Chapter 6

National Forest Ecological Restoration Implementation Plan

Angeles National Forest

Vision Statement

Ecological Restoration on the Angeles National Forest will be a lens through which ongoing programs, projects, and activities are viewed, as opposed to a separate or distinct program. It will provide a holistic framework that is complementary to interdisciplinary analysis. An emphasis will be placed on integration of major Forest programs and working across boundaries with our partners to enhance forest capacity and leverage opportunities for sustaining the health, diversity and productivity of the Angeles National Forest.

The large population of Los Angeles County places intense demands on forest resources, but also presents an opportunity to partner with a highly diverse range of potential interested groups, with correspondingly diverse skills. The year round wildfire season is an enormous challenge, but can also provide opportunities to rebuild or relocate facilities in a manner that retains and re-establishes ecological resilience of the land. Climate change may have unique manifestations given the juxtaposition of coastal and desert influences. Wildfires, rapid changes associated with climate change, and a traditional focus on continually meeting an ever expanding public demand combine to create potential for the forest to experience negative, irreversible trends in ecological sustainability. An Ecological Restoration lens is needed to move the Angeles National Forest towards healthy and resilient landscapes that will have a greater capacity to survive natural disturbances and large scale threats to sustainability.

Comprehensive Goals

1. Maintain and restore ecosystem resilience so that key ecological processes and functions persist in the face of catastrophic events, disturbance processes, and intense public use;
2. Implement an All Lands Approach to facilitate and improve coordination and relationships focusing on paramount influences that affect ecological restoration;
3. Quantify and identify the economic and social value of natural assets (ecosystem services) on the Angeles National Forest to promote ecological restoration, informed decision-making, and collaboration that stimulates market-based conservation and stewardship; and
4. Implement monitoring and adaptive management to evaluate the effectiveness of the Ecological Restoration Plan, facilitate responses to short-term and long-term environmental change, and new ecological information and management tools.

Short-Term Approach and Strategy

The intent of this initial effort is to identify short-term (1–3 years) strategies and actions that will be taken to move us towards meeting the comprehensive ecological restoration goals. This document is intended to provide the framework for long-term plan development and it is envisioned to be a living document that will need to remain flexible in order to respond effectively to unanticipated events. The ANF will continue to update and expand our strategies and actions as new information is collected, a better understanding of the environmental conditions are known, and improved integration of Forest programs occurs as part of developing Programs of Work. The following is not intended to be comprehensive prioritized list of strategies and actions, but rather it is an initial effort to identify several key strategies and supporting actions that are reasonably achievable over the next few years:

Goal 1 - Strategies and Actions

Strategy 1A: Focus management attention on degraded lands that have experienced repeated disturbance.

- **Action 1A1**: Identify, assess, and restore areas (based on best available information) of NF lands that have been determined to be type-converted. Conduct a retrospective analysis of scientific literature on restoration of type converted landscapes, with a focus on identifying viable management options. Engage the Pacific

Southwest Research Station leadership to address knowledge deficiencies. Identify priority treatment techniques and areas.

- **Action 1A2**: Assess former administrative facilities where partial decommissioning has occurred and implement additional actions necessary to implement ecological restoration.
- **Action 1A3**: Identify and assess areas impacted by marijuana plantations and implement actions to remediate and restore affected areas.

Strategy 1B: Complete and adopt the Invasive Management Strategy and Action Plan.

- **Action 1B1**: Implement comprehensive surveys and treatment of high priority weed infestations in strategic locations to improve watershed function and value, restore native vegetation, improve hydrological processes, and improve habitat.

Strategy 1C: Complete and adopt the Aquatics Resources Management Plan.

- **Action 1C1**: Collaborate with our partners to implement Mountain Yellow Legged Frog Translocations and establish a captive breeding program to recover the species.
- **Action 1C2**: Install Stream Condition Inventory Sites along key watersheds to collect real-time baseline data.
- **Action 1C3**: Implement in-stream barrier removal and education program to discourage construction of rock dams along key watersheds to restore hydrological processes, improve water quality conditions, and enhance aquatic habitat.
- **Action 1C4**: Conduct multi-year fisheries inventories and assessments of key watersheds on a forest-wide basis.
- **Action 1C5**: Conduct Aquatic Organism Passage Inventory and Improvements.

Strategy 1D: Conduct integrated resource planning after large wildfires to determine restoration needs that complement the BAER program, or to identify areas that are unlikely to return to desired ecological conditions without active intervention.

- **Action 1D1**: Continue implementation of the Station Fire Reforestation Project.
- **Action 1D2**: Establish a standing interdisciplinary team of key specialists to develop post fire restoration plans.

Strategy 1E: Foster and promote integration of major Forest programs to maximize the use of limited funds to achieve the desired increased pace and scale of ecological restoration work.

- **Action 1E1**: Foster and support collaboration at the Forest Leadership level to develop annual integrated Programs of Work to move the Angeles National Forest towards healthy and resilient landscapes that will have a greater capacity to survive natural disturbances and large scale threats to sustainability.
- **Action 1E2**: Continue the collaborative project planning and implementation efforts of the Fuels and Vegetation Management Team and establish other similar integrated multi-resource management teams.

Goal 2 - Strategies and Actions

Strategy 2A: Proactively engage permittees with the largest facilities and infrastructure on the forest to improve or restore ecological processes and ecosystem functions affected by their facilities and activities.

- **Action 2A1**: Complete the development and implementation of restoration plans associated with the three electrical transmission projects that have occurred over the last five years.
- **Action 2A2**: Collaborate with LA County on the development of their Los Angeles Basin Stormwater Conservation Study.
- **Action 2A3**: Collaborate with LA County's Sediment Management Task Force, and on individual sediment removal projects, including other regulatory agencies.
- **Action 2A4**: Collaborate with LA County Department of Public Works to finalize Operation and Maintenance Plan and implement guidelines to protect and enhance ecosystem function and species and their habitats.
- **Action 2A5**: Coordinate with partners to prevent and control Quagga mussels.

Strategy 2B: Use existing authorities to formalize partnerships, expand efforts to engage partners and volunteers leveraging opportunities, and develop closer coordination with other agencies.

- **Action 2B1**: Pursue opportunities to enter into Service First Agreements with the National Park Service and other interested land managing or regulatory agencies with the goal of expanding restoration efforts to lands adjacent to the ANF.
- **Action 2B2**: Participate on the Federal Executive Board and encourage coordination among federal

agencies to partner and leverage ecological restoration opportunities.

Goal 3 - Strategies and Actions

Strategy 3A: Maximize funding resulting from wildland fire investigations and court proceedings, and establish accurate monetary values for purposes of restoring natural resources damaged by wildfire. Begin implementation of restoration projects with funds already received through this process.

- **Action 3A1**: Conduct a retrospective analysis to determine costs of restoring fire damaged resources, including a comprehensive review of existing court cases, ecosystem services literature, and successful restoration projects across different ecosystems. Consider both natural and social values.
- **Action 3A2**: Implement ecological restoration actions with funds received from the Burro Fire (RIRI).

Strategy 3B: Encourage broader thinking and collaboration that stimulates market-based conservation and stewardship.

- **Action 3B1**: Participate in regional efforts to evaluate restoration techniques for shrub dominated ecosystems, determine their potential to sequester carbon, and identify potential funding opportunities associated with the State of California's carbon market.

Strategy 3C: Identify and integrate opportunities to enhance aesthetics and visual resources in a manner that improves and restores ecosystem function along water corridors.

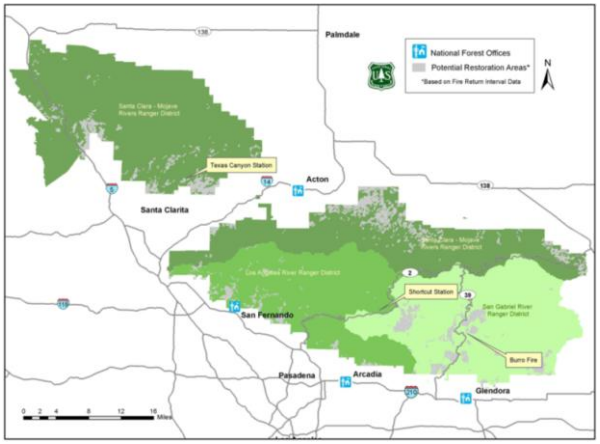
- **Action 3C1**: Maximize funding to identify and mitigate the impacts of dispersed recreation use on the Angeles National Forest.
- **Action 3C2**: Maximize funds to develop ways to educate the public on the impact of dispersed recreation use on the natural environment.

Goal 4 - Strategies and Actions

Strategy 4A: Establish metrics to adaptively manage strategies and actions and track accomplishments.

Action 4A1: Continue with implementation of the Land Management Plan Monitoring and Evaluation report required as part of the Forest Plan.

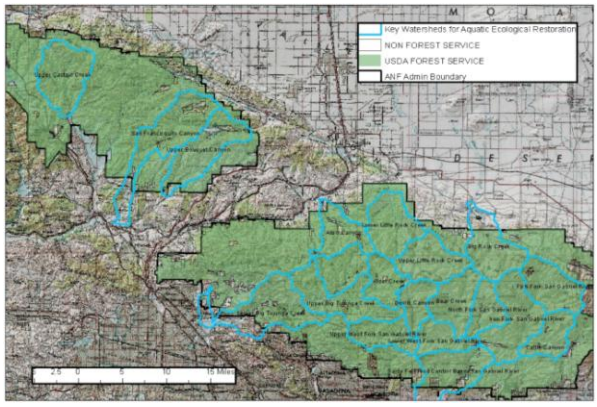
Strategy 1A, Actions 1A1 and 1A2; and Strategy 3A, Action 3A2- Implement Restoration Projects in Areas Affected by repeated disturbance and fire.



Map 1: Potential restoration sites and areas.

Strategy 1C, Actions 1C1-1C5, Action 1B1- Implement Actions/Projects from the Angeles National Forest Aquatics Resources Management Plan and Invasive Management Strategy and Action Plan, including but not limited to:

- Conduct mountain yellow-legged frog translocations;
- Remove in-stream barriers for aquatic passage;
- Implement invasive removal including aquatic and terrestrial species;
- Conduct multi-year fisheries inventories and assessments of key watersheds on a forest-wide basis;
- Implement Aquatic Organism Passage Inventory and Improvement;
- Conduct Stream Condition Inventory and Monitoring to identify restoration opportunities;
- Implement comprehensive surveys and treatment of high priority week infestations in strategic locations; and
- Coordinate with Dam operators to provide for base flows for aquatic species



Map 2: Watersheds benefitting from the Aquatic Resources Program.

Strategy 1D, Action 1D1 - Implementation of the Station Fire Reforestation Project:

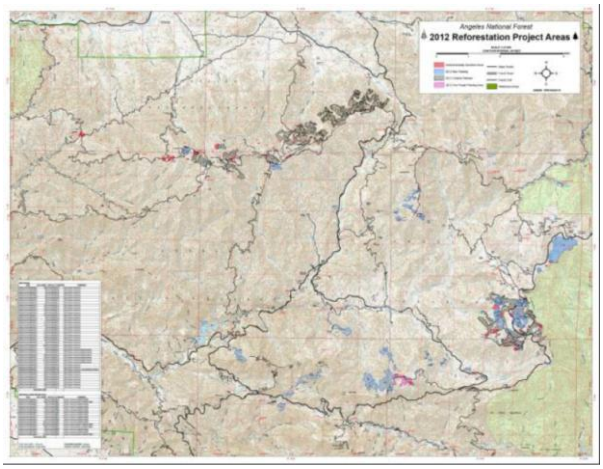
- Reforestation Project – Ecological Restoration Goals include:
- Accelerate establishment of ecological appropriate forest cover through planting of areas that will not regenerate naturally;
- Establish a minimum of 75-100 trees per acre depending on the site and forest type and sequester carbon over the next100 years;
- Over the five year project horizon, plant trees to mimic tree species diversity and composition that occurs naturally in the area;
- Allow for natural regeneration to take place in areas that were not determined to be in a deforested condition;
- Protect and enhance priority watersheds and improve watershed condition; and
- Re-establish California spotted owl habitat (Protected Activity Centers)

Ecological Restoration Accomplishments

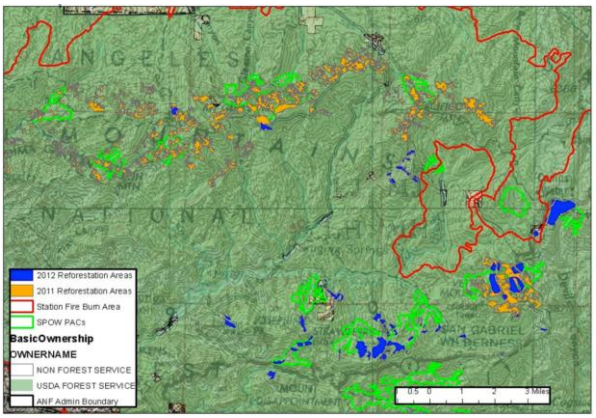
ANF Post-Station Fire Reforestation Project

The ANF is restoring approximately 5,400 acres through replanting of mixed conifer forests. The overall need for this project is to establish ecologically appropriate forest cover in areas affected by the 2009 Station Fire. The specific purpose of this project is to rapidly establish forest cover in fire affected native stands within 5 years of the burn. If no action were taken the reestablishment of forest cover will be delayed by decades. In some instances, conversion from forest type to shrub/hardwood type or non-native grassland would have occurred if no action was taken.

Map 3: Areas restored by the Reforestation Project in 2011.



Map 4: Areas restored by the Reforestation Project in 2012.



Map 5: California Spotted Owl Habitat that will be re-established by the Reforestation Project.

The Reforestation Project Ecological Restoration Goals include:

- Accelerate establishment of ecological appropriate forest cover through planting of areas that will not regenerate naturally;

- Establish a minimum of 75–100 trees per acre depending on the site and forest type and sequester carbon over the next 100 years;
- Over the five year project horizon, plant trees to mimic tree species diversity and composition that occurs naturally in the area;
- Allow for natural regeneration to take place in areas that were not determined to be in a deforested condition;
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- Re-establish California spotted owl habitat (Protected Activity Centers).

Photo 1: Unit 84 of the Station Fire Restoration Project, after the fire and before planting.

Photo 2: Contract planter reforesting in Unit 100 of Station Fire Restoration Project.

Photo 3: Coulter pine seedling from the USFS Placerville nursery, planted in Unit 100 of the Station Fire Restoration Project.

Photo 4: Volunteer from Tree People planting in Barley Flats Unit 246.

Ecological Restoration by Special Use Permittees

The ANF has been very active over the last 4-5 years in seeking to include realistic and meaningful restoration goals in approvals for projects proposed and implemented by special use permittees. The focus has been on permittees with the largest footprint on the forest, including electrical utilities, oil and gas pipelines, state and county highways, and flood control dams. Projects have been approved with provisions for long term monitoring of erosion, invasive plant removal, re-seeding using native seed material collected on the forest, barriers to control illegal access, and temporary recreational closures. These standards are site specific, take into account pre-project conditions, and ultimately promote the desired conditions in the LMP. Coordination and dialog have occurred with the permittees prior to adopting restoration standards to ensure that they are realistic and achievable, and recognize their interests. The paradigm shift has been away from treating post-disturbance restoration as a one-time event, and towards a longer term commitment to maintain and monitor effectiveness, drawing on the skills and resources of both the permittee and the agency to achieve goals.

Top left photograph shows a temporary disturbance site that was grubbed of vegetation during construction of Southern California's Antelope Pardee Transmission Line. Top right photograph shows recontoured site being revegetated. Bottom photographs (left to right) show site immediately after revegetation and approximately six months later.

Charlton/Chilao Vegetation Improvement

This project is located within the Charlton-Chilao Recreation Area and administrative site. The area is approximately 8,500 acres of mixed conifer, ponderosa pine, Coulter pine, canyon live oak, and mixed chaparral at 3,650 to 6,200 feet in elevation. The treatment area encompasses a variety of national forest picnic areas, campgrounds, a visitor center, several hiking trails (including the Pacific Crest Trail), a scenic byway, and five youth organizational camps. These facilities receive extremely high recreational use, drawing tens of thousands of visitors from the city, especially on summer weekends. They are also deemed at risk from catastrophic fire. A Cal-Trans maintenance

yard, an observatory, Forest Service fire station, helicopter base, and a parcel of private property are also within the project area.

The activities during the treatments include hand cutting/piling, pile burning, broadcast burning, mechanical treatments (mastication) and public education. The treatments are designed to improve forest health and vigor in plantations as well as natural tree stands for a greater resistance to fire, insect attack, and disease.

NEPA Ready Projects

1. Removal of idle transmission line in Aliso Canyon and restoration of tower sites and access road (SCE to implement).
2. Full restoration of the old Fire Stations, including Shortcut and Texas Canyon. Restoration of Shortcut would complement over 2 miles of road along Tu-junga Creek that SCE will be decommissioning.
3. Identify, assess, and restore areas of NF lands that have been determined to be type-converted.
4. Assess former administrative facilities where partial traditional decommissioning has occurred and implement additional actions necessary to implement ecological restoration.
5. Identify and assess areas impacted by marijuana plantations and implement actions to remediate and restore affected areas.

Photographs show Charlton Picnic area pre-treatment and post-treatment.

Photographs are from the Chilao area, where mastication was the primary treatment method.