding approaches include the Northern Arizona Forest Fund (SRP and NFF) and emerging efforts to support the Coronado National Forest by creating an “opt-in” program for resorts in Southeastern Arizona.</p>	
<p>a) Report on actions that support the Northern Arizona Forest Fund and creation of an “opt-in” resort fee on the Coronado National Forest.</p>	<p>a) Reports:</p> <ol style="list-style-type: none"> 1. Coronado NF restoration. The ERI invested heavily in FY15 to create the Sky Island Restoration Partnership Fund (SIRP). As a part of that deliverable we conducted interviews with a broad spectrum of interests to test the interest in creating an opt-in fund or other mechanism to create a funding stream dedicated to restoration of the Sky Islands. Our investment stopped when the Coronado National Forest funded the Sky Island Alliance to create Coronado Outdoors. Progress on Coronado Outdoors has been slow. But in the meantime (June 2016) Tucson Electric Power has committed to the creation of a Southern Arizona Forest Fund in cooperation with the National Forest Foundation. The groundwork for this was laid by our FY15 efforts. 2. Northern Arizona Forest Fund and the Salt River Project. The ERI continues to partner with SRP to promote understanding of the link between forest restoration and watershed health. These education efforts also contribute the SRP/NFF effort to raise awareness for contributions to the Northern Arizona Forest Fund. Specific activities include: <ol style="list-style-type: none"> a. Vosick, D. Developed and moderated a panel titled, “The Challenges of Biomass” for the “Finding Solutions: Healthy Forests, Vibrant Economy.” Salt River Project sponsored conference in Scottsdale on October 7 and 8, 2015. 200 participants.

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4.2) Continue to facilitate work force training development.	
<p>Participants include industry (Campbell Global, Good Earth Power and New Pac Fiber), Community Colleges (Northland Pioneer College and Coconino Community College), Coconino County Employment Services, Northern Arizona University-School of Forestry, The Nature Conservancy, and the Arizona Department of Forestry. Work force training includes workforce readiness, retention, safety and harvest and manufacturing skills development.</p> <p>a) Report on actions and outcomes.</p>	<p>a) The ERI facilitated a dialogue in FY15 among various interest groups in order to identify workforce training gaps. Among the various gaps that exist the group agreed to focus on training to increase the number of qualified commercial driver's license holders in northern Arizona. In FY16 the ERI facilitated data exchange to justify the creation of a CDL program at the Coconino Community College and explored opportunities to locate a program at Camp Navajo. Unfortunately, CCC elected not to move forward at this time and the Camp Navajo option did not work out. The Community Colleges (Northland Pioneer College was another potential program site) still lack the resources and enrollment assurances that are necessary to create special woods worker or CDL training programs.</p> <p>The ERI has since turned attention to the issue of biomass disposal. This dialogue grew from the interest generated during the biomass panel organized by the ERI at the SRP conference in October. On February 10 and 11, 2016 the ERI in conjunction with the State Forester held a small workshop of experts and key sector leaders to reassess current efforts to dispose of biomass. The requirement to remove biomass as a part of the Good Earth Power contract and other thinning contracts is problematic. It is prohibitively expensive to haul and there are few processing opportunities. The group developed several important strategies to address biomass management in the woods and also utilization. A core realization is that biomass is a problem not a commodity.</p> <p>The ERI will continue to facilitate and participate in strategies to address the biomass challenge in FY16.</p> <p>LINK TO MINUTES AND OUTCOMES</p>

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Project 5: State, Tribal and Private Forestry – The All-Lands Approach	
Deliverable	Status
5.1) Assist the Arizona Prescribed Fire Council	
<p>The mission and purpose of the Arizona Prescribed Fire Council is to serve as a forum for all prescribed fire practitioners (government, academic institutes, tribes, coalitions and individuals) in order to work collectively to promote, protect, conserve, and expand the responsible use of prescribed fire in Arizona’s fire-dependent ecosystems.</p> <p>a) Report on technical support provided to the council and website services.</p>	<ul style="list-style-type: none"> • Greco, B. Provided facilitation services and presentation on “Prescribed Burning in Southwestern Ponderosa Pine Frequent-Fire Forests” at the quarterly meeting of the Arizona Prescribed Fire Council. Payson, AZ. June 26, 2015. 32 participants. • Greco, B. Provided facilitation and support to the leadership of the AZPFC by developing work plans and conducting conference calls as requested by the Chairman. Several actions monthly – ONGOING. • Greco, B. Delivered a presentation on “Prescribed Burning Strategies in Ponderosa Pine Frequent-Fire Ecosystems” to AZPFC, Quarterly Meeting. Flagstaff, AZ. October 13, 2015. 22 participants. • Norton, H. Technical support for the Arizona Prescribed Fire Council website.
5.2) In collaboration with the Arizona State Forester and in consultation with the USFS Deputy Chief for State and Private Forestry, revise the Arizona Statewide Strategy to comport with the National Cohesive Strategy.	
<p>a) Report on actions toward revising strategy. The ERI will seek leveraged funding to complement this action.</p>	<ul style="list-style-type: none"> • Vosick, D. The ERI participated (at the invitation of the state forester) in the kick-off of the 2015 Arizona Forest Strategy and Assessment re-write. June 16, 2015. • Sensibaugh, M., Greco, B., Vosick, D. Data submission to update the Arizona Forest Resource Strategy and Assessment to AZ Forestry Dept. Phoenix, AZ. August 21, 2015. • Covington, W., Greco, B., Vosick, D. Participated in the Arizona Landscape Restoration Partnership meeting with AZ State Forestry, USDA FS R3, USDA Rocky Mountain Research and contractors to advance the Partnership and provide support to the Arizona Statewide Strategy. Phoenix, AZ. January 25-26, 2016. 20 participants. • Strategy rewrite was postponed in February.
5.3) Consult with the tribes to assess how assistance can be provided to them in the face of limited financial resources. Priority will be given to work with tribes adjacent to the 4FRI landscape.	

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<p>a) Report on options to help serve tribes. Particular emphasis will be on tribes adjacent to the 4FRI landscape.</p>	<ul style="list-style-type: none"> • Greco, B., Meeting and Presentation to Hopi tribal forester and staff– “Plan Development Direction for Forest Management Planning.” Flagstaff, AZ. August 5, 2015. 3 participants. • Greco, B. Meeting with Hopi Tribal Forester to identify Best Available Science Information (BASI) to inform the Hopi Forest Resource Plan. Flagstaff, AZ November 11, 2015. 2 participants. • Greco, B. Conference call with Bureau of Indian Affairs and Navajo Tribal forestry staff to explore options of technical support or providing Best Available Science Information (BASI) to their forest resource planning process. Flagstaff, AZ. November 23, 2015. 5 participants. • Greco, B. Email inquiry and telephone follow-up with White Mountain Apache Tribal Foresters regarding ERI Best Science support to BIA Timber Resource Management Plan development and potential interest in 4FRI planning and implementation collaboration. No further follow-up action identified this FY. White River, AZ. February 2016. Various contacts.
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Project 6: Services to the Intermountain West	
Deliverable	Status
6.1) Provide support to federal land managers with treatment planning and implementation.	
<p>a) Report on actions to support project assessments, data collection, treatment design, and use of best available science by federal land managers to achieve desired conditions and outcomes.</p> <p>i. A combination of 10 total services based on previous and anticipated demand that may include: workshops, technical assistance, science support, field trips, and presentations.</p>	<p>i. Combination of 10 total services</p> <ol style="list-style-type: none"> 1. Greco, B. Provided monthly best available science information support as ERI’s lead to the Arizona Strip District, Parashant National Monument, BLM/NPS Uinkaret Mountains Restoration Project planning process (ID Team conference calls, Public Meetings, science support, etc.). A Record of Decision is projected for the summer of 2017. ONGOING. <i>Technical Assistance</i> 2. Greco, B., Sensibaugh, M. Conducted field trip and training on historical reference condition assessments, for USFS personnel on the A-S NF, West Escudilla Project area. May12-14, 2015. 11 participants. <i>Field Trip</i> 3. Greco, B., Sensibaugh, M. Presentation to the 4FRI Planning Team on “Summary Results of the Reference Condition and Fire Regime Rapid Assessment – Tonto NF.” At the Coconino NF

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	<p>SO, Flagstaff, AZ. May 5, 2015. 7 participants. <i>Presentation</i></p> <ol style="list-style-type: none">4. Greco, B. Attendance/participation at the USFS Functional Assistance Review and presentation to the USFS Integrated Resource Restoration pilot program, at the request of the USFS Washington Office, Springerville, AZ. July 7, 2015. 16 participants. <i>Presentation</i>5. Greco, B., Huffman, D. Meeting and presentation on 4FRI treatment strategies on the restoration research plots, Flagstaff RD, Coconino NF. July 13, 2015. 6 participants. <i>Presentation</i>6. Greco, B., Sensibaugh, M. Conducted a workshop and field trip for A-S NF personnel to review historic reference condition plots on woodland and ponderosa pine sites on the West Escudilla Restoration Project. Alpine, AZ. August 3, 2015. 15 participants. <i>Workshop</i>7. Greco, B., Sensibaugh, M. Fieldtrip to evaluate and age historic blazing and carvings on old growth ponderosa pine trees. The adjacent pre-settlement vegetative structure was also evaluated. Tusas-San Antonio Restoration Project area (CFRP), Tres Piedras Rd, Carson NF. September 1, 2015. 5 participants. <i>Field Trip</i>8. Sensibaugh, M., Greco, B. Provided layout and design of a ponderosa pine restoration demonstration unit on the Tres Piedras Ranger District, Carson NF. September 2, 2015. <i>Technical Assistance</i>9. Greco, B., Sensibaugh, M. Site visit to the Escudilla East Restoration Project, Quemado RD, Apache NF, to evaluate needs to collect historic reference condition data for project support. September 3, 2015. 4 participants. <i>Technical Assistance</i>10. Greco, B. Provided information (request) to the Bitterroot NF, R1 regarding science findings with frequent-fire regimes. Flagstaff, AZ. September 11, 2015. <i>Technical Assistance</i>11. Greco, B., Participated in an interview as part of the assessment of the 2012 Planning Rule on the Forest Plan Revision process, by the Federal Advisory Committee for the 2012 Planning Rule. Flagstaff, AZ September 15, 2015. 8 participants. <i>Technical Assistance</i>
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<p>ii. Three (3) rapid assessments (RAPs) are presently planned to support landscape restoration projects at the forest level. The RAPs are site-based analyses of historic and current conditions designed to inform Purpose and Need and restoration treatment development.</p> <p>1. Apache-Sitgreaves NF: Escudilla East Restoration Project (RAP) report.</p>	<p>12. Greco, B., Participated on a conference call (interview and data request) with the USFS National Federal Advisory Committee regarding ERI participation in the Forest Plan Revision process. Flagstaff, AZ. September 17, 2015. 7 participants. <i>Technical Assistance</i></p> <p>13. Greco, B., Sensibaugh, M., Provided response to USFS personnel, Apache-Sitgreaves NF regarding reference conditions and science-support for project planning. Springerville, AZ. December 9, 2015. <i>Technical Assistance</i></p> <p>14. Greco, B., Sensibaugh, M. Conference call with Cody Hutchinson, USFS A-S NF Ecosystem Management Staff to discuss ERI BASI support to the Black River Forest Restoration Project. Flagstaff, AZ. February 2, 2016. 3 participants. <i>Technical Assistance</i></p> <p>15. Greco, B., Sensibaugh, M. Meeting and field trip with Payson RD to present information on reference conditions associated with R3 Ecological Response Units, and review of the Laramie and Angel Rim restoration projects. Payson, AZ. February 9-10, 2016. 4 participants. <i>Technical Assistance</i></p> <p>16. Mitchell, K., Dubay, T., Greco, B. Facilitated the development, financial structure and editing support for the final White Mountain Stewardship Contract report. Project due for completion in summer of 2016. <i>Technical Assistance</i></p> <p>17. Greco, B., Provided summary of science synthesis regarding ponderosa pine for the USFS- Presentation to A-S, Coconino and Tonto NF Leadership and several 4FRI stakeholders. Springerville, AZ. January 14, 2016. 9 participants. <i>Technical Assistance</i></p> <p>ii. Three (3) rapid assessments (RAPs)</p> <ol style="list-style-type: none"> 1. Apache-Sitgreaves NF: Escudilla East Restoration Project (RAP) LINK TO DOCUMENT 2. Prescott NF: Restoration Alternatives in MSO PACs (RAP) report LINK TO DOCUMENT 3. Carson NF: Rio Tusas-Lower San Antonio Landscape Restoration Project – Silviculture Report – Including RAP data and report. LINK TO DOCUMENT
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<p>2. Prescott NF: Restoration Alternatives in MSO PACs (RAP) report.</p> <p>3. Carson NF: Tusas-San Antonio Restoration Project (RAP) report.</p> <p>iii. We are finalizing establishment of a restoration treatment demonstration area on the Coronado National Forest.</p>	<p>4. Greco, B., Sensibaugh, M., Installed a ponderosa pine restoration demonstration site on the Tres Piedras Ranger District, Carson NF, August 2015. LINK TO DOCUMENT</p> <p>iii. Establishment of a restoration treatment demonstration area on the Coronado National Forest.</p> <ul style="list-style-type: none"> • Sensibaugh, M., Greco, B. Installed a mixed-conifer restoration demonstration site on the Pineleno Ecosystem Restoration Project, Safford Ranger District, Coronado NF. August 2015. (This demo site was initiated in August 2015 but could not be completed due to red squirrel timing restrictions, limiting access the site. This demonstration unit and photo points will be completed in FY2016.)
<p>6.2) Assist with forest planning and implementation by recommending best available science and program support.</p>	
<p>Science and timing of support are variable for each national forest based on its individual planning schedule.</p> <p>a) Report on actions to support forest plan revisions.</p> <p>i. Tonto National Forest:</p> <ol style="list-style-type: none"> 1. Report on development of public participation process. 2. Report on data collection for assessment of reference conditions on the Payson and Pleasant Valley ranger districts. 3. Report on science and knowledge synthesis and translation and transfer of best available science to support assessment of current conditions and need for change. 4. Report on support, as requested, with public meetings, presentations, field trips and technical support in Forestry, Fuels, Watershed, and Fire program areas. 	<p>i. Tonto National Forest</p> <p>The ERI has been actively involved with various stages for the Tonto National Forest Plan Revision process. At the request of the forest line officers and planning staff, ERI participated in the design of the public participation process, provided Best Available Science Information (BASI) support, made presentations at the public meetings regarding historic vegetative conditions and restoration strategies, conducted an assessment of the vegetative Ecological Response Units (ERU) and provide technical science translation and assistance to the process. Support is ongoing, as requested.</p> <ul style="list-style-type: none"> • Greco, B., Sensibaugh, M. Presentation to Tonto NF Leadership and Forest Land Management Plan Revision Team with video conference participation by the R3 Regional Office. “Summary Results of the Reference Condition and Fire Regime Rapid Assessment – Tonto NF.” Phoenix, AZ. May 4, 2015, 2015. 13 participants. • Greco, B. Meeting with Tonto NF planning staff to update Best Available Science Information (BASI) support from ERI in FLMP Revision process. Tonto NF

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<p>ii. Carson National Forest:</p> <ol style="list-style-type: none"> 1. Report on data collection to assess applicability of reference condition synthesis for assessment of current conditions and need for change. 2. Report on knowledge gaps with the forest to determine needs to provide science synthesis, translation, or transfer. <p>iii. Santa Fe, Cibola, Prescott, Lincoln National Forests:</p> <ol style="list-style-type: none"> 1. Report on outreach efforts to determine opportunities for ERI to provide best available science or other support to plan revision. 	<p>Headquarters, Phoenix, AZ. January, 26, 2016. 4 participants.</p> <ul style="list-style-type: none"> • Greco, B., Sensibaugh, M., Meeting and field trip with Payson RD to present information on reference conditions associated with R-3 Ecological Response Units on the conifer forest types. Payson, AZ. February 9, 2016. 5 participants. <p>ii. Carson National Forest</p> <p>The ERI made contact with Carson NF planning staff during various field visits and rapid assessment (RAP) work on the Tres Piedras RD, to determine if additional BASI or technical support was needed to support FLMP revision. The forest staff determined that the RAP was sufficient and no further support from ERI was requested.</p> <ul style="list-style-type: none"> • Greco, B., Conducted field trip and training on historical reference condition assessments, for USFS personnel and local partner organizations, on the Carson NF and NMFWRP personnel, Tres Piedras, NM., May 28, 2015, 16 participants. • Sensibaugh, M., Greco, B. Conducted field trip focusing on historical components of the Tusas-San Antonio Restoration Project for USFS personnel. Tres Piedras, NM. August 4, 2015. 7 participants. <p>iii. Santa Fe, Cibola, Prescott, Lincoln National Forests:</p> <ul style="list-style-type: none"> • Greco, B., Conducted several telephone calls to forest planning staff and selected line officers on the Cibola, Prescott and Lincoln NFs regarding needed services or additional opportunities to provide BASI in support of FLMP Revision processes. No new BASI needs were identified. August–December, 2015. • Sensibaugh, M., Ongoing responses to data requests from the USFS, Prescott NF. November 2015. <i>Technical assistance</i>
<p>6.3) Provide website support for ERI, SWERI, 4FRI (see Project 5 for support to the Arizona Prescribed Fire Council).</p>	

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<p>Science and timing of support are variable for each national forest based on its individual planning schedule.</p> <p>a) Report on technical support for ERI, SWERI, and 4FRI websites.</p>	<p>a) Reports on technical support for the ERI, SWERI, and 4FRI websites are included in this report. LINK TO DOCUMENT</p>
<p>6.4) Translate biophysical and social-political-economic information for affected entities.</p>	
<p>a) Editorial support for a total of 3 white papers and or working papers</p> <ol style="list-style-type: none"> i. White paper compiling lessons learned from 4FRI Retreat on May 27, 28. ii. Working paper on climate change and fire in the Southwest. iii. Working paper on carbon cycling in southwestern forests. <p>b) Eight (8) fact sheets that translate and summarize scientific papers and journal articles.</p>	<p>a) Editorial Support</p> <ol style="list-style-type: none"> i. Esch, B., and D. Vosick. 2016. The Four Forest Restoration Initiative (4FRI): The Role of Collaboration in Achieving Outcomes. ERI White Paper—Issues in Forest Restoration. Ecological Restoration Institute, Northern Arizona University. 15p. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2016025.dir/doc.pdf ii. Kent, L.Y. 2015. Climate Change and Fire in the Southwest. ERI Working Paper No. 34. Ecological Restoration Institute and Southwest Fire Science Consortium, Northern Arizona University: Flagstaff, AZ. 6 p. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2015016.dir/doc.pdf iii. Working Paper #35: Carbon Cycling in Southwestern Forests: Reservoirs, Fluxes, and the Effects of Fire and Management. Swetnam, T. and D. Falk. 2015. http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2015025.dir/doc.pdf <p>b) 8 Fact Sheets:</p> <ol style="list-style-type: none"> 1. Swetnam, T. and D.A. Falk. 2015. Carbon Cycling in Southwestern Forests: Reservoirs, Fluxes, and the Effects of Fire and Management. ERI Fact Sheets. Ecological Restoration Institute and Southwest Fire Science Consortium, Northern Arizona University. 2 p. (ERI# 204) http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2015029.dir/doc.pdf 2. Taylor, M.H., and A.J. Sánchez Meador. The Economics of Ecological Restoration and Hazardous Fuel Reduction Treatments in Ponderosa Pine Forest Ecosystem. ERI Fact Sheets. Ecological Restoration Institute, Northern Arizona University. 2 p. (ERI# 208) http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2016004.dir/doc.pdf 3. Strahan, R.T. 2016. Increasing Evidence That Thinning and Burning Treatments Help Restore

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	<p>Understory Plant Communities in Ponderosa Pine Forests. ERI Fact Sheets. Ecological Restoration Institute, Northern Arizona University. 2 p. (ERI# 205) http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2016003.dir/doc.pdf</p> <p>4. Stoddard, M.T. 2016. Five-Year Post-Restoration Conditions and Simulated Climate Change Trajectories in a Warm/Dry Mixed-Conifer Forest, Southwestern Colorado, USA. ERI Fact Sheets. Ecological Restoration Institute, Northern Arizona University. 2 p. (ERI# 206) http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2016002.dir/doc.pdf</p> <p>5. Roccaforte, J.P. 2016. Fact Sheet: Evaluating treatment effectiveness following the 2014 San Juan Fire, White Mountains, Arizona. ERI Fact Sheets. Ecological Restoration Institute, Northern Arizona University. 3 p. (ERI# 209) http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2016010.dir/doc.pdf</p> <p>6. Huffman, D.W. 2015. Long-term Herbivore Exclusion for Recovery of Buckbrush Populations During Restoration of Ponderosa Pine Forests in Northern Arizona. ERI Fact Sheets. Ecological Restoration Institute, Northern Arizona University. 2 p. (ERI# 207) http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2015031.dir/doc.pdf</p> <p>7. Sánchez Meador, A.J. 2016. Ecological restoration treatments improve soil function in frequent-fire forests of the western United States: A systematic review.” ERI Fact Sheets. Ecological Restoration Institute, Northern Arizona University. 2 p. (ERI# 233). http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2017007.dir/doc.pdf</p> <p>8. Sánchez Meador, A.J. 2016. Reference Conditions and Historical Changes in an Unharvested Ponderosa Pine Stand on Sedimentary Soil. ERI Fact Sheets. Ecological Restoration Institute, Northern Arizona University. 2 p. (ERI# 210)</p>
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	http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2016009.dir/doc.pdf
<p>6.5) Initiate and facilitate knowledge services and science support for non-federal entities through field trips, filling information requests, and presentations for affected entities. These numbers may vary based on demand.</p>	
<p>Report on actions to educate and support affected entities. Provide a minimum of 12 services that may include field trips, presentations, and information requests.</p>	<ol style="list-style-type: none"> 1. T. Dubay. June 25, 2015. Presentation to Centennial Forest campers on communicating effective PSAs titled “A Fierce Green Fire: Crafting an Effective and Persuasive Message for Environmental Conservation Public Service Announcements.” 15 campers in attendance. <i>Presentation</i> 2. Sensibaugh, M. Presentation on Restoration and Fire Regimes in Southwestern Frequent-fire Forests, Pine Forest School, Flagstaff, AZ. May 7, 2015, 28 participants. <i>Presentation</i> 3. Vosick, D. U of A Teacher Education. Forest Restoration, Fire and the 4FRI. 40 Participants June 10, 2015. <i>Presentation</i> 4. Vosick, D. Good Earth Power. Helped distribute job announcements for mill workers. June 12, 2015. <i>Assistance</i> 5. Vosick, D. Media request for fire and beetle information. KTAR. Referred to Drs. Thode and Hofstetter. June 19, 2015. <i>Information Request</i> 6. Vosick, D. Media request about firefighting from KJZZ. Referred to State Forester Whitney, Scott Russell and Brie Magee. June 19, 2015. <i>Assistance</i> 7. Greco, B. Data request from Candice Kelman, Senior Sustainability Scholar, Arizona State University, regarding Ecological Restoration Strategies, NAU, Flagstaff, AZ. June 29, 2015. <i>Information Request</i> 8. Greco, B. At the request of industry attended a meeting with Industry representatives regarding Bridge the Gap Restoration Projects on the A-S NF. Show Low, AZ. July 20, 2015. 5 participants. <i>Information Request</i> 9. Sensibaugh, M., Vosick, D. Telephone interview with Southwest Decision Resources regarding Collaboration in USFS Planning Projects (C.C. Cragin Restoration Project, Coconino NF), Flagstaff, AZ. August 3, 2015. <i>Information Request</i>

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	<ol style="list-style-type: none">10. Dubay, T., and D. Vosick. Request from Arizona Forward and Eric Marcus to review a forest health primer intended for the business community. August 25, 2015. <i>Information Request</i>11. Dubay, T. Request from UofA Professor Pablo A. Garcia-Chevesich, PhD, for permission to use photos from website on post-fire seeding. August 27, 2015. <i>Information Request</i>12. Sanchez-Meador, A. Request by Steve Horner of Campbell Global for help finding an article. Article sent. September 9, 2015. <i>Information Request</i>13. Greco, B., Responded to a data request regarding Timber Harvest Volume Yields on the A-S (Historical data) from Dale Turner, TNC. Tucson, AZ. September 18, 2015. <i>Information Request</i>14. Vosick, D. Introduction to Forest Health and Fire. 2015 Conference of the League of Arizona Cities and Towns. Tucson, Arizona. August 19, 2015. 50 attendees. <i>Presentation</i>15. Covington, W.W., Greco, B., Vosick, D. Participation as observers at the request of USFS at the FWPP NEPA Objection Resolution meeting led by Regional Forester Cal Joyner, Coconino NF S.O. Flagstaff, AZ. September 22, 2015. 35 participants. <i>Information Request</i>16. Vosick, D. Smart Science for Smart Solutions. A presentation on the science of restoration and its relationship to water. Flagstaff, Arizona. September 24, 2015. 35 members of the Salt River Project Board and Council. <i>Field Trip</i>17. Covington, W.W. Field trip for Salt River Project to Gus Pearson Natural Area. Flagstaff, Arizona. September 25, 2016. <i>Field Trip</i>18. Dubay, T. Request for Info on 4FRI NEPA process. Samantha Skolnick, Emory University, Turner Environmental Law Clinic. October 8, 2015. <i>Information Request</i>19. Vosick, D. Presented (using VTC link-up) lessons learned by the 4FRI to members of the Tongass National Forest Advisory Committee who are transitioning from a FACA group to a collaborative group. October 21, 2015. 10 participants. <i>Information Request</i>
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20. Greco, B. Presentation to the Natural Resources Working Group, “Economic Growth Indicators of the White Mountain Stewardship Contract; Findings from Dr. Yeon-Su Kim’s Economic Analysis. Show Low, AZ. October 20, 2015. 28 participants. *Presentation*
21. Dubay, T. Media request for position on American Forest Fund report by KJZZ Will Stone. Analyzed report no one to expertise to comment. October 21, 2015. *Information Request*
22. Dubay, T. Request by Emery Cowan at the Arizona Daily Sun. Information about salvage logging and needles turning brown. September 30, 2015. *Information Request*
23. Waltz, A. Call with Karen DiBari at National Forest Foundation (NFF). Respond to NFF request for feedback on national collaborative network process. October 2, 2015. *Information Request*
24. Vosick, D., and A. Sanchez-Meador. Request by Ann DeMarco of Campbell Global for soils information. October 14, 2015. *Information Request*
25. Vosick, D. Request to review and provide feedback on a proposed power point on forest health developed by Arizona Forward. October 26, 2015. *Information Request*
26. Greco, B., Participated in a meeting held by Northern Arizona Wood Products Association (NAWPA) to provide input on Bridge the Gap Projects on the A-S NF on which ERI has conducted RAPs. Show Low, AZ. October 28, 2015. 9 participants. *Information Request*
27. Greco, B., Interviewed by NAU School of Journalism regarding “Restoration of SW Ponderosa pine Forests in Northern Arizona, for Educational Video production. Flagstaff, AZ. November 3, 2015. 3 participants (developed for Regional TV Audience). *Information Request*
28. Dubay, T. Media request by AZ Daily Sun for information on UAV. Referred to Dr. Sanchez-Meador. November 5, 2015. *Information Request*
29. Vosick, D. Information request from Senator Flake’s office regarding the cost of soil erosion associated with roads. December 1, 2015. *Information Request*

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	<p>30. Sensibaugh, M., Participated on the Silvicultural Prescription Review Team for NAU School of Forestry seniors, in Silvicultural Prescription presentations. Centennial Forest, NAU. Flagstaff, AZ. December 7, 2015. 26 participants. <i>Information Request</i></p> <p>31. Dubay, T. Publication request from the Arboretum at Flagstaff. January 26, 2016. <i>Information Request</i></p> <p>32. Waltz, A. Meeting with Randy Swaty regarding Data request/ LANDFIRE 2016 SW model review and contact list development. February 5, 2016. <i>Information Request</i></p> <p>33. Greco, B., Chancellor, W. Meeting with Coconino county Parks & Recreation Department regarding establishing a Ponderosa Pine Restoration Demonstration treatment on 223 acres at Ft. Tuthill Park, Flagstaff, AZ. February 23, 2016. 6 participants. <i>Information Request</i></p> <p>34. Vosick, D. Request for information on acres treated by the WMSC. March 1, 2016. <i>Information Request</i></p> <p>35. Vosick, D. Interview for Arizona Game and Fish “Wildlife Views” Program on PBS. Gus Pearson. February 23, 2016. <i>Interview</i></p> <p>36. Dubay, T. Request by the Flagstaff Watershed Protection Project for articles to be included in the City and Coconino County outreach publications. April 5, 2016. <i>Information Request</i></p> <p>37. Dubay, T. Publication Requests from City of Flagstaff for various Earth Day Activities. April 14, 2016. <i>Information Request</i></p> <p>38. Vosick, D., and Wally Covington. Assistance requested by Camp Navajo/Arizona National Guard to review a biomass feasibility grant application. April 21, 2016. <i>Information Request</i></p> <p>39. Vosick, D. Request for content and editorial assistance for a video produced by the Salt River Project for PBS regarding water and forests. April 28, 2016. <i>Information Request</i></p>
<p>6.6) Use media to educate the general public.</p>	
<p>a) Two (2) newspaper articles in response to fire events to education the general public about the need for forest restoration to restore frequent fire forests.</p>	<p>1. Worland, J. <i>Time Magazine</i>, May 6, 2016. “Why We Haven’t Been Able to Stop Wildfires.” http://time.com/4317938/fort-mcmurray-wildfire-prevention/</p>

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	<p>2. Bernier, A. NPR affiliate KJZZ, Phoenix, AZ. September 2015. “The Science Behind 4FRI: Forest Restoration in Arizona.” http://kjzz.org/content/190196/science-behind-4fri-forest-restoration-arizona</p> <p>3. Cowan, E. <i>Arizona Daily Sun</i>. “Forest Managers embrace the benefits of fire.” September 26, 2015. http://azdailysun.com/news/local/forest-managers-embrace-the-benefits-of-fire/article_da951195-bfc5-59cd-adb7-c211f43fe27f.html</p>
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Project 7: Duty 5 under the ACT. Provide annual progress reports	
Deliverable	Status
a) Complete annual progress report on June, 30, 2015	a) Completed June 30, 2015

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FY16 Deliverables (In Progress) - #16-DG-11031600-009

<i>Project 1: Science Support for Collaborative Restoration and Conservation from the Local to the Landscape Scale</i>	
Deliverable	Status
1.1) Provide support for the Four Forest Restoration Initiative (4FRI), a Collaborative Forest Landscape Restoration Act project.	
a) <u>Deliverable</u> : Report on technical assistance to the multi-party monitoring board and the Forest Service as EIS#1 proceeds to implementation; and support for EIS#2 analysis. b) <u>Deliverable</u> : Report on leadership activities and work group participation c) <u>Deliverable</u> : Report on IT support for the 4FRI website and BASECAMP (an online collaborative work space) and administrative support including minutes and agendas.	All deliverables are in progress.
1.2) Provide scientific and technical support and follow up from the April 2016 National Restoration Workshop.	
a) Report on follow up and actions in response to the April 2016 National Restoration Workshop. b) White paper describing lessons learned from a learning track (utilization or planning) and capturing science needs from stakeholders and agency partners, based on the April 2016 National Restoration Workshop.	All deliverables are in progress.

<i>Project 2: Information Analysis to Assist Evidence-Based Conservation</i>	
Deliverable	Status
2.1) Evidence-based review of the literature describing fire regimes in ponderosa pine and dry mix conifer forests in the West.	
a) Deliverables i. Literature review. ii. Completed draft manuscript.	All deliverables are in progress.

<i>Project 3: Ecological Monitoring and Evaluation for Adaptive Management</i>	
Deliverable	Status

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3.1) Continue development of long-term study in a mixed-conifer forest on the Mogollon Rim Ranger District of the Coconino National Forest (build from FY 2015).	
a) <u>Deliverables:</u> i. Report on progress. ii. Coconino National Forest to train crews and implement treatment marking.	All deliverables are in progress.
3.2) Effects of pre-wildfire, restoration, and fuels treatments on mixed-conifer forest understory communities: Remeasurement of Wallow Fire sites.	
a) <u>Deliverables:</u> i. Manuscript prepared for publication. ii. Presentation for USFS leadership and staff, collaborative stakeholder groups, and/or professional conference.	All deliverables are in progress.
3.3) Secondary mortality of trees after wildfire in mixed conifer forests: Comparison of treated and untreated sites. Collaborative project with USFS Forest Health and Protection	
a) <u>Deliverables:</u> i. Manuscript prepared for publication. ii. Presentation for USFS leadership and staff, collaborative stakeholder groups, and/or professional conference.	All deliverables are in progress.
3.4) Fire severity and climate effects on structure, species composition, and regeneration at the ponderosa pine–mixed-conifer forest ecotone.	
a) <u>Deliverables:</u> i. Manuscript prepared for publication. ii. Presentation for USFS leadership and staff, collaborative stakeholder groups, and/or professional conference.	All deliverables are in progress.
3.5) How does re-entry with resource benefit wildfire affect stand structure at multiple scales? This project builds on work completed in FY15. New sites will be identified for study on USFS and/or NPS lands in northern Arizona.	
a) <u>Deliverable:</u> i. Manuscript prepared for publication. ii. Presentation for USFS leadership and staff, collaborative stakeholder groups, and/or professional conference.	All deliverables are in progress.

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

Deliverable	Status
4.1) Actions to increase understanding of innovative funding approaches for achieving forest restoration and wildfire risk reduction. Past and future actions may include helping to facilitate discussions in southeastern Arizona designed to achieve restoration on the Coronado National	

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Forest and outreach to other communities explaining the funding mechanisms of the Flagstaff Watershed Protection Project.	
a) <u>Deliverable</u> : Report on actions that support innovative funding approaches to restoration.	All deliverables are in progress.
4.2) Help facilitate private sector harvest, manufacturing and utilization approaches.	
An example may include facilitating discussions and actions (such as a workshop or conference) that will lead to biomass utilization. In FY'15 we are working with key interests to develop a long-term biomass utilization strategy. This work is likely to continue in FY'16.	All deliverables are in progress.
a) Report on actions and outcomes.	

Project 5: State, Tribal and Private Forestry – The All Lands Approach	
Deliverable	Status
5.1) Assist the Arizona Prescribed Fire Council.	
The mission and purpose of the Arizona Prescribed Fire Council is to serve as a forum for all prescribed fire practitioners (government, academic institutes, tribes, coalitions, and individuals) in order to work collectively to promote, protect, conserve, and expand the responsible use of prescribed fire in Arizona's fire-dependent ecosystems. a) <u>Deliverable</u> : Report on technical support provided to the council and for website services.	All deliverables are in progress.
5.2) Assist the Arizona State Forester to revise the Arizona Natural Resource Assessment and Strategy	
a) <u>Deliverable</u> : Report on technical support.	All deliverables are in progress.
5.3) Assist the Hopi Tribe to revise their forest management plan.	
a) <u>Deliverable</u> : Report on assistance.	All deliverables are in progress.

Project 6: Services to the Intermountain West	
Deliverable	Status
6.1) Provide support to federal land managers with treatment planning and implementation.	
a) <u>Deliverable</u> : Report on actions to support project assessments, data collection, treatment design, and use of best available	All deliverables are in progress.

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<p>science by federal land managers to achieve desired conditions and outcomes.</p> <ul style="list-style-type: none"> i. A combination of 10 total services based on previous and anticipated demand that may include: workshops, technical assistance, science support, field trips, and presentations. Deliver webinars in partnership with the Southwest Fire Science Consortium and National Forest Foundation to present emerging science to land managers and practitioners. ii. Two Rapid Assessments (RAPs) are presently planned to support landscape restoration projects at the forest level. <ul style="list-style-type: none"> 1. Apache-Sitgreaves NF: Black Forest River Restoration Project. 2. Tonto NF: All conifer types. 	
<p>6.2) Assist with forest planning and implementation by recommending best available science and program support.</p>	
<p>Science and timing of support are variable for each national forest based on its individual planning schedule.</p> <ul style="list-style-type: none"> a) <u>Deliverable</u>: Report on actions to support forest plan revisions on the Tonto and Carson national forests. 	<p>All deliverables are in progress.</p>
<p>6.3) Provide website support for ERI, SWERI, 4FRI (see Project 5 for support to the Arizona Prescribed Fire Council).</p>	
<p>Science and timing of support are variable for each national forest based on its individual planning schedule.</p> <ul style="list-style-type: none"> a) <u>Deliverable</u>: Report on technical support for ERI, SWERI, and 4FRI websites. 	<p>All deliverables are in progress.</p>
<p>6.4) Translate biophysical and social-political-economic information for affected entities.</p>	
<ul style="list-style-type: none"> a) <u>Deliverable</u>: Editorial support for a total of three (3) white papers and or working papers <ul style="list-style-type: none"> i. White paper compiling lessons learned on implementation or other restoration topics from the 2016 National Restoration Workshop ii. Two (2) working papers in cooperation with the Southwest Fire Science Consortium 	<p>All deliverables are in progress.</p>

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b) <u>Deliverable</u> : Eight (8) fact sheets that translate and summarize scientific papers and journal articles.	
6.5) Initiate and facilitate knowledge services and science support for non-federal entities through field trips, filling information requests, and presentations for affected entities. These numbers may vary based on demand.	
a) <u>Deliverable</u> : Report on actions to educate and support affected entities. Provide a minimum of 10 services that may include field trips, presentations, and information requests.	All deliverables are in progress.
6.6) Use media to educate the general public.	
a) <u>Deliverable</u> : 2 newspaper articles in response to fire events to education the general public about the need for forest restoration to restore frequent fire forests.	All deliverables are in progress.

<i>Project 7: Duty 5 under the ACT. Provide annual progress reports</i>	
Deliverable	Status
a) Complete annual progress report on June 30, 2017	Submitted

Web Accomplishments: *July 1, 2015–June 30, 2016*

4Fri.org Accomplishments

- Updated site content including meeting minutes, agendas, maps, and other pertinent materials.
- Updated calendar and event locations
- Provided updates on site on important 4Fri related news, news articles, and press releases
- Streamlined content to make important information more readily accessible to users

NAU.edu/ERI Accomplishments

- Added current /relevant ecological related news articles
- Updated the site with current ERI publications including journal articles, ERI working papers, ERI Fact Sheets, and technical papers
- Added relevant events and conferences

SWERI Accomplishments

- Revised the home page content to make the content more relevant to users
- Revised, updated, and expanded the broad scale monitoring section
- Streamlined and redesigned the page layout and improved page graphics

AZPFC.org

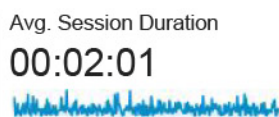
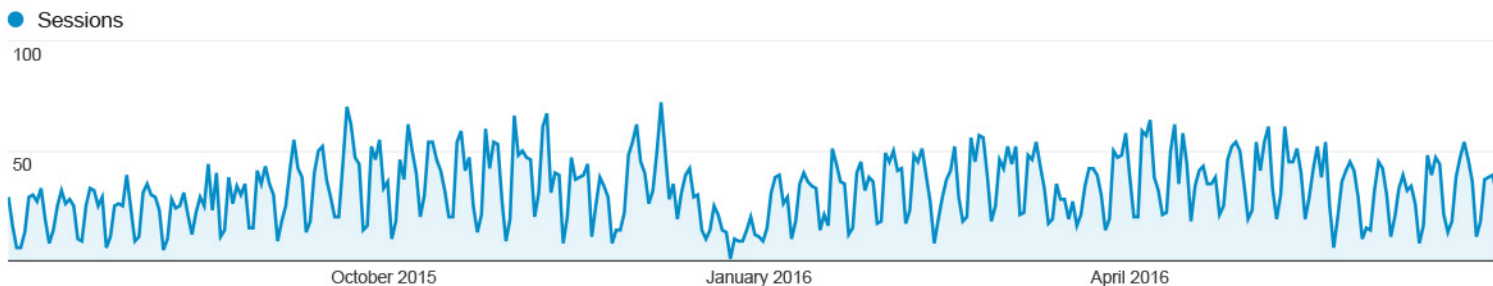
- Added new events and posts to keep users informed about topics relevant to the council
- Updated board member information as needed
- Created an online voting mechanism for people to vote for board members
- Reported out the voting results and updated the site regarding the board member election

Audience Overview

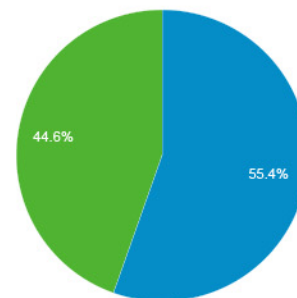
You are using a filtered view, which may cause your Users count to be inaccurate. [Learn more](#)

All Users
100.00% Sessions

Overview



■ New Visitor ■ Returning Visitor



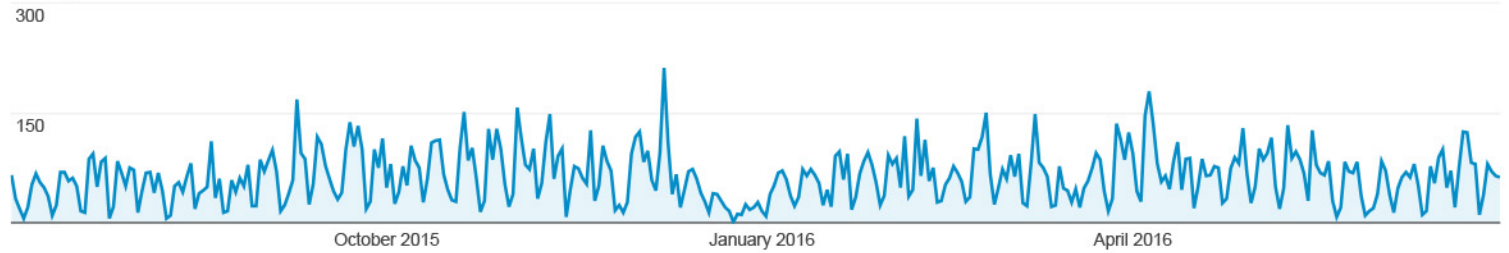
Language	Sessions	% Sessions
1. en-us	11,020	92.73%
2. en-gb	184	1.55%
3. en	89	0.75%
4. es	63	0.53%
5. zh-cn	48	0.40%
6. en-ca	46	0.39%
7. pt-br	39	0.33%
8. fr	34	0.29%
9. es-es	32	0.27%
10. de	28	0.24%

Overview

All Users
100.00% Pageviews

Overview

Pageviews



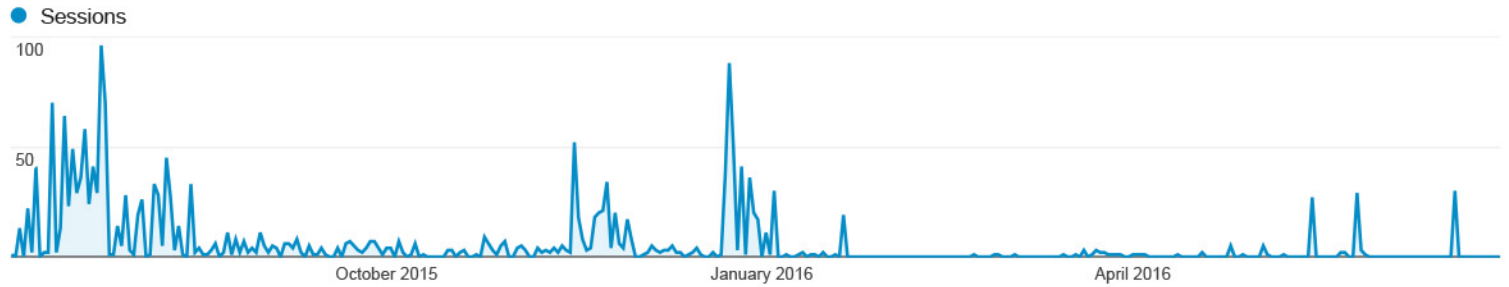
<p>Pageviews</p> <p>23,178</p>	<p>Unique Pageviews</p> <p>19,512</p>	<p>Avg. Time on Page</p> <p>00:02:05</p>	<p>Bounce Rate</p> <p>62.23%</p>	<p>% Exit</p> <p>50.87%</p>
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Page	Pageviews	% Pageviews
1. /eri/	5,356	23.11%
2. /eri/publications-media/	1,018	4.39%
3. /eri/directory/directory-list-view/	946	4.08%
4. /eri/directory/	860	3.71%
5. /eri/restoration/the-er-process/adaptive-management/	720	3.11%
6. /eri/resources/for-policy-makers/effects-of-thinning/	694	2.99%
7. /eri/research/	559	2.41%
8. /eri/publications-media/recent-eri-publications/	490	2.11%
9. /eri/resources/for-practitioners/controlling-invasive-species/	474	2.05%
10. /eri/directory/directory-dept-view/	426	1.84%

Audience Overview

All Users
100.00% Sessions

Overview



Sessions 2,027	Users 1,917	Pageviews 2,086
Pages / Session 1.03	Avg. Session Duration 00:00:20	Bounce Rate 94.23%
% New Sessions 94.52%		



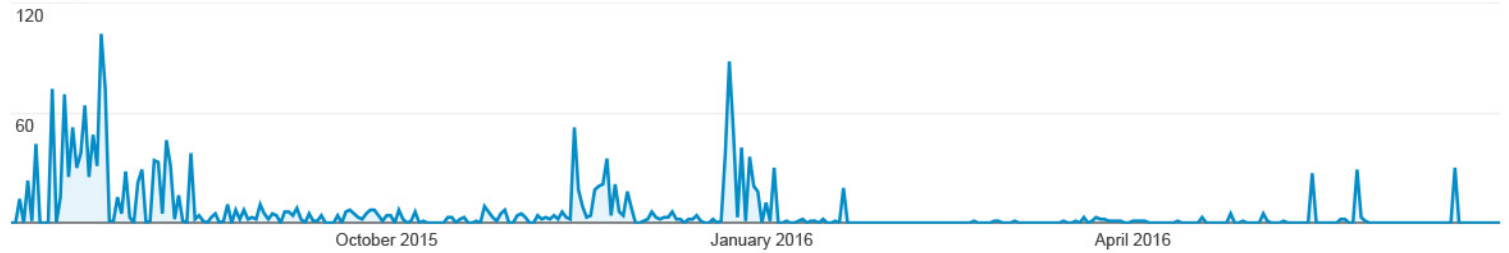
Language	Sessions	% Sessions
1. (not set)	1,752	86.43%
2. en-us	153	7.55%
3. en	111	5.48%
4. es	9	0.44%
5. ru	2	0.10%

Overview

All Users
100.00% Pageviews

Overview

Pageviews



Pageviews
2,086

Unique Pageviews
2,077

Avg. Time on Page
00:07:40

Bounce Rate
94.23%

% Exit
95.78%

Page	Pageviews	% Pageviews
1. /	1,596	76.51%
2. /?from=http://www.traffic2cash.xyz/	224	10.74%
3. /?from=http://adf.ly/1SDmxr	67	3.21%
4. /?from=http://snip.to/	60	2.88%
5. /?from=http://share-buttons.xyz/	40	1.92%
6. /?from=http://site-42521592-1.snip.tw/	37	1.77%
7. /?from=http://net-profits.xyz/	19	0.91%
8. /?from=http://site29570600.snip.to/	17	0.81%
9. /?from=http://get-your-social-buttons.info/?ref=50450960	15	0.72%
10. /?from=http://site7804102.snip.tw/	11	0.53%

4FRI Website Statistics					
Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jul-15	981	1,586	3,730	27,272	1.48 GB
Aug-15	1,098	1,584	3,892	29,322	1.36 GB
Sep-15	1,090	1,446	3,369	28,527	1.34 GB
Oct-15	1,099	1,583	3,848	29,360	1.42 GB
Nov-15	780	1,311	4,441	24,065	1.30 GB
Dec-15	957	1,446	4,167	25,153	1.30 GB
Jan-16	921	1,439	5,191	25,649	1.96 GB
Feb-16	450	680	2,279	13,561	1.43 GB
Mar-16	944	1,479	3,695	28,346	1.64 GB
Apr-16	897	1,398	4,152	27,630	1.64 GB
May-16	873	1,238	3,862	25,922	1.72 GB
Jun-16	901	1,476	4,774	25,987	1.77 GB

Top 5 Visited Pages
Home
maps.html
stakeholders.html
background.html
documents.html

AZPFC Website Statistics					
Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jul-15	407	900	2,695	7,663	148.68 MB
Aug-15	310	763	2,304	5,527	87.76 MB
Sep-15	410	708	1,439	4,523	74.87 MB
Oct-15	447	727	2,068	5,317	100.12 MB
Nov-15	551	950	2,264	4,794	74.04 MB
Dec-15	320	738	3,335	6,510	144.54 MB
Jan-16	2,188	3,751	10,902	14,231	129.86 MB
Feb-16	139	204	569	2,809	93.70 MB
Mar-16	276	590	1,925	5,366	132.43 MB
Apr-16	680	1,074	2,459	7,832	139.36 MB
May-16	1,505	1,944	3,415	8,051	184.07 MB
Jun-16	311	745	2,027	6,941	112.72 MB

Top 5 Visited Pages
Home
Feed
Contact
About
News