Recovery of Wild Salmonids in Western Oregon Forests: Oregon Forest Practices Act Rules and the Measures in the Oregon Plan for Salmon and Watersheds

Executive Summary

An excerpt from:

Independent Multidisciplinary Science Team. 1999. Recovery of Wild Salmonids in Western Oregon Forests: Oregon Forest Practices Act Rules and the Measures in the Oregon Plan for Salmon and Watersheds. Technical Report 1999-1 to the Oregon Plan for Salmon and Watersheds, Governor's Natural Resources Office, Salem, Oregon.

Full report available at http://www.fsl.orst.edu/imst.

Executive Summary

The forests of Oregon are an important part of the landscape used by wild salmonids. How these forests are managed is important in attaining the goals of the Oregon Plan for Salmon and Watersheds (Oregon Plan) and Oregon Executive Order 99-01. Agricultural, urban, and other environments are addressed in other projects of the Independent Multidisciplinary Science Team (IMST).

Forested landscapes include both aquatic and terrestrial components. The linkage between aquatic and terrestrial components has been recognized for a long time and has been prominent in the Oregon Forest Practices Act (OFPA) since its creation in 1972. The OFPA and its Administrative Rules were developed primarily to protect resource values, including water quality and, indirectly, habitat for salmonids. They were not specifically directed towards the recovery of wild salmonids, which is the mission of the Oregon Plan. However, it is through the Administrative Rules of OFPA and the Measures in the Oregon Plan that the mission of the Oregon Plan and Executive Order 99-01 are to be accomplished. The goals of the IMST forestry project are to

(a) articulate the scientific basis for the recovery of wild salmonids as it relates to the forests of Oregon, and
(b) recommend actions concerning the Rules and the Measures as they contribute to accomplishing the mission of the Oregon Plan.

The geographic scope of this Technical Report is the portion of Oregon forests that provide habitat for wild salmonids west of the crest of the Cascade Range and in the Siskiyou Mountains. However, it also provides the fundamental concepts and relevant science questions and findings for a much broader area. Topically, it covers riparian buffers, large wood, sedimentation, and fish passage at road-stream crossings because IMST believes these are the most important aspects for the recovery of wild salmonids. The Report focuses on broad scientific issues and concepts. It is not a review of each OFPA Administrative Rule or Measure of the Oregon Plan, although some are addressed primarily as examples. The scientific direction provided by this Report can guide ODF staff (working with other panels of experts as needed) in formulating rules for OFPA and measures for the Oregon Plan that are needed as part of accomplishing the recovery of depressed stocks of wild salmonids.

This is a long and complex report addressing some issues with broad policy implications that will take time to resolve, and some other issues that are more operational and can probably be dealt with more rapidly. The Report includes a preface in which the fundamental approach to recovery of wild salmonids is outlined. Briefly, the approach is emulation (not duplication) of the historic range of conditions across the landscape. This approach is appropriate for all lands, although the extent to which it is applied is a matter of policy, to be determined in part by the extent to which wild salmonid recovery is to be achieved. The report is divided into six sections with an appendix. The details of the organization of the report are in Section 1, The Introduction.

The report addresses three science questions:

Question 1. What is the scientific basis for maintaining fish habitat/water quality in forested ecosystems with respect to riparian buffers, large wood, sedimentation, and fish passage at road-stream crossings?

This question is applied to four broad subject areas:

Riparian Protection

Managing riparian areas differently than upslope areas as a strategy for protecting fish habitat is scientifically valid only if it is done with the goal of maintaining the dynamics of landscape structure and function. Sharp demarcations between riparian forest and upslope forest, and between fish-bearing and nonfish-bearing streams are not consistent with the historic pattern.

Large Wood Management

Large wood is a key structural and functional component of aquatic systems. Most models of large wood recruitment focus on riparian areas as the source, ignoring the important contributions made by upslope sources, especially from landslides. There is a critical need to restore the ecological processes that produce and deliver large wood to the streams from riparian as well as upslope areas.

Sedimentation

Sediment is a natural part of forest stream systems, as are the more coarse elements of stream structure, such as large wood, boulders, and gravel. Roads and landslides increase the amount of fine sediment in streams, but do not always add the more coarse elements. In addition, fine sediment production from roads is chronic rather than episodic. Management of sedimentation from roads and landslides at the watershed level is more difficult, and the scientific basis for it is less well developed, although the concepts are known and provide a basis for reasonable conjecture on how to proceed. In essence, the concept is to vary the extent and intensity of disturbance in a watershed over space and time, emulating the historical pattern of disturbance.

Fish Passage at Stream Crossings

The road-stream crossing guidelines developed by ODFW (ODFW 1996) are based on science, although often not the result of explicit experimentation. They provide a scientifically sound basis for management of such crossings, although better information should result from monitoring.

Question 2. Are current forest practice Rules and Measures with regard to riparian buffers, large wood, sedimentation, and fish passage at road-stream crossings adequate to achieve the mission of the Oregon Plan?

IMST concludes that current rules for riparian protection, large wood management, sedimentation, and fish passage are not adequate to reserve depressed stocks of wild salmonids. They are not adequate because they are dominated by site- and action-specific strategies. While these are important as an initial step in accomplishing the mission of the Oregon Plan, they are not sufficient for the recovery of critical habitat for wild salmonids.

Question 3. What strategies are needed in the management of forest resources to achieve the mission of the Oregon Plan?

Recovery of wild salmonids requires, among other things, habitat that is functional across the landscape. This means that policy, management, regulation, and voluntary actions must also work across the landscape. Current State forest policy focuses on specific actions occurring within defined periods of time at specific sites. As an example, the rules provide for riparian protection on a site-by-site basis, rather than at the landscape level. Sharp distinctions in the management of riparian zones (as compared to upslope forests), based on the size of the stream and the presence or absence of fish, will result in a failure to maintain the dynamics of structure and function of riparian zones across the landscape. In other cases, hazardous sites on forest roads and railroad grades are exempt from current OFPA Rules because the actions occurred before the Rules were in effect. Mechanisms are needed to solve these problems on critical sites that are exempted from current rules. Similar examples can be drawn from conclusions about the recruitment of large wood and the management of sediment and fish passage. A policy framework that incorporates landscape perspectives and makes regulation, management, and voluntary actions possible at this scale is needed.

There are three major areas in which shifts in policy are needed:

1. Incorporate the objectives of the Oregon Plan and Executive Order 99-01 into the OFPA. This will place an emphasis of regulation on the protection and enhancement of habitat needed for the recovery of wild salmonids.
2. Develop policy that extends the management of forest resources to the landscape level. This does not delete the site-specific aspects of current rules, but applies them in a different context. It will entail a shift from prescriptive rules applied uniformly across the landscape to site-by-site regulations that take into account cumulative disturbance in the watershed, landscape features, and climatic variation.
3. Develop policy that brings roads not constructed to current standards and other hazardous settings in critical locations into compliance with current standards. This means having the current OFPA Rules applied to actions taken before the current Rules were in force. In many cases, the operator acted in good faith and within the rules of the day, but the outcome is not scientifically consistent with the mission of the Oregon Plan; thus, a provision by which remediation is accomplished is needed.

Evaluating policy options within the complexity of contemporary forestry is a challenge. Extending these options to the landscape level and over time makes the job enormously more difficult. Fortunately, there are analytical approaches and models that can help. Examples of these are in the CLAMS research project, the Umpqua Land Exchange Project, and others.

The following are the specific recommendations of IMST. The first two recommendations will be difficult or impossible to implement within the existing policy framework. These we identify as Recommendations that May Require a Modified Policy Framework. Although these recommendations will take a longer period of time to implement, work on the revised policy framework should begin immediately. The other 17 recommendations can be accommodated within the existing policy framework of the Oregon Forest Practices Act or the Oregon Plan. These we identify as Recommendations Consistent with the Existing Policy Framework, and we

believe they can be addressed in the near future. In aggregate, our recommendations are intended to both reinforce and enhance the site-specific Rules of the OFPA and Measures of the Oregon Plan and provide a bridge to management that incorporates a landscape perspective.

Recommendations for ODF

Recommendations that May Require a Modified Policy Framework

Recommendation 1. Explicitly incorporate the policy objective of the Oregon Plan and Executive Order 99-01 into OFPA.

Recommendation 2. ODF should develop a policy framework to encompass landscape (large watershed) level planning and operations on forests within the range of wild salmonids in Oregon.

> IMST recommends that the following elements be included in this modified forest policy framework:
>
> *Long-term landscape level assessment* of the upslope and riparian forest and associated aquatic systems to ensure that the desired condition is maintained across the landscape and through time.
>
> *Identified goals* for the characteristics of aquatic systems and riparian and upslope forests across the landscape to ensure the integrity of salmonid habitat.
>
> *Monitoring* that will provide the information needed to evaluate the aggregated outcomes of management at the landscape level.
>
> *Coordination* among agencies and watershed councils to facilitate landscape level planning and management at scales that extend beyond the forest.

Recommendations Consistent with the Existing Forest Policy Framework

Recommendation 3. Treat non-fish-bearing streams the same as small, medium, and large fish-bearing streams when determining buffer-width protection.

Recommendation 4. Provide increased riparian protection for the 100-year floodplains and islands.

Recommendation 5. Increase the conifer basal-area requirement and the number-of-trees requirement for RMAs, with increases in these requirements for medium and small streams regardless of fish presence.

Recommendation 6. Complete the study of the effectiveness of the OFPA rules in providing large wood for the short- and long-term.

Recommendation 7. Provide enhanced certainty of protection for “core areas”.

Recommendation 8. Develop and implement standards or guidelines that reduce the length of roadside drainage ditches that discharge into channels.

Recommendation 9. Implement the standards and guidelines for the length of roadside drainage ditch between cross-drainage structures, especially on steep-gradient roads.

Recommendation 10. Require the flow capacity of cross-drainage structures and stream-crossing structures and culverts to meet current design standards.

Recommendation 11. Provide for the stabilization of roads not constructed to current standards (including "old roads and railroad grades") in critical locations. Stabilization means reduction or elimination of the potential for failure. It includes a variety of strategies ranging from removal to abandonment, entirely or of sections, by which specific roads and railroad grades become a much less important source of sediment.

Recommendation 12. Require durable surfacing on wet-season haul roads and require that hauling cease before surfaces become soft or "pump" sediment to the surface.

Recommendation 13. Retain trees on "high risk slopes" and in likely debris torrent tracks to increase the likelihood that large wood will be transported to streams when landslides and debris torrents occur.

Recommendation 14. Continue to apply the current best management practices (BMP) approach to the management of forest lands with significant landslide potential, and develop a better case history basis for evaluating the effectiveness of BMP in this area.

Recommendation 15. Modify culverts and other structures to permit the passage of juvenile and adult salmonids upstream and downstream at forest road-stream crossings.

Recommendations for or with other agencies

Recommendation 16. ODFW and ODF should develop a collaborative program of monitoring to quantify the linkages between parameters of ecosystem condition and wild salmonid recovery.

Recommendation 17. ODFW should complete "core area" designation for all wild salmonids in Oregon and identify high priority protection/restoration areas that are not covered by current "core area" designations. ODFW should work with the Oregon Plan Implementation Team in prioritizing habitat for enhanced levels of protection and/or restoration.

Recommendation 18. ODFW should include consideration of practices (forestry, agriculture, urban, other land uses) above and below core areas, as these may affect the conditions and processes critical to maintenance of core area function in forestry areas.

Recommendation 19. The Oregon Forest Research Laboratory (FRL), in collaboration with ODFW, should develop forest road-stream crossing strategies that facilitate the passage of large wood at road-stream crossings.