Monitoring Study Group Meeting Minutes

July 7, 2005
CDF Shasta-Trinity Unit Headquarters, Redding

The following people attended the MSG meeting: George Gentry (BOF-Executive Officer and acting chair), Dr. Michael Wopat (CGS), Dennis Hall (CDF), Richard Gienger (HWC/SSRC), Stacy Stanish (DFG), Dawn McGuire (DFG), John Munn (CDF), Dr. Richard Harris (UC Berkeley), Curt Babcock (DFG), Dr. Cajun James (SPI), Adona White (NCRWQCB), Angela Wilson (CVRWQCB), Shane Cunningham (CDF), Brad Valentine (DFG), Rich Klug (Roseburg Resources), Becky Leisse (Campbell Timberland Management), Carole Crowe (CVRWQCB), and Pete Cafferata (CDF). **[Note: action items are shown in bold print]**.

We began the meeting with general monitoring related announcements:

- Pete Cafferata announced that a conference titled "Soil, Water and Timber Management: Forest Engineering Solutions in Response to Forest Regulation" will be held in Fortuna, CA from July 11-14, 2005. Sponsors include the Council of Forest Engineering, Department of Forestry and Watershed Management at HSU, and the Department of Forest Engineering at OSU. Dr. Wopat will give a presentation on design of watercourse crossings for 100-year flood flows, wood and sediment.
- Pete Cafferata stated there is an Aspen and Meadow Restoration Workshop scheduled for July 26, 2005 in Redding. Sponsors are the Sacramento-Shasta Chapter of the Wildlife Society and Northern California SAF. More information is available from Sherry Cooper (slcooper@nature.berkeley.edu) or Brett Furnas (bfurnas@dfg.ca.gov)
- Pete Cafferata announced that the Northern California Society of American Foresters (SAF) Summer Field Tour will be held on August 26, 2005 in Mount Shasta, CA. The topic is "Managing Forests for Conservation of Biological Diversity." More information on the tour is available from Jim Ostrowski at: jimo@sor.timberproducts.com.
- Richard Harris provided a brief update on the UC watercourse crossing upgrade study in progress. Participating landowners in the study include: Campbell/Hawthorne, MRC, Green Diamond Resources, PALCO, and the Hoopa Indian Reservation, with access agreements still be finalized for some landowners. Jared Gerstein has collected pre-treatment data, as well as some post-treatment data. The goal is have at least 30 sites in this pilot phase of the project. Results may be available as early as January 2006.
- Richard Gienger announced that the Salmonid Restoration Federation (SRF) is sponsoring two workshops later this year (see: http://www.calsalmon.org/).
  The Coho Confab will be held from August 12-14, 2005 at Redwood National Park in Humboldt County. For more information, see: http://www.treesfoundation.org/cohoconfab/2005/Confab-2005.pdf.
  Also, there is a SRF Bioengineering Field School workshop scheduled from August 29 to September 1 at the Garcia River watershed. For more information, see: http://www.calsalmon.org/fs/bioengineering-reg-form.pdf.

Effects of Forest Fragmentation on Water Quantity and Quality Presentation

Dr. Richard Harris provided the group with the PowerPoint presentation he developed for the California Forest Futures Conference titled "Effects of Forest Fragmentation on Water Quantity and Quality." [Richard's abstract can be found at the following website: http://nature.berkeley.edu/forestry/forestfuture/abstracts/AbstractsCalForestFuturesMay2052.pdf]. He stated that this presentation was partially based on earlier work completed with Pete Cafferata on fragmentation and roads (see California Forests, summer 2004; and California Stewardship Newsletter, winter 2005 [http://ceres.ca.gov/foreststeward/pdf/newslettr24.pdf]). **Another more quantitative paper is currently under development with Dr. Bill Weaver, PWA, Tom Spittler, CGS, and Jared Gerstein, UCB.**

Dr. Harris first defined fragmentation as the subdivision of large forest properties into smaller parcels and their subsequent development for rural residential uses. The primary areas for fragmentation are the Sierra Nevada and intermountain regions below 6000 feet elevation and coastal California from Santa Cruz to Del Norte County. Subdivision is subject to county land use regulations and the CEQA process. Most fragmentation, however, involves custom home developments, not conventional subdivision projects, and they are subject to only the building permit process (not CEQA review). Also, the regulatory process on development in rural counties is much less stringent than that required for cities or as required by the California Forest Practice Rules (FPRs) (e.g., Trinity County vs. Palo Alto).

Subdivision into large lots may not change canopy cover significantly, but can produce substantial changes in water yields—particularly at the small watershed scale if domestic water sources are locally derived from wells and diversions. Short-term impacts to water quality involve construction-related impacts, since few counties have grading ordinances. In contrast, the FPRs have nearly 200 rule requirements that reduce erosion and sediment delivery during THP implementation and require subsequent maintenance of erosion control structures (see Cafferata and Munn 2002).

In general, longer-term road-related impacts include: (1) effects of road drainage and sediment delivery on hydrology and water quality, (2) effects of increased impervious surfaces on hydrology, and (3) effects of uses on water quantity and quality. Road-related effects are greater where there is hydrologic connectivity from roads with inside ditches, road surface erosion from native surfaced roads, and catastrophic failure during large storm events resulting from inadequate design, construction or maintenance of roads and watercourse crossings.

Richard then presented data showing that these types of effects can be more severe on lands used for residential areas verses timber uses. In small watersheds (<100 ac), rural development tends to increase the rate of runoff and magnitude of peak flow events (i.e., peak lag time reduced after urbanization—making the stream response more "flashy"). Forest harvesting and roading may increase peak flows in small watersheds, but these impacts decline as the forest regenerates. Road surface erosion can be increased by all-weather use in rural developments, as opposed to THPs where there are controls during active operations. Additionally, effects on catastrophic failures are likely lower on

timberlands, due to more demanding FPR requirements (e.g., 100-yr flood flows along with wood and sediment passage for crossings). Examples of fragmentation impacts from the literature include: (1) McGurk and others (1996) modeling work in the Cosumnes River watershed, where sediment production from residential roads was modeled as twice the rate as that produced from logging roads, and (2) White's (1979) work in the Tahoe basin showing sediment discharge increased more than 100 fold after residential development during the 1960's.

Richard stated that road location, design and construction are key determinants of water quality impacts. Currently, roads on timberlands are usually required to dissipate runoff (often using outsloping with rolling dips), rather than concentrate flow in inside ditches. In addition, most timber companies have active road maintenance programs, while rural residential roads are often improperly located, inadequately designed, and infrequently maintained. Higher road densities also increase the risk of sediment delivery, and recent studies in the Lake Tahoe basin show that sub-basins with higher road densities have the highest sediment yields (Simon 2005).

Effects of fragmentation on water quantity were also presented. Rural residential uses often involve diversions of streamflow in small watersheds or springs for water supply, where there are no instream flow requirements. Withdrawals can diminish base flow in small watersheds during the summer low flow period. Additional potential water quality impacts may result from septic systems, pesticide use, domestic animal keeping, illegal dumping, and stream alterations. Uses in small-stream riparian zones (e.g., vegetative clearing) are largely unregulated on individual lots, but highly regulated on THPs.

Conclusions from Richard's presentation were that:

- Fragmentation may lead to short term increases in erosion and sediment delivery from construction sites.
- Fragmentation may result in increased road density and increased long term sediment production and delivery to streams.
- Road drainage systems and impervious surfaces will tend to shift the timing and increase the magnitude of peak streamflow events in small watersheds.
- Fragmentation can lead to increased demands on available streamflow and consequent reductions in stream base flows.
- The regulatory controls over rural residential uses are commonly less demanding in respect to mitigating water quantity and quality impacts than the controls over forest management uses.

[References are available from Pete Cafferata]

Peer Review Process for Instream Monitoring Protocols

Next, Dr. Cajun James led a discussion on developing a peer review process for instream monitoring protocols, an outgrowth of discussions from the Water Quality Monitoring II Conference held in Redding on April 26th. She stated that many participants responded in their evaluation forms that they would like to see water quality monitoring guidelines be

established which had been through the peer review process. Cajun added that many of the presenters believe this would be a worthwhile endeavor. It was also agreed that there is a need for a central location for existing accepted instream monitoring protocols.

Dr. James stated that attendees of the conference additionally expressed a need for hands-on training on how to properly use instream monitoring equipment. The need for a "Peer Review Support/Technical Group" to provide advice to inexperienced personnel on: (1) installing and using instream monitoring equipment, (2) expected costs for equipment, maintenance and processing [including laboratory set-up and certification], (3) how to interpret/analyze data, and (4) setting up a Quality Assurance Project Plan (QAPP) was discussed, and it was agreed that this type of group would be very helpful.

Dr. James Kirchner, UC Berkeley, has agreed to chair an oversight committee to address these needs in the near future. Approximately 20 people who have been involved in the water quality monitoring workshops in the past have agreed to participate in this endeavor.

Following abundant discussion by the group, there was general consensus that: (1) monitoring workshops, similar to the 2000 Canopy Workshop held in Shasta County (see: http://nature.berkeley.edu/forestry/curr_proj/canopywkshp/canopy.html), would be highly beneficial, and could possibly involve UC Extension and/or CLFA; (2) a peer review network group should be established, and (3) the BOF MSG website should be used to display existing peer-reviewed monitoring protocols. George Gentry directed the group to email existing websites with peer reviewed protocols to Pete Cafferata (pete.cafferata@fire.ca.gov), so that he can compile a list and post it on the BOF MSG site. Cajun James stated that she would be willing to work with CLFA and/or UC Extension to set up monitoring workshops. In addition, Dr. James stressed that it would be highly beneficial to have Dr. Arne Skaugset of OSU provide the MSG with a presentation on the large Hinkle Creek watershed study being undertaken currently in southern Oregon (for more information on Hinkle Creek, see: http://wrc.cascadewebdev.com/HinkleCreek/HinkleCreek.html).

Review of the MSG Strategic Plan and Discussion of Future MSG Direction

In the afternoon, George Gentry led a discussion on the need for revision of the Monitoring Study Group's Strategic Plan approved by the Board of Forestry and Fire Protection in January 2000 (see: http://www.bof.fire.ca.gov/pdfs/MSGStrategicPlandraft5_7.pdf). The Strategic Plan's 10 goals were briefly covered, as well as their degree of accomplishment over the past five and a half years:

- Continue the Hillslope Monitoring Program to test the implementation and effectiveness of forest practices used in THPs to protect water quality (HMP ran from 1996 through 2002; interim and final reports were written in 1999 and 2002);
- Integrate CDF's Modified Completion Report monitoring process into the long-term monitoring program (MCR—Phase I ran from 2001 through 2004; the final report is in preparation);
- Develop a set of key monitoring questions that the MSG believes are critical for understanding and assessing the impact of timber harvesting on beneficial uses of water, and design projects to answer these specific questions (not attempted);

- Encourage the development of cooperative watershed monitoring projects that include instream trend monitoring for the 303(d) listed waterbodies (three cooperative projects underway—one in a 303(d) listed waterbody [Garcia River]);
- Provide timely information from finished field work to both federal and state agencies, foresters, watershed groups, local government, and the public (results from several monitoring projects documented in final reports and published papers posted on the MSG website; newsletter articles written, etc.);
- Develop information for training programs to reflect the results from finished field work (monitoring results used in workshops [particularly for watercourse crossings], field sessions, reports on watercourse crossing design, etc.);
- Clarify the expectations of federal and state regulatory agencies about what questions must be answered regarding forest practices for water quality and fish habitat protection (not attempted);
- Coordinate with other state and federal agencies involved in resource protection on monitoring activities to avoid duplication of efforts, and to increase public confidence (initial discussions on IMMP process undertaken);
- Provide comment on the development of watershed assessment processes to assure that they are both scientifically credible and relevant to foresters, agencies, and the public (not attempted by MSG); and
- Keep informed of improvements suggested for cumulative watershed effects assessment and respond accordingly (presentations at MSG meetings have addressed cumulative watershed effects approaches).

Mr. Gentry asked the group to determine if the MSG Strategic Plan is still relevant, or requires significant revision. He stated that the MSG is currently a BOF Standing Committee (not an Advisory Committee like RMAC, Forest Pest Committee), but is currently overlooked, under-utilized by the BOF, and in danger of losing its credibility. Mr. Gentry stressed that it was his desire to make the MSG more integrated in the issues the BOF is currently discussing. For example, he stated that the MSG could be used to provide technical advice on proposed rule packages prior to their adoption (analogous to the old DTAC function). He stated that he recognizes that making the MSG a more structured group has its drawbacks, however, since it would make the group more politicized, losing much of its collegial, unthreatening atmosphere where ideas and information are easily shared.

Considerable discussion on these ideas followed. Richard Gienger stated that while the MSG has provided good monitoring information in the past, it has not taken the next step—telling the BOF what rules should be modified. John Munn added that it would be difficult for members of a restructured MSG to speak definitively for the various agencies. Brad Valentine said that formalizing the meetings would strongly affect the dynamics in the group. Dennis Hall stated that much of the MSG's lack of recent direction relates to insufficient funding levels over the past few years—including funding for the newly proposed Interagency Mitigation Monitoring Program (IMMP). Michael Wopat asked how the additional work load envisioned would be accomplished by the MSG. Mr. Gentry responded that it could be undertaken by the BOF writing letters to the various agency directors asking them to assign staff to participate in the "structured" MSG.

Following more discussion, it was agreed that: (1) MSG participants should review the MSG Strategic Plan and provide ideas on revised strategic plan priorities at the next MSG meeting, (2) more formal reports on MSG accomplishments should be provided to the BOF annually (raising MSG visibility), and (3) further discussion would occur at the next meeting regarding the possibility of retaining an information sharing function, as well as building much more structured work group(s) to perform specific tasks in a timely manner for the BOF.

Reports on Ongoing Projects

Pete Cafferata stated that Clay Brandow is continuing to complete the final report for the Modified Completion Report monitoring work undertaken by CDF Forest Practice Inspectors from 2001 through 2004. Currently no date for an estimated completion of the report has been established.

Regarding the Interagency Mitigation Monitoring Program (IMMP), Pete Cafferata stated that CDF Deputy Director Duane Shintaku informed him that CDF Director Dale Geldert has been trying to reach out to other Review Team agencies to see if it is possible to work together/partner more—including post-harvest inspections and IMMP monitoring efforts. The IMMP is currently is in a holding pattern until more is known about this new partnership effort.

Becky Leisse of Campbell Timberland Management (CTM) briefly updated the group on progress made for the Wages Creek cooperative instream monitoring project. Overall, CTM had a successful year of data collection, but only a small number of large storms were sampled. Graham Matthews and Associates (GMA) will be producing a progress report for the first two years of the project shortly. Lee Benda and Associates have completed the field work required for producing a sediment budget for the project area.

Cajun James briefly summarized progress for the Judd Creek cooperative instream monitoring project. Dr. Arne Skaugset, OSU, has agreed to peer review data collected for the study. It is likely that Montana weirs will be installed for next winter to measure streamflow more accurately. A revised study plan will be completed shortly.

Pete Cafferata briefly updated the group on progress made for the Garcia River cooperative instream monitoring project. Teri Barber, Ridge to River, and Jan Olave, Mendocino County RCD, reported to Pete that there ***currently is no sign of funding for next winter***, but they have applied for Prop 50 and DFG grants that could allow turbidity and suspended sediment sampling to occur the following winter. GMA submitted final lab results on the Garcia River bulk sampling to the MCRCD in January 2005. A small contract to allow suspended sediment concentration and turbidity samples to be analyzed is being processed by CDF's contract office.

Next MSG Meeting Date

The next MSG meeting date was set for September 22nd, but a meeting location has yet to be selected. When this information is available, it will be emailed to the group along with the meeting agenda.