

Forest Practices Implementation and Effectiveness Monitoring Update

This report summarizes work completed by ODF Private Forests Monitoring Unit personnel since the last Board of Forestry (Board) update in September 2016 through January 2018. Unit updates usually occur in September of each year. This update was delayed when the September 2017 Board meeting was shortened due to extreme fire activity.

Implementation Monitoring

Forest Practices Act (FPA) Compliance Audit

Background

The Board was introduced to the Compliance Audit program in the September 2012 Monitoring Unit update. The department utilizes private contractors to collect audit data and uses those data to determine apparent compliance. The compliance audit provides statistically valid rates of compliance with the FPA for forestlands from which timber was harvested during the previous two years. The protocol and sampling process allows for reporting results at the statewide and FPA Area levels, by industrial, private non-industrial and other (e.g., county, state) ownerships, and by rule division. The department reports on FPA compliance as an annual Key Performance Measure for the Agency. The department presented the 2013 and 2014 compliance audit reports to the Board at the annual Monitoring Unit updates (September of 2014 and 2016, respectively).

Data from the compliance audit is of value to landowners who participate in certification systems, such as the Sustainable Forestry Initiative, American Tree Farm System, and the Forest Stewardship Council, as it provides verification of compliance with rules. The findings of audit studies are in use as topics for training efforts by agency and industry alike. FPA Compliance Monitoring was a component of the Private Forests Division Monitoring Strategy, and an annual audit of Forest Practices compliance will continue to provide valuable information.

Process

The compliance audit evaluates a subset of rules based on information provided from field measurements made by contractors. Currently, the audited rules include road construction and maintenance, timber harvesting, some riparian management area measures, measures for small wetlands, and rules for operations near waters of the state. The 2016 Compliance Audit used the same protocols as the 2013 and 2014 audits.

The sampling design involves random selection of notifications indicating some type of timber harvest from Northwest, Eastern, and Southern Oregon Areas and three landowner types (private industrial, private non-industrial, and other, which includes municipally-owned, county and State Forests lands). Sampling is proportional to the number of notifications in each area by landowner type.

2016 and 2017 Compliance Audit Activities

Field work for the 2016 audit began in the first quarter of 2016 and was completed in the first quarter of 2017. Overall results were similar to previous years, with high apparent compliance rates. The 2016 study revealed a 97% compliance rate overall. The highest compliance rates were with rules in Division 625 (Road Construction and Maintenance; 98%), Division 640 (Water Protection Rules: Vegetation Retention along Streams; 99%) and Division 660 (Water Protection Rules: Specific Rules for Operations near Waters of the State; 99%). The compliance rate for Division 655 (Water Protection Rules: Protection Measures for “Other Wetlands, Seeps and Springs) improved from 72% in 2013 to 98% in 2016. The lowest compliance rates at a Division level (92%) were found with rules involving Written Plan requirements, primarily on lands of Private, Non-Industrial ownerships. See the full 2016 audit report for details (Agenda item 4, Attachment 1).

Field data collection for the 2017 audit will be completed in early 2018. The current contract will expire in March of 2018, and the department is currently determining the direction for the next compliance audit contract.

Voluntary Measures in the Coast Range

The Oregon Plan for Salmon and Watersheds (Oregon Plan) was developed to help recover salmon and improve watersheds throughout the state. The Plan emphasizes the importance of implementation by landowners of voluntary restoration efforts that benefit salmon and other native fish and wildlife species. Since the establishment of the Oregon Plan, private forest landowners have contributed millions of dollars to salmon and watershed restoration and voluntarily implemented thousands of projects. However, there is an incomplete understanding of the number, type, and trend of projects; reporting rates; and potential barriers to implementing and reporting these projects in the future. To address this knowledge gap, ODF’s Private Forests Monitoring Program, the Oregon Watershed Enhancement Board, and the Oregon Forest Resources Institute, conducted a collaborative study on voluntary restoration measures on forestlands in the Oregon Coast Range.

The main objectives of the study were to:

- 1) Assess implementation of voluntary restoration projects that are most frequently conducted by forest landowners.
- 2) Tell the success stories of voluntary restoration measures implemented on forestlands in Oregon.
- 3) Identify barriers to the implementation and reporting of voluntary measures.

To accomplish objectives 1 and 2, a report was prepared that summarizes voluntary measures reported by landowner types (e.g., private industrial, private nonindustrial) to the Oregon Watershed Restoration Inventory (OWRI) database. OWRI is the repository for information on voluntary projects completed in association with the Oregon Plan. To address objective 3, a survey was conducted in June 2016 that assessed forest landowner’s understanding of voluntary measures and what they perceived as barriers to implementing and reporting voluntary projects. These monitoring analyses have been completed and the reports presented to the Board in June 2017.

Effectiveness Monitoring

RipStream Project

The main objective of the Riparian Function and Stream Temperature (RipStream) project is to evaluate the effectiveness of FPA forest practices rules and State Forests management strategies at protecting stream temperatures within and immediately below harvest units and promoting desired riparian structure and function. Most of the focus to date, including the riparian rule analysis process, has been on the effectiveness of FPA and the State Forest Northwest Forest Management Plan (NWFMP) riparian protections for stream temperature and shade. These analyses are essentially complete, and are in different stages of preparation for publication. Analyses to address riparian structure and large wood recruitment questions remain to be completed. Completed work over the past year has largely focused on completing temperature-related manuscripts, and designing analyses for the both the large wood and desired future conditions aspects of the project.

Accomplishments since the September 2016 presentation to the Board include:

- 1) Numeric Criteria temperature analysis manuscript publication (Groom *et al.*, 2017).
- 2) Submission to *Forest Ecosystem Management* of the predictive temperature analysis manuscript (Groom *et al.*, submitted Oct. 2017).
- 3) Initial project scoping for desired future conditions and large wood recruitment analyses.
- 4) Draft of a white paper summarizing the science and policy deliberations supporting the Board's decisions to update the riparian rules to meet the Department of Environmental Quality's water quality standard known as the Protecting Cold Water (PCW) criterion (OAR 340-041-0028 (11)).

Trask Paired Watershed Study

The Trask paired watershed study takes a long term and multi-disciplinary approach to quantifying the effects of forest harvest on the physical, chemical and biological characteristics of small, non-fish headwater streams. This is a collaborative effort between Oregon State University, Weyerhaeuser, Oregon Department of Forestry, Bureau of Land Management, United States Geological Survey, and United States Forest Service. Initiated in 2006, the bulk of data collection was completed by fall 2016. Along with the other cooperators, the State Forests and Private Forests Divisions of ODF contribute funding, participate on the planning committee, and provide a range of support functions from general technical advice, provision of resources or field personnel, and data analysis review to co-authoring papers. One aspect of the Trask study receiving a significant amount of support from the Private Forests Division was a study of the effect of road construction on sediment levels in streams. In years past, ODF was the lead for data collection and processing of water samples for an analysis of sediment levels at road crossings. The manuscript for this analysis was accepted for publication (Arismendi *et al.*, 2017), and includes several former or current ODF employees as co-authors (Dent, Groom and Meleason). There is ongoing analyses of data from the Trask project.

Eastern Oregon/Siskiyou streamside protections review

In November 2015, the Board of Forestry increased streamside protection standards in western Oregon. The Siskiyou georegion was not included because of different vegetative and geologic conditions, and the Eastern Oregon region was out of the scope of the science used in that process.

At the November 2016 meeting, the Board finalized the Private Forest Division's Monitoring Strategy. In conversing about the Strategy, the Board discussed the need to address issues in the Siskiyou and Eastern Oregon regions. The Board directed the Department to:

- Develop potential questions regarding streamside protections in the Siskiyou and Eastern Oregon regions;
- Estimate the timeline and resources to address questions for various levels of study rigor; and,
- Work with stakeholders to inform the department and the Board.

To address the Board's direction, ODF developed a project charter that was presented to the Board at the July 2017 meeting. This charter included:

1. What are the larger topics to address in the review? The department decided it was important to keep these topics at a coarse level to see what concepts stakeholders cared about most, rather than honing specific monitoring questions of which there would be too many upon which to decide.
2. Where should we assess the question(s)? This question includes the following elements:
 - a. Stream type(s) – Fish, Non-Fish, Domestic
 - b. Stream size(s) – Small, Medium, Large
 - c. Geographic regions – Siskiyou, Eastern Cascade, Blue Mountains
3. What type of information (e.g., peer-reviewed journal articles, status and trend data) should we use to assess the question(s)?

At the July 2017 meeting, the department also:

- Provided a status report of informational analyses (e.g., stakeholder survey, GIS analysis) and associated preliminary results
- Presented a decision framework to support the Board's decision-making on the elements outlined in the project charter
- Discussed the next steps in the process

At the January 2018 Board meeting, staff presented the results of the input (survey and written comments) from potentially-interested parties, along with a coarse assessment of the staff resources, time, and confidence in results of approaching a monitoring question with different methods (e.g., literature review, light field study). The input was used to develop six monitoring question alternatives. These alternatives were paired with the aforementioned GIS data to inform the upcoming Board decisions.

Implementation and Effectiveness Monitoring: Updating the Monitoring Strategy

The Monitoring Unit conducts monitoring to assess the effectiveness and implementation of rules promulgated under the Forest Practices Act (FPA) to protect natural resources, and other related programs (e.g., Oregon Plan Voluntary Measures). The Monitoring Unit used the previous Monitoring Strategy to create a deliberate approach to adaptive management. The updated Strategy provides a description of the Unit's monitoring approach and articulates a list of prioritized monitoring questions. The Strategy supports the Monitoring Unit's mission because it addresses monitoring questions in a methodical and rational process with opportunity for input and direction by stakeholders and decision-makers. The Monitoring Unit brings results of monitoring efforts to the Board as part of its adaptive management approach to forest practices rules. Monitoring results also help guide training efforts, administration of the FPA, and delivery of other related programs. The Strategy will help fulfill the goals of the Monitoring Unit, which include:

- Provide the Board, legislature, and other stakeholders timely, pertinent, and sound information at multiple temporal and spatial scales regarding the effectiveness, implementation and assumptions associated with forest practices rules and best management practices, and outcomes on the ground;
- Coordinate with other monitoring and research efforts to ensure efficient use of state resources and contribute to enterprise, integrated monitoring at the state level;
- Determine if rules, regulations or other programs are being implemented in accordance with expectations and whether they are effective in meeting resource protection goals;
- Address highest priority FPA monitoring questions for the Private Forests Division;
- Work collaboratively with technical experts and stakeholders to produce high quality, transparent monitoring results; and
- Provide technical advice and support to other natural resource agencies engaged in baseline monitoring efforts (e.g., forest and stream conditions).

The Department developed the current Strategy in 2002 (ODF, 2002). Since then, the Unit has addressed many of the plan's priority questions, and the Board has updated their own strategic plan, the 2011 Forestry Program for Oregon. During discussion on their water quality topic, the Board has expressed interest in future monitoring projects and priorities. At their January 2015 meeting, the Board directed the Department to use an approved charter work plan to guide the process of updating the Strategy. The Department is updating the Strategy to ensure it reflects current needs and priorities.

To update the Strategy, we designed a three-phase process, as follows:

- (1) Monitoring question list development and organization. This first list of questions was based on three sources of information: Stakeholder input, the 2002 Monitoring Strategy, and ODF internal discussions. Questions were grouped based on their type and theme. Two key monitoring question types were considered in this process: effectiveness and implementation.
- (2) Prioritization of questions. Questions were sent to stakeholders, and we requested that they prioritize only their high-priority questions (as opposed to prioritizing all questions in the list).

(3) Strategy development. Based on this information, a draft Strategy with prioritized questions was sent to Stakeholders for their input. Stakeholder input is addressed in the Final Draft Monitoring Strategy.

At their November 2016 meeting, the Board approved the Monitoring Strategy for the Private Forests Division.

Other Monitoring Information

The Unit has 5.8 full time equivalent (FTE) positions, but operated for most of this reporting period at only 3 FTE. This was due to a combination of job rotations, a vacated position, hiring freeze, and associated budget uncertainty. Two new recruitments were completed in November and December, filling key analysis capacity, but the Unit will temporarily be down a position with the recent promotion of our Forest Management Technician to a Stewardship Forester position.

Unit personnel also:

- Represented the Department on the interagency water-monitoring group, Stream Team.
- Gave three presentations at the 2016 National Society of American Foresters on:
 - The process for developing the SSBT rule;
 - Study of Voluntary Measures implemented to support the Oregon Plan for Salmon and Watersheds; and,
 - Development of the Monitoring Strategy.
- Supported outreach and education efforts associated with implementation of the new riparian rules.
- Supported the Fire Division by participating in agency fire team assignments and general fire program support during Fire Season 2017.
- Provided support to Committee for Family Forestlands and the three Regional Forest Practices Committees.

References

Arismendi, I., Groom, J. D., Reiter, M., Johnson, S. L., Dent, L., Meleason, M., Argerich, A., and Skaugset, A. E. 2017. Suspended sediment and turbidity after road construction/improvement and forest harvest in streams of the Trask River Watershed Study, Oregon. *Water Resources Research*. DOI: 10.1002/2016WR020198.

Groom, J.D., Madsen, L.J., Jones, J., Giovanini, J. Informing changes to Oregon's riparian forestry rules with a Bayesian hierarchical model. Submitted to *Forest Ecosystem Management* in October 2017.

Groom, J. D., Johnson, S. L., Seeds, J. D., & Ice, G. G. 2017. Evaluating Links Between Forest Harvest and Stream Temperature Threshold Exceedances: The Value of Spatial and Temporal Data. *Journal of the American Water Resources Association*.