Monitoring Study Group Meeting Minutes

November 12, 2009
US Forest Service Mendocino National Forest Headquarters
Willows, California

The following people attended the MSG meeting: George Gentry (BOF—MSG chair), Dr. Matthew Buffleben (NCRWQCB), Matthew House (GDRCO), Richard Gienger (public/ HWC/SSRC), Peter Ribar (CTM), Stormer Feiler (NCRWQCB), Dr. Michael Wopat (CGS), Bill Stevens (NMFS), Clay Brandow (CAL FIRE), Dr. Kate Sullivan (HRC), Drew Perkins (Cal Poly SLO/SPR), Jim Ostrowski (BOF), Dennis Hall (CAL FIRE), Mike Laing (NC Federation of Fly Fishers), Kevin Faucher (CTM), Michelle Dias (CFA), Dr. Cajun James (SPI), Drew Coe (CVRWQCB), and Pete Cafferata (CAL FIRE). **[Action items are shown in bold print]**.

The meeting began with general monitoring-related announcements:

- The USFS is providing a Region 5 BMP Evaluation Program (BMPEP) training workshop in Placerville from November 17-19, 2009. Contact Barry Hill for more information at: bhill@fs.fed.us

- The USFS and University of California Cooperative Extension are sponsoring a conference titled "Pre- and Post-Wild Fire Forest Management for Ecological Restoration and Fire Resiliency" in Sacramento on February 9-11, 2010. See: http://groups.ucanr.org/wildfire2010/

- The 27th annual Salmonid Restoration Federation Conference will be held March 10-13, 2010 at Redding; registration will open in December. See: http://www.calsalmon.org/

- The California Forest Soils Council's Spring 2009 meeting is titled "Changing Landscape, Forest Management and the Role of Biomass and Soil in the C Balance." It will be held on April 10, 2010 at UC Davis. See the following website: http://www.humboldt.edu/~cfsc/CSFC%20spring%20meeting%20notice%202009.pdf

- Preliminary plans are being developed for a third coast redwood conference for the end of 2010/early 2011. Contact Greg Giusti, UCCE, for more information: gagiusti@ucdavis.edu

- Dr. Matthew Buffleben's UCLA PhD dissertation, titled "Assessment of Soil Creep Sediment Generation for Total Maximum Daily Load Development in a Northern Coastal California Watershed," is available. Field work was completed in the Elk River watershed in Humboldt County. For a pdf of the dissertation, contact Matthew at: MBuffleben@waterboards.ca.gov

- Dr. Sue Cannon (USGS) and others' new paper titled "Predicting the Probability and Volume of Postwildfire Debris Flows in the Intermountain Western United States" is available as a pdf. This paper will appear in the January 2010 GSA Bulletin. Contact Pete Cafferata at: pete.cafferata@fire.ca.gov

- The USGS's Proceedings of the Third Interagency Conference on Research in the Watersheds: Planning for an Uncertain Future—Monitoring, Integration, and Adaptation includes 33 papers, including "Timber Harvest and Turbidity in North Coastal California Watersheds" by Randy Klein; "Long-term Patterns of Hydrologic Response after Logging in a Coastal Redwood Forest" by Liz Keppeler, Dr. Leslie Reid, and Dr. Tom Lisle; and "Post-Fire Watershed Response at the Wildland-Urban Interface, Southern California" by Pete Wohlgemuth and others. See: http://pubs.usgs.gov/sir/2009/5049/

- "Frequency and Characteristics of Sediment Delivery Pathways from Forest Harvest Units to Streams," written by Sam Litschert and Dr. Lee MacDonald, is now in press and available as a pdf (this paper examines surface erosion sediment connectivity from harvest units on Forest Service lands in the Sierra Nevada). Contact Pete Cafferata at: pete.cafferata@fire.ca.gov

- "Linkages Between Forest Soils and Water Quality and Quantity," a 2009 paper in Forest Ecology and Management by Drs. Daniel Neary, George Ice, and Rhett Jackson, is available as a pdf. Contact Pete Cafferata at: pete.cafferata@fire.ca.gov

- The USFS Station Fire BAER Reports, including Dr. Sue Cannon's debris flow prediction paper for this fire, hydrology reports, geology reports, etc., are available at: http://www.fs.fed.us/r5/angeles/station/map.shtml

- BOF Anadromous Salmonid Protection (ASP) rule-related interpretation questions should be sent to Pete Cafferata, CAL FIRE, by November 20th. CAL FIRE and DFG will compile a complete list of all the questions with acceptable answers and provide them as a handout at ASP training workshops early next year. THP form revision comments should be sent to Chris Browder, CAL FIRE, by the same date, at: chris.browder@fire.ca.gov

- The Annual Coho Recovery Team meeting will be held in Sacramento on November 17, 2009. Also, on November 30th, the SWRCB and USFS will hold technical and policy meetings to discuss a process to develop consistent Waiver requirements on federal lands across Water Board regions.

- George Gentry announced that Dr. Lee Benda's scheduled presentation on large wood recruitment and function in northern California streams would not be made until the next MSG meeting due to continuing discussion regarding some of the data in the paper.

Impacts of the Lockheed Fire on the Little Creek Watershed Study, Swanton Pacific Ranch

Mr. Drew Perkins, Cal Poly San Luis Obispo graduate student, provided a PowerPoint presentation titled "Lockheed Fire and Post Fire Research Opportunities for Swanton Pacific Ranch." The MSG's Little Creek cooperative instream monitoring project is located on Swanton Ranch and was heavily impacted by the Lockheed Fire.

Drew began by providing background information on the incident. The Lockheed Fire began on August 12, 2009 and burned 7,817 acres near Bonny Doon in Santa Cruz County, all on State Responsibility Area (SRA). The majority of the fire was located in the Scotts Creek Watershed, which supports anadromous fish bearing streams with federally endangered coho salmon and federally threatened steelhead. Over 30 million dollars were spent suppressing the fire. Maps, photos, and incident general information are available at: http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=361. Drew reported that the fire began in a very dry knobcone pine/chaparral area and covered 2.5-3 miles in two hours with winds blowing 30-40 mph. Most of the area had not burned since the Pine Mountain Fire in 1948. Approximately 92% of the 1,300 acre Little Creek watershed burned, while 36% of the Scotts Creek watershed (19,000 ac) was impacted by the fire. The Scotts Creek estuary was used to refill helicopters for water drops. Over 600,000 gallons of water were pumped from Cal Poly agricultural wells for suppression efforts (refilling water tenders), with an additional one million gallons pumped from the CEMEX ownership, an adjacent landowner.

A CAL FIRE post-fire assessment team produced a document titled "Lockheed Fire Post Fire Risk Assessment", including risk assessment maps for the 11 impacted watersheds (available at: http://www.santacruzcountyfire.com/resource_mgmt/final_lockheed_ra.pdf). The very large 1955 flood (at least a 45 year return interval event) produced a debris torrent in Little Creek that caused fatalities, so there is considerable concern that large storms this winter could generate extremely hazardous conditions in Little Creek and the entire burned area. Using a variety of methods (BARC map, aerial flights, field reconnaissance), burn

severity across the entire burn area was estimated to be 14% very high, 37% high, 43% moderate, and 6% low. Riparian areas were generally rated as moderate or low, while mid to upper slopes and ridgelines with knobcone pine and chaparral were often rated as high or very high burn severity. Drew reported that Douglas-fir trees in the more intensely burned areas are dead, but that many of the coast redwood trees are already sprouting. Big Creek Lumber Company will be conducting redwood salvage logging operations, but no firm decisions have been made regarding salvage logging on Swanton Pacific Ranch at this time.

Immediately after the fire was contained, Dr. Brian Dietterick, Cal Poly Professor and Swanton Pacific Ranch Director, and Ranch staff noted considerable amounts of dry ravel occurring on steeper slopes, as well as numerous down trees. The main Little Creek road up the drainage had to be reopened three to four times. Al Smith's house and the Staub House on Swanton Ranch were not damaged by the fire, but three older cabins in the Little Creek watershed were lost. The four watershed monitoring stations in the North and South Forks of Little Creek sustained minor damage, while the five monitoring stations with flumes, as well as two rain gauges, in the smaller headwater tributaries were more heavily impacted. Altogether, five of the nine monitoring stations that are part of the Little Creek Study were damaged to some extent. There was $24,000 worth of damage to the monitoring equipment and flumes, which was mostly covered by insurance. The burned flumes have not been replaced at this time, but new ISCO samples are available.

Drew provided the group with a brief overview of the Little Creek watershed study prior to the Lockheed Fire. The main goals of the project were to: (1) scientifically document water quality and channel conditions before, during, and after single-tree and small group selection harvests, and (2) evaluate the effectiveness of current Forest Practice Rules in maintaining existing water quality and channel conditions. The study utilizes both a paired (North Fork [NF] treated, South Fork [SF] control) and nested design (upper NF control, lower NF treated). The calibration period was 2001-2008, with selection harvesting under an NTMP occurring during the summer of 2008 (750,000 BF removed). There was one winter after logging before the wildfire. Three storm events occurred during the winter of 2008/2009 that produced turbidity values over 20 NTUs. The February 15-16th storm delivered approximately six inches of precipitation in 24 hours and the North Fork station had turbidity values of up to 200 NTUs. Mike Gaedeke's Masters thesis, titled "Preharvest Calibration on the Little Creek Watershed: A Paired and Nested Watershed Analysis," documented that changes in storm event suspended sediment loads approximately 30% or greater above background levels may be detected using the nested watershed design (using 95% confidence intervals). Mr. Gaedeke's thesis is available at:
http://www.bof.fire.ca.gov/board_committees/monitoring_study_group/msg_archived_documents/msg_archived_documents_/gaedeke_thesis_.pdf.

Mr. Perkins next described the large rainstorm that occurred mostly on October 13, 2009. Rainfall totals were as high as 10.24 inches at Boulder Creek, with four to eight inches falling in the Little Creek drainage (weighted average = 6.4 in). Rainfall was described as only moderately intense, with a maximum intensity of 0.33 inches in 15 minutes recorded. No significant debris flows were observed and streamflow levels were only moderate (approximately bankfull stage), due to exceptionally dry antecedent soil moisture conditions. ISCO pumping samplers were set to take samples every 1.5 hours and grab samples were taken at all key locations. Grab sample turbidities peaked at approximately 350 NTUs in Mill Creek (located to the north of Little Creek), while pumped sample turbidities rose to roughly 325 NTUs in the Little Creek watershed. Some significant road-related erosion was noted,

and in the upper watershed, rills show that there was overland flow occurring on hillslopes during the storm. Hydrophobic soil conditions exist, with high spatial variability.

While the Lockheed Fire has ended the planned pre-harvest/post-harvest Little Creek Study, a major opportunity exists for Little Creek to become a very valuable pre- and post-fire watershed study. Prior to the storm event, nine sediment traps were installed to measure hillslope erosion. Additionally, Dr. Arne Skaugset, Oregon State University, brought a portable rainfall simulator to Little Creek following the large October storm to measure infiltration and runoff rates. Ten plots have been installed to date, with artificial rainfall rates set from 0.5 to 3 inches/hour on slopes ranging from 50% to 70%. Sediment fences have yet to be installed on convergent or planar slopes, but may still be utilized to document hillslope erosion rates.

Drew stated that other research opportunities exist on Swanton Pacific Ranch related to the Lockheed Fire as well, including many related to forestry (tree mortality, regeneration, fire behavior, native plant recovery, changes in plant diversity etc.), wildlife, aquatic ecology (BMI macroinvertebrates), fisheries, and geomorphology. A new LiDAR flight is planned next year as part of a NMFS grant. Kate Sullivan and Drew Coe encouraged Drew and Brian Dietterick to consider conducting more sediment budget work and process-oriented studies, if possible. Additionally, Cajun James encouraged Brian to contact Dr. James Kirchner at UC Berkeley regarding possible collaboration at Little Creek.

Discussion on the Formation of an Effectiveness Monitoring Committee

George Gentry led a continuing discussion regarding the concept of forming a new MSG Effectiveness Monitoring Committee. The main goal for this committee would be to advise the Board on how to build a monitoring program that could provide an active feedback loop to policy makers for adaptive management. This effort is a follow-up to the MSG Monitoring and Tracking Subcommittee work, which had a goal of locating redundancy in monitoring projects conducted in California.

Prior to presentation of a draft strawman on the new committee, Drew Coe, CVRWQCB, briefly summarized the draft MSG Monitoring and Tracking Subcommittee Report he authored (the report is posted on the Monitoring Study Group's website at: http://www.bof.fire.ca.gov/board_committees/monitoring_study_group/msg_monitoring_reports/draft_monitoring_tracking_report_09nov09.pdf). Drew found that there was limited evidence of overlapping monitoring requirements by state regulatory agencies, although some overlap may occur for companies monitoring under an HCP. He also concluded that monitoring overlap may also occur when state agencies require implementation and effectiveness monitoring for the same group of BMPs. Drew stated that data from the 72 questionnaires did not provide clear evidence of a consistently effective feedback loop between monitoring data and decision-making, except at relatively small organizational and spatial scales (i.e., it was not present at the regional and statewide scales). He suggested that the questions listed in Table 1 in Gregory et al. 2006 (Deconstructing Adaptive Management: Criteria for Applications to Environmental Management) should be used to screen studies to determine if they are potentially useful for adaptive management at statewide or regional scales in California. Drew also stated that the Washington State Adaptive Management Program offers a good template for implementing a statewide adaptive management program in the future in this state. He concluded that "ground rules" similar to those used in Washington will have to be developed before a

statewide adaptive management program can be successfully implemented here. Washington's ground rules are provided in Appendix 2 of Drew's draft report. **Drew asked that MSG participants provide feedback to him on his report by early December (email comments to: dbrcoe@waterboards.ca.gov).**

A lengthy discussion on how the Washington State Adaptive Management program functions in that state followed Drew's report summary. Fundamental points raised included: (1) Washington's system was similar to California's prior to the development of the Timber/Fish/Wildlife (TFW) process in 1987, (2) Washington's accepted ground rules structure how the process works, (3) Washington's system works because there is a separation of policy and technical science, (4) It is important to have all stakeholders agree on study design prior to the start of the project, (5) Possible rule language is debated until consensus is reached, (6) The Washington Forest Practice Board generally does not adopt rule changes without consensus from the TFW Policy Committee, (7) Active, long-term commitment to the CMER science committee is critical, (8) Those individuals appointed to the TFW Policy Committee must be able to make decisions for their agency or stakeholder group, (9) No bill from the legislature was needed to begin the TFW process, and (10) While the process can be contentious, the overall framework works well and stakeholders develop mutual respect for one another. Cajun James used the current study in Washington on mass wasting related to timber harvesting to illustrate how the adaptive management process works.

George Gentry summarized the draft "Effectiveness Monitoring Committee Strawman Framework" developed by CAL FIRE staff for discussion purposes. This framework builds on the initial outline developed at the last MSG meeting held in July 2009. The basic steps included in the framework include (condensed):

1. Set up a BOF appointed Effectiveness Monitoring Committee representing the main stakeholder groups (not limited to 12 individuals).
2. Require the committee to follow modified TWF ground rules.
3. Set up a schedule of regular meetings, with decisions to be made by consensus (public may attend).
4. Solicit caucus groups to submit questions about the effectiveness of specific water quality-related Forest Practice Rules.
5. The committee is to prioritize the submitted questions requiring investigation, requiring group consensus.
6. Funding for the highest rated projects is to come from a combination of state and private sources, as well as grants (merging of monitoring priorities required by all stakeholders).
7. Committee and staff are responsible for completing investigations, securing peer review, and synthesizing results in final reports (no policy or regulatory recommendations are to be made).
8. Final reports are to be made widely available on the internet.
9. Implications of reports are to be discussed until consensus is reached on a recommended rule change, possibly using facilitation.

Obstacles to overcome and possible solutions are also listed in the draft strawman document. These include: (1) inadequate funding and technical skills: creative solutions involving partnerships and possible federal grants; (2) inadequate "buy-in" from the top down from agencies and caucus groups: hold workshops with caucus groups prior to implementation;

(3) agency regulatory/legislative constraints prohibiting reduced protection levels: negotiated ranges within which rules can change; (4) inadequate agency staffing: reprioritizing existing staff time; and (5) temporal and spatial scales chosen that are unmanageable: prioritize projects that have appropriate temporal and spatial scales for adaptive management.

There was general agreement that obstacles (2) and (3) above are the most important. George Gentry stated that stakeholder support is absolutely critical to move this process forward. He added that the first step is to determine if we can get the state agencies to agree to using the adaptive management concept. **Kate Sullivan stated that the initial draft strawman document needs to be modified to include two committees—the science group (EMC), as well as a policy group (Effectiveness Monitoring Policy Committee (EMPC), similar to Washington's process.** George Gentry informed the group that he and BOF Chairman Stan Dixon have discussed a conceptually similar process with the public trust resource agencies and they have stated that they are interested, since greater agency responsibility, accountability, and efficiency are widely recognized as being required in California. **George asked that MSG participants provide in-depth comments on the draft strawman document by December 1, 2009 (the document is to be emailed out with these minutes).**

Update on FORPRIEM--Forest Practice Implementation and Effectiveness Monitoring

Clay Brandow, CAL FIRE, provided a rapid update on the FORPRIEM monitoring program. **He stated that he has developed a draft QA/QC document and asked that MSG participants review the draft and provide him with comments by mid-December. The draft QA/QC document is included in the email with these minutes. Email comments to Clay at: clay.brandow@fire.ca.gov.** Clay stated that to date he has received 59 FORPRIEM monitoring reports from completed THPs throughout the state. The goal is to monitor a 10% random sample of all THPs with Completion Reports filed on or after July 1, 2008. Currently there are 27 THPs in the sample with Completion Reports on-file that have not yet undergone FORPRIEM. Of these 27, 18 have experienced at least one overwintering period and are ready for both implementation and effectiveness monitoring. Of these 18 THPs, 12 are from CAL FIRE Region 2 (Redding), 6 are from CAL FIRE Region 1 (Santa Rosa), and none are from CAL FIRE Region 4 (Fresno). At the current rate that Completion Reports are being filed, Clay expects to have a sufficient number of monitored THPs in the database to analyze and write an interim report for the MSG by the end of 2010.

Public Comment/New and Unfinished Business

Richard Gienger stated that the Board of Forestry and Fire Protection needs to demonstrate that it is making progress on developing the two pilot projects using site specific or non-standard operational provisions to test Anadromous Salmonid Protection (ASP) section 14 CCR 919.9 (v), as required by the rule language.

Next Monitoring Study Group Meeting Date

No date was selected for the next MSG meeting, but we anticipate holding the meeting in late January or early February. CAL FIRE staff will email possible dates out in January, determine a generally mutually agreeable date, and let MSG participants know the date.