USDA Forest Service Watershed Condition Framework
FY2011 TRANSITION WATERSHED RESTORATION ACTION PLAN
Oak Creek Watershed
Inyo National Forest

1. Summary

a. Watershed Name and HUC: Oak Creek / 180901030103

b. General Location: The Oak Creek watershed lies to the east of the crest of the Sierra Nevada on the boundary between the Sierra and Great Basin geographic provinces. The Oak Creek watershed is located in Inyo County, California, less than one mile west of the Fort Independence Indian Reservation.

c. Total Watershed Area:_15,952.2_ acres**;** **NFS area within watershed:**__97__%.

d. Watershed Characterization:

- **General Physiography:** The Oak Creek watershed is located on the eastern escarpment of the southern Sierra Nevada mountain range. Elevation in the watershed ranges from more than 13,000 feet to 4,050 feet near the floor of the Owens Valley. The watershed is characterized by a Mediterranean climate with cool/cold wet winters and hot, dry summers. Precipitation generally falls as snow above 7,000 feet. While the upper part of the watershed was glaciated, the lower part is dominated by valley fill and alluvial fan material. The main stream channels (North and South Fork Oak Creek and Charlie Canyon) have moderate to steep gradients in the upper part of the watershed with lower gradients on the alluvial fan. Soils are generally moderately to very highly erodible depending on the slope.
- **Land Use:** Management prescription allocations include Designated Wilderness (Rx 1; 13,140 acres), Semi-Primitive Recreation (Rx 17; 2,085 acres), and Concentrated Recreation Area (Rx 12; 189 acres). The watershed includes 5,150 acres of Riparian Conservation Area (RCA) buffers on streams and waterbodies established by the 2004 Sierra Nevada Forest Plan Amendment. Uses of National Forest System (NFS) lands include backcountry recreation on the Baxter Pass Trail and Kearsarge Peak and Mount Baxter, multiple water diversion structures on Oak Creek to divert water for private and municipal uses (including irrigation on the Ft. Independence Indian Reservation), and seasonal cattle grazing at lower elevations of watershed. Uses of private land in the watershed include the Mt. Whitney Fish Hatchery, ranching, and limited residential development on the South Fork of Oak Creek and east of the confluence of the North and South Forks of Oak Creek. Bureau of Land Management (BLM) land includes the Alabama Hills cattle/horse allotment, managed under an on-off grazing system with the adjacent NFS Independence allotment. Oak Creek is a municipal watershed, providing water for the Fort Independence Tribe and the city of Los Angeles more than 250 miles south.

- **General Overview of Concerns:** In 2008, a large debris flow triggered by an intense localized thunderstorm caused extensive hillslope rilling and gullying of the mid- and lower elevation segments of Oak Creek. The debris flow obliterated the Oak Creek Campground, damaged more than 50 homes, buried native plant communities and 0.37 miles of roads under several feet of mud and debris, damaged 4.8 miles of roads, and created ideal conditions for the establishment of non-native invasive plants such as Russian thistle and salt cedar. More than 800 acres in the watershed were affected by the debris flow (another 400 acres in the adjacent watershed were also affected), and remain vulnerable to accelerated hillslope erosion, higher peak flows, increased sedimentation and turbidity, and the spread of invasive plants.
- **Important Ecological Values:** The Oak Creek watershed includes 13,140 acres of the John Muir Wilderness, a Class 1 airshed, and 12,860 acres of designated critical habitat for the federally endangered Sierra Nevada bighorn sheep. Parker and Upper Parker Lakes have been identified by the California Department of Fish and Game (CDFG) as possible reintroduction sites for the Sierra Mountain yellow-legged frog. The yellow-legged frog is currently listed as a Candidate Species under the Federal Endangered Species Act and as a Forest Service Region 5 Sensitive Species due to several factors that have limited its distribution to less than 5% of its former range. The watershed also contains stands of black oak and interior live oak, rare on the eastside of the Sierra Nevada range.
- **Current Condition Class: 2 Target Condition Class: 1**

e. Key Watershed Issues

1) Attributes/Indicators within FS control to affect

ATTRIBUTES / INDICATOR	WCA RATING[a]	REASON FOR RATING
1.2 Water Quality Problems (Not Listed)	3	Sediment contribution to streams from unstable hillslopes and streambanks resulting from the 2007 Inyo Complex fire and subsequent 2008 flood and debris flow
2.1 Flow Characteristics	2	Multiple diversions on Oak Creek attenuate flow, divert water out of channel for agricultural uses and spreading across alluvial fan
3.3 Channel Shape and Function	3	2008 flood and debris flow scoured stream channel, created gullies up to 50-feet deep, changed the course of the stream channel, removed riparian vegetation
4.1 Life form presence	2	Portions of stream channel impaired by sediment
5.1 Riparian vegetation condition	2	2008 flood and debris flow scoured the stream channel and removed riparian vegetation. Vegetation is beginning to recover in some stream segments, but streambanks remain unstable and continue to contribute sediment following storm events.

ATTRIBUTES / INDICATOR	WCA RATING[a]	REASON FOR RATING
7.1 Soil productivity	2	The 2008 flood and debris flow negatively affected soil productivity on more than 800 acres and compromised the soils' ability to maintain resource values and ecosystem services.
7.2 Soil erosion	3	Accelerated erosion occurring over 13% of watershed following 2008 debris flow. Rills and gullies are well-defined, expanding, and connected in a definite pattern.
8.1 Fire regime condition class	2	Moderate departure from the reference fire regime (i.e., vegetation characteristics, fuel composition, fire frequency, severity, and pattern)
10.1 Rangeland vegetation condition	2	2008 debris flow buried existing forage under sediment layer and created ideal conditions for the establishment of non-native invasive plants with lower forage value, including Russian thistle, cheat grass, and salt cedar.

[a] Ratings of 1 (Functioning Properly), 2 (Functioning at Risk) and 3 (Poor or Impaired) were assigned to 12 resource indicators and 23 resource attributes as part of the 2010 Watershed Condition Assessment completed in March, 2011 for all Hydrologic Unit Code (HUC) 6 watersheds on the Inyo National Forest.

2) Attributes/Indicators that require other parties to address

Most of the resource attribute concerns listed above are not unique to NFS land. Other parties (i.e., landowner, land management agency, etc.) would need to take action to address the concern at a watershed scale.

ATTRIBUTES / INDICATOR	WCA Rating	REASON FOR RATING
1.2 Water Quality Problems (Not Listed)	3	Sediment contribution to streams from unstable hillslopes and streambanks resulting from 2008 flood and debris flow
2.1 Flow Characteristics	2	Multiple diversions on Oak Creek attenuate flow, divert water out of channel
3.1 Habitat Fragmentation	3	Native mountain yellow-legged frog habitat fragmented by introduced trout
3.3 Channel Shape and Function	3	2008 flood and debris flow scoured stream channel, created gullies up to 50-feet deep, changed the course of the stream channel, removed riparian vegetation
4.1 Life form presence	2	Portions of stream channel impaired by sediment

ATTRIBUTES / INDICATOR	WCA Rating	REASON FOR RATING
4.2 Native species	2	Trout introduced at the turn of the 20th century for sport-fishing have displaced native mountain yellow-legged frogs. Parker and Upper Parker Lakes have been identified by the California Department of Fish and Game (CDFG) as possible reintroduction sites for the mountain yellow-legged frog.
4.3 Exotic and/or invasive species	3	See 4.2. Exotic aquatic species are limited to introduced trout.
5.1 Riparian vegetation condition	2	2008 flood and debris flow scoured stream channel and removed riparian vegetation. Vegetation is beginning to recover in some stream segments, but streambanks remain unstable and continue to contribute sediment following storm events.
7.1 Soil productivity	2	The 2008 flood and debris flow negatively affected soil productivity on more than 800 acres and compromised the soils' ability to maintain resource values and ecosystem services.
7.2 Soil erosion	3	Accelerated erosion occurring over 13% of watershed following 2008 debris flow. Rills and gullies are well-defined, expanding, and connected in a definite pattern.
10.1 Rangeland vegetation condition	2	2008 debris flow buried existing forage under sediment layer and created ideal conditions for the establishment of non-native invasive plants with lower forage value, including Russian thistle, cheat grass, and salt cedar.
12.2 Ozone	2	Inyo County is in nonattainment with the State ambient air quality standards for ozone

[a] Ratings of 1 (Functioning Properly), 2 (Functioning at Risk) and 3 (Poor or Impaired) were assigned to 12 resource indicators and 23 resource attributes as part of the 2010 Watershed Condition Assessment completed in March, 2011 for all Hydrologic Unit Code (HUC) 6 watersheds on the Inyo National Forest.

2. Watershed Characteristics and Conditions

a. General Context/Overview of the Watershed: The Oak Creek watershed is characterized by a Mediterranean climate with cool/cold wet winters and hot, dry summers. Precipitation falls as snow generally above 7,000 feet. There are occasional summer thunderstorms triggered by monsoonal moisture. The watershed contains a mix of bedrock types ranging from meta-rhyolites and meta-andesites, olivine basalt and quartz monzonite. The upper watershed was glaciated with evidence of Tahoe and the more recent Tioga glaciation. The lower part of the watershed is dominated by valley fill and alluvial fan material. Soils are generally moderately to highly and very highly erodible depending on the slope. The main stream channels (North and South Fork Oak Creek and Charlie Canyon) have moderate to steep gradients in the upper part of the watershed with lower gradients on the alluvial fan. The dominant vegetation in the

upper watershed is lodgepole and foxtail pine. The middle elevations contain Jeffery pine and pinyon pine. The lower elevations are dominated by sagebrush and desert scrub communities.

b. Watershed Conditions: In 2007, the Inyo Complex Fire burned approximately 60% of the watershed, approximately 6% was burned at high severity, 34% at moderate severity, and 60% at low severity. In 2008, a large debris flow triggered by an intense localized thunderstorm caused extensive hillslope rilling and gullying of the mid- and lower elevation segments of Oak Creek. The debris flow obliterated the Oak Creek Campground, damaged more than 50 homes, buried native plant communities and 0.37 miles of roads under several feet of sediment, and created ideal conditions for the establishment of non-native invasive plants such as Russian thistle. More than 800 acres in the watershed were affected by the debris flow (an additional 400 acres were affected in the adjacent watershed), and remain vulnerable to accelerated hillslope erosion, higher peak flows, increased sedimentation and turbidity, and weed spread.

The uplands are recovering from the 2007 fire and 2008 mudflow. Given the limited precipitation and droughty nature of the soils, however, upland vegetation is recovering slowly. For much of the watershed, the fire return interval is outside the natural range of variability. Some parts of the watershed – primarily lower elevation sagebrush and desert scrub types – have a shorter fire return interval than expected, while other parts have a longer return interval than expected. Although not adequately mapped, known weed populations include salt cedar, white sweet clover, Himalayan blackberry, Russian thistle, and cheatgrass. Past and present water spreading by the Los Angeles Department of Water and Power attenuates peak flows on Oak Creek and affects native plant community composition; the periodic availability of water also creates an unnatural fuel complex and increases salt cedar establishment.

Riparian areas in all the major drainages were negatively affected by the debris flow. Debris accumulated behind a bridge on the South Fork Oak Creek, diverting flow to a previously abandoned channel. Riparian vegetation and oaks along the old channel are dead or dying. Riparian vegetation is established and thriving on the new channel. Riparian vegetation is re-colonizing adjacent to the channel on the North Fork Oak Creek including the large gully.

3. Restoration Goals, Objectives, and Opportunities

a. Goal Identification and Desired Condition The overall goal is to complete the projects as described in this WRAP with the explicit objective of maintaining or improving watershed condition class. As described in section 3(d), several of the projects identified in this WRAP would need to be led by agency partners with the Forest Service acting as cooperator. The level of partner interest in undertaking the project, as well as staff and funding availability, will determine whether or not these projects are completed as described in the WRAP.

b. Objectives

i. Alignment with National, Regional, or Forest Priorities: Identification of Oak Creek as a priority watershed is directly aligned with national policy for improving watershed condition (FSM 2522.03). Priority for improving watershed condition is given to those posing menace to life or property because of flood threats or possible mud or debris flows, followed by those needing action to maintain water quality or

achieve forest plan goals and objectives, and those not meeting, or facing an imminent threat of not meeting, water quality requirements. In the Oak Creek watershed, the threat of flood and debris flows remains due to the unstable nature of hillslopes and stream channels following the 2008 storm event, and downstream uses continue to be affected by sedimentation and other effects to water quality. The watershed also contains important ecological values to be maintained or improved, such as designated wilderness, Class I airsheds, and habitat for an endangered species. As evidenced by the watershed's steep terrain, erodible soils, and broad alluvial fan, the 2008 flood and debris flow are not unique events in the watershed's history. Although the extent and frequency are unknown, similar events have happened in the past, and are expected to continue in the future. The intent of the WRAP essential projects is not to prevent such natural processes from occurring, but to improve understanding of watershed processes and recovery from natural events, and determine appropriate management responses to reduce the undesired effects of past and possible future events.

ii. Alignment with State or local goals: The Oak Creek watershed is within the jurisdiction of the Lahontan Region of the California Regional Water Quality Control Board. The Water Quality Control Plan for the Lahontan Region (Basin Plan) is the basis of the water quality regulatory program for all surface and ground waters of the Region. The Basin Plan establishes water quality objectives intended to protect public health and welfare, and to maintain or enhance water quality in relation to the existing and/or potential beneficial uses of the water (Basin Plan, p. 3-1). Water quality concerns in the Oak Creek watershed include downstream sedimentation resulting from the continued instability of hillslopes and stream channels. Implementation of the Oak Creek WRAP is directly aligned with Basin Plan objectives to maintain or enhance water quality and protect public health and welfare. Among others, the WRAP identifies specific projects to reduce open road density, stabilize streambanks, and conduct assessments to identify appropriate management responses to reduce the undesired effects of the 2008 debris flow. Together, these actions will help improve overall watershed condition.

c. Opportunities

i. Partnership Involvement: Partners are expected to play diverse roles in the completion of WRAP projects. For some projects, such as those involving action on non-NFS land, partners would need to take the lead in planning and implementation. For others, such as those involving environmental analysis required by the National Environmental Policy Act (NEPA), the Forest Service would have responsibility for completing most required tasks. For the majority of projects, partner roles include subject-matter expertise, funding, and labor (paid and volunteer).

ii. Outcomes/Output

a) Performance Measure Accomplishment: Completion of the Oak Creek WRAP is expected to achieve the following performance measures.

Performance Measure	Measure Name	Anticipated Accomplishment
1. WTRSHD-CLS-IMP-NUM	Number of watersheds moved to an improved condition class	1
2. WTRSHD-RSTR-ANN	Acres treated annually to sustain or restore watershed function and resilience	See a-i below
a. TMBR-SALES-TRT-AC	Acres of forestland vegetation treated using timber sales	Not applicable to watershed
b. FOR-VEG-IMP	Acres of forestland vegetation improved	Not applicable to watershed
c. FOR-VEG-EST	Acres of forestland vegetation established	Not applicable to watershed
d. RGE-VEG-IMP	Acres of rangeland vegetation improved	100 acres (Same treatment acres as item f)
e. S&W-RSRC-IMP	Acres of water or soil resources protected, maintained, or improved to achieve desired watershed conditions	200 acres
f. INVPLT-NXWD-FED-AC	Highest priority acres treated annually for noxious weeds and invasive plants on NFS lands	100 acres (Same treatment acres as item d)
g. INVSPE-TERR-FED-AC	Acres treated annually for terrestrial invasive species on NFS land	Not applicable to watershed
h. HBT-ENH-TERR	Acres of terrestrial wildlife habitat (TES and non-TES) restored or improved	Not applicable to watershed condition
i. HBT-ENH-LAK	Acres of lake habitat restored or enhanced	0 acres
3. FP-FUELS-ALL	Number of acres treated to reduce the risk of catastrophic wildfire	100 acres
4. HBT-ENH-STRM	Miles of stream habitat restored or enhanced	To be determined
5. INLND-STRM-HBT-ENH	Miles of inland stream habitat enhanced	To be determined
6. RD-DECOM	Miles of road decommissioned	Up to 2.3 mi
7. RD-HC-MAINT	Miles of high clearance system roads receiving maintenance	0.2 mi

b) Socioeconomic Considerations: Because the watershed displays evidence of past event similar to the 2008 debris flow, this WRAP primarily focuses on technical studies and planning to identify appropriate management response, if any, rather than proposing immediate on-the-ground actions. While some minor contribution to the local economy is expected, completion of the WRAP is primarily expected to improve relationships between the Forest Service and interested partners, including local governments, state agencies, community members, and the Fort Independence Tribe. More direct economic contributions may result from the completion of future WRAPs, which are expected to use the results of the technical studies to identify specific, on-the-ground projects designed to maintain or restore watershed condition. Future WRAP projects may provide opportunities for some paid positions.

d. Specific Project Activities (Essential Projects)

a. <u>Essential Project #1: Oak Creek Stream Channel Stabilization Technical Study</u>

- Attribute/Indicator Addressed: 1.2 Water Quality; 3.3 Channel Shape and Function ; 4.1 Life Form Presence; 5.1 Riparian Vegetation Condition; 7.2 Soil Erosion
- Project Description: Conduct a technical study to determine short- and long-term options to stabilize gully, attenuate flows, and reduce erosion/downstream sedimentation.
- Partners' Involvement: Partners' roles may include: identifying the scope of the study, providing funding, soliciting grant funding, labor (paid and volunteer), technical expertise, facilitation. Possible partners include the Ft Independence tribe, Natural Resource Conservation Service, Inyo-Mono Regional Water Managers Group, Los Angeles Department of Water and Power, Inyo County, Lahontan Regional Water Quality Control Board, Mt. Whitney Fish Hatchery, Friends of Mt. Whitney Fish Hatchery, CalTrans, California Geological Society, and other private landowners.
- Timeline: Starting in fiscal year 2012 and continuing for three years
- Estimated Forest Service costs and associated Budget Line Item: $25,000 –NFVW. Forest Service funding is expected to be used to assist partners in writing grants to access additional funding sources, preparing the technical study, and conducting field trips and workshops. For FY 2012, the Forest expects to work with partners (possibly the Ft. Independence tribe, Inyo-Mono Regional Water Managers' Group) to apply for grant funding from the Department of Water Resources and/or Sierra Nevada Conservancy. The level of partner interest in undertaking the project, as well as staff and funding availability, will determine whether or not this project is completed as described in the WRAP.

b. <u>Essential Project #2: Interagency Sierra Front Fuel Breaks Project</u>

- Attribute/ Indicator Addressed: 8.1 Fire Regime Condition Class
- Project Description: Conduct environmental analysis and begin implementation of the interagency Sierra Front Fuel Breaks Project, which includes hazardous fuels

reduction in Oak Creek and other watersheds. Preliminary proposal includes mowing to create fuel breaks along roads. The goal is to limit fire size and frequency in the lower elevations of the watershed where the fire regime is outside the natural range due to cheatgrass and limit conversion of vegetation due to repeat burning.

- Partners Involvement: The Bureau of Land Management will provide funding, technical expertise, and labor to complete treatments on BLM land. Other partners may provide labor and funding to complete complementary treatments on adjacent private land. Possible partners include Mt. Whitney Fish Hatchery, Los Angeles Department of Water and Power, and other private landowners.
- Timeline: Start NEPA planning in fiscal year 2013 and complete in 2014. Implementation is expected to start in fiscal year 2015 and continue for five years. Maintenance of the fuel breaks would be ongoing.
- Estimated Forest Service costs and associated Budget Line Item: The cost to complete the planning for the whole Sierra Front Fuel Breaks project is approximately $55,000 (WFHF). Oak Creek is one of several watersheds within the project area. Costs to implement the project in the Oak Creek watershed are approximately $30,000/year (WFHF), with approximately 50 acres treated annually in fiscal years 2015 and 2016. Estimates include contract preparation and administration costs. Implementation of the project within the Oak Creek watershed is not expected to be completed within the five-year timeframe of this WRAP. Total costs to implement the project in the watershed may be up to $270,000.

c. Essential Project #3: Supplemental Environmental Assessment for Forestwide Weed Treatment and Control

- Attribute/ Indicator Addressed: 11.1 Rate and Spread of Terrestrial Invasive Species, 5.1 Riparian Vegetation Condition, 10.1 Rangeland Vegetation Condition
- Project Description: Supplement the 2007 Forestwide Weed Treatment Environmental Assessment and issue decision notice to authorize the control and eradication of weeds (salt cedar, Russian thistle, Himalayan blackberry, etc.) in the Oak Creek watershed and the rest of the Inyo National Forest.
- Partners Involvement: Partner involvement not expected because essential project is limited to environmental planning and analysis only. Public involvement would be conducted as part of the NEPA planning process.
- Timeline: Starting in 2012 (planning) with implementation expected to begin in 2014. Implementation would continue indefinitely.
- Estimated Forest Service costs and associated Budget Line Item: $40,000 in NFVW for planning. Implementation costs expected to be approximately $10,000 the first year and $5,000/year in subsequent years.

d. Essential Project #4: Eradicate Invasive Salt Cedar from National Forest System (NFS) Lands.

- Attribute/ Indicator Addressed: 11.1 Rate and Spread of Terrestrial Invasive Species, 5.1 Riparian Vegetation Condition, 10.1 Rangeland Vegetation Condition
- Project Description: Salt cedar is known to occur on approximately 100 acres in watershed. Ongoing control treatment will continue until salt cedar is eradicated from NFS land. The area will be monitored periodically and follow-up treatments undertaken as needed.
- Partners Involvement: Partners' roles may include: Labor (paid and volunteer). Possible partners include Inyo County Salt Cedar Control Program and Agriculture Commission, BLM, Ft. Independence tribe, Friends of the Inyo, and Los Angeles Department of Water and Power.
- Timeline: Eradication started in 2010, with additional control conducted in 2011 and 2012. Follow-up treatments will be conducted as needed based on monitoring results.
- Estimated Forest Service costs and associated Budget Line Item: Approximately $5,000/annually in NFVW and NFN3.

e. Essential Project #5: Support Salt Cedar Treatments on Non-NFS land.

- Attribute/ Indicator Addressed: 11.1 Rate and Spread of Terrestrial Invasive Species, 5.1 Riparian Vegetation Condition, 10.1 Rangeland Vegetation Condition
- Project Description: Work with partners and other landowners to continue ongoing treatment or start treatment to control or eradicate salt cedar from non-NFS land.
- Partners Involvement: Partners would take lead for planning and implementation because project would take place on non-NFS land. Possible partners include Inyo County Salt Cedar Control Program and Agriculture Commission, BLM, Ft. Independence Tribe, Friends of the Inyo, private landowners, and Los Angeles Department of Water and Power.
- Timeline: Starting in 2012 (depending on partner interest and availability of funding) and continuing for an unknown number of years.
- Estimated Forest Service costs and associated Budget Line Item: Less than $5,000 annually in NFVW funding.

f. Essential Project #6: Sediment / Debris Catch Basin Feasibility Study.

- Attribute/ Indicator Addressed: Due to the unstable condition of the stream channel, increased sedimentation and turbidity after storm events is expected to continue into the foreseeable future. This project would reduce effects on downstream uses (irrigation, agriculture, etc.) while the stream channel stabilizes naturally or through active restoration efforts (see project #1).
- Project Description: Determine feasibility of constructing sediment/debris catch basin to mitigate effects of sedimentation on downstream uses and values. Feasibility study includes identifying catch basin location.

- Partners' Involvement: Partners would take lead for funding and completion of feasibility study. Possible partners include Fort Independence Tribe, Mt. Whitney Fish Hatchery, Inyo County Department of Water Resources, and Natural Resource Conservation Service.
- Timeline: Starting in 2012 (depending on level of interest among partners and availability of funding) and continuing for 2-5 years
- Estimated Forest Service costs and associated Budget Line Item: See Essential Project #1. The catch basin study could be conducted as part of the larger stream channel stabilization feasibility study.

g. Essential Project #7: Willow and Riparian Vegetation Planting (Stream Channel Stabilization).

- Attribute/ Indicator Addressed: 1.2 Water Quality; 3.3 Channel Shape and Function; 5.1 Riparian Vegetation Condition
- Project Description: Plant willows and other native riparian vegetation in sections of the North Fork of Oak Creek to help revegetate and stabilize the stream channel.
- Partners' Involvement: Partners' involvement may include funding and labor (paid and volunteer). Possible partners include the Fort Independence Tribe, Audubon Society, Friends of the Inyo, Friends of Mt. Whitney Fish Hatchery, CalTrout, and other local interest groups.
- Timeline: Starting in 2012 or 2013 (depending on level of interest among partners and availability of funding) and continuing for up to five years
- Estimated Forest Service costs and associated Budget Line Item: Annual cost is estimated to be less than $5,000 in NFVW.

h. Essential Project #8: Black Oak Establishment Trial.

- Attribute/ Indicator Addressed: 5.1 Riparian Vegetation Condition
- Project Description: The Oak Creek watershed contains stands of black oak and interior live oak, rare on the eastside of the Sierra Nevada and of traditional importance to local Native American tribes. Several of these stands were destroyed by the 2007 fire and 2008 flood and debris flow. As part of this project, a small-scale black oak establishment trial would be conducted to determine the feasibility of reestablishing stands in the watershed.
- Partners Involvement: Partners' involvement may include funding and labor (volunteer). The Fort Independence Tribe is a possible partner.
- Timeline: Starting in 2013 or 2014 (depending on the interest of partners). Project would likely be completed in approximately one year.
- Estimated Forest Service costs and associated Budget Line Item: Cost is estimated between $5,000 and $10,000 (NFVW, NFWF), depending on partner contribution and scale of project.

i. Essential Project #9: Evaluate Unauthorized Routes in Watershed

- Attribute/ Indicator Addressed: 7.1 Soil Productivity; 6.1 Open Road Density
- Project Description: Evaluate, with public input, the 2.3 miles of unauthorized routes (i.e., routes closed to motor vehicle use by 2009 Travel Management Record of Decision) in the watershed to determine whether they should be decommissioned (i.e., restored) or converted to other uses such as equestrian trails. Complete needed environmental analysis and implement decision.
- Partners' Involvement: Partners' involvement may include funding and labor (primarily volunteer). Partners may include: California OHMVR Division, Friends of the Inyo, YCC, XCorps, Fort Independence Tribe.
- Timeline: Starting in 2012 and continuing for up to five years.
- Estimated Forest Service costs and associated Budget Line Item: Total cost of planning and implementation is estimated at $6,000. Possible BLIs include NFRW, NFVW, and CMRD.

j. Essential Project #10: Improve Creek Crossing and Drainage on System Roads 13S102A and 13S110.

- Attribute/ Indicator Addressed: 1.2 Water Quality
- Project Description: Stabilize creek crossing on road 13S102A and install drainage structures on road 13S110 (mitigations authorized in the 2009 Travel Management Record of Decision).
- Partners Involvement: Partners' involvement may include funding and labor (primarily volunteer). Partners may include: California OHMVR Division, Friends of the Inyo, YCC, and XCorps.
- Timeline: Starting in the first quarter of 2012. Mitigations would likely be completed in one field season.
- Estimated Forest Service costs and associated Budget Line Item: Cost is estimated at $6,000 (NFVW).

k. Essential Project #11: Native Vegetation Establishment Trials.

- Attribute/ Indicator Addressed: 11.1 Rate and Spread of Terrestrial Invasive Species; 5.1 Riparian Vegetation Condition; 10.1 Rangeland Vegetation Condition
- Project Description: Conduct native vegetation establishment trials to determine most effective method to reestablish native vegetation and control/eradicate weeds in the area affected by the 2008 debris flow.
- Partners' Involvement: Partners' involvement may include labor (seed collection and propagation) and the contribution of in-kind expertise on the design and implementation of plots on NFS and adjacent land. Possible partners include BLM, California Department of Fish and Game, California Native Plant Society, Friends of Mt. Whitney Fish Hatchery, CalTrans, BLM, and Quail Unlimited.

- Timeline: Starting in 2012 (seed collection and some planning) and continuing for five or more years after trial plots are established.
- Estimated Forest Service costs and associated Budget Line Item: Cost is estimated at $3,000 for the first and second years of the project, and $4,000 in the third year. Once established, the cost to monitor the plots is estimated at $1,000/year. BLIs may include NFVW, NFIM, NFWF, and NFN3.

l. Essential Project #12: Reissue Water Spreading and Diversion Permit to Los Angeles Department of Water and Power.

- Attribute/ Indicator Addressed: 2.1 Flow Characteristics; 8.1 Fire Regime Condition Class; 11.1 Rate and Spread of Terrestrial Invasive Species; 5.1 Riparian Vegetation Condition; 10.1 Rangeland Vegetation Condition
- Project Description: Reissue term permit for water spreading and diversion to Los Angeles Department of Water and Power. Consider and address as needed in Operating Plan: weed control related to water uses, fuel reduction related to water spreading, and the condition of native vegetation.
- Partners' Involvement: Partner involvement for this project is likely to be limited to the permit applicant (LADWP). Public involvement would be conducted as part of the NEPA planning process.
- Timeline: Starting in 2012 and continuing for 2-3 years
- Estimated Forest Service costs and associated Budget Line Item: Project is likely to be funded through cost recovery. Cost estimate is not available at this time.

m. Essential Project #13: Assess Condition of the Eradicated Marijuana Plantation.

- Attribute/ Indicator Addressed: 1.2 Water Quality
- Project Description: Conduct follow-up assessment of the eradicated marijuana plantation to determine if there are any remaining water quality issues to be addressed.
- Partners' Involvement: Not applicable
- Timeline: Starting in 2013 and completed within one year.
- Estimated Forest Service costs and associated Budget Line Item: Cost is estimated at $1,500 (NFVW).

e. Costs (all costs are in thousands of dollars): Project costs are estimated based on information regarding project scope and available funding at the time of WRAP approval. Cost estimates are subject to change as more information becomes available. Partner contribution includes possible financial support as well as in-kind expertise, volunteer hours, etc.

Funding Source	Planning	Design[a]	Implementation	Project Monitoring	Total
FS Contribution	135	---	120	30	285
Partner Contribution (both in kind and $)	250	---	8		258
Total	385	---	128	30	543

[a] Project design costs were included with total planning costs because design work is conducted as part of project planning. Attempting to separate design and planning costs at this stage of project development would not help inform project priorities or program management.

f. Timelines and Project Scheduling (all costs are in thousands of dollars). Timelines are subject to change depending on the availability of partners, staff, and funding. Partner cost includes possible financial support, in-kind expertise, volunteer hours, etc.

Project	FY 12			FY 13			FY 14			FY 15			FY 16		
	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost
#1. Oak Creek Tech. Study	Planning: Identify partners and roles; identify objectives and funding	5	50	Planning: Start technical study	5	50	Planning: Complete technical study	5	50	Planning: Evaluate results of technical study; begin development of proposed action (if recommend-ed)	5	50	Planning: Develop proposal; initiate NEPA	5	50
#2. Sierra Front Fuel Breaks Project				Planning: Develop proposal, conduct field assessment s, initiate NEPA	25		Planning: Complete NEPA	20		Implement, monitor	30		Implement, monitor	30	
#3. Supplemental Weed Treatment EA	Planning: Develop proposal; initiate NEPA	24		Planning: Complete NEPA in FY13 or early FY14	15		Implement, monitor	10		Implement, monitor	5		Implement, monitor	5	
#4. Salt cedar eradication on NFS land	Implement, monitor	5		Monitor and follow-up treatment as needed	5	TBD	Monitor and follow-up treatment as needed	5	TBD	Monitor and follow-up treatment as needed	5	TBD	Monitor and follow-up treatment as needed	5	TBD

Project	FY 12			FY 13			FY 14			FY 15			FY 16		
	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost
#5. Salt cedar control / eradication from non-NFS land	Planning: Determine level of ongoing treatment and opportunit-ies for coordinat-ion	5		Implement: FS to support partner actions	5		Implement: FS to support partner actions	5		Implement: FS to support partner actions	5		Implement: FS to support partner actions	5	
#6. Determine feasibility / need for sediment catch basin	Timeline TBD based on partner interest	See Proj-ect #1 above													
#7. Plant willows on North Fork Oak Creek	Planning and implementa tion (depending on partner interest)	5		Planning and implementa tion (depending on partner interest)	5										
#8. Plant black oak in vicinity of former campground	Planning and implementa tion (depending on partner interest)	5		Planning and implementa tion (depending on partner interest)	5										
#9. Decommission or convert to other uses 2.3 mi unauth. routes	Planning: Develop proposal, complete NEPA; issue decision	4		Implement	1	4	Implement	1	4						

Project	FY 12			FY 13			FY 14			FY 15			FY 16		
	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost	Task	FS Cost	Partner Cost
#10. Complete mitigations on roads 13S102A and 13S110	Complete planning	3		Implement	3										
#11. Conduct vegetation trials	Planning: Develop plot design, collect seed	3		Planning: complete planning Implement: establish plots	3		Implement: establish plots Monitor	4		Monitor	1		Monitor	1	
#12. Reissue LADWP permit	Planning: Start NEPA; complete analyses, draft operating plan		TBD	Planning: Complete NEPA; issue permit and operating plan		TBD									
#13. Assess condition of eradicated marijuana plantation	Monitor	1.5													

g. **Other Partners:** The Inyo-Mono Regional Water Managers' Group (RWMG) participated in the development of this WRAP by providing input and feedback during Forest Service briefings to the RWMG on June 15 and July 27, 2011 and by distributing notifications and WRAP materials to individuals, agencies, and interest groups on its mailing list. The Inyo County Board of Supervisors also provided input on the WRAP.

4. Restoration Project Monitoring and Evaluation

a. **The forest will monitor:** implementation and effectiveness of Sierra Front fuel breaks, effectiveness of salt cedar and other invasive plant control efforts, effectiveness of native vegetation establishment trials, and off-highway vehicle use patterns. Monitoring timeframes will be developed on a project-by-project basis.

b. **Monitoring will be done in cooperation with:** Fuel break monitoring will be conducted in conjunction with the Bureau of Land Management. Although not in place at this time, a cooperative monitoring program for weeds may be developed as part of this WRAP with partners such as Inyo County Salt Cedar Control Program, BLM, etc.

Action Plan Date: OCT 25 2011

Reviewing Official and Title: _____
Forest Supervisor

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