

# Monitoring Study Group Meeting Minutes

March 20, 2013  
USFS Mendocino National Forest Supervisors Office  
Willows, California

The following people attended the MSG meeting: George Gentry (BOF—MSG Chair), Clay Brandow, (CAL FIRE), Drew Loganbill (NRCS), Dave Longstreth (CGS), Bill Short (CGS), Richard Gienger (public), Nick Kunz (SWRCB), Ed Struffenegger (CFA), Joe Croteau (DFW), Kevin Faucher (CTM), Peter Ribar (CTM), Rich Wade (BOF), Lorna Dobrovolny (DFW), Duane Shintaku (CAL FIRE), Chris Dallas (SNC), Nic Enstice (SNC), Drew Coe (CVRWQCB), Steven Cordes (DFW), Dan Larsen (CSU Chico), Trey Sherrell (CVRWQCB), Harvest Vieira (DFW), Mike Mitzel (SPI), Dr. Cajun James (SPI), Matt Boone (CVRWQCB), Dennis Hall (CAL FIRE), Mike Miles (BOF), and Pete Cafferata (CAL FIRE).

Participants on the GoToMeeting webinar/conference call included: Anthony Toto (CVRWQCB), Dr. Chris Keithley (CAL FIRE-FRAP), Mike Bacca (CAL FIRE), Megan Reeves (CAL FIRE), Eric Just (CAL FIRE), Dr. Brian Dietterick (Cal Poly/SPR), Bill Solinsky (CAL FIRE), Rich Klug (Roseburg Resources Co.), Chantz Joyce (PFT), Matt House (GDRCO), Dr. Tom Myers (consultant), and Terra Fuller (DFW). **[Action items are shown in bold print].**

The meeting began with general monitoring-related announcements:

- Pete Cafferata announced that there will be a conference titled “A WRC Paired Watershed Conference: Key Findings on the Environmental Impact of Contemporary Forest Practices” at Oregon State University on April 18<sup>th</sup>, organized by Dr. Arne Skaugset. Three paired watershed studies will be addressed: (1) the Trask Paired Watershed Study in northwest Oregon, (2) the Alsea Paired Watershed Study Revisited in central coastal Oregon, and (3) the Hinkle Creek Paired Watershed Study in southwest Oregon. There will be a webinar presentation; for additional information, see: <http://wrcpairedwatershed2013.com/>.
- Dr. Richard Harris is presenting a 5 part webinar series on the Ecology and Active Management of Riparian Vegetation in Forested Landscapes from May 1-May 29<sup>th</sup>. Each 2 hour session will be held on Wednesdays during May (11:00 a.m. to 1 p.m.). To obtain further details, see: <http://ucanr.edu/riparianwebinar>. To register for the webinar series, go to: <http://ucanr.edu/riparianwebinarregistration>.
- The Caspar Creek 50-year celebration, titled “The Caspar Creek Research Project: 50 Years of Discovery; What are the Implications for Forest Management?” will be held on June 28<sup>th</sup> in the Fort Bragg area. This will be a one day workshop, with indoor presentations in the morning and a field trip to the watershed in the afternoon. For more information, see: <http://www.fs.fed.us/psw/topics/water/caspar/caspar50/>. To register for the workshop, go to: <http://www.casparcreekworkshop2013.eventbrite.com/>.
- There will be a 2-day workshop titled “Roads and Road Management in the Tahoe Basin” held on June 13<sup>th</sup>-14<sup>th</sup> at Stateline, Nevada. Registration is free but required. For more information, see: <http://ucanr.edu/tahoeroads>. Register for the workshop at: <http://ucanr.edu/tahoeroadsregistration/>.
- The joint California Forest Soils Council/PSSAC Summer Meeting will be held on June 28<sup>th</sup>-29<sup>th</sup> in the Fort Bragg area. This meeting overlaps the Caspar Creek 50<sup>th</sup> anniversary meeting. A soils-focused field tour is being planned for Saturday, June 29<sup>th</sup>. For more information, contact Lia Webb at: [Lia.Webb@ghd.com](mailto:Lia.Webb@ghd.com).

- Richard Gienger announced that the 31<sup>st</sup> Annual Salmonid Restoration Conference, “Innovative Approaches to Fisheries Restoration,” held from March 13<sup>th</sup>-16<sup>th</sup>, 2013, in Fortuna, was a resounding success, with over 400 people in attendance. The conference proceedings are posted at: <http://www.calsalmon.org/files/documents/conference/Conference2013Proceedings.pdf>
- George Gentry announced that on March 20<sup>th</sup>, the U.S. Supreme Court ruled 7-1 to reverse a lower court ruling which said that runoff from logging roads is similar to other industrial pollutants and should require a Clean Water Act permit from the U.S. Environmental Protection Agency (i.e., a NPDES permit). The EPA itself disagreed with the lower court ruling and has since issued a new regulation specifying that logging road runoff does not require a NPDES permit. Supreme Court Justice Anthony Kennedy said for the Court that the agency's reading of its own regulations is entitled to deference from the Court. The ruling is posted at: [http://www.supremecourt.gov/opinions/12pdf/11-338\\_kifl.pdf](http://www.supremecourt.gov/opinions/12pdf/11-338_kifl.pdf).
- Cajun James announced that Sierra Pacific Industries is actively seeking to hire a research forester. Contact Dr. James for inquiries at [cjames@spi-ind.com](mailto:cjames@spi-ind.com).
- After the meeting, Bill Short suggested that the following peer reviewed paper be announced: Andrews, E.D. and R.C. Antweiler. 2012. Sediment fluxes from California coastal rivers: the influences of climate, geology, and topography. The Journal of Geology 120(4): 349-366. The paper abstract is available at: <http://pubs.er.usgs.gov/publication/70039853>.

### **Post Fire Erosion Study in the Battle Creek Watershed**

Dr. Cajun James, SPI, provided a PowerPoint (PPT) presentation titled “Post Fire Erosion Study: Ponderosa Fire, Manton, California.” She stated that assistance with this study has been provided by Dr. Lee MacDonald, CSU, and Dr. Pete Robichaud, USFS RMRS, as well as from two PCT private contractors, the SPI Lassen District forestry staff, and SPI Research and Inventory Crews. Dr. James began by providing background information on the Battle Creek watershed, including past SPI water quality monitoring work and the Battle Creek Salmon and Steelhead Restoration Project underway. Instream monitoring stations in the Battle Creek watershed include three stations on Bailey Creek (upper, middle, and lower, operated since 2002-2003), and Rock Creek, North Fork Digger Creek, and South Fork Digger Creek (since fall 2011). Water quality sampling equipment and laboratory procedures were briefly summarized.

The Ponderosa Fire burned 27,680 acres in the Battle Creek watershed in August 2012, including 17,664 acres of SPI timberlands. Fire images were presented, including photos illustrating the role that SPI foresters played in controlling the fire, the importance of fire retardant drops from aircraft in controlling the fire, and fire movement through riparian zones. Photos of the Rock and Bailey Creek watersheds were provided and post-fire needle cast was described as common. Monitoring stations on these watersheds were rapidly repaired after the fire and very little data were lost. Pre-fire turbidity data from the Rock, Digger, and SF Digger Creek stations showed that peak turbidity values were approximately 40-80 NTUs. The first significant storm event in November produced turbidity values over 500 NTUs, while a high intensity, short duration rainfall event on December 2<sup>nd</sup> produced values of approximately 6,000 NTUs (based on ISCO water samples; YSI Sonde capability was exceeded).

After consultation with Dr. Lee MacDonald, Dr. James decided to implement a post-fire erosion study to document impacts of salvage logging operations. Approximately two weeks after the fire, 10 swale locations were selected in the Canyon Creek watershed. Swale drainage areas ranged from 0.8 to 1.3 acres, with slopes ranging from 10 to 25%. Harvest treatments in the swales included biomass removal or standard salvage (merchantable trees only); ground treatments were subsoiling (i.e., ripping) or no treatment. Three swales were designated as controls, 2 had standard salvage with subsoiling, 1 had standard salvage with no subsoiling, 2 had biomass removal and subsoiling, and 2 had biomass removal and no subsoiling. Sediment fences were rapidly built at the base of each swale to capture runoff and

sediment. Electronic depth sensors were mounted on the fences to document changes in sediment load captured at the base of the swale. Photos were shown of the various swales before and after treatment. Winged subsoilers ripped the soil to 18-20 inches deep (with lateral fracturing) and rows were 7-10 feet apart. Subsoiling has been a common practice on the SPI Lassen District following clearcut logging operations. With standard salvage, oak trees and sub-merchantable conifers are left standing, which can make subsoiling following topographic contours more difficult. Operators were instructed to log as they would on a normal site and all trees were mechanically felled.

The December 2<sup>nd</sup> storm event produced a stage of 10.06 feet at the Battle Creek station located below the Coleman Fish Hatchery (USGS station 1376550). The peak flow of approximately 10,000 cfs equated to slightly more than a 5-year annual recurrence interval event. Photos were shown documenting sediment deposition in the 10 swales following this large storm. Control swales clearly had more sediment deposited behind the sediment fences than the treated swales. Sheet erosion was a dominant process, since there was not high connectivity between rills. Subsoiling was stated as having increased soil infiltration rates considerably. The sediment fences had their accumulated sediment removed before Christmas 2012, in anticipation of future large storm events. Sediment was shoveled into buckets and weighed; subsamples were taken to obtain wet and dry weights. A small percentage of the fence samples were burned to determine organic content, as were sediment filters from Rock and Judd Creek monitoring stations. The results were stated as being roughly similar to those reported earlier by Dr. Mary Ann Madej for coastal watersheds. The first post-fire storm produced very high organic percentages.

Preliminary erosion results were displayed for the 10 swales. The three control swales produced the highest amounts of sediment following the December 2<sup>nd</sup> storm event. One of the 'salvage and subsoil' swales and the two 'biomass removal and subsoil' swales produced the lowest amounts of sediment (approximately an order of magnitude lower than the controls). The second 'salvage and subsoil' swale and one of the 'biomass removal without subsoiling' swales produced intermediate amounts of sediment (the second 'biomass removal without subsoiling' swale produced an amount similar to the controls). The 'salvage without subsoiling' swale produced a high amount of sediment, but less than that generated from the controls. 'Salvage and subsoil' swale erosion was likely higher than biomass and subsoil erosion since tree yarding and subsoiling was not on contour as well as in the biomass swales, where all the trees were removed and machines could move around the site in an optimal manner.

Unlike most past post-fire studies, this project documented the impacts of the fire on erosion from the first fall and early winter storms following the wildfire. Dr. James stated that these early results point to the benefits of ground treatments, particularly those involving subsoiling that shortens the distance that sediment can travel and increases infiltration. The study will continue for another two winter periods. The SPI portion of the Ponderosa Fire area is expected to be replanted with conifer seedlings in three years.

### **Post-Fire Response in the Little Creek Watershed, Swanton Pacific Ranch**

Mr. Drew Loganbill, NRCS, provided a PowerPoint (PPT) presentation titled "Post-Fire Response of Little Creek Watershed: Evaluation of Change in Sediment Production and Suspended Sediment Transport." This research comprises Mr. Loganbill's masters thesis work at Cal Poly San Luis Obispo, under the direction of Dr. Brian Dietterick. He began by providing background information on the Little Creek watershed, an MSG cooperative instream monitoring project. Little Creek drains approximately 1,200 acres and flows into the Scotts Creek basin roughly 12 miles north of Santa Cruz, near the southern extent of coho salmon. Cal Poly owns the lower half of the Little Creek watershed and conducts operations in the basin as part of Swanton Pacific Ranch.

The original research goal in the Little Creek watershed was the evaluation of suspended sediment export before and after a ground-based and cable-yarded timber harvest using data from four monitoring stations. The paired and nested watershed study planned on using seven years of pre-harvest data (calibration period 2002-2008) and three years of post-harvest data. Logging under an NTMP occurred during the summer of 2008 and one year of post logging data were obtained. The Lockheed Fire began

on August 12, 2009 and burned 93% of the Little Creek watershed, presenting a unique opportunity to document fire impacts in a coast redwood watershed. Fire severity was high on ridges with chaparral and knobcone pine, with decreasing severity in lower slope areas with coast redwood forest.

To document the impacts of the fire during the first winter, data from two rain gages were used. Data for stage, flow, and suspended sediment were used from three of the four monitoring stations. Additionally, near stream sediment survey data were used to document the quantity of sediment with direct stream channel contribution (e.g., eroded bank areas, debris flows, and dry ravel). Hillslope erosion plots were built using three beveled one meter wooden boards, with the downslope end containing a collection basin produced by a silt fence. A modified Purdue rainfall simulator was used to determine infiltration rates by applying simulated rainfall on a one square meter plot at a rate of approximately 2 in/hr. Hydrophobicity tests were performed at 20 sites within the Little Creek watershed representing different vegetation types, soils, geology, soil burn severity, slope, and aspect using Mini-Disc Infiltrimeters.

During the winter of 2009-2010, there were 13 defined storm events in the Little Creek watershed (storms were defined as producing turbidity values >20 NTUs). Data from the three most significant events were described in detail. The October 13, 2009 event was the largest of the year, producing 6.8 inches of rain over approximately 18 hours; rainfall intensity reached 1.4 in/hr. There was a significant flow and sediment response, with suspended sediment concentrations (SSC) reaching 1837 mg/l and turbidity 467 NTUs. The January 18, 2010 event delivered only 2.08 inches, but rainfall intensity reached 3.44 in/hr. Turbidity rapidly spiked at 2032 NTUs, with a corresponding SSC of 5012 mg/l, and then dropped to low levels. Severe rill erosion was documented at a three acre site, as were several small debris flows on south facing slopes (not all of which delivered to the channel). The February 6, 2010 storm event delivered 3.6 inches of precipitation, with a maximum intensity of 1.3 in/hr. Peak SSC and turbidity reached 2125 mg/l and 853 NTUs, respectively. Rill sites continued to deliver sediment to the channel.

Regression analyses determined that the effect of fire significantly decreased suspended sediment concentrations with higher flows at North Fork and Upper North Fork monitoring stations (only pre-fire flows up to 15 cfs were considered, since post-fire flows only reached this flow rate). The effect of the fire did not produce increases in stormflow volumes and event sediment load, likely due to the fact near-stream sediment contribution was minimal (the number of features documented in 2010 survey was lower than documented in 2002 and 2006) and the majority of hillslope derived sediment sources were not hydrologically connected. Rainfall simulations, hillslope erosion plots, and soil infiltration tests indicated that the fire produced soil water repellency. Forested areas had much higher infiltration rates than chaparral ridge sites.

Mr. Loganbill concluded his presentation by stating that: (1) sediment sources changed from near-stream sediment sources to hillslope derived sediment sources after the fire; (2) high intensity rainfall triggered mass sediment production in the form of small debris flows; sharp peaks in SSC and turbidity were recorded after high intensity rainfall events; (3) hillslope sediment production was influenced by steep slopes, high soil burn severity, strong soil hydrophobicity, and reduced ground cover; (4) lack of near-stream sediment sources contributed to a decrease in SSC at monitoring stations and insignificant results for event sediment load; (5) absence of flows above bankfull likely influenced insignificant results for stormflow volume; and (6) this study gives a better understanding of how a coast redwood dominated watershed responds to wildfire.

### **Draft MSG Effectiveness Monitoring Committee Charter Discussion**

George Gentry and Pete Cafferata provided a brief overview of the draft Effectiveness Monitoring Committee (EMC) Charter developed over the past three months. The EMC concept was discussed by the MSG from 2008-2009, but put on hold until the completion of the VTAC work. Drew Coe's 2009 MSG report documenting existing monitoring work being conducted in California did not provide evidence of a consistently effective feedback loop between monitoring data and decision-making, illustrating the

need for an EMC. One goal of an EMC would be to determine if recently adopted Forest Practice Rules are effective in protecting beneficial uses such as salmonid habitat, or if further modification is required. We would build an effectiveness monitoring program that could provide an active feedback loop to policy makers, managers, agency personnel, and the public. We envision a 12 member committee (possibly larger), with members appointed by the BOF, having voting privileges, and made up of all the main stakeholders. Members are to be well respected applied scientists or resource management professionals, with a Chair and Vice-Chair. With the passage of AB 1492, the lumber tax bill requiring an evaluation of ecological performance, we envision monitoring the effectiveness of regulations promoting ecological benefits. A systematic approach could be developed to monitor and produce data for adaptive management, including both water quality and terrestrial components. **To date, the draft EMC Charter has been reviewed by Dr. Rick Standiford, Chair of the BOF's Research and Science Committee (RSC) and Drew Coe. Review by the complete RSC will be forthcoming.**

Numerous comments on the draft EMC Charter were provided by the MSG, including:

- Need to clarify how many agency personnel will occupy EMC slots; does each agency get an automatic seat on the committee? Agency personnel are needed at "the table."
- Consider consulting Mr. John Laird, Secretary for Natural Resources, regarding agency representation.
- Appoint agency representatives that can speak for their agencies.
- Need to better define the monitoring goals in the Charter document.
- Use the T&I/ASP rules to formulate questions to research/experiments to validate the FPRs generated in those packages. For example, Class II-L water temperature questions could be monitored relatively easily and could demonstrate success.
- Make the funding source(s) better defined, and better define who will develop study designs, collect the monitoring data, conduct data analysis, and write reports (all large tasks).
- Better define how landowners will participate, and who owns the data.
- Identify small landowners and get them to participate; work with FLOC and other groups.
- Use pilot projects to demonstrate that the process can work.
- Consider having multiple pathways for data collection, depending on the question being addressed (e.g., landowner with state oversight, interagency team, or existing program in place).
- AB 1492 mandates that reports on ecological performance will be produced and the EMC is one framework to consider using to collect this data. The "measurables" or criteria need to be decided, and relatively quickly. Statewide or regional data are needed more than site-specific data.
- Consider starting data collection on the Demonstration State Forests.

### **FORPRIEM Update**

Clay Brandow provided a brief update on the Forest Practice Rules Implementation and Effectiveness Monitoring (FORPRIEM) program work he is leading. To date 106 completed THPs have been randomly selected for monitoring by CAL FIRE Forest Practice Inspectors, with 99 FORPRIEM THP forms received. Eighty one percent of the THPs monitored have Class I or II WLPZs that have been monitored for total canopy and erosion features. Additionally, 23 NTMP NTOs have been selected, with 21 FORPRIEM reports received. As with THPs, 81% of the NTMP NTOs have had WLPZs to monitor. Mr. Brandow is working with CAL FIRE Regional Staff Chiefs Kelly Dreesmann and Steve Hollett to get FORPRIEM reports submitted by July of this year. The goal is to have at least 100 THPs with WLPZ data. **A FORPRIEM report will be written in 2013 after field QA/QC work is completed this summer.** Mr. Brandow stated that the NTMP NTO data collected to date has demonstrated that it is not necessary to further regulate canopy retention through the Water Board Waiver process (beyond current FPR requirements). NTMP NTO data from random road segments and watercourse crossings have generally been similar to those collected for THPs. **Peter Ribar suggested segregating the FORPRIEM data from ASP and non-ASP areas for the report.**

## **VTAC Pilot Project Update**

Pete Cafferata provided a short PowerPoint presentation on the VTAC potential pilot projects under consideration. For several reasons, development of VTAC pilot projects have taken a slower course than producing the VTAC guidance document (posted on the VTAC webpage at:

[http://bofdata.fire.ca.gov/board\\_committees/vtac/vtac\\_guidance\\_document/vtac\\_guidancedocument\\_dec21-2012\\_final.pdf](http://bofdata.fire.ca.gov/board_committees/vtac/vtac_guidance_document/vtac_guidancedocument_dec21-2012_final.pdf)). **CAL FIRE and DFW staff will act as co-lead coordinators for the VTAC to: (1) organize pilot project pre-consultation field meetings, (2) attend pre-consultation field meetings and record observations, and (3) document successes and failures of the pilot projects for possible modifications to the guidance document and/or the Forest Practice Rules. Staff will produce written records of the pilot project efforts and disseminate them to the VTAC members, agency representatives, and the Board.**

Currently, four potential pilot projects are under consideration for possible development by both private landowners and State Demonstration Forests: (1) Green Diamond Resource Company—large research project in the lower Klamath River basin to create gaps for enhancing light and nutrient input, improving salmonid production (full BACI design) (2) Campbell Timberland Management—THP to fell 17 trees at 6 sites, and harvest trees in the Core and Inner zones to offset costs, (3) LaTour Demonstration State Forest—THPs to reduce wildfire risk in two areas along South Cow Creek, treating 10 ac in WLPZ in the lower reach and 14 ac in the upper area in the Class I WLPZ; establish group openings, with single tree selection between group selection units, and (4) Jackson Demonstration State Forest—possible project development in the upper Parlin Creek watershed. **Additionally, training workshops for RPFs, landowners, and agency personnel are planned to begin in the summer of this year.** The four page letter submitted to the BOF at their March meeting summarizing the VTAC work completed to date is posted on the BOF VTAC website at:

[http://www.bof.fire.ca.gov/board\\_committees/vtac/vtac\\_guidance\\_document/bof\\_vtac\\_letter\\_final\\_march\\_2013.pdf](http://www.bof.fire.ca.gov/board_committees/vtac/vtac_guidance_document/bof_vtac_letter_final_march_2013.pdf).

## **New and Unfinished Business/Public Comment**

Richard Gienger stated that he disagrees with the VTAC letter submitted to the BOF at their March meeting, authored by VTAC Chair Mike Liquori and CAL FIRE staff member Pete Cafferata. Mr. Gienger emphasized that the VTAC did not carry out its mandate to seriously address watershed context information requirements. Additionally, Mr. Gienger announced that AB 875 (Chesbro) was introduced on February 22, 2013. This bill would require pilot projects and development of recommendations to provide electronic public access to all documents that assist CAL FIRE in administering timber harvest regulations, in ensuring the protection and recovery of forest and watershed health and productivity, and in monitoring. For the bill language, see: [http://www.leginfo.ca.gov/pub/13-14/bill/asm/ab\\_0851-0900/ab\\_875\\_bill\\_20130222\\_introduced.pdf](http://www.leginfo.ca.gov/pub/13-14/bill/asm/ab_0851-0900/ab_875_bill_20130222_introduced.pdf).

## **Next Monitoring Study Group Meeting Date**

**The next MSG meeting date is tentatively planned for mid to late June 2013, with the location to be determined.** When a definite date, venue, and agenda are available, this information will be emailed to the MSG contact list.