

Planning: Rio Trampas Watershed Multi-jurisdictional Forest Restoration Planning

Executive Summary: Forest Guild, in a four year partnership with a diverse array of collaborators, will lead a multi-jurisdictional watershed-scale (70,000-acre) planning effort. The restoration planning effort will focus on reducing the threat of large, high intensity wildfires and improving watershed health in piñon-juniper, ponderosa pine, and mixed conifer ecosystems. The Rio Trampas watershed is a subset of the larger Embudo watershed and contains three sub-basins. Building on partnerships and lessons learned from Forest Guild's 2007 (#16-07) implementation Collaborative Forest Restoration Program (CFRP) grant, the Guild will complete cultural and environmental compliances across 10,000 acres. In order to set the stage for much-needed forest and watershed restoration in the Rio Trampas watershed, new acreage must be surveyed for National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance. The Guild will convene a two-day prioritization session for collaborators using geographic information systems to identify the highest priority 10,000 acres for forest and watershed restoration. The planning effort will generate either a categorical exclusion or environmental assessment on each jurisdiction. If no significant impact all jurisdictions will sign a joint finding of no significant impact (FONSI) statement. The planning effort is estimated to support two full time equivalent (FTE) jobs per project year in project coordination and monitoring, and archaeological and biological surveys. The project outreach will engage approximately 40 stakeholders during the two-day prioritization effort and annual multiparty meetings. Young adults and youth from the Chimayo Conservation Corps will receive training in landscape-level monitoring and analysis.

Partners: Carson Forest Watch, Chimayo Conservation Corps (CCC), Earth Works Institute (EWI), Hammerstone Archaeological Services, Rocky Mountain Ecology Inc., Prajna Mountain Forest Refuge, Camino Real Ranger District (CRD), Taos Field Office of the Bureau of Land Management (BLM), State Land Office, Picuris Pueblo, Trampas Land Grant, Truchas Land Grant, Northern Pueblos Agency, and State Forestry Chama/Cimarron Districts.

Statement of Need: Insufficient acres exist that are in compliance with NEPA and NHPA ("NEPA-ready") to meet forest restoration needs within the Rio Trampas watershed. The Carson National Forest estimates less than 300 NEPA ready acres of restoration thinning are available across the district. The primary ecological conditions of the 70,000 acre Rio Trampas analysis area are where (1) ponderosa pine and mixed conifer forests are overstocked and highly departed from their historic conditions; (2) piñon-juniper ecosystems are degraded and exhibit high rates of erosion; and (3) watershed conditions are degraded and impaired. The primary socioeconomic conditions of the analysis area are where (1) federal, tribal, and state agencies have limited capacity to plan or implement ecological restoration at the scale needed; (2) local wood utilization and harvesting businesses are without a consistent supply with which to stabilize and grow businesses; and (3) forested communities, inholdings, agricultural producers, and acequia groups are at risk from the negative effects of uncharacteristic crown fire events.

Project History

Large wildfires are not uncommon in the Rio Trampas watershed. Since 1990, six large wildfires (greater than 50 acres) burned in or around the watershed including: the Catus (1990), Quemado (1993), Dinner (1995), Trampas and Entranas (1996), Horseshoe (2001), and Borrego (2002)

wildfires. These wildfires ranged in size from 50 to 13,000 acres with the three largest fires totaling more than 17,500 acres. The Forest Guild (formerly Forest Trust) began working in this watershed 25 years ago supporting small-scale logging and thinning operators and wood utilizers. In 1997 and 2003 respectively, we wrote the Truchas Land Grant Resource Management Plan and the Truchas Land Grant Fire Plan. More recently in 2006, the Forest Guild facilitated the group process through which over 60 resource professionals and community groups identified landscape restoration priorities across 300,000 of the 3.4 million-acre analysis area as part of the North-Central New Mexico Landscape Assessment. Following those landscape restoration priorities, the Forest Guild was awarded a 2007 CFRP grant titled, *Santa Cruz and Embudo Creek Watershed Multi-jurisdictional Restoration and Protection Project* (Santa Cruz/Embudo CFRP, #16-07).¹

The Santa Cruz/Embudo implementation grant succeeded in restoring forest structure on 504 acres in preparation for prescribed fire in high-priority stands across BLM, Forest Service, and Truchas Land Grant jurisdictions. In addition, in partnership with EWI, we prioritized the treatment sites for erosion risk and soil degradation and with limited funding, implemented watershed restoration techniques to mitigate runoff from roads, assist with understory recovery on bare ground, ameliorate existing and potential headcuts, protect existing desired vegetation from burn piles, and repair an incised and degraded arroyo. This work, which occurred in restoration thinning areas, serves as a model for successfully pairing forest and watershed restoration projects where similar ecological conditions persist. In addition, funded by the State of New Mexico, EWI launched a watershed restoration pilot project in the Lower Embudo Valley and is planning to expand watershed research and restoration work in the watershed.

The Santa Cruz/Embudo CFRP was also highly successful in restoration workforce development and young adult education. Since 2007, CCC and the Forest Guild have maintained a strong partnership to develop a professional restoration thinning hand crew. A testament to the success of this crew is their ability to compete for and receive contracts with the National Park Service and with the Carson National Forest in addition to CFRP funding. Also since 2007, CCC has worked each summer on forest sampling, and crewmembers have even received college credit from Northern New Mexico College for their participation.

In 2003 and 2007, Picuris Pueblo received CFRP grants to thin overgrown forests and develop innovative wood utilization such as natural charcoal and naturally treated poles, as well as to increase the extent and diversity of forest fungi. In 2010, CCC received a CFRP grant on BLM, San Ildefonso Pueblo, and CRD lands to restore forest structure in ponderosa pine, piñon-juniper, and riparian forests.

The Forest Guild and our collaborators are already actively leveraging resources to maintain current forest restoration work. The Forest Guild has brought two Forest Health Initiative projects, managed by State Forestry, to the Truchas Land Grant since 2007. CCC has leveraged over five forest restoration or fuels reduction grants since 2007, and EWI has leveraged three watershed restoration grants in the Rio Trampas Watershed. The collaborators hope to continue and increase this leveraging of restoration opportunities; but the lack of forest and watershed

¹ The Forest Guild received CFRP funding in 2003 (#26-02), 2005 (#01-05), and 2009 (03-09) unrelated to this project.

projects that are implementation-ready jeopardizes our efforts. Currently, across jurisdictions, agencies do not have the funding to comply with environmental and cultural clearances to meet the vast need for forest and watershed restoration along with small wood product availability identified in the 2010 NM Statewide Natural Resources Assessment (EMMNRD Forestry Division 2010)². This is largely due to heavily reduced and stressed federal, state, and tribal budgets. The completion of this proposed project will prepare the largest acreage for forest restoration on the CRD to date.

Project Coordinators and Partners

Forest Guild has performed outreach and successfully engaged several entities to accomplish the proposed actions. Four land management entities comprise the primary collaborators: CRD of the Carson National Forest, Taos Field Office of the BLM, Picuris Pueblo and the Northern Pueblos Agency, and the State Land Office. Landscape restoration planning partners: CCC, EWI, Prajna Mountain Forest Refuge, Carson Forest Watch, Truchas Land Grant, Trampas Land Grant, State Forestry Cimarron District, inholding landowners, and acequia groups. Environmental and cultural compliance partners: Rocky Mountain Ecology and Hammerstone Archaeological Services. Copies of letters of support, commitment, and endorsement from collaborating partners are provided in the Appendix. There are seven areas where collaborators have participated or will participate from inception to completion. These are proposal development (PD); environmental and cultural clearance (C); prioritization (P) of the watershed; education and outreach (EO) to students and community; monitoring (M) of the project and; and in-kind non-federal match (\$).

COLLABORATOR	PD	C	P	EO	M	\$+ ³
Camino Real Ranger District (CRD)	√	√	√	√	√	
Picuris Pueblo	√	√	√	√	√	
Taos Field Office of the BLM	√	√	√	√	√	
Chimayo Conservation Corps (CCC)	√		√	√	√	
State Land Office	√	√	√	√	√	
Northern Pueblos Agency	√	√	√	√	√	
Earth Works Institute	√		√	√	√	√
Chama District of NM State Forestry	√		√			
Cimarron District of NM State Forestry	√		√			
Truchas Land Grant	√		√	√		
Acequia Abajo in El Valle	√		√	√		
NM Environment Department	√		√		√	√
Praja Mountain Forest Refuge	√		√			
Carson Forest Watch	√		√	√	√	
Rocky Mountain Ecology Inc.	√	√				
Hammerstone Archaeological Services	√	√				

² For complete citation information please see (appendix).

² To prevent over-matching, only a portion of the total committed match is reflected in the budget.

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Objectives

Forest Restoration Planning: Forest restoration, the current paradigm for forest management in the Southwest and across National Forest system lands (Day et al 2006), has been identified as a priority by land managers across the Rio Trampas watershed. By broad consensus, managers and scientists have identified widespread undesirable conditions in piñon-juniper (Romme et al 2009), ponderosa pine (Allen et al 2002), and mixed conifer (Fulé et al 2009) ecosystems largely due to human land use practices from the past 120 years. The primary culprits have been the negative effects of excessive grazing, logging, and wildfire suppression (Cooper 1960, Covington and Moore 1994, Lynch et al 2000).

Recent landscape assessments such as the *New Mexico Statewide Natural Resource Assessment & Strategy and Response Plans* (EMNRD Forestry Division 2010) and the *North-Central New Mexico Landscape Assessment* (ForestERA Team, 2007) have identified vast areas of the Rio Trampas in need of active management – forest and watershed restoration in particular.

In the Rio Trampas watershed, some progress towards a restored forested landscape has occurred, mostly through fuels reduction treatments limited to the wildland-urban interface. However, planning and implementation funding barriers exist to realizing landscape restoration goals. As a result of funding limitations, planning has not occurred at the landscape scale, and only an estimated 300 acres of thinning are NEPA-ready on the CRD. Through grants programs such as CFRP and more recently American Recovery and Reinvestment Act funds, most of the NEPA-ready forest restoration acres in the Rio Trampas watershed have been mechanically treated, while a smaller amount have been prescribed burned leaving the watershed virtually without NEPA-ready thinning acres. Forest restoration planning objectives are:

1. Identify the highest priority 10,000 acres within the watershed for forest restoration (thinning and prescribed fire) out of the 70,000-acre watershed through a collaborative two-day workshop within these jurisdictional categories (with approximate acres in parentheses):
 - a. State Land Office (700 acres).
 - b. Picuris Pueblo (1,300 acres).
 - c. Taos Field Office of the BLM (2,000 acres).
 - d. Camino Real Ranger District (6,000 acres).
2. Work with Hammerstone Archaeological Services to survey for archaeological resources across the top 10,000 acres, meet agency requirements, and secure State Historic Preservation Division concurrence.
3. Work with Rocky Mountain Ecology to complete field work and biological assessments across the Rio Trampas watershed.
4. Work with CCC to collect vegetation data using the five CFRP core ecological indicators.
5. Protect old and large trees and species diversity, and incorporate the most current forest restoration science in the NEPA proposed actions.
6. Establish control stands in mixed conifer stands to test restoration management strategies for these higher elevation forests.

7. Coordinate with EWI and other restoration groups to integrate watershed restoration planning processes, needs and data into the forest planning process
8. Build an adaptive management approach into the NEPA analysis.
9. Work with agencies and collaborators to complete the NEPA processes.
10. Work with agencies on a FONSI.

The NEPA process will identify the highest priority treatments for each jurisdiction. In piñon-juniper stands, treatments will focus on restoring the grassland and shrub vegetation community to reduce potential high fire hazards. The treatment would leave approximately 20 to 40 larger trees per acre and the residual stand would reflect the species and age class mix currently on site (Albert et al 2004). Patches of trees on north and east facing slopes would be designated as thermal and hiding cover for large mammals and not treated.

In the ponderosa pine restoration areas, restoration treatment is designed to restore conditions within the historic range of variability and to create stands that allow fire to return to its natural role. Thinning would also increase biodiversity by encouraging brush and grass growth; protect old and large trees; increase ecosystem resilience by incorporating a natural frequent fire return interval; and improve hydrologic function by reducing the basal area to historic conditions. The silviculture prescription would reduce basal area to an average of 30 to 70 square feet per acre across most of the treatment stands. This reduction is in line with the best available science on ponderosa pine restoration (Fiedler and Keegan 2003, Moore et al 2004, Hunter et al 2007).

The mixed conifer forests of the region exhibit an increase in tree densities as a result of altered fire regimes that is common across the western US. For example, one southwestern Colorado mixed conifer forest's basal area was 145 percent greater than historic conditions, and the number of trees had increased even more (377 percent; Fulé et al 2009). White fir has increased in density because of altered fire regimes, while regeneration of ponderosa pine and Douglas-fir has decreased (Romme et al 2009). The greatest increase in tree density has occurred on south-facing slopes, low elevations, and ponderosa pine dominant stands that previously had relatively low tree densities (Veblen et al 2000, Platt and Schoennagel 2009). Fires in lower elevation ponderosa pine forests sometimes spread through adjacent mixed conifer forests (Margolis and Balmat 2009). Proposed treatments in mixed conifer will focus on increased heterogeneity at the landscape scale and will take into account the historic variation in tree densities. Specifically, treatments in mixed conifer types will remove small trees, protect old and large trees, reduce white fir densities, and protect and encourage aspen (Savage et al 2008).

Watershed Restoration Planning: Recent landscape assessments, the 2007 *Upper Rio Grande La Jicarita through Embudo Valley Watershed Management Plan* (Environmental Health Consultants), and land managers in the Rio Trampas watershed have all identified degraded watershed function as a priority concern in this watershed. Impaired watershed functions include areas with elevated levels of erosion and sedimentation, high road densities in forests, and impaired and degraded water quality and degraded stream morphology.

Forest and watershed restoration actions are interconnected. Restoring forest structure will also improve hydrologic function through reduced sublimation of snowfall (Essery et al 2003; Woods

et al 2006) and the establishment of vegetation conditions that may increase water availability (Baker 1986; Kaye et al 1999; and Ffolliott and Thorund 1977).

Watershed restoration planning activities include:

1. Collaboration with EWI, community groups, and agency specialists on watershed restoration needs, goals, planning, and data sharing;
2. Prioritization of areas in highest need of watershed restoration activities; and
3. Incorporation of the current watershed restoration science in the NEPA proposed actions.

The focus watershed also faces increased pressure from a changing climate. On average, the climate in the region is likely to be warmer and drier by the end of the 21st century than it was during the 20th century with warmer spring and summer temperatures; reduced snowpack and earlier snowmelts; and longer, drier summer fire seasons (Westerling et al 2006, IPCC 2007, and Dominguez et al 2010). Warming and drying conditions are likely to cause increased fire activity based on three lines of evidence (Westerling et al 2006, Westerling and Bryant 2008). Other effects of a warmer, drier climate in the Southwest include reduced vegetation growth and increased mortality (Williams et al 2010). A warming climate and altered precipitation regimes will cause other ecosystem changes such as increased success for bark beetles (Bentz et al 2010). There is a great deal of uncertainty regarding how a warming climate will manifest itself across the watershed; but forest restoration is a crucial way of fostering resistance and resilience to the impacts of climate change (Millar et al 2007). The NEPA analyses will also consider the anticipated effects of climate change.

Sustainability: The Rio Trampas watershed incorporates the communities of Apodaca, Canoncito, Chamisal, Dixon, El Valle, La Cuestecita, Montecito, Ojito, Ojo Sarco, Pranja Mountain Forest Refuge, Trampas, and Vallecito and is immediately adjacent to Embudo, Picuris, Peñasco, and Truchas. The watershed is in Rio Arriba County to the south and west and Taos County to the north and east (see map). Representatives from these communities have been involved in project planning (see appendix). Sustainability of wood harvester and utilization businesses, personal fuelwood gathering, and acequia and agricultural producers is currently threatened by the lack of NEPA-ready areas for forest and watershed restoration.

Additionally, sustainable management of the forested landscape by land management agencies is hampered by the high costs of wildfire suppression. A restored landscape that is resilient to fire and allows for managing natural ignitions will reduce fire suppression costs and rehabilitation costs. Suppression costs for Region 3 for the past 20 years averaged \$251 per acre versus \$112 per acre for managing unplanned ignitions by responses other than full suppression. Snider et al (2006) found that hazardous fuels reduction treatments in the Southwest can save \$238-\$600 per acre in future suppression costs alone. Simulations have found that acres burned by wildfire and associated costs are exponentially reduced in treated areas as compared to non-treated areas (Omi and Martinson 2002, Pollet and Omi 2002).

Or project goal is to set the stage for a forest restoration-based economy in the Rio Trampas watershed. Once the NEPA and NHPA planning are completed additional investment will be required to implement forest restoration. However NEPA-ready acres at this scale have never been prepared in this watershed and 10,000 acres ready for treatment should trigger longer-term

investments by forest harvesting and wood utilization businesses. This project is the latest phase of a 25-year partnership between the Forest Guild and communities in this watershed to foster and support sustainable forest-based businesses and uses in concert with communities. The past five years have seen strong collaboration that has facilitated treating hundreds of acres, removed hundreds of cords of wood in restoration, and paired forest and watershed restoration actions successfully with CCC, the CRD, Taos Field Office of the BLM, Earth Works Institute, State Forestry Chama District, and Truchas Land Grant. These partners continue to work together and welcome the new collaborators.

Education and Outreach: Forest Guild, EWI, and CCC will build on the education and outreach partnership that began under CFRP #16-07 and collect vegetation data each project year for use in the NEPA analysis as well as joining EWI's community outreach efforts centered on water quality improvement. Expanding on this partnership, the Forest Guild will also develop three interpretive signs about forest and watershed restoration for the Rio Trampas Watershed. These signs will also address prescribed burn safety and precautions.

Who will benefit?	How will they benefit?
Rio Trampas Watershed	<ul style="list-style-type: none"> ✓ Forested watersheds that are highly departed from their desired future condition (and therefore are at risk from crown fire events and resulting erosion that would create a further departure from their desired future condition) will be implementation ready. ✓ Piñon-juniper woodlands and juniper shrublands that are degraded and exhibit high rates of erosion will be treatment ready.
Land Management Agencies	<ul style="list-style-type: none"> ✓ Agencies have insufficient environmental and cultural compliance to meet the needs of the land and its communities and will have 10,000 acres ready for restoration projects.
Wood harvesters and utilizers	<ul style="list-style-type: none"> ✓ Wood harvesters and utilizers in the area are without a sustainable supply of wood or treatable acres and will gain a 5-10 year supply
Acequia groups and communities	<ul style="list-style-type: none"> ✓ In the long-term, these groups will receive improved water quality (reduced sediment), reduced fire risk, and responsibly harvested wood products from a sustainable supply.

Work Plan, Product and/or Outcomes

What will be done?	Who will do it?	When will it be done?
Identify areas of active and current environmental and cultural compliances	Forest Guild (FG) and agency partners	Completed
Convene collaborators for two-day watershed prioritization workshop to	FG and all collaborators	September 2011

identify the top 10,000 acres for forest restoration		
Project year 1 biological and archaeological surveys	Rocky Mountain Ecology (RME) and Hammerstone Archaeological Services (HAS) in coordination with FG and agencies	October 2011 – September 2012
Develop and activate project webpage	FG	October 2011
Develop purpose and need and proposed actions	FG, RME, HAS, agencies, and Earth Works Institute	October 2011 – March 2012
Collect year 1 stand and core CFRP ecological indicators across jurisdictions	FG and Chimayo Conservation Corps in coordination with agencies	May – June 2012
Project year 2 biological and archaeological surveys	RME and HAS in coordination with FG and agencies	October 2012 – September 2013
Year 2 Multiparty collaborator meeting	FG and all collaborators	October 2012
Hold public meeting in advance of project scoping	FG, all collaborators, and invited public	October 2012
Mail scoping letters	FG	November 2012
Collect year 2 stand and core CFRP ecological indicators across jurisdictions	FG and Chimayo Conservation Corps in coordination with agencies	May 2013 – June 2013
Submit reports to State Historic Preservation Division for concurrence	HAS and FG	September 2013
Draft specialist reports	FG in coordination with agencies	September 2013
Year 3 Multiparty collaborator meeting	FG and all collaborators	October 2013
Draft Environmental Assessment or Categorical Exclusion documents	FG in coordination with agencies	November 2013
Draft decision documents	FG in coordination with agencies	January 2014
Finalize all documents and acquire signatures	FG in coordination with agencies	February 2014
Draft FONSI	FG in coordination with agencies	March 2014
Finalize FONSI, acquire signatures, and post to federal register where applicable	FG in coordination with agencies	April 2014
Develop watershed restoration implementation	FG in collaboration with collaborators	May 2014

plan		
Convene final multiparty collaborator meeting	FG and all collaborators	June 2014

Monitoring and Evaluation Plan

The Forest Guild monitoring coordinator, in partnership with the multiparty team will convene annual project meetings (in addition to the NEPA processes taking place) to review project progress and ecological and socioeconomic data. At these meetings, the collaborators will have opportunities to influence the project and recommend changes to better achieve grant goals.

The primary monitoring of the project will be implementation level, i.e. were grant goals met and how? The project will also use the five core CFRP ecological indicators to sample the three main forest types. The Guild will work with agency staff and collaborators to implement an appropriate and implementable sampling design to capture characteristics of each main forest type. When sampling in piñon-juniper systems we will use current guidelines (Romme et al 2009). The data collection and analysis will be part of our ongoing educational partnership program with CCC. The Guild will also work with NM Environment Department and EWI on water quality and stream and arroyo morphology monitoring.

Implementation Monitoring	Desired Outcome	Sample Measurements
Was NEPA compliance achieved on each partner jurisdiction?	NEPA compliance completed on each partner jurisdiction.	Acres of NEPA completed and narrative of process including lessons learned.
Was NHPA compliance achieved on each partner jurisdictions?	NHPA compliance completed on each partner jurisdiction.	Acres of NHPA completed and narrative of process including lessons learned.
Was the project collaborative?	Collaboration is maintained and strengthened over time.	Number of meetings, attendance, meeting notes, and partnership outcomes.
Were youth and young adults exposed to NEPA and NHPA compliance and vegetation sampling?	Youth and young adults understand NEPA and NHPA processes and watershed forest sampling.	Number of youth and young adults engaged, in what capacity, and description of effort and learning.
Was current scientific information used in the NEPA process?	Current scientific information regarding forest and watershed restoration was used.	Citations of articles used and description of their influence on the NEPA proposed actions and analyses.
How many NEPA and NHPA jobs were created or sustained?	NEPA and NHPA job investment is quantified.	Jobs and FTE are recorded for NEPA and NHPA related compliance.
Existing Watershed Conditions	Desired Future Condition	Sample Measurements
Impaired water quality and degraded stream morphology.	Improved water quality and reduced sedimentation in streams and arroyos.	Rosgen Level II survey methodology.
Erosive land-use practices, high	More sustainable land-use	Permanent photo points.

rates of erosion and risk of increased erosion.	practices; reduced erosion and erosion potential	
High densities of roads and poor road design and maintenance	Roads are better designed and maintained; Unused roads are closed, ripped, or decommissioned.	Road density analysis.
Existing Ecological Condition Ponderosa Pine, Mixed Conifer and Piñon-Juniper	Desired Future Condition	Sample Measurements
High tree density with overabundant small trees.	Lowered tree density and reduced small trees.	>36 tree plots per cover type to measure density, species, crown base height, and size of trees using CFRP Short Guide protocols.
High percent of canopy closure.	Reduced percent of canopy closure (40-60 percent).	>360 canopy cover points per cover type using CFRP Short Guide protocols.
High surface fuel loading.	Reduced surface fuel loading (tons/acre).	>12 surface fuel (Brown) transects per cover type using the CFRP Short Guide protocols.
Ground cover dominated by litter and bare soil.	Increased ground cover of grass and forbs	>60 3 x 3 foot understory cover plots per cover type using CFRP Short Guide protocols.
Existing Socioeconomic Condition	Desired Future Condition	Sample Measurements
Communities have an insecure supply of fuelwood and small-diameter products due to insufficient NEPA-ready acres.	Communities have a secure and sustainable supply of fuelwood and wood products.	Acres of restoration thinning NEPA ready. Estimated volume of wood products needed to be removed to meet desired ecological conditions.
NEPA compliance and archaeological survey costs at a sufficient scale exceed the current budgets of agencies.	Collaborators in long-term partnerships with agencies continue to leverage resources to procure compliance funding.	Narrative of collaboration and outcomes of forest and watershed restoration leveraging efforts.
Commercial forest harvesters and wood utilizers have an insecure supply of acres and wood.	Commercial forest harvesters and wood utilizers have a secure and sustainable supply of fuelwood and wood products.	Acres of restoration thinning NEPA ready. Estimated volume of wood products needed to be removed to meet desired ecological conditions.
Wildfire suppression costs are unsustainable.	Wildfire suppression costs are reduced.	USDA R-CAT Wildfire Cost Savings Model.