

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 March 2018. Unit updates usually occur in September of each year. In light of extensive fire activity, the Board and agency decided in 2017 to delay the usual update by six months.

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 hired a private contractor to collect data used to determine compliance. This audit provides statistically valid rates of compliance with the FPA for forestlands from which timber was harvested during the previous two years. The data collection protocol and site sampling process allows for reporting results at the statewide and FPA Area, and by ownership type (industrial, private non-industrial and other (e.g., county, state)). The department reports on FPA compliance as an annual Key Performance Measure. The department presented the 2013, 2014, and 2016 compliance audit reports to the Board at the annual Monitoring Unit updates (note: there was no audit in 2015).

Numerous groups use data from the audit. Landowners who participate in certification systems (e.g., Sustainable Forestry Initiative, American Tree Farm System, and the Forest Stewardship Council) use audit results as verification of compliance with rules. The audit findings help focus training efforts by agency and industry alike. Finally, compliance monitoring was a component of the Private Forests Division Monitoring Strategy, and an annual audit of FPA compliance will continue as an ongoing core business practice.

Process

The compliance audit evaluates a subset of rules based on information provided from field measurements. Audited rules address road construction and maintenance, timber harvesting, a subset of protections for riparian management areas and small wetlands, and for operations near waters of the state. The 2017 Compliance Audit used the same protocols as previous audits (Attachment 2).

The sampling design is a 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 area of harvest reported with notifications in each Area by landowner type.

2017-2018 Compliance Audit Activities

Field work for the 2017 audit included sites harvested between 2014 and 2015 and was completed in the first quarter of 2018. Overall results were similar to previous years, with high apparent compliance rates (98% overall). The highest compliance rates were with rules in Division 625 (Road Construction and Maintenance; 98%) and Division 660 (Water Protection Rules: Specific Rules for Operations near Waters of the State; 99%). The lowest compliance rates at a Division level (68%) were rules involving Written Plan requirements, primarily on lands of private non-industrial ownerships. See the full 2017 audit report for details (Attachment 2).

Next steps

The contract for this phase of the audit ended in the first quarter of 2018. ODF is currently developing a new contract, and associated protocols, that will focus on reforestation and pesticide spray records. ODF intends to award a new contract in the fourth quarter of 2018. Contractor field activities are anticipated to begin in the first quarter of 2019.

Effectiveness Monitoring

The Monitoring Unit is currently conducting two effectiveness monitoring projects. One project is in the Siskiyou geographic region, the other project is in the rest of western Oregon (Figure 1). Both projects focus on effectiveness of streamside (i.e., riparian) protections for small and medium Fish streams. Additionally, both projects include input from stakeholders and Tribes (Attachments 3 and 4). The Siskiyou Streamside Protections Review assesses sufficiency of rules to meet desired future conditions (DFC), and stream temperature and shade. The Western Oregon Streamside Protections Review assesses sufficiency of these rules to meet DFC and large wood goals. These projects are further detailed below.

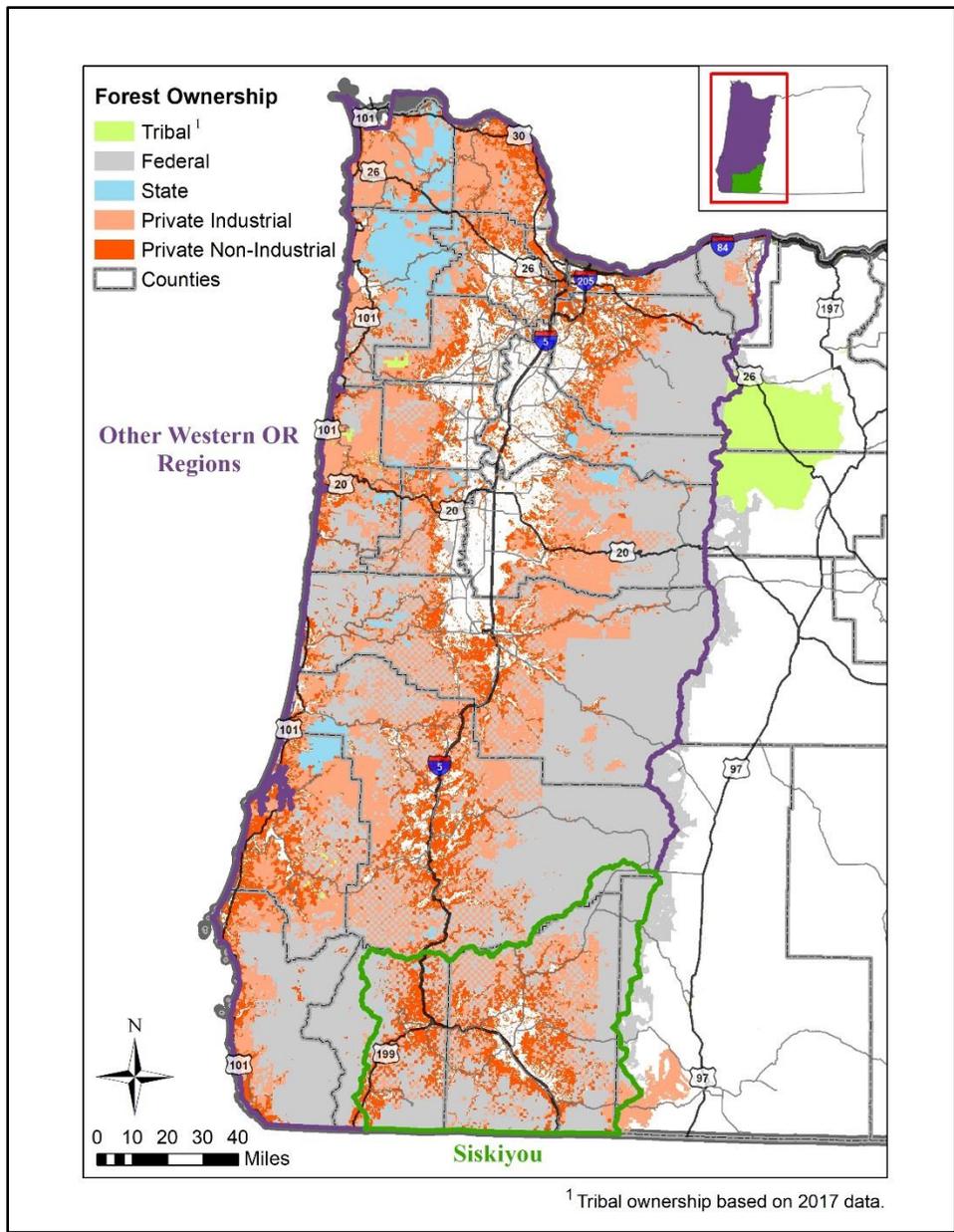


Figure 1. Map of ownership in the two effectiveness monitoring project areas. The purple and green lines denote the western Oregon and Siskiyou effectiveness monitoring projects, respectively.

Western Oregon Streamside Protections Review

Introduction

Updated in 1994, the FPA water protection rules for vegetation retention along streams were designed to produce DFC for streamside stands along streams in Oregon. The DFC of streamside stands along fish use streams is to grow and retain vegetation so that, over time, average conditions across the landscape become similar to mature streamside stands. Mature stands are characterized as often being dominated by conifer trees, 80-200 years of age. These stands

provide ample shade over the stream channel, an abundance of large wood in channels, root masses along the edges of channels, snags, and regular inputs of nutrients through litter fall [OAR 629-642-0000(2)]. Vegetation retention prescriptions that include minimum basal area, conifer species, and widths of riparian management areas (RMAs) are detailed in the FPA rules (OAR 629-642-0100). An underlying assumption of these prescriptions is that managing streamside forests within the guidelines will result in the outcomes described above.

In 2002, the Oregon Department of Forestry (ODF) initiated the Riparian Function and Stream Temperature (RipStream) study throughout the Oregon Coast Range. The main objective of the RipStream project is to evaluate the effectiveness of FPA rules and State Forests management strategies at protecting stream temperatures within and immediately below harvest units, and promoting DFC. Previous RipStream analyses focused on harvesting effects on stream temperature and shade, as well as meeting state water quality standards. Most of these analyses have been published in peer-reviewed science journals (see “Other Monitoring Unit work” section below).

This project will use multiple lines of analysis of DFC and large wood recruitment, including:

- RipStream field data
- A systematic review of scientific literature.
- The Monitoring Unit is also exploring modeling the RipStream forest stand data into the future.

The project methodically includes stakeholders and Tribes. This timeline for inclusion is still being refined, particularly with regards to resources and timelines to complete modeling work (Attachment 4).

Collectively, this information will be used to assess sufficiency of FPA rules at meeting FPA statute ORS 527.710(2d). This work focuses on small and medium Fish streams in the Coast Range, South Coast, Interior and Western Cascade geographic regions.

Systematic reviews of scientific literature: DFC and large wood

This review will: 1) define the ranges of key descriptors of DFC and recruitment of large wood; and, 2) assess the effectiveness of FPA streamside protection standards to meet DFC and large wood recruitment. The review will include the development of a rigorous literature review protocol. The protocol will methodically and transparently include stakeholders and Tribes.

Pre/Post Harvest Data Analysis

The project will address the following questions that were established in the original RipStream protocol:

1. What are the trends in overstory and understory riparian characteristics?
2. What are the trends in riparian area regeneration?
3. Are the riparian rules and strategies effective in maintaining large wood recruitment to streams, and downed wood in riparian areas?

The RipStream study collected data from 2002 to 2010 at 33 sites in the Oregon Coast Range (Dent et al. 2008, Groom et al. 2011). Study sites were along small and medium Fish streams on privately owned and state forests (18 and 15 sites, respectively). Streamside forests at the study sites were typically between 50 and 70 years old, fire- or harvest-regenerated, and mostly dominated by Douglas fir (*Pseudotsuga menziesii*) and red alder (*Alnus rubra*).

Forest stand modeling

Both DFC and large wood depend on long term forest evolution. The literature review and pre-/post-harvest data analysis will provide insight on this evolution. Modeling of the RipStream forest stand data into the future would add valuable information to complement this analysis. The Unit is currently assessing how best to complete such modeling.

Siskiyou Streamside Protections Review

In November 2015, the Board of Forestry increased streamside protection standards in western Oregon. The Siskiyou geographic region was not included because of different vegetative and geologic conditions, and the eastern Oregon regions were 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 streamside 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 and Tribes to inform the department and the Board.

Staff provided a project status report in July 2017, followed by a presentation at the January 2018 Board meeting where results of input from potentially-interested parties was shared. At this time, staff also discussed 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 GIS data to inform the upcoming Board decisions.

In March 2018, the Board directed the department to conduct a scientific literature review on stream shade, stream temperature, and DFC of streamside forests. The review scope is limited to small and medium Fish streams in the Siskiyou geographic region.

This review will: 1) characterize the ranges of key descriptors of healthy unmanaged mature streamside forests (DFC); 2) assess the effectiveness of FPA streamside protection standards to meet DFC; and, 3) assess the effectiveness of FPA streamside rules to protect stream temperature and shade. Staff will also coordinate with partner agencies to provide associated contextual info (e.g., fish status and trend, water quality evaluations).

For the first phase of the review process, staff will develop a literature review protocol. The protocol describes:

- a systematic method for searching for studies,
- criteria for including studies in the review,
- assessment of study quality and relevance,
- data extraction from studies, and,
- data synthesis.

The review process includes input from stakeholders and Tribes (Attachment 3).

Other Monitoring Unit work

Other RipStream analyses

ODF partners published a seventh RipStream analysis on predicting stream temperatures (Groom *et al.* 2018). This work was presented to the Board in June 2015 as part of the riparian rule analysis. Two other analyses will likely be submitted for publication in the upcoming year. One analysis addresses effects of harvest on downstream temperature, and the other analysis addresses recovery of shade and stream temperature in the first five years post-harvest.

Two new recruitments were completed in November and December, filling key analysis capacity. However, the Unit is temporarily 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.
- Provided support to Committee for Family Forestlands and the three Regional Forest Practices Committees.
- Participated in training in preparation to support the agency mission for fire protection.

References

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