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

1. Summary

a. Watershed Name and HUC: Deadman Creek / 180901020201

b. General Location: The Deadman 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 watershed is located between Mammoth Lakes and June Lake, California, and includes Glass Creek, Deadman Creek, and part of the Upper Owens River.

c. Total Watershed Area:_27,116_ acres**;** **NFS area within watershed:**__100__%.

d. Watershed Characterization:

- **General Physiography:** Elevation in the watershed ranges from more than 11,500 feet to 7,241 feet. The watershed is characterized by steep headlands at the top of the watershed to gentle pumiceous flats near the bottom.

- **Land Use:** Management prescriptions assigned to the watershed by the 1988 Land and Resource Management Plan include Designated Wilderness (Rx 1), Uneven-aged Timber Management (Rx 9), High Level Timber Management (Rx 10), Concentrated Recreation Area (Rx 12), Existing Alpine Ski Area (Rx 13), Potential Alpine Ski Area (Rx 14), Dispersed Recreation (Rx 16), and Semi-Primitive Recreation (Rx 17). The watershed includes 4,637 acres of Riparian Conservation Area (RCA) buffers delineated along streams and waterbodies by the 2004 Sierra Nevada Forest Plan Amendment. Uses of National Forest System (NFS) lands include dispersed camping, especially along Deadman Creek, and developed camping at Upper and Lower Deadman, Glass, Obsidian Flat, Big Springs, and Hartley Springs campgrounds. The area is popular for off-highway vehicle recreation due to the extensive network of designated roads and trails. With approximately 35 miles of perennial streams in the watershed, sport fishing for introduced trout is another popular recreational activity. Deadman and Glass Creek trailheads provide non-motorized access into the Owens Headwaters and Ansel Adams wildernesses. While there are no year-round residences in the watershed, the watershed contains 13 recreation residence cabins on Glass Creek, the Crestview Fire Station, Crestview highway rest area, and communication sites at Crestview and on June Mountain, currently under permit to the Forest Service. There are four grazing allotments in the watershed: June Lake West (permitted for sheep but currently vacant), June Lake East (the portion in watershed is not grazed), Mono Mills (vacant in recent years but restocking authorized in 2011), and Sherwin/Deadman (permitted for sheep). Deadman Creek is a municipal watershed, providing water for the city of Los Angeles more than 300 miles south.

- **General Overview of Concerns:** The Deadman Creek watershed is characterized by ashy, pumiceous soils highly susceptible to displacement. The high porosity and loose, non-cohesive nature of the soils, combined with extensive recreational uses such as off-highway motor vehicles and dispersed and developed camping, have removed vegetation and exposed bare soils. Bare soil is a source of sediment to creeks and streams as well as dust, which can settle on the leaves of vegetation and on the surface of waterbodies. Overall route density in the watershed is relatively high (4.4 miles/square mile), with 161 miles of designated system roads and approximately 47 miles of unauthorized routes. The majority of system roads (141 miles) are native surface. Motor vehicle use of unauthorized routes is not allowed (2009 Motorized Travel Management Record of Decision). The forest is currently implementing the 2009 decision by blocking and disguising the entrances of the unauthorized routes to discourage motor vehicle use, and by publishing a Motor Vehicle Use Map (MVUM) of the designated road system. The risk of tree mortality is high, with a bark beetle infestation affecting hundreds of acres in 8,000-9,000 ft elevation range, including parts of June Mountain and Glass Creek Meadow. Much of the area affected by insect mortality is within designated wilderness. Prior to the introduction of non-native trout for sport-fishing, it is thought that the native Long Valley dace, Owens tui chub, Owens sucker and possibly the mountain yellow-legged frog inhabited the aquatic and stream habitats in this watershed. Creeks in the watershed continue to be managed for sport-fishing today. Fire regime condition is considered poor, with a high likelihood of losing defining ecosystem components due to the presence or absence of fire. A predominate percentage of the watershed has a high departure from the reference fire regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances. Vegetative species and cover types are affected by the fire regime, resulting in periods of fuel accumulation with infrequent but intense fires that are more likely to cause vegetation mortality, loss of soil organic matter, and adverse effects to water resources.
- **Important Ecological Values:** The watershed contains important ecological values such as 10,083 acres of designated wilderness (10,079 acres in Owens River Headwaters and 4 acres in Ansel Adams), and the Upper Owens Headwaters Wild and Scenic River (approximately 6 miles designated as Wild, 4 miles as Scenic, and 5 miles as Recreational). Approximately 2/3 of the watershed (16,707 acres) is a Critical Aquatic Refuge (CAR) for protection of the Yosemite toad, a candidate species for listing under the Endangered Species Act. A healthy Yosemite toad population occurs in Glass Creek Meadow. Deadman and Glass Creeks also serve as major migration corridors for mule deer herds traveling from lower elevation winter range to higher elevation summer range. The Upper Owens River serves as an important "holding area" where deer congregate during spring migration until snow melts in their summer range. The native shrubs and forbs found along the river provide an opportunity for deer to replenish fat reserves lost during the winter.
- **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)	2	Proximity of developed and dispersed campgrounds to perennial stream channels. Evidence of localized erosion from road, stream channel crossings and campgrounds.
3.1 Habitat Fragmentation	3	Native fish and frog habitat fragmented by introduced trout
3.2 Large woody debris	2	Ongoing maintenance removes hazardous trees adjacent to system roads along Deadman Creek, reducing source of large woody debris to creek.
3.3 Channel Shape and Function	2	Data is limited, but there are localized effects to channel shape and function from camping, motor vehicle use, and rock dams built by recreationists
6.1 Open Road Density	3	Open road density (including all system roads, system motorized trails, and unauthorized routes in the watershed) is considered poor at 4.4 miles per square mile.
6.2 Road Maintenance	2	Some roads, trails, and water crossings are lacking Best Management Practices (BMPs) for the maintenance of designed drainage features.
6.3 Road Proximity to Water	3	Road density within 300 feet of streams and water bodies is considered poor at 4.08 miles/square mile.
6.4 Mass Wasting	2	Evidence of mass wasting in the upper watershed
8.1 Fire regime condition class	3	Departure from the reference fire regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances is high across the majority of the watershed.
12.1 Insects and disease	3	More than half of the forested land in the watershed is at imminent risk of abnormally high levels of tree mortality due to insects and disease. Hundreds of acres in the 8,000-9,000 ft elevation range are affected by a bark beetle infestation. Much of infested area is within designated wilderness and is unlikely to receive treatment.

[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

ATTRIBUTES / INDICATOR	WCA RATING[a]	REASON FOR RATING
4.1 Life form presence	3	Trout introduced in the early 1900s for sport-fishing have displaced native Long Valley dace, Owens tui chub, Owens suckers and possibly mountain yellow-legged frog. Native aquatic communities and species are no longer present. Responsibility for management of fish and wildlife resources is shared with the California Department of Fish and Game.
4.2 Native aquatic species	2	See 4.1.
4.3 Exotic and/or invasive species	3	See 4.1.
12.2 Ozone	2	Mono 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 watershed is dominated by a Mediterranean climate with cool/cold wet winters and warm and dry summers. Precipitation falls as snow with rain in the early fall and late spring. There are occasional summer thunderstorms triggered by monsoon moisture. The upper part of the watershed was glaciated in the recent Tahoe and Tioga glacial periods. The watershed contains mostly volcanic extrusive geologic types such as rhyolitic pumice and rhyolite. The upper part of the watershed also contains a minor amount of metasedimentary rock such as hornfelds and marble. The steeper sections of the upper watershed have a moderate to high erosion hazard rating with the lower, less steep sections having a low erosion hazard rating. There are numerous springs and seeps located in the upperpart of the watershed. Riparian areas are associated with springs, meadows and stream channels throughout the watershed.

b. Watershed Conditions: Uplands/hillslope conditions – Fire regime condition is considered poor because of the potential for infrequent, intense fires with high severity that are more likely to produce vegetation mortality, loss of soil organic matter, and adverse effects to soil and water resources. The risk of tree mortality is high, with a bark beetle infestation affecting hundreds of acres in 8000-9000 ft elevation range, including parts of June Mountain and Glass Creek Meadow. Much of the area affected by insect mortality is within designated wilderness, limiting active management options. Soils in the watershed are generally ashy and pumiceous, prone to displacement when disturbed due to their non-cohesive nature. Approximately 90% of designated motorized routes are native surface. Designated routes located on steeper slopes (>15%) have the highest potential for sheet and rill erosion and loss of soil productivity (see

2009 Motorized Travel Management FEIS, section 3.6). These routes also are subject to expansion as vehicles move to a more favorable position when climbing steep grades. The majority of routes is located on flatter terrain and are generally stable. Unauthorized cross-country motor vehicle use is an ongoing management concern due to the relatively open terrain and lack of natural barriers in the watershed.

Riparian conditions: There are 4,637 acres of Riparian Conservation Areas (RCAs) in the watershed. While riparian vegetation is generally intact and effectively filters sediments and stabilizes streambanks, there are areas of localized impacts due to motorized routes, campground, dispersed campsites, and user access trails. The exact extent of vegetation removal is unknown, but is concentrated around popular use areas such as Upper and Lower Deadman Creek Campgrounds, Big Springs Campground, Glass Creek Meadow Trail, and dispersed campsites along Deadman Creek. According to the indicators used in the 2010 Watershed Condition Assessment, road density within 300 feet of streams and water bodies is considered poor (Condition Class 3) at 4.08 miles/square mile. Campgrounds in floodplains are prone to flooding. Localized impacts include increased channel width-to-depth ratio, loss of bank vegetation, increased erosion to the creek, and increased sediment in the creek.

In-channel habitat conditions: There are approximately 16 road-stream crossings in the watershed. Several low water crossings on Deadman Creek have been armored or stabilized as part of past restoration projects to minimize sediment contribution and remove barriers to fish passage and other aquatic organisms. Culverts or bridges have been installed on most primary access roads across Deadman and Glass Creeks. The condition of the remaining stream crossings needs to be field-verified to determine the extent of sediment contribution and identify barriers to the in-stream movement of aquatic organisms. Small rock dams created by recreationists along Deadman Creek also act as barriers to fish passage and disrupt fluvial hydrologic processes within the channels.

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. Essential projects are a mix of on-the-ground implementation to address resource issues (e.g., continued implementation of a complementary suite of ongoing forest health and fuels reduction projects), to resource assessments and National Environmental Policy Act (NEPA) planning needed to develop project concepts or authorize activities (e.g., soil and water condition assessment for roads and campsites). The essential projects and the specific project tasks described in this WRAP were designed to be achievable within current funding levels. Additional funding may allow the forest to complete additional project tasks not described in the WRAP. Reduced funding would make completion of the tasks described in this WRAP challenging. Future WRAPs are expected to continue or complete projects started under this action plan, as well as identify new projects based on the results of proposed assessments.

b. Objectives

i. Alignment with National, Regional, or Forest Priorities: Identification of Deadman 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. Deadman Creek was identified as a priority watershed because of the diverse range of resource issues in need of integrated treatment. Issues which are directly and indirectly contributing to water quality concerns range from recreation (off-highway vehicles, camping, fishing, etc.) to bark beetle infestations. The watershed also contains important ecological values to be maintained or improved, such as designated wilderness, Class I airsheds, and the Upper Owens Headwaters Wild and Scenic River.

ii. Alignment with State or local goals: Deadman 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 Deadman Creek watershed are site-specific and localized (i.e., roads and campsites contributing sediment to streams) and there are no known instances of non-compliance with applicable Basin Plan objectives. Nonetheless, implementation of the Deadman 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 sedimentation at road stream crossings, reduce open road density, and conduct assessments to identify sediment sources on roads and in developed and dispersed camping areas. Together, these actions will help improve overall watershed condition.

c. Opportunities

i. Partnership Involvement: Partners are expected to play critical roles in the completion of several WRAP projects by providing funding and labor. However, because there are no non-NFS lands in the watershed and the planning and implementation of some of the essential projects requires specialized skills, partner involvement is not expected for several of the fuels reduction projects. Public involvement would be conducted as part of NEPA planning processes.

ii. Outcomes/Output

a) Performance Measure Accomplishment: Completion of the Deadman 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	1,400 acres
b. FOR-VEG-IMP	Acres of forestland vegetation improved	3,000 acres
c. FOR-VEG-EST	Acres of forestland vegetation established	N/A
d. RGE-VEG-IMP	Acres of rangeland vegetation improved	0
e. S&W-RSRC-IMP	Acres of water or soil resources protected, maintained, or improved to achieve desired watershed conditions	Approx. 200 acres Completion of veg. projects may increase accomplishment
f. INVPLT-NXWD-FED-AC	Highest priority acres treated annually for noxious weeds and invasive plants on NFS lands	0
g. INVSPE-TERR-FED-AC	Acres treated annually for terrestrial invasive species on NFS land	0
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
4. FP-FUELS-ALL	Number of acres treated to reduce the risk of catastrophic wildfire	15,000 acres
5. HBT-ENH-STRM	Miles of stream habitat restored or enhanced	Approx. 3 mi
6. INLND-STRM-HBT-ENH	Miles of inland stream habitat enhanced	Approx. 3 mi
8. RD-DECOM	Miles of road decommissioned	Up to 46.6 mi
9. RD-HC-MAINT or RD-HC-IMP	Miles of high clearance system roads receiving maintenance or improvement	2.5 mi
10. TL-IMP-STD or TL-MAINT-STD	Miles of system trail improved or maintained to standard	0.1 mi

b) Socioeconomic Considerations: Direct contributions to the local economy are expected to be minor. Because of the type of projects needed and the lack of non-NFS land in the watershed, many of the projects would be completed using existing Forest Service staff. Projects involving partners are expected to provide more volunteer labor opportunities than paid positions. Forest products generated from fuels reduction and forest health projects would be made available to commercial fuelwood providers, as well as for personal use fuelwood gathering. Completion of the WRAP is primarily expected to improve relationships between the Forest Service and interested partners.

d. Specific Project Activities (Essential Projects)

a. Essential Project #1: Evaluate Unauthorized Routes for Long-term Management.

- Attribute/Indicator Addressed: 1.2 Water Quality Problems, 3.1 Habitat Fragmentation, 6.1 Open Road Density, 6.3 Road Proximity to Water
- Project Description: Evaluate, with public input, the 47 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 using appropriated funds and California OHMVR Division Restoration Grant. Implementation of decision may be identified in a future WRAP once funding has been secured.
- Partners' Involvement: Partners' involvement may include funding and labor (primarily volunteer). Partners may include: California OHMVR Division, Friends of the Inyo, Mammoth Lakes Trails and Public Access, and other local interest groups.
- Timeline: Starting in 2011 and continuing for one year
- Estimated Forest Service costs and associated Budget Line Item: Cost to complete the project is estimated at $20,000. NFVW, CMLG and NFRW are expected to be the primary BLIs for appropriated funds.

b. Essential Project #2: Block and Disguise Unauthorized Routes.

- Attribute/ Indicator Addressed: 1.2 Water Quality Problems, 3.1 Habitat Fragmentation, 6.1 Open Road Density, 6.3 Road Proximity to Water
- Project Description: Continue implementation of the 2009 Travel Management Record of Decision by blocking and disguising 64 unauthorized routes and installing wayfinding signs on designated roads and trails.
- Partners' Involvement: Partners' involvement may include funding and labor (primarily volunteer). Partners may include: California OHMVR Division, Friends of the Inyo, Mammoth Lakes Trails and Public Access, Mammoth 4WD Club, and other local interest groups.
- Timeline: Project was started in 2011 and will continue for five or more years
- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include NFRW and CMLG - $36,000

c. Essential Project #3: Implement Stream Crossing and Drainage Mitigations on System Roads.

- Attribute/Indicator Addressed: 1.2 Water Quality Problems, 3.1 Habitat Fragmentation, 6.2 Road Maintenance
- Project Description: Implement stream crossing and drainage structure mitigations on 23 roads and trails. (All mitigations were authorized in the 2009 Motorized Travel Management Record of Decision. See Motorized Travel Management FEIS Appendix A for list of roads and trails.)
- Partners' Involvement: Partners' involvement is expected to include funding and labor. Partners may include: California OHMVR Division, Friends of the Inyo, Mammoth Lakes Trails and Public Access, Mammoth 4WD Club, and other local interest groups.
- Timeline: Starting in 2012 and continuing for two years
- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include NFVW, CMLG and NFRW - $25,000

d. Essential Project #4: Design Mitigations for Roads 27E102 and 02S23B

- Attribute/Indicator Addressed: 1.2 Water Quality Problems, 3.1 Habitat Fragmentation, 6.2 Road Maintenance
- Project Description: Complete design, NEPA planning, and implementation for drainage structures on system road 27E102 and riparian/meadow stabilization on road 02S23B.
- Partners' Involvement: Partner involvement not expected because of specialized skills needed to design and implement the essential project. California OHMVR Division grant funding will be used to help develop preliminary prescriptions. Public involvement would be conducted as part of the NEPA planning process.
- Timeline: Project design was started in 2011 and will continuing for one or more years.
- Estimated Forest Service costs and associated Budget Line Item: $12,000 NFVW

e. Essential Project #5: Implement the Jeffery Pine Forest Health and Fuel Reduction Project.

- Attribute/ Indicator Addressed: 8.1 Fire Regime Condition Class, 12.1 Insects and Disease
- Project Description: Continue implementation of the Jeffrey Pine Project. This includes commercial and pre-commercial forest thinning, manual and mechanical fuels treatments and prescribed burning on approximately 500 acres in the watershed.
- Partners' Involvement: Partner involvement not expected because of specialized skills needed to implement the essential project.
- Timeline: Project implementation was started in April 2007 and has been ongoing since then. Implementation is expected to continue for another five years.
- Estimated Forest Service costs and associated Budget Line Item: Sale prep and administration - $5 K/yr NFTM; thin and pile - $480/acre NFVW, WFHF CWKV; pile burn - $150/acre WFHF; broadcast burn - $220/acre WFHF.

f. Essential Project #6: Phase II, Jeffery Pine Forest Health Project

- Attribute/ Indicator Addressed: 8.1 Fire Regime Condition Class, 12.1 Insects and Disease
- Project Description: Conduct environmental analysis process and start implementation for a vegetation management project designed to complement and expand on the current Jeffrey Pine Project. Project activities are expected to include commercial and pre-commercial thinning, manual and mechanical fuels treatments and prescribed burning on approximately 2,500 acres within this watershed. Upon completion of implementation of the Phase II project and Essential Projects #5, 7, and 8, approximately half of available (timbered) acres in the watershed will have been treated.
- Partners' Involvement: Partner involvement not expected because project is located entirely on NFS land and because of specialized skills needed to design and implement the essential project. Public involvement would be conducted as part of the NEPA planning process.
- Timeline: Planning is expected to start in fiscal years 2012-2013. Implementation expected to start in 2013 and continue for more than five years
- Estimated Forest Service costs and associated Budget Line Item: NEPA Planning - $30,000 WFHF; sale prep and administration - $5,000/yr NFTM; thin and pile - $480/acre NFVW/WFHF/BDBD/CWKV; pile burn - $150/acre WFHF; broadcast burn - $220/ac WFHF.

g. Essential Project #7: Implement the SCALP Hazardous Fuels Reduction Project.

- Attribute/Indicator Addressed: 8.1 Fire Regime Condition Class, 12.1 Insects and Disease
- Project Description: Continue implementation of the SCALP Project (hazardous fuels reduction) including piling of activity fuels and use of prescribed fire on approximately 1,650 acres in the watershed.
- Partners' Involvement: Partner involvement not expected because project is located entirely on NFS land and because of specialized skills needed to implement the essential project.
- Timeline: Project implementation was started in 1997 and has been ongoing since then. Implementation is expected to continue for another two to four years.
- Estimated Forest Service costs and associated Budget Line Item: Pile activity fuels - $270/acre WFHF/BDBD; pile burn - $150/acre WFHF; broadcast burn - $220/ac WFHF.

h. Essential Project #8: Implement the June Mountain Vegetation Management Project.

- Attribute/ Indicator Addressed: 12.1 Insects and Disease
- Project Description: Implement the June Mountain Vegetation Management Project to improve and restore forest health and vigor and establish defensible space around ski area improvements. There are approximately 40 acres of the 1,400-acre

project area within the Deadman Creek watershed. Treatments in the Deadman Creek watershed are limited to whitebark pine restoration.

- Partners' Involvement: Partner involvement limited to funding by permit holder to complete needed environmental analysis. The project is located entirely on NFS land within the June Mountain Ski Area permit area boundary.
- Timeline: Project planning was started in fiscal year 2010 and will be completed in fiscal year 2012. Implementation is expected to begin in summer 2012 and continue for three to five years.
- Estimated Forest Service costs and associated Budget Line Item: Thin and pile $480/ac WFHF; pile burn – $150/ac WFHF.

i. Essential Project #9: Initiate Planning for Upper Owens Wild and Scenic River Management Plan.

- Attribute/Indicator Addressed: When complete, the Upper Owens Wild and Scenic River Comprehensive Management Plan would provide integrated resource management direction related to all twelve watershed condition indicators.
- Project Description: Initiate the environmental analysis process for the Upper Owens Wild and Scenic River Comprehensive Management Plan by identifying needed field assessments and starting data collection. Projects #10, 11, 12, 13, and 17 are considered to be part of this project.
- Partners' Involvement: Partner involvement not expected because essential project is limited to data collection. Additional appropriated funding would be needed to continue with planning process.
- Timeline: Starting in 2012. Outyear timeline contingent on funding.
- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include NFRW and NFPN - $5,000. Does not include costs to complete assessments (Projects #10, 11, 12, 13, and 17).

j. Essential Project #10: Conduct Stream Crossing Condition Assessment.

- Attribute/ Indicator Addressed: 1.2 Water Quality, 3.1 Habitat Fragmentation, 5.1 Riparian Vegetation, 6.3 Road Maintenance
- Project Description: Conduct assessment of road-stream crossings (approx. 16 in watershed) to determine condition and recommend appropriate future treatment to reduce impacts to water quality. Prepare report to document findings.
- Partners' Involvement: Partner involvement may include the contribution of funding and in-kind expertise to help complete assessment.
- Timeline: Starting in 2012 and completed within one year.
- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include CMLG and NFVW - $10,000

k. Essential Project #11: Assess Hydrologic Connectivity of System Roads and Trails.

- Attribute/Indicator Addressed: 1.2 Water Quality, 6.3 Road Maintenance

- Project Description: Evaluate the hydrologic connectivity of motorized system roads and trails on meadows and perennial and intermittent streams to identify sediment sources. Prepare report to document finding.
- Partners' Involvement: Partner involvement may include funding and the contribution of in-kind expertise to help complete assessment. Possible partners include the California OHMVR Division, CalTrout, etc.
- Timeline: Starting in 2013 and completed within one year.
- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include CMLG and NFVW - $10,000

l. Essential Project #12: Assess Soil and Water Conditions in Developed Campgrounds.

- Attribute/ Indicator Addressed: 1.2 Water Quality, 3.3 Channel Shape and Function, 5.1 Riparian Vegetation Condition
- Project Description: Evaluate soil and water conditions in developed campgrounds to identify specific issues and concerns, including sources of sediment to streams, the amount of bare soil, etc. Prepare report to document findings.
- Partners' Involvement: Partner involvement may include the contribution of in-kind expertise and volunteer labor to help complete assessment, as well as application for grant funding. Possible partners include Friends of the Inyo, Mammoth Lakes Trails and Public Access, CalTrout, Inyo-Mono Integrated Regional Water Managers Group and other local interest groups.
- Timeline: Starting in 2014 and completed within one year. (Project may be started sooner if grant funding is received.)
- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include CMLG, NFVW, NFIM, and NFRW - $5,000

m. Essential Project #13: Assess Soil and Water Conditions at Dispersed Campsites.

- Attribute/Indicator Addressed: 1.2 Water Quality, 3.3 Channel Shape and Function, 5.1 Riparian Vegetation Condition
- Project Description: Conduct an evaluation of soil and water conditions at dispersed campsites up to ¼ mile from Glass and Deadman Creeks (Wild and Scenic River corridor) and/or Riparian Conservation Areas (300 feet from perennial streams; 150 feet from seasonal streams) to identify specific issues and concerns, including sources of sediment to streams, the amount of bare soil, etc. Prepare report to document findings.
- Partners' Involvement: Partner involvement may include the contribution of in-kind expertise and volunteer labor to help complete assessment, as well as application for grant funding. Possible partners include Friends of the Inyo, Mammoth Lakes Trails and Public Access, CalTrout, Inyo/Mono IRWMG, and other local interest groups.
- Timeline: Starting in 2014 and completed within one year. (Project may be started sooner if grant funding is received.)

- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include CMLG, NFVW, NFIM, and NFRW - $5,000

n. Essential Project #14: Stabilize the Glass Creek Trail.

- Attribute/ Indicator Addressed: 7.2 Soil Erosion
- Project Description: Develop proposal and complete planning to address erosion on approx 300 ft of the Glass Creek Trail. On-the-ground implementation will be dependent on the availability of funding.
- Partners' Involvement: Partner involvement may include the contribution of volunteer labor. Possible partners include The Wilderness Society, Friends of the Inyo, Sierra Club, and Youth Conservation Corps.
- Timeline: Starting in 2013 and continuing for two years.
- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include NFVW, CMLG, NFRW - $7,000

o. Essential Project #15: Install Wayfinding Signage for Mammoth – June Connector.

- Attribute/ Indicator Addressed: 7.2 Soil Erosion
- Project Description: Install signage and wayfinding to promote use of more sustainable/safer designated Mammoth-June OHV connector routes (all or parts of routes 01S112, 26E101, 02S78, 27E104, 02S105, 02S79, 02S11, 27E107, 02S11B, 03S26, 02S49, 02S23A, 02S05F, 02S05, 03S22, 27E202, 03S109, 03S109B, 03S89, 03S108, 03S108A, 03S24, 03S33, 03S08).
- Partners' Involvement: Partner involvement may include the contribution of volunteer labor. Possible partners include Mammoth 4WD Club, Advocates for Access to Public Lands, and other local interest groups.
- Timeline: Project will be started and completed in 2012.
- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include NFRW and CMTL - $4,000

p. Essential Project #16: Remove Water System from Glass Creek Meadow.

- Attribute/ Indicator Addressed: 5.1 Riparian/Wetland Vegetation
- Project Description: Remove the non-functional grazing water system (including two fiberglass troughs and wooden support structure) from Glass Creek Meadow to eliminate a minor diversion on an unnamed tributary of Glass Creek.
- Partners' Involvement: Partner involvement may include the contribution of volunteer labor. Possible partners include Backcountry Horsemen, Friends of the Inyo, etc.
- Timeline: Planning and implementation to be completed in fiscal year 2013.
- Estimated Forest Service costs and associated Budget Line Item: Estimated Forest Service cost for planning and implementation is approximately $2,000. Possible BLIs include NFVW, NFRW, and NFWF.

q. Essential Project #17: Spring Condition Inventory.

- Attribute/ Indicator Addressed: 5.1 Riparian/Wetland Vegetation

- Project Description: A series of three spring condition inventories were completed in the late 1980s to mid-1990s to document conditions of all springs in the watershed (approx. 118). This project would repeat the spring condition inventory to identify changes over time. The scope of the project may be restricted to the subset of springs that feed Glass and Deadman Creeks. A report would be prepared to document findings.
- Partners' Involvement: The project was suggested by CalTrout. Cal Trout and the Forest are currently working together to prepare a grant proposal to acquire funding to complete this project.
- Timeline: Starting in 2015 and continuing for two years. Project may be started sooner if grant funding is received.
- Estimated Forest Service costs and associated Budget Line Item: Possible BLIs include NFVW, NFIM - $7,000

e. Costs (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	$65	---	$1438	$7	$1510
Partner Contribution (both in kind and $)	$65	---	$66	$4	$135
Total	$130	---	$1504	$11	$1645

[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 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
Essential Project #1: Evaluate Unauthorized Routes	Planning: Develop proposed action, conduct NEPA analysis	15	30	Planning: complete NEPA. Timeline for implement ation depends on funding.	5	5									
Essential Project #2: Block and Disguise Unauthorized Routes	Implement, monitor: address incursions	20	20	Implement, monitor: address incursions	5	5	Implement, monitor: address incursions	4.5	2	Implement, monitor: address incursions	4.5		Monitor: address incursions	2	
Essential Project #3: Stream Crossing and Drainage Mitigations	Implement mitigations	20	10	Implement, monitor effective-ness	5										
Essential Project #4: Complete mitigations on system roads 27E102 and 02S23B	Planning: Complete NEPA	7	3	Implement	5										

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
Essential Project #5: Jeffery Pine Forest Health Project	Implement: Rx burn, thin/pile, pile, sales	72		Implement: Rx burn, thin/pile, pile, sales	92		Implement: Rx burn, thin/pile, pile, sales	72		Implement: Rx burn, thin/pile, pile, sales	94		Implement: Rx burn, thin/pile, pile, sales	94	
Essential Project #6: Phase II, Jeffery Pine Project	Planning: Develop proposal, complete field surveys	13		Planning: Complete NEPA. Begin to implement	16		Implement: Thin/pile, sales	98		Implement: Rx burn, thin/pile, sales	98		Implement: Rx burn, thin/pile, sales	98	
Essential Project #7: SCALP Hazardous Fuels Reduction Project	Implement: Pile burn, broadcast burn, pile	238		Implement Pile burn, broadcast burn, pile	246		Implement: Pile burn, broadcast burn, pile	121		Implement any remaining acres: Pile burn, broadcast burn, pile	Cost TBD				
Essential Project #8: June Mountain Vegetation Management Project	Planning: Complete NEPA Implement		2	(Implementation expected to begin in areas outside of watershed)			Implement: Thin/pile	20		Implement: Pile burn	6				
Essential Project #9: Upper Owens Wild and Scenic River Management Plan	Planning: Start field assessment	5		Outyear timeline contingent on funding and status of forest plan revision.											

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
Essential Project #10: Stream Crossing Assessment	Planning and implement: Conduct field assessment and prepare report of findings	10	5												
Essential Project #11: Assess Hydrologic Connectivity of System Roads and Trails				Planning and implement: Conduct field assessment prepare report of findings	10	5									
Essential Project #12: Assess Soil and Water Conditions in Campgrounds							Planning and implement: Conduct field assessment and prepare report of findings	5	5						

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
Essential Project #13: Assess Soil and Water Conditions at Dispersed Campsites							Planning and implement: Conduct field assessment and prepare report of findings	5	7						
Essential Project #14: Stabilize the Glass Creek Trail				Planning: Develop proposal, start NEPA	3		Planning: Complete NEPA	4							
Essential Project #15: Install Wayfinding Signage for Mammoth – June Connector	Implement	4	<1 volun-teers												
Essential Project #16: Remove Water System from Glass Creek Meadow				Planning and implement ation	2	1									
Essential Project #17: Spring Condition Survey										Planning and implement: Start spring survey and inventory	5	15	Implement: Document findings; prepare report	2	3

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.

4. Restoration Project Monitoring and Evaluation

a. **The forest will monitor:** implementation and effectiveness of fuel reduction treatments and off-highway vehicle use. Monitoring timeframes will be developed on a project-by-project basis.

b. **Monitoring will be done in cooperation with:** Partners involved in the planning, design, and implementation of essential projects may wish to be involved in monitoring as well. Fuel treatment monitoring is expected to be completed by forest vegetation management specialists. Monitoring costs for vegetation management are not captured in this WRAP.

Action Plan Date: 10/25/2011

Reviewing Official and Title: /s/ Edward E. Armenta
Forest Supervisor

Forest Contact Information: Todd Ellsworth, Watershed Program Manager
760-873-2457, tellsworth@fs.fed.us

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Action Plan Date: OCT 25 2011

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