

CFLR Ecological Indicator Progress Report

Project Name: SOUTHWEST JEMEZ MOUNTAINS

State: NEW MEXICO

Initial Landscape-scale Desired Conditions for the life of the project as defined by the Collaborative

Desired Conditions Target for Fire Regime Restoration: 85 % change (relative to the desired condition) occurs across 28% of the landscape area by 10/1/2014.

1. Original SWJM CFLRP proposal identified 58,980 acres of total project area (210,000 acres) to be either thinned/removed/burned, or thinned/no-removal/burn, or burn-only during the first 5 years (2010-2014), which equals 28% of the landscape project area; see Table 12.7 in proposal. Actual acres with treatment implementations, and including unplanned burns, totaled 83,974 acres during 2010-2014 (40% of project area).
2. Desired conditions following all treatments and unplanned burns were to include: Move stand S-Class from B to C or C to D; reduce hazardous fuels; raise live basal canopy height to > 2m.
3. Desired conditions for area impacted by treatments and unplanned ignitions were targeted at 80% overall; targets for thinning efforts were set at 100% (complete contract compliance), with burning targets of 75% of land area within burn boundaries actually burned.

Desired Conditions Target for Fish and Wildlife Habitat Condition: 30% change (relative to the desired condition) occurs across 28% of the landscape area by 10/1/2014.

1. CFLRP treatments and unplanned burns covered 83,974 acres (40%) of project area; planned project implementations were for 28% of project area.
2. Understory development for terrestrial wildlife habitat: Desired conditions include increased grass and forb cover in forest understory for wildlife forage. Given that successional processes of understory development of herbaceous layers requires 8-10 years in the Jemez Mountains, in 5 years we anticipated 0-10% plant cover change in the most recent year of treatment and up to 60% change in 5-year-old treatments; overall average after 5 years is estimated at 30% herbaceous cover on impacted project areas.
3. Mast-producing shrub species for wildlife: Desired conditions include development of patches of mast-producing shrubs in appropriate habitats.
4. Biodiversity and species richness shifts: Desired conditions include a shift in occupancy and/or use from vertebrate and invertebrate fauna dominated by species common to deep-litter closed-canopy forest habitats to species dominant in more open, grassland understory habitats following thinning and burning. Taxa include large mammals (elk, mule deer, bear, and cougar), small mammals (squirrels, mice, voles, and chipmunks), songbirds, and major groups of pest and beneficial invertebrates (grasshoppers, crickets, spiders, beetles, moths, ants).
5. Fisheries and aquatic wildlife habitats: Desired conditions include increased streamflows in perennial streams following thinning, without water quality degradation (e.g., turbidity and temperature increases); development or maintenance of riparian vegetation; maintenance of fish and aquatic invertebrate populations.

Desired Conditions Target for Watershed Condition: 100 % change (relative to the desired condition) occurs across 28% of the landscape area by 10/1/2014.

1. Treatment areas based on original proposal (see above); riparian treatments planned on 134 acres 2010-2014 on ~8 miles of elk/cattle exclosures; unplanned burns in 2011 (Las Conchas Fire) and 2013 (Thompson Ridge Fire) increased watershed areas impacted within the CFLRP Project Area. Actual riparian restoration treatments on 120 acres along 4.5 miles of exclosures.
2. Soil erosion: Desired conditions include no or minimal occurrence of soil erosion in areas impacted by treatments and unplanned burns.
3. Water quantity: Desired conditions include greater water retention in soils, infiltration and runoff (spring snowmelt period) in post-treatment watersheds.

4. Water quality: Desired conditions include replanted riparian woody vegetation, leading to lower water temperatures and turbidity, and maintenance of current high-quality levels for dissolved oxygen, pH and conductivity.

Desired Conditions Target for Landscape Scale Invasive Species Severity: 28 % of the CFLR landscape area was restored by reducing invasive species severity (preventing, controlling, or eradicating targeted invasive species) to meet desired conditions by 10/1/2014.

1. Original proposal specifically identified 662 acres (0.3% of total project area) to be surveyed and treated during 2010-2014. Actual area surveyed was 8,838 acres; 8,458 treated acres (96%) were free of invasive plant species; 380 acres had invasive plants treated or are scheduled for treatment in 2015. Intent is to survey and control non-native invasive plants on all treated areas.
2. Invasive species detection and control: Desired conditions include eradication of all populations identified in pre- and post-treatment project areas.

Scoring for National Reporting

Landscape-scale scoring

Current Landscape-scale Evaluation (Based on the Collaborative's landscape scale monitoring)

| Ecological Indicators | Datasets and/or databases of records used | Good, Fair, Poor and (%) landscape across which progress is being made towards desired conditions | Are you achieving your CFLRP objectives? (Y/N) | If NO, briefly explain... |
|-------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fire Regime Restoration | Fire severity maps, S-class, repeat photos | Good on 32% of landscape; poor on 8% | Yes | |
| Fish and Wildlife Habitat Condition | Plant measures, faunal occupancy/use | Good on 32% of landscape's terrestrial habitats; Fair on 100% of stream habitats. | Yes | |
| Watershed Condition | Stream discharge and water quality data; erosion assessments | Good on 32% of terrestrial portions of watersheds; Poor on 8%. Poor on 100% of perennial streams in landscape. | No | Post-fire flooding from unplanned burns (2011 Las Conchas fire and the 2013 Thompson Ridge fire) resulted in poor water quality and fish kills. Recovery is underway, and will take several additional years to attain pre-fire metrics. Soil erosion is negligible on CFLRP thinning and prescribed fire treatment sites. |
| Invasive Species | Field surveys and GIS data. | Good on 40% of landscape. | Yes | |

Narrative (optional):

Overall CFLRP treatments are successful and monitoring data indicate progress towards desired conditions; progress to date (40% of project area) has exceeded the planned acreages (28% of area by 2014), due to unplanned fires in the project area. Unplanned fires in 2011 and 2013 resulted in upper watershed impacts from stand replacement burns and post-fire flash floods, that caused negative impacts downstream and throughout the project areas watersheds. Successional recovery is underway, and watershed stability is expected to be achieved in the next 2-4 years.

Project-scale scoring¹

Current Project-scale Evaluation (Based on and aggregation of the Collaborative's project level monitoring)

| Ecological Indicators | Datasets and/or databases of records used | Project Level Good, Fair, Poor and (%) treatments resulting in measurable progress as defined above | Are you achieving your CFLRP objectives? (Y/N) | If NO, briefly explain... |
|-------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fire Regime Restoration | Fire severity maps, S-class, repeat photos | Good on 100% of treatment projects and 71% unplanned burns; Poor on 29% of unplanned burns. | Yes | |
| Fish and Wildlife Habitat Condition | Plant measures, faunal occupancy/use | Good on 100% of projects for terrestrial wildlife habitat; Fair on 100% of aquatic habitats. | Yes | |
| Watershed Condition | Stream discharge and water quality data; erosion assessments | Poor on 100% of streams due to flooding and poor water quality from erosion; Good on riparian restoration (replanting) and erosion control on thinned sites. | No | The Las Conchas fire of 2011 resulted in 16,000 acres of medium- and high-severity burns, resulting in floods throughout the project area watersheds. This caused fish kills and degraded water quality from 2011-2014. Watershed function does show recovery trends, with fewer floods in 2014 and recovery of fisheries and aquatic invertebrates. However, erosion on thinned and prescribed burn sites is negligible, indicating successful watershed outcomes on implementation project sites. |
| Invasive Species | Field surveys and GIS data. | Good on 96% of treated areas. | Yes | |

Narrative (optional):

The Las Conchas Fire in 2011 caused negative outcomes for forest and watershed restoration on 16,000+ acres of the Valles Caldera National Preserve, in terms of stand-replacement effects and post-fire flooding on nearly all project watersheds. However, this same fire, combined with the 2013 Thompson Ridge Fire, produced beneficial restoration effects on nearly 40,000 acres of terrestrial habitats. Monitoring data on streams and vegetation indicate that post-fire recovery is underway and well-advanced for herbaceous cover and wildlife occupancy and use (2011-2014), and that watershed flooding is subsiding in intensity, with improvements in water quality; trout fisheries are recovering.

CFLRP implementation treatments have all had very positive outcomes, meeting or exceeding planned acreages and desired outcome standards.