San Bernardino National Forest Ecological Restoration Implementation Plan

Forest Ecological Restoration Overview

The San Bernardino National Forest, one of the most urbanized forests in the nation, strives to provide a balanced and sustainable flow of goods and services for a growing diverse population while ensuring long-term ecosystem health. Maintaining healthy, sustainable national forests in southern California is affected by a complex set of factors including population growth, rapid urbanization, increased demand for access and recreation use, impacts from climate change, disease and tree mortality, high wildfire frequency and intensity, and non-native invasive species.

The Forest provides the headwaters for the Santa Ana, Mojave, San Jacinto, and Whitewater Rivers and serves as the primary clean water source for many of the cities in southern California. The Forest is characterized by the Mediterranean ecosystem, a system of unique ecological communities found nowhere else with many endemic plant and animal species. There are 21 federally threatened and endangered plant and animal species on the Forest. Urban influences create the ever increasing demand for convenient national forest access, improvements to facilities, environmental protection measures, and public education programs.

The Forest is the backdrop to, and respite from, the urbanized web of communities that surround it which requires a high level of management to ensure that the forest ecosystem remains resilient and healthy. The Forest is located in one of the driest, most fire-prone areas in the United States. The high level of public use of the Forest makes fire management difficult due to the predominate human ignition of wildfire. Repeated large wildfires can have secondary resource impacts through the introduction and spread of non-native invasive species and the increased erosion of soils, vegetation type conversion, and reducing endemic plant and animal species populations.

The challenge for Forest managers is to effectively engage and collaborate with the public to sustainably manage the Forest. This means working together in a nontraditional, coordinated, collaborative network of tribes, communities, government agencies, groups, organizations, and individuals to sustain the Forest for the future.

Ecological Restoration Goals

The Forest's goal is to continue to engage partners in an "All Lands Approach" to ecological restoration across the Forest in order to re-establish and retain ecological resilience of the land and provide a broad range of ecosystem services.

Although not exclusively, the focus of the Forest's efforts over the next 2-4 years will be the Upper Santa Ana watershed. This watershed is one of the largest watersheds on the forest that has not had a history of repeated, intense large wildfires. Ninety percent (90%) of the water provided by this watershed comes from National Forest System lands. Improving the health and resiliency of the watershed is critical to its ability to provide continued water to over 5 million downstream residents.

Partners are interested in investing in the upper Santa Ana watershed to increase water quality, quantity, and availability. This requires that new ways to accomplish restoration work including large scale conservation actions across jurisdictional boundaries are explored. In order to reverse current trends of degrading watershed conditions and resiliency, the pace and scale of ecological restoration work will need to increase. To accomplish this the Forest has and will continue to integrate budgets for hazardous fuels reduction, vegetation management, wildlife management, recreation management, road and trail maintenance, and special use and mining administration to accomplish work, but this alone will not meet the level of work needed. This will require that the Forest continues to work with cooperators, such as the Santa Ana Watershed Planning Authority (SAWPA), in a collaborative fashion to implement ecological restoration activities, and increase funding opportunities. The Forest will work with SAWPA to define economic value to the planned ecological restoration activities on National Forest System lands over the next 2–4 years.

Integrated Activities include: (See the attached Project List for specific project names):

- Restoration of meadows for water retention will be accomplished as a part of fuels reduction activities through the removal of encroaching trees.
- Restoration of lands damaged by unauthorized trails and abandoned mines, and repair of Forest Service roads and trails to reduce sediment into the lakes and streams.

- Restoration of native chaparral ecosystems that have been type converted to grass covered slopes.
- Restoration of forest lands to increase resiliency and reduce the risk of catastrophic wildland fires through hazardous fuel treatments, including and coordinating fuels reduction activities on adjoining private lands with public and private organizations.
- Reintroduce endangered species in partnership with the U.S. Fish and Wildlife Service, eradicate non-native invasive species, and restore habitat in the priority watershed.

Ecological Restoration Accomplishments

Within the Grout Creek subwatershed, less than 1 mile from the Forest Service boundary, the Forest improved the road surface on a Forest Service road in a chronically bad stretch. A spring above the road seeped down onto the road and created a pond that contributed sediment through erosion to downstream waterbodies. The Forest rerouted the drainage from the spring under the road to a wildlife drinker downstream, and then resurfaced the road. These actions are estimated to reduce sediment loading by 80% from the before condition.

Before: Spring drains down road.

After: Spring channeled under road to wildlife water source.

Another example of ecological restoration on the Forest is the stabilization of large gullies within three montane meadows. Montane meadows are one of 12 rare ecological communities in the southern California national forests; they are important for water absorption, retention and filtration. The Forest worked with volunteers and interns to stabilize the gullies, estimated at 900 hours of labor valued at $18,225. The areas were recontoured through the construction of approximately 21grade stabilizers and 17 geofence stabilizers. Soil was brought in to fill in the eroded area and the area was re-sodded. The sites were restored with willow planting, native seeding and planting, and weeding. Erosion prevention was accomplished through Best Management Practices through the installation of erosion control mat and straw wattles, vertical mulching, and chipping. The area was then slashed and signed to prevent illegal access to vehicles. Habitat for 8 sensitive plants, 6 sensitive wildlife species, an endangered bird, and 3 Management Indicator Species benefited from this project.

Paramount High School Environmental Club assists with meadow repairs.

Recontoured channel Cienega Redonda meadow retains perennial flow.

NEPA Ready Projects:

The Forest's focus for the next 2–4 years will be projects in the priority watershed that are ready to implement. The South Big Bear and Bluff Mesa Hazardous Fuels Reduction projects are typical on the Forest in that they are designed to integrate ecological restoration by reducing erosion and improving water quality by restoring historic and unauthorized routes, improving road drainage and hardening water crossings, treating of non-native invasive species, and creating and protecting wildlife habitat. With the focus in the priority watershed many of the other actions that are going to occur over the next 2–4 years will compliment these fuels reduction activities by improving road drainage and hardening water crossings in the Santa Ana River, Minnelusa Canyon, Deer Creek, and the road into the South Fork campground, the Fish Creek Recreational Residence access will be improved while enhancing meadows, and the Skyline and South Big Bear non-motorized trails will establish a system of mountain bike trails in the priority watershed while restoring the unauthorized trails that cause erosion.

Projects in Santa Ana River Priority Watershed	Benefits (X=yes)								
	Water Quality		Hydrologic Function		Habitat Restoration			Recreation	Forest Resiliency
	Sediment Reduction	Other Constituents	Flood Attenuation	Water Quantity	Wildlife Benefit	Weed Control	Species Re-introduction		
South Big Bear Fuels – MTRD1	X			X	X	X			X
Bluff fuels – MTRD1	X			X	X	X			X
Butler Slide Hazardous Fuels/Grout Creek 2N13 hazardous tree removal. (30% of NEPA is in upper Santa Ana)	X			X	X	X		X	X
Skyline non-motorized trails	X							X	
South Big Bear non-motorized trails	X							X	
Baldwin Lake Fuels – MTRD1	X				X	X	X		X
1N45 – Santa Ana River crossings/RCA protection	X	X				X		X	
2N03Y – Minnelusa Canyon reconstruct road/drainage	X	X				X		X	
1N17 – South Fork campground recontour/sediment basin	X		X			X		X	
1N64 – Deer Creek crossing	X				X	X		X	
Fish Creek Recreational Residence entry road crossing/meadow enhancement	X		X		X	X		X	
1N09 – Deer Creek crossing	X		X		X	X		X	
2N99 – reconstruct road/drainage	X	X						X	

[1] MTRD – Mountain Top Ranger District

Projects in Other Watershed	Watershed Basin	Benefits (X=yes)								
		Water Quality		Hydrologic Function		Habitat Restoration			Recreation	Forest Resiliency
		Sediment Reduction	Other Constituents	Flood Attenuation	Water Quantity	Wildlife Benefit	Weed Control	Species re-introduction		
Thomas Mountain Fuels – SJRD1	Santa Ana River	X								X
South Ridge Fuels – SJRD1	Santa Ana River	X								X
Oak Glen Fuels – FCRD2	Santa Ana River	X								X
Angeles Oaks prescribed burn – FCRD2	Santa Ana River				X					X
Circle Mountain restoration	Santa Ana River	X							X	

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		Water Quality		Hydrologic Function		Habitat Restoration			Recreation	Forest Resiliency
		Sediment Reduction	Other Constituents	Flood Attenuation	Water Quantity	Wildlife Benefit	Weed Control	Species re-introduction		
Palm Canyon Tamarisk Removal	Whitewater River				X		X			
Spanish Broom Removal	Santa Ana River						X			
May Valley Fuels – SJRD1	Santa Ana River	X								X
Restoration of Shay Creek through expansion and cleanout for restoration of Three-spined Stickleback habitat	Santa Ana River					X				
Relocate Speckled Dace in Cajon Wash and Indian Creek	Santa Ana River							X		
Re-introduce Mojave tui chub in Coxey Pong	Mohave River							X		
Re-introduce Mountain yellow-legged frog in City Creek, Plunge Creek, and NF San Jacinto river, through removal of trout and support of the captive breeding program	Santa Ana River							X		
Support the re-introduction of Santa Ana sucker on FCRD2	Santa Ana River							X		
3N34 – Willow Creek crossing	Mohave River	X				X	X		X	
5S05 – Herkey Creek crossing	Santa Ana River	X				X	X		X	
2E43 – Hixon-Bautista crossings	Santa Ana River	X				X			X	
4S02 reconstruct road/drainage	Santa Ana River	X					X		X	
1N34 reconstruct road/drainage	Santa Ana River	X					X		X	
5S06 – Alvin meadows unauthority route decommissioning	Santa Ana River	X		X		X	X			
3N14 – Coxey meadow	Mohave River	X		X		X	X	X	X	
3N53, 2N89 – OHV interactions	Santa Ana River	X								

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		Sediment Reduction	Other Constituents	Flood Attenuation	Water Quantity	Wildlife Benefit	Weed Control	Species re-introduction		
drainage										
3N49 reconstruct road/drainage	Santa Ana River	X							X	
3N99 reconstruct road/drainage	Mohave River	X							X	
3N31 crossing above Clyde Ranch	Santa Ana River	X								
3N11 reconstruct road/drainage	Mohave River	X							X	
3N10 reconstruct road/drainage	Mohave River	X							X	
Summit Staging OHV	Mohave River	X				X	X		X	
Baldy Mesa Staging OHV	Santa Ana River	X				X	X		X	
Miller Canyon Staging OHV	Mohave River	X		X		X	X		X	
2N02 – Arrastre Creek crossing	Whitewater River	X				X			X	
North Fork prescribed burn – SJRD1	Santa Ana River				X	X				X

1. SJRD – San Jacinto Ranger District
2. FCRD – Front Country Ranger District