NORTHERN ARIZONA UNIVERSITY | Ecological Restoration Institute

The Ecological Restoration Institute at Northern Arizona University

Accelerating Restoration and Resiliency in the West

Fiscal Year 2025 Work Plan

June 30, 2025

Introduction

More than 20 years ago, in 2004, Congress passed the Southwest Forest Health and Wildfire Prevention Act (PL108-317). The Act established three university-based Southwest Ecological Restoration Institutes (SWERI) in Arizona, New Mexico, and Colorado. This Act was a result of Congressional recognition (led by Senator Jon Kyl) that objective, practitioner-oriented science was needed to accelerate forest restoration.

Over the past 20 years, the Ecological Restoration Institute has built a solid reputation for swiftly responding to a broad range of inquiries, particularly those relating to ecology, management, decision-making, and natural resource policy. ERI is the only organization in northern Arizona with the flexibility and responsiveness to meet a wide range of forest management needs. Our work has provided new information for Forest Service land managers on ecological responses to managed fire and the resiliency of landscape-scale restoration treatments under warming trends and drought conditions. ERI also contributes valuable insights into reforestation ecological outcomes and what factors achieve desired reforestation goals. We produce innovative findings that benefit Forest Service managers, elected officials, and community members dealing with wildfire and post-fire flooding. ERI also offers multi-week forest operations workforce training in Arizona. In 2024, a team of ERI researchers conducted an unprecedented needs assessment with Navajo and Hopi tribes to understand wood and heating needs. Additionally, ERI engages various all-lands managers and stakeholders through collaborative workshops, leading to breakthroughs in cross-boundary landscape restoration, and provides distinctive, on-the-ground analyses of risk management assistance strategies and decision support tools for wildfire incidents.

Each SWERI institute capitalizes on their university's distinct assets to tackle emerging and anticipated management issues. They act as a link between knowledge development and the application of the best available science by stakeholders and land managers. Supported by Congressionally appropriated funds, the institutes develop annual work plans with all affected entities that fulfill the duties of the Act, which include: 1) developing, researching, and monitoring treatments to reduce the risk of severe wildfires and improve the health of dry forests and woodlands; 2) synthesizing and adapting scientific findings for affected entities[1] to implement treatments on a landscape scale; 3) translating and transferring knowledge to all affected entities; and, 4) assisting all affected entities to implement treatments using best adaptive management practices.

Development of this work plan began in early fall 2024, in coordination with the program administrators in Forest Service Regions 2 and 3. During the FY25 budget negotiations in Congress—and

[1] *An affected entity is defined in PL108-317 as: land managers, stakeholders, concerned citizens; and, the States of the interior West, including political subdivisions of the States.*

following the signing of the Continuing Resolution (CR) in March 2025—communication from Forest Service program managers, Washington Office leadership, Congressional offices, and the Office of Management and Budget examiner all indicated that under a full-year CR, SWERI could expect to receive the same $6.6 million funding as in FY24.

However, in May 2025, the Forest Service informed SWERI that it would exercise discretion under the CR to reduce the award to $3 million. This submitted work plan reflects an approximate 55% reduction in deliverables, as capacity and staff availability were greatly impacted by the revised funding level. While typically the ERI delivers upwards of 10 scientific-based management implications articles, 24 partnership and Tribal exchange outcomes, 14 science translation and delivery products, and over 40 responses to requests from land managers and all affected entities, this work plan will conduct about half those outputs. We remain grateful for the Forest Service's continued partnership and support in advancing SWERI's Congressional mission.

The Ecological Restoration Institute's (ERI) FY25 work plan aligns with the Act, supports many of the national and regional policy directives, and helps land managers stay current on new science and technologies. To develop the 2025 Work Plan, ERI staff engaged in a comprehensive, partner-facing process that included the following key activities:

- Staff coordinated with the Colorado Forest Restoration Institute and the New Mexico Forest and Watershed Restoration Institute to identify and meet cross-region and national needs.
- Across Forest Service Region 3, staff consulted with the regional office (SWERI Coordinator, Special Projects Coordinator), forest-level staff on the Coconino and Kaibab, and the 4FRI Implementation and Monitoring team to determine land management science gaps or questions.
- Staff communicated with the Arizona Department of Forestry and Fire Management to discuss opportunities for shared stewardship and advancing state restoration and fire risk reduction goals.
- Staff attended annual meetings and coordinated as needed with Forest Service Washington Office and US Department of Agriculture leadership, the White House Office of Management and Budget, staff from Arizona's Congressional delegation, and staff from Congressional committees.
- Staff worked with SWERI and the Forest Service Risk Management Assistance (RMA) team to assist with the development, application, and evaluation of wildfire risk spatial decision support tools.
- Staff discussed ways to improve forest operations efficiency and enhance biomass utilization opportunities with the regional office, Washington Office, and Rocky Mountain Research Station staff.
- Staff worked with a community of science communicators to leverage the best available science dissemination, including Rocky Mountain Research Station, Rural Voices for Conservation Coalition, and the Fire Science Consortia.
- Staff consulted with the Forest Products Modernization Team (Forest Service, The Nature Conservancy) to advance innovation for restoration outcomes on federal landscapes.
- Staff consulted with the Intertribal Timber Council (ITC), representatives from individual Tribal Nations including the Navajo, Hopi, White Mountain Apache, San Carlos Apache, Mescalero Apache, and Hualapai, Office of Tribal Relations (OTR) Specialists, the Bureau of Indian Affairs (BIA) and the United States Geological Survey (USGS) at the forest, regional and central office levels to identify strategic opportunities to assist Tribes.
- Staff worked with the cross-state Wood For Life team to identify fuel, transportation, and local capacity needs across Tribal Nations.

Focal Area Summaries

The ERI has six interdisciplinary Focal Areas that crosswalk to specific duties of the Act, and match or leverage projects developed by our sister institutes in New Mexico and Colorado. These Focal Areas help support current federal direction, Forest Service and Arizona-led initiatives and priorities, including wildfire risk reduction, sustainable forests, and multiple use of forested landscapes. Lastly, they align with the ERI's mission to address warming trends and drought conditions, test treatment effects, and support resilient and sustainable forests and woodlands in the West.

Focal Area 1 – Restoration and wildfire resilience knowledge development and transfer *(Fulfills duties under the Act: 1, 2, and 3)*. Focal Area 1 describes ERI's work to address existing and emerging biophysical and human dimensions research needs related to issues such as restoration treatment effectiveness, drought and temperature impacts on forests, and understudied forest ecosystems, as well as understanding the decision-making, economic, and policy barriers to forest restoration and wildfire risk mitigation.

Focal Area 2 – Apply ERI expertise to restoration implementation at appropriate scales *(Fulfills duties under the Act: 2, 3, and 4)*. In this Focal Area, the ERI applies interdisciplinary expertise to address barriers and challenges to restoration implementation, at scales appropriate for enhancing resiliency for forested landscapes and human communities. This includes expanding forest operations capacity, testing the best available tools for landscape prioritization, increasing multi-stakeholder support for implementation, and developing innovative efficiencies to implement restoration treatments more quickly.

Focal Area 3 – Foster and support partnerships *(Fulfills duties under the Act: 2 and 3)*. The ERI convenes and facilitates discussions with multiple federal, state, and local entities that advance restoration knowledge development and application across boundaries and at landscape scales.

Focal Area 4 – Integration and engagement with tribal land restoration *(Fulfills duties under the Act: 2, 3, and 4)*. The ERI, with Northern Arizona University, is committed to facilitating the exchange of restoration knowledge and experience between and among tribal and federal partners.

Focal Area 5 – Science and policy application and interpretation *(Fulfills duties under the Act: 3 and 4)*. The ERI translates objective science into practical strategies for various audiences and develops workshops, field trips, and focus groups to work with all affected entities for shared science delivery and implementation of state and federal agency strategic goals.

Focal Area 6 – Communication and outreach *(Fulfills duties under the Act: 3)*. The ERI is proud to be a known expert in forest restoration science and implementation. To meet the duties of the Act, we promptly respond to media requests, community information needs, policy questions, and practitioner information requests on a weekly basis.

Focal Area Descriptions and Deliverables

Focal Area 1: Restoration and wildfire resilience knowledge development and transfer

Efforts in this project focus on analysis and reporting of long-term monitoring data collected on field plots and implementation of novel studies to investigate key questions aimed at accelerating the pace and scale of restoration, and decision-making and economic research with managers and other affected entities. Specific projects are detailed in the tables below. Areas of work include:

- Reference conditions to support restoration treatment planning.
- Precision technologies for ecological monitoring and adaptive management.
- Addressing the insurance crisis.
- Wildfire ecosystem effects.
- Post-fire restoration actions.

Focal Area 1: Restoration and wildfire resilience knowledge development and transfer *Fulfills duties under the Act: 1, 2, 3*	
Action	**Requestor/Anticipatory**
1.1) Reference conditions to support restoration treatment planning *a) Reconstruction of historical fire sizes and contemporary fire deficits*	Requestors: Multiple units; Coconino National Forest; Tonto National Forest, Apache-Sitgreaves National Forest, and anticipatory Outcomes: Quantification of today's fire deficit based on historical fire size and area burned data, derived from dendrochronological samples
1.2) Precision technologies for ecological monitoring and adaptive management *a) Wildland-Urban Interface (WUI) fire and fuels mitigation*	Requestors: Multiple units; collaboration with Dr. Andy Graves, Forest Service Forest Health Protection, NM Zone Lead to meet gaps from BIA, DOD, USFWS, USGS, Salt River Project, Arizona State, and San Carolos Apache Tribe. Outcomes: a) Information on impacts of bark beetles and stand conditions on pinyon pine mortality; b) information on long-term mortality and regeneration in pinyon-juniper systems; c) information on tree understory responses to pinyon-juniper thinning and slash disposal treatments

1.3) Addressing the insurance crisis and reframing wildfire economics	Requestors: Congress, State of Arizona, Coconino County, local municipalities, public utilities Outcomes: Identify the impacts of the insurance crisis on homeowners and forestry operators
1.4) Wildfire ecosystem effects *a) Small tree responses to wildfire and prescribed burning*	Requestor: Anticipatory in alignment with 2025 Presidential Executive Orders Outcomes: Improve first-order fire effects model for better prediction of fire outcomes related to small trees
1.5) Reforestation after wildfire *a) Reforestation policy analysis*	Requestor: Anticipatory Outcomes: Understand the impacts of recent changes in reforestation policy to support post-fire forest restoration

1.1) Reference conditions to support restoration treatment planning.

a) Reconstruction of historical fire sizes and contemporary fire deficits. Public land managers planning forest restoration activities benefit from information that describes the historical patterns that prevailed prior to widespread anthropogenic fire exclusion and resulting changes in forest structure and function. In this project, we will continue previous work to quantify historical fire sizes and their implications with respect to modern fire deficits in dry forests of the Southwest. This dendrochronological analysis will be accomplished in collaboration with Dr. Chris Guiterman (UC Boulder) using fire scar samples collected at various field sites.

Requestors: Multiple units; Coconino National Forest; Tonto National Forest, Apache-Sitgreaves National Forest, and anticipatory
Outcomes: Quantification of today's fire deficit based on historical fire size and area burned data, derived from dendrochronological samples

***Deliverable*:**
i. Technical report for publication or professional presentation on results

1.2) Precision technologies for ecological monitoring and adaptive management.

a) Wildland-Urban Interface (WUI) fire and fuels mitigation. Land managers across the Southwest are increasingly being called upon to respond to wildfire in the wildland-urban interface (WUI), including fires burning in grass-, shrub-, and tree-dominated ecosystems. Unfortunately, the data and models utilized by local, state, and federal land managers to develop and communicate strategic fire and fuel management strategies often have low accuracies at the spatial scales needed for effective fuels treatment planning. Advancements in 3-dimensional fuel assessments and fire behavior modeling have tremendous potential to help guide agencies and local officials in planning and implementing appropriate hazardous fuels reduction and wildfire mitigation programs that meet human community needs as well as improve ecosystem health and resilience. This project will utilize advanced technologies to assess existing fuel structures and model fire behavior in WUI zones and other priority

locations to advance processes that will improve data accuracy and collection efficiency.

Requestors: Multiple units; Andy Graves, FHP, NM Zone Lead to address gaps from BIA, DOD, USFWS, USGS, Salt River Project, Arizona State, and San Carolos Apache Tribe
Outcomes: a) Information on impacts of bark beetles and stand conditions on pinyon pine mortality; b) information on long-term mortality and regeneration in pinyon-juniper systems; c) information on tree understory responses to pinyon-juniper thinning and slash disposal treatments

Deliverables:
i. Professional presentation to stakeholders
ii. Literature synthesis

1.3) Addressing the insurance crisis and reframing wildfire economics. This project tackles the growing insurance crisis in the western US, driven by the increasing severity, frequency, and size of wildfires. Recent wildfires in Arizona and beyond have contributed to changing dynamics with the insurance industry that impact homeowners, as well as forestry operators. Much of the evidence about the impacts of the changing insurance market on community wildfire resilience and forest management is anecdotal, such as informal accounts of homeowners and forest operators no longer being able to obtain or afford insurance or being underinsured. Numerous entities have asked the ERI to assist with better understanding, documenting, and communicating about the scope of these impacts. In FY25, the ERI will conduct an assessment to gather robust information about insurance trends and impacts in Arizona, including but not limited to impacts on homeowners, including insurance for wildfire and post-wildfire flooding, as well as impacts on forestry operators in terms of liability coverage to conduct forestry operations that reduce wildfire risk. This project builds off recent ERI work to understand homeowner insurance coverage and the economic impacts from post-wildfire flooding events. This work will contribute to educate insurers, policymakers, and communities about the economic and ecological benefits of proactive forest management and reframing economic decisions related to forest management to emphasize prevention, restoration, and sustainable insurance models.

Requestors: Congress, State of Arizona, Coconino County, local municipalities, public utilities
Outcomes*:* Identify the impacts of the insurance crisis on homeowners and forestry operators

Deliverables:
i. Report on progress and/ or white paper

1.4) Wildfire ecosystem effects.

a. Small tree responses to wildfire and prescribed burning. Predictive models such as FOFEM (first-order fire effects model) are used by managers to understand potential outcomes of prescribed or managed wildfire. An important goal of such treatments is often to reduce tree densities, particularly of smaller trees. However, FOFEM includes very little information on small tree (<25 cm DBH) survival during and after fire. We will continue data collection in sites around Flagstaff and Williams to survey delayed tree mortality after four prescribed or managed fires and collect tree ring samples to characterize growth rates of small trees. These data will be combined with similar data collection efforts in Colorado, Utah, Montana, Idaho, and California to improve models of small tree mortality within FOFEM.

Requestors: Anticipatory in alignment with 2025 Presidential Executive Orders

Outcomes: Improve first-order fire effects model for better prediction of fire outcomes related to small trees

Deliverable:
i. Progress update

1.5) Reforestation after wildfire.

a) Reforestation policy analysis. Forests in the western US are increasingly facing challenges in natural tree regeneration due to the impacts of uncharacteristic wildfire, droughts, and pest and disease outbreaks. The current pace and scale of reforestation has not kept up with this growing need or to meet recent administrative guidelines for sustainable and productive forests, and reforestation techniques used in the past may not succeed in current and future conditions. While financial barriers to reforestation have been somewhat alleviated by recent new funding, decision-making and political barriers may inhibit implementation, and little is known about how managers are considering uncertainty in reforestation, and what are other major barriers beyond financial limitations. This project continues a multi-year endeavor. In FY25, we will build off a FY23 reforestation ecological outcomes study and a FY24 policy review white paper to include interviews with key actors in western US reforestation to better understand how current policies have or have not changed approaches to reforestation in post-fire contexts and what factors continue to enable or challenge achieving desired reforestation goals.

Requestor: Anticipatory, builds off other ERI reforestation projects to meet recent administrative guidelines for sustainable and product forests
Outcome: Understanding the impact of recent changes in reforestation policy

Deliverables:
i. White paper or peer-reviewed publication on how policies are influencing post-fire reforestation in the US West

Focal Area 2: Apply ERI expertise to restoration implementation at appropriate scales

In 2025, the ERI continues to create strategies to economically and efficiently utilize small-diameter wood and biomass resulting from restoration treatments. Improving the operational efficiency of ecological restoration treatments is an important goal in this Focal Area. Our Forest Operations and Biomass Utilization Program, led by Dr. Han-Sup Han, leverages successful competitive grants that fund much of the work in this research area. For FY25, the program will:

- Provide science support and delivery for the 4FRI collaborative project.
- Expand the capacity of forest operations and biomass utilization.
- Facilitate the development and integration of modern technologies to advance restoration implementation.

Focal Area 2: Apply ERI expertise to restoration implementation at appropriate scales *Fulfills duties under the Act: 2, 3, 4*	
Action	**Requestor/Anticipatory**
2.1) Support and science delivery for the 4FRI collaborative project	Requestors: Forest Service and northern Arizona stakeholders Outcomes: Best available science for landscape restoration, landscape prioritization, monitoring assistance, and effective science collaboration
2.2) Expand the capacity of forest operations and biomass utilization	Requestors: Multiple stakeholders, state and local communities, forest product businesses Outcomes: Improved utilization of biomass to benefit sustainable forestland management; expanding markets for wood; improving forest operations efficiency
2.3) Facilitate the development and integration of modern technologies to advance implementation	Requestors: Forest Service Forest Products Modernization, The Nature Conservancy Outcomes: Lessons learned; informing future implementation processes

2.1) Support and science delivery for the 4FRI collaborative project. The ERI has provided leadership, administration, and science support to the 4FRI collaborative project since the 2009 request for proposals. The ERI is committed to continued collaboration in the multi-stakeholder partnership to realize landscape resiliency and restoration.

Requestors: Forest Service and northern Arizona stakeholders
Outcomes: Best available science for landscape restoration, landscape prioritization, monitoring assistance, and effective science collaboration

Deliverables:

a) Report on leadership activities for 4FRI Stakeholder Group, including Stakeholder and Steering Group Leadership
b) Report on administrative support to facilitate effective collaborative operations; and IT support for the 4FRI website and BASECAMP

2.2) Expanding the capacity of forest operations and biomass utilization. This ERI program area aims to expand industrial capacity and markets to utilize small-diameter wood and biomass. These projects are mostly supported by a mix of external grants and state funding. The federal work plan will support this broad program with administrative support, public relations, and outreach, in two key project areas, which include:

a) Biochar impacts on a ponderosa pine plantation. Building on 2023–2024 studies that included biochar applications in a site severely affected by wildfire, additional tests of biochar applications will be made in state-wide high disturbance areas.
b) Logs and Roads Institute (LARI) training to fill knowledge gaps for land managers and contractors, increasing forest treatment efficiencies.

Requestors: USDA Forest Service, forestry contractors, local communities, and the State of Arizona
Outcomes: Expanding forest products industry capacity to benefit sustainable federal land management needs; expanding markets for wood; informing job training needs; improving forest operations efficiency

Deliverables:
i) Administrative and operational support to grant-funded outcomes, including journal articles, workshops, and webinars.

2.3) Support the development and integration of modern technologies to advance implementation. For more than five years, the ERI has worked with partners like the Four Forest Restoration Initiative, The Nature Conservancy, and Forest Service Forest Products Modernization (FPM) Team to help develop innovative technologies, such as the Digital Timber Sale Manager (DTSM), which are designed to increase the pace of implementation of active forest management. In FY25, the ERI will continue to work with partners to add capacity to the development of innovative implementation and modernization technologies and processes, as well as document and communicate lessons learned.

Requestors: Forest Service FPM Team, The Nature Conservancy, Forest Service Region 3
Outcomes: Lessons learned from innovative project planning; to inform future implementation processes

Deliverable:
a) Progress report

Focal Area 3: Foster and support partnerships. *Convene and facilitate discussions that advance restoration knowledge development and application across all lands.*

In addition to science translation, the ERI maintains a large commitment to developing, facilitating, and supporting the partnerships and collaborations that advance forest restoration at appropriate scales and across ownership boundaries. In the last year, the ERI supported partnerships locally with place-based Arizona collaboratives, and regionally and nationally with the Forest Service CFLRP and Risk Management Assessment (RMA) programs. Partnership projects are detailed below; they include:

- Implementing a national CFLRP core monitoring indicator.
- SWERI partnership and region-wide science delivery.

Focal Area 3: Foster and support partnerships *Fulfills duties under the Act: 2, 3*	
Action	**Requestor/Anticipatory**
3.1) Implement national CFLRP core monitoring indicator	Requestors: Forest Service CFLRP Coordinators Lindsay Buchanan and Bryce Esch Outcome: A national core monitoring indicator for the CFLRP
3.2) SWERI partnership and across-region science delivery	Requestors: Forest Service, all affected entities Outcome: Shared landscape restoration best practices

3.1) Implement national Collaborative Forest Landscape Restoration Program (CFLRP) core monitoring indicator. In FY25, the ERI, in coordination with the other SWERI and the Forest Service CFLRP program managers, will continue to collect, analyze, and report on a program-wide core monitoring indicator for collaborative governance of CFLRP projects. In FY25, SWERI will continue this ongoing assessment of existing CFLRP projects. The SWERI are working with the Forest Service WO to ensure that the information collected supplements national core CFLRP monitoring requirements. The SWERI will work with CFLRP collaborators to disseminate findings to CFLRP projects, the Forest Service, and Congress.

Requestors: Forest Service CFLRP Coordinators Lindsay Buchanan and Bryce Esch
Outcome: A national monitoring indicator for collaboration

Deliverables:
a) Coordinate and/ or participate in one to two (1–2) peer learning activities or conferences
b) Report on progress

3.2) SWERI partnership and across-region science delivery. The three SWERI are uniquely positioned to synthesize and share science outreach and delivery. Currently, the SWERI coordinate to leverage monitoring knowledge and to realize cross-region biomass utilization grant outcomes. SWERI will produce a series of state-level workshops to share best practices and grow partnerships in AZ, CO, and NM.

Requestors: AZ State Department of Forestry and Fire Management, Forest Service, all affected entities; NM and CO State and Federal partners
Outcomes: Cross-boundary, cross-state, and cross-region shared learning

Deliverable:
a) Implementation of an AZ state workshop, and support to CO and NM state workshops

Focal Area 4: Integration and engagement with tribal land restoration

The ERI Native American Forest and Rangeland Management Program continues to expand opportunities for shared learning and science exchanges with tribal partners across Arizona and New Mexico. For FY25, the program will:

- Support restoration biomass utilization and shared stewardship through the Wood For Life (WFL) partnership.
- Engage with tribal partners to identify and exchange existing ecological questions or gaps.
- Provide direct technical support to Tribal programs, practitioners, and project partners.

Focal Area 4: Integration and engagement with tribal land restoration *Fulfills duties under the Act: 2, 3, 4*	
Action	**Requestor/Anticipatory**
4.1) Wood For Life partnership	Requestors: Navajo Nation and Hopi Tribe, Forest Service, Ancestral Lands Conservation Corps, National Forest Foundation, and other Wood For Life partners Outcomes: Support restoration biomass utilization and shared stewardship through making firewood available to meet tribal fuelwood needs
4.2) Engage with tribal partners to identify and exchange existing ecological questions or gaps	Requestor: Anticipatory Outcomes: Grow tribal partnerships; exchange restoration needs; address science gaps

4.3) Direct technical support to Tribal programs, practitioners, and project partners that facilitates approval and clearance processes and requirements	Requestors: Tribal practitioners, federal and state land managers, educational institutions, non-profit organizations Outcome: Successful completion of clearance requirements and approval requirements

4.1) Wood For Life project. The ERI will continue to work in partnership with the National Forest Foundation, the Forest Service, Ancestral Lands Conservation Corps, tribal representatives, The Nature Conservancy, and other partners to evaluate needs and assess capabilities to formalize, sustain, and grow the Wood For Life Partnership. Wood For Life is a fuelwood partnership that utilizes biomass produced from restoration projects in the 4FRI and Flagstaff Watershed Protection Project footprints on the Coconino and Kaibab national forests, as well as other land ownerships and national forests across the West. In FY22–24, the ERI completed a needs assessment of the WFL partnership in northern Arizona upon request to examine the scale of tribal firewood need and local capacities to receive and utilize more firewood to help achieve forest restoration goals. ERI hosted a workshop in December 2024 building upon the results of this assessment. In FY25, the ERI will continue to support Wood For Life capacity needs (e.g., grant proposals, communication briefs, after action reviews, needs assessments, workshop planning, etc.) to increase sustainability of the partnership, as well as help to review and evaluate existing partnership efforts to inform learning and future processes.

Requestors: Navajo Nation and Hopi Tribe, Forest Service, The Nature Conservancy, tribal nonprofit organizations, and the National Forest Foundation
Outcome: Utilization of restoration biomass to support forest restoration efforts and meet tribal fuelwood needs

Deliverables:
a) One to two (1–2) presentations to and with partners on Wood For Life
b) Deliver the needs assessment results to participating and interested chapters, villages, and nonprofits
c) Facilitation for Wood For Life meetings (rotating chair duties)

4.2) Engage with tribal partners to identify and exchange existing ecological questions or gaps. The ERI has initiated partnerships with the San Carlos Apache and Hualapai tribal nations and will expand those partnerships to exchange restoration information and develop a science needs assessment. The ERI tribal program works with the ERI's ecology and human dimensions programs to realize opportunities for research and partnerships.

Requestor: Anticipatory
Outcomes: Develop and grow tribal partners to exchange restoration science needs, through an assessment with tribal nation partners

Deliverable:
a) Needs assessment of restoration science partnership opportunities

4.3) Technical support for clearance and approval requirements.

***Requestors**:* Tribal practitioners, federal and state land managers, educational institutes, non-profit partners
Outcome: Review and approval of reports, assessments, and specific requests to support planning and project implementation.
Deliverable:
a) Technical support for one (1) project.

Focal Area 5: Science and policy application and interpretation

The ERI mission is to serve various audiences by translating objective science into practical, actionable strategies. This commitment to science delivery is our core strength and is embedded in every project we undertake. An effective way we address pressing management and policy challenges is through our working papers, white papers, and fact sheets. These publications distill and synthesize complex research into clear, accessible formats—focusing on biophysical restoration in working papers and socio-economic topics in white papers. Each document highlights management and policy implications, enabling practitioners or elected officials to make informed, timely decisions. By bridging the gap between research and real-world application, ERI ensures that science reaches those who need it most. This dedication to knowledge transfer sets us apart from traditional academic institutions and underscores our role as a trusted resource for all stakeholders involved in restoration and land management. Areas of work for FY25 include:

- Support to federal land managers with technical assistance, learning workshops, and presentations.
- A needs assessment of federal, state, tribal, and local affected entities for biophysical, socio-economic, and tribal research and exchange needs.
- Translating and summarizing scientific and journal articles for land managers and other affected entities.

Focal Area 5: Science and policy application and interpretation *Fulfills duties under the Act: 3, 4*	
Action	**Requestor/Anticipatory**
5.1) Provide support to federal land managers with technical assistance, learning workshops, and presentations	Requestors: Forest Service leadership, specialists, fire professions, boundary organizations Outcomes: Advance and share landscape restoration and drought adaptation best practices; transfer of best available science
5.2) Needs assessment of federal, state, tribal, and local affected entities for biophysical, socio-economic, and tribal research and exchange needs	Requestors: AZ State, Tribal partners, and federal land management Outcomes: Align information needs with current administrative direction; identify priority transfer of best available science

5.3) Translate and summarize scientific and journal articles for land managers and affected entities	Requestors: Land managers, stakeholders, Southwest Fire Science Consortium, federal agency ID teams, decision and policy makers Outcomes: Science synthesis briefs; best available science to practitioners and policy writers

5.1) Provide support to federal land managers with technical assistance, learning workshops, and presentations. The ERI works closely with the USDA Forest Service and DOI (BLM, NPS, USFWS) partners at the local, regional, and national scales to assess science needs and meet science questions with summaries of existing science. To reach broader audiences, we partner with our sister institutes at SWERI and other boundary organizations to utilize West-wide webinar and workshop venues for science dissemination. With reduced federal resources, SWERI will partner with the Forest Service and other cross-boundaries entities to implement a webinar series directed to federal and state land managers. Many of these projects are determined within the Fiscal Year as fast responses to immediate needs.

Requestors: Forest Service leadership, land management resources specialists, fire professions, boundary organizations, and stakeholders
Outcomes: Advance and share landscape restoration and drought adaptation best practices; transfer of best available science

Deliverables:

a) Shared learning via technical support to local Arizona Forest Service to meet landscape restoration planning, implementation, and/or monitoring goals. One (1) land manager implementation (LiDAR analyses or similar).
b) Development of a pinyon-juniper woodland community of practice, in partnership with Intermountain West Joint Venture. Two (2) webinars.
c) One (1) webinar or workshop with SWERI and in partnership with science-to-manager series, including the Southwest Fire Science Consortium, for the West-wide audience of land managers.

5.2) Needs assessment of federal, state, Tribal, and local affected entities for biophysical, socio-economic, and tribal research and exchange needs. The ERI stays on the cutting edge of management and stakeholder needs and information gaps for western forest wildfire risk reduction, forest resiliency, and long-term sustainability. Management priorities are changing rapidly, and a new needs assessment is needed to better understand agency information needs to best follow new direction and guidance from elected officials and land management agencies.

Requestors: AZ state, Tribal partners, and federal land management.
Outcomes: Prioritized list of information needs to address western landscape resilience, wildfire risk reduction, and modernization of efficiencies. These will be captured for some FY25 implementation of FA 5.1, and the FY26 SWERI work plan.

Deliverable:

a) Draft final report

5.3) Translate and summarize scientific and journal articles for land managers and affected entities. The ERI develops white papers that address socio-economic policy issues and working papers that summarize science applications for land managers. Fact sheets are two-page, brief summaries of peer-reviewed science and Topics in Restoration and Resiliency papers explore a broad restoration topic, like what fire scars tell us about the past and what to expect after restoration, written for a general audience.

Requestors: Land managers, stakeholders, SWFSC, federal agency ID teams, decision and policy makers, and local, county, and state government agencies
Outcomes: Science synthesis briefs for busy practitioners and policy writers

Deliverables:

a) One (1) white and/ or working paper or a special report that is responsive to managers' needs
b) Three (3) fact sheets and/ or Topics in Restoration and Resiliency papers

FOCAL AREA 6: Communication and outreach. *Media, community outreach, and information requests.*

For over 20 years, the ERI has been a trusted, objective resource for our land management partners, government agencies, non-government organizations, and our community. As a recognized leader in restoring fire-adapted forests across the western US, ERI staff are regularly sought out for their technical expertise, science support, and resource knowledge. Science communication and outreach are central to our mission. Focal Area 6 captures this commitment. It demonstrates the unique ways ERI translates science into actionable knowledge for a wide range of stakeholders and is what sets ERI apart from conventional academic models.

In the past decade, we have consistently exceeded our goals for information sharing. ERI staff respond to 20–30 media requests annually, and we maintain an active presence across platforms like Instagram, X, Facebook, Bluesky, and LinkedIn. Our experts are frequently featured in print, radio, online, and broadcast media, especially during heightened public discourse around wildfire resiliency, post-fire flooding and restoration, forest health policy, and landscape sustainability. By engaging the public and decision-makers through various media outlets and innovative distribution channels, ERI ensures that science informs the management decisions and policies shaping our landscapes. For FY25, this will include:

- Social media and innovative science delivery.
- Website support for ERI, SWERI, and 4FRI.
- Media outreach and engagement.
- Science support and knowledge resource services to federal and on-federal entities.
- Final report on FY25 Work Plan.

Focal Area 6: Communication and outreach *Fulfills duties under the Act: 3*	
Action	**Requestor/Anticipatory**
6.1) Social media and innovative science delivery	Requestor: Anticipatory Outcome: Broaden, grow audience reach using innovative, interactive tools
6.2) Provide website support for the ERI, SWERI, and 4FRI to best meet deliverables	Requestors: All affected entities, 4FRI Stakeholder Group, SWERI Outcomes: Science updates and information repository
6.3) Media outreach and engagement	Requestor: All affected entities Outcomes: Science synthesis briefs
6.4) Science support, knowledge resource services to federal and non-federal entities	Requestors: Land managers, state forestry agencies, local government, elected officials, and community organizations Outcomes: Knowledge to inform action; raise awareness, support for restoration
6.5) Report on FY25 Work Plan activities to SWERI Program Manager	Requestor: SWERI Program Manager Outcome: Final Report

6.1) Social media and innovative science delivery. In 2018, ERI created and successfully launched a monthly "Science Flash" e-newsletter to share the latest ERI science, workshops/ webinars, outreach products, or SWERI news. Additionally, our bi-annual newsletter—distributed to more than 1,000 contacts—highlights news from each program of work and lists recent publications and products. The ERI coordinates across all SWERI to cross-post and leverage intermountain and West-wide actionable science to our shared, various audiences. In FY25, ERI will continue to engage on social media platforms and develop innovative ways to communicate our research.

Requestor: Anticipatory
Outcome: Increase audience reach with innovative and interactive social media tools

Deliverables:
a) Social media campaign and viewer engagement summaries
b) ERI "Science Flash": five (5)
c) ERI external e-newsletter (2)

6.2) Provide website support for the ERI, SWERI, and 4FRI to best meet deliverables.

Requestors: All affected entities, 4FRI Stakeholder Group, SWERI
Outcome: Science updates and information repository for all affected entities

Deliverables:
a) Report on actions. Includes website analytic reports on each website's user site visits and engagement metrics.

6.3) Media outreach and engagement. Support the education of the public through media outreach.

Requestor: All affected entities
Outcome: Science synthesis briefs for busy practitioners and policymakers

Deliverables:
a) Five (5) media interviews
b) Two (2) media articles

6.4) Science support, knowledge resource services to federal and non-federal entities. These activities include filling information requests, technical assistance, field trips, and presentations.

Requestors: Land managers, state forestry agencies, local government, elected officials, and community organizations
Outcomes: Knowledge to inform action; raise awareness and support for restoration

Deliverables:
a) A minimum of fifteen (15) services or activities

6.5) Report on FY25 Work Plan activities to SWERI Program Manager.

Deliverable:
a) Final report to SWERI Program Manager