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Stream Typing

Importance: In Oregon, forest practice rules and prescriptions are tied to the type of stream adjacent to, or impacted by, the timber harvest. For example, fish bearing streams receive greater riparian buffers than streams without fish, and perennial streams receive different protections than seasonal streams. Because of these differences, correctly and fully identifying the extent and type of streams on the landscape is critical to implementing the full protections necessary to sustain aquatic ecosystems. Further, fully identifying the extent of the stream network (hydrography) is critical because a stream that is not identified on the map is unlikely to receive any protection.

Current Law/System: Oregon currently allows three methods for classifying streams, desktop modelling, physical habitat surveys, and direct surveys for fish presence (normally conducted by electro-fishing). Oregon's current stream typing system is administered through Oregon Department of Forestry (ODF), with stream typing assessed at the District level. As a result, there are substantial differences in the extent of the stream network identified, the methods used to classify streams, and who conducts the stream assessment (landowner, ODF staff, etc.) between ODF Districts. Surveys for fish presence may be conducted by the owner of the property, with limited training and oversight. The maps used as the base for these evaluations are generally low resolution NHD or based on 30-m digital elevation models, which are insufficient and inaccurate for identifying the network, often failing to include small and headwater streams.

Proposed Change: Responsibility for the identification and maintenance of the stream typing maps will move to the Oregon Department of Fish and Wildlife (ODFW) and additional staff positions will be created to administer the program. All three methods for identification of the fish bearing network will be improved; model-based approaches will now rely on high resolution LIDAR to more fully identify the extent of the stream network and its geomorphic properties; physical habitat survey protocols will be upgraded to align with the best available science on the ability for stream types to support fish; and direct surveys for fish presence will increasingly rely on new technologies like environmental DNA to identify fish presence – which do not directly harm fish the way that e-fishing does. In addition, all stream type maps will be unified into a single, state-wide layer that is publicly available. While old surveys of fish distribution may be brought in to inform this new map, the old surveys will be subjected to QA/QC. Finally, determination of the perennial network will rely on the PROSPER model which will also use high resolution LIDAR with the probability threshold set at 75%.

Discussion: The agreement improves the protections of the stream network by relying on rigorous and modern scientific approaches to delineating the fish bearing and perennial stream networks to assure that streams are fully protected under the correct management system for the type of the stream. Further, it moves authority for this program to ODFW, an agency that is directly vested in the sustainability of Oregon's fish and wildlife.

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Riparian Conservation: Westside

Importance: Riparian management affects stream temperature, wood supply for habitat, sediment type and volume, and more. Riparian conservation is the core of any freshwater conservation system.

Current Law/System: The Oregon Forest Practices Act is much weaker than in WA and CA. Oregon protects less of the stream network with generally smaller buffers, and Oregon allows more harvest in the buffers. Small streams without fish that flow all year (Non-Fish Perennial -- NP) are virtually unprotected in Oregon, though the SB 1602 provisions limited aerial spray in many cases.

Proposed Change: The new system provides significant changes across the vast majority of the stream network.

Fish Streams

- No harvest buffers of 110 feet for large/medium streams and 100 feet wide for small streams. Functionally 2x to 4x larger than current standards.

Large and Medium Non-Fish Streams (rare)

- Expanded to 75 feet

Small Non-Fish Streams (these streams currently have little or no buffer, and they are common)

Non-Fish Perennial that flow directly to Salmon Steelhead Bull Trout (SSBT) streams

- 75 feet wide for the first 500 feet and then 50 feet wide for 650 feet. 1150 linear feet

Non Fish Perennial that flow to other fish streams without salmon species

- 75 feet wide for 600 feet

Non Fish Perennial not otherwise protected

- 35 foot equipment exclusion, retention of trees under 6 inches and all shrubs.

Debris Torrent Channels

Key non-fish and seasonal streams that provide large wood

- 25 feet wide for varying distances, often around 1000 feet

Seasonal

- 35 foot equipment limitation

Stream Adjacent Active Failures

- For (1) Steep slopes (>70%) adjacent to fish streams and actively failing and delivering sediment, or (2) Unstable slope immediately adjacent to a fish stream where the toe of the unstable slope interacts directly with the erosive forces of a stream, 170’ or slope break, whichever is less.

Seeps and springs:

- If occur within buffer, then extend them by 35’

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Discussion: Overall this strategy is similar to WA, though the addition of debris torrent protections is different. This package will dramatically increase protection for cold water, better regulate sediment, and recruit more wood.

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Riparian Conservation: Eastside

Importance: Riparian protections are the core of any freshwater conservation strategy. The primary goals for managing riparian areas are to provide habitat for riparian-associated species and key functions necessary to support at-risk salmonids and other aquatic species. Riparian trees shade streams, stabilize stream banks, supply large wood that contributes to creating high-quality habitat, and along with other vegetation filter sediment, nutrients, and other pollutants.

Current Law/System: Stream protections in the Oregon Forest Practices Act are much weaker than prescribed under similar laws for California and Washington. Compared to these states, Oregon protects less of the stream network, has generally smaller buffers, and allows more harvest in the buffers. Small streams without fish that flow all year (Non-Fish Perennial -- NP) are virtually unprotected in Oregon, though the SB 1602 provisions limited aerial spray in many cases.

Proposed Change: The new system enhances protection for the stream network east of the Cascade crest.

Fish Streams

- Buffer widths are 100 feet for large/medium streams and 75 feet for small streams.

Large and Medium Non-Fish Perennial Streams

- Buffer widths are 75 feet

Small Non-Fish Perennial Streams

At the upstream transition with a fish stream

- Buffer widths are 60 feet for the first 500 feet

Flowing into a fish stream

- Buffer widths are 30 feet for 250 feet

Otherwise

- Equipment limitation zone is 30 foot wide, requiring retention of sub-merchantable trees and all shrubs

Seasonal Streams

- Equipment limitation zone is 30 foot wide, requiring retention of sub-merchantable trees and all shrubs

Stream Adjacent Active Failures

- For (1) Steep slopes (>70%) adjacent to fish streams and actively failing and delivering sediment, or (2) Unstable slopes immediately adjacent to a fish stream where the toe of the unstable slope interacts directly with the erosive forces of a stream, 170’ or slope break, whichever is less.

Channel-adjacent seeps and springs:

- Extend the buffer width by 35 feet to encompass

Management
Inner zone: 30-foot no-harvest and equipment limitation

Outer zone: Harvest is allowed but must retain:

- 27 largest trees
- A minimum of 60 sq ft of basal area per acre from trees at least 8” dbh
- Naturally occurring fire resilient species such as ponderosa pine, Douglas-fir, western larch, and available hardwoods
- Trees to be spatially distributed

Discussion: Widths of the riparian buffers are based on the height of site potential trees averaged across all site classes. Because site potential trees are typically taller west than east of the Cascade crest, buffers are narrower on the eastside. However, buffers for the eastside in the agreement are generally wider and cover more of the stream network than under current rules. Eastside buffer prescriptions are intended to fully protect stream banks in an inner zone, and although timber harvest is allowed in an outer zone to help address forest health concerns on the drier eastside, restrictions have been added for the number, basal area, size, species, and distribution of trees to be retained. Overall this strategy provides stronger protections for eastside streams than under the current OFPA and is similar to WA, differing primarily for buffers on non-fish perennial streams.

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Forest Road Construction and Management

Importance: Forest roads have the potential to severely impact water quality and aquatic species by blocking access to habitat and by allowing sediment and other road pollutants to enter streams. Forest roads increase surface runoff and alter stream flow. These impacts can vary depending on how the road was constructed, where it is located on the hillslope, and how it is used and maintained.

Current Law/System: Oregon has very weak regulations on forest road management practices compared to Washington and California. Enforcement is uncertain at best. Too few of the regulations are included in code, and far more are a part of guidance documents known as "Technical Notes." Some of the outcomes of Oregon's outdated and inadequate forest road rules include: undersized culverts, fish passage barriers, poor regulation of drainage, and a lack of protection for critical locations and water resources.

Proposed Change: The Private Forest Accord roads agreement establishes new goals and a suite of specific rules for forest roads. These include: 1) limiting sediment to waters of the State through hydrologic disconnection of the road system, 2) ensuring adequate passage for aquatic organisms at stream crossings, and 3) preventing (or minimizing) mass wasting, hydrologic alterations, and impacts to streams and wetlands.

Importantly, the PFA establishes the Forest Roads Inventory and Assessment (FRIA) 20-year program that requires forest owners update their roads to new standards, and prioritizes the removal of fish passage barriers and the hydrological disconnection of the road system from the stream network. It also creates a study to identify abandoned "orphan" roads that are on the landscape and a process for repair. For stream crossings, it upgrades to a 100-year flood level in determining culvert size and uses "stream simulation" with larger crossings to ensure adequate passage on fish streams. Small forestland owners, who own nearly half of the important salmon habitat on Oregon private lands, have a responsibility to also update their roads. But the agreement establishes the Family Forestland Fish Passage Program (OFFPP) to ensure state funding to help small landowners upgrade fish passage.

Discussion: Updating Oregon's forest roads rules is long overdue, and this agreement would be a huge benefit to salmon where roads threaten water quality and prevent fish passage. The rules will establish more modern standards, while the FRIA program would immediately begin the process of upgrading forest roads to these standards, and the OFFPP will ensure that small forest landowners also have the capacity to upgrade their forest roads.

Management of Steep Slopes

Importance: Many areas of the state are steep and prone to initiating landslides that can deliver large volumes of sediment to streams. Once in streams, these sediment pulses often form debris flows that travel long distances, scouring headwater channels to bedrock before depositing in fish-bearing channels downstream. Debris flows can damage habitat and kill organisms in both scour and deposition zones. Landslides do occur under intact forests and are important sources of large wood and spawning gravels, which can benefit fish habitat several decades after delivery. Timber harvest increases the frequency of landslides as well as alters the amount and characteristics of the material delivered to streams. Removing trees decreases the strength of roots holding soil on hillslopes for 10-30 years after harvest, thereby accelerating the rate of landsliding. Removing trees also increases the ratio of delivered sediment to wood volumes and thus greatly diminishes any contribution of landslides to creating high-quality fish habitat.

Current Law/System: Oregon law allows timber harvest on unstable slopes except where a landslide may negatively affect public safety (OAR 629-623-0000 through 0800). The law currently prohibits timber harvest only on high landslide hazard locations "to reduce the risk of serious bodily injury or death caused by shallow, rapidly moving landslides directly related to forest practices."

Proposed Change: The steep-slopes strategy prohibits timber harvest on hillslopes most likely to deliver landslide-derived sediments to fish-bearing streams. These areas will be identified from high-resolution digital topographic data using a peer-reviewed computer model with further refinement in the field by trained and certified personnel according to a standard protocol. The process begins by identifying modeled debris-flow runout paths with the highest (upper 20%) likelihood of delivering to fish-bearing streams. For each of these runout paths, hillslopes modeled with a high (upper 33%) likelihood of being source areas of landslide-derived sediment are identified. At least 50% of the sediment source areas in a harvest unit will be protected by prohibiting harvest in the selected source areas. Any timber harvest unit that contains sediment source areas will require a written plan. Sediment source areas will be screened for impact and operability. Those that are larger and have the highest (upper 20%) modeled susceptibility of initiating a harvest-related landslide will be prioritized for protection. Yarding through sediment source areas with the highest susceptibility will be prohibited. Yarding through other source areas will be allowed, but the number, size, and location of yarding corridors should be designed to minimize impacts on sediment source areas. For each source area greater than ¼ acre, field crews will further evaluate and mark source areas for protection allowing for adjustments related to safety.

Discussion: The agreement will for the first time in Oregon's history regulate timber harvest on steep slopes to protect stream ecosystems. In conjunction with riparian prescriptions on debris-flow runout paths, prohibiting timber harvest on the steep slopes most likely to initiate landslides that deliver sediment to fish-bearing streams will decrease the potential to harm and

increase the potential to benefit habitats for at-risk aquatic species. This strategy is significantly different from Washington, however, which provides coarser and broader protections of steep slopes. Understanding and monitoring the effects of the strategy will be an important topic for adaptive management.

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Small Forestland Owners (SFOs)

Importance: Approximately one-third of Oregon's private forestlands are in ownerships of 5000 acres or less, and these lands contain as much as half of the best salmon and steelhead habitat. SFOs also face different pressures than industrial forests. Many SFO parcels also have residences, and SFOs are sometimes converted to other, less desirable uses, from an aquatic perspective. Lastly, many SFOs don't have the resources and support to manage their properties to modern standards, especially with regards to major investments, bridges and culverts over streams.

Current Law/System: Current Oregon law does little to differentiate SFOs from Private Industrial lands.

Proposed Change: The Private Forest Accord provides a tremendous focus on improving the support and focus on SFOs.

- A new SFO office will be formed and staffed at the Department of Forestry to provide outreach, education, and support to SFOs.
- Landowners will have options to harvest following the new rules or to follow "alternative minimum" rules, which are stronger than the current rules but weaker than the new rules.
- Landowners who forgo harvest in riparian areas will be eligible for renewable tax credits as compensation, but they will also be obligated not to harvest in the riparian areas for 50 years.
- Harvests to alternative minimum standards will be tracked and limited to no more than 1% of the riparian area.
- Landowners will have to provide information on their road condition and fish passage before harvest is allowed, but grant support will be available for them to address problems.

Discussion: A well-supported and knowledgeable community of SFOs is critical to the long-term health of our forest ecosystems. Current programs give them inadequate support. The new program here provides a balance of retaining options for harvest, incentivizing stronger standards, and providing increased support from ODF to guide SFOs in managing their lands to benefit fish and other aquatic life.

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Beaver

Importance: The American Beaver (*Castor canadensis*) is a keystone species that plays a critical role in shaping our landscape. The role that beavers play in creating habitat for salmonids is well documented (e.g. page 3-3 of the Recovery Plan for Oregon Coastal Coho 2016[1]). It is estimated that beaver activity directly benefits 37% of Strategy Habitats and 28% of Strategy Species listed in the Oregon Conservation Strategy (see Petition to Initiate Rulemaking to Amend OAR 635-050-0070, 2020). OFRI's Wildlife in Managed Forests: American Beaver states,

> "...*beaver ponds and dams benefit Oregon's native fish and other wildlife. Beaver dams create ponds that provide fish with protection from strong winter flows. These dams are thought to increase water storage, which results in a more stable water supply. Beavers bring woody structure into the stream, which juvenile fish use to hide from predators. Beaver ponds also help store leaf litter, which helps local insect (macro-invertebrate) production. Beaver dams contribute to improved nesting areas for waterfowl.*

Current Law/System: Under current Oregon law beavers have a dual status. On public lands, beavers are classified as a furbearer (ORS 496.004 and OAR 635-050-0050). On private land, beavers are classified as predatory animals (ORS 610.002). Take of beaver on public land requires a permit while take of beaver on private lands is unregulated.

Proposed Change: Industrial timber interests agreed to several regulatory and management changes that will benefit beaver and the ecosystems they help create:

- Forest landowners will report all take of beaver taken (killed) on private forestlands to jurisdictional ODFW offices allowing for better tracking of beaver control activities in Oregon.
- Forest landowners (other than small forestland owners as defined under existing State law) will prohibit commercial trapping on private forestlands.
- Forest landowners will prioritize non-lethal strategies for addressing beaver conflicts.
    - Landowners will identify problem beaver and request ODFW remove beaver via non-lethal strategies. ODFW has 30 calendar days to initiate and complete non-lethal removal methods.
    - After 30 days landowner, at their sole discretion, may choose to lethally remove beaver. In emergency situations where beaver activities are threatening landowner infrastructure (blocking culverts), the landowner, at its sole discretion may: 1) destroy the beaver dam, or 2) lethally remove the beaver.
    - If lethally removed, the landowner must report the removal to ODFW and the justification for removal.
- Beaver research will be incorporated into the OFPA adaptive management strategy.
- The forest industry will participate with ODFW to develop a voluntary beaver relocation program.

[1] https://repository.library.noaa.gov/view/noaa/15986, retrieved 10/11/2021

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Discussion: The changes being adopted will increase protection for beaver on private forest lands, create opportunities for beaver introduction on private forest lands and increase understanding of current management activities and future management strategies for beaver. Increased protection for beaver on private forestland will help support habitat for both OFPA target species (salmon, steelhead, bull trout, stream dwelling amphibians) as well as myriad other riparian dependent and associated species.

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Amphibians

Importance: Stream dwelling amphibians have been largely ignored under Oregon's current Forest Practices Act. Stream dwelling amphibians tend to occur higher-up in the stream network than federally protected fish species and therefore, fish-focused protections are not necessarily sufficient to protect stream dwelling amphibians.

Two amphibian species, Columbia torrent salamanders (*Rhyacotriton kezeri*) and Cascade torrent salamanders (*Rhyacotriton cascadae*), are currently proposed for listing under the federal Endangered Species Act (listing decision expected within 2 years). Four other species, Southern Torrent Salamander (*Rhyacotriton variegatus*), Coastal Giant Salamander (*Dicamptodon tenebrosus*), Cope's Giant Salamander (*Dicamptodon copei*), and Coastal Tailed Frog (*Ascaphus truei*), are not currently proposed for listing but face varying degrees of threat.

Current Law/System: Current Oregon Forest Practices largely ignore stream dwelling amphibians and the habitat on which they depend.

Proposed Changes:
Negotiating parties were able to reach agreement to support HCP coverage for five of the six species under discussion during the accords. However, negotiating parties agreed that the state would not seek an HCP for the Cascade torrent salamander. The protections that were negotiated will benefit all six species, but protections will have to be extended further within the range of the Cascade torrent salamander in order for the State to seek coverage under Section 11 of the ESA.

- Term: The term of the HCP for amphibians will be 25 years, half the length of the HCP proposed for fish species. Limited research related to stream dwelling amphibians made it prudent to limit the length of the HCP so the adequacy of protections can be revisited sooner.
- Riparian Buffers: expansion of riparian buffers throughout the stream network will benefit stream dwelling amphibians. However, the most significant protections for amphibians are the buffering that will occur on small non-fish bearing perennial (Np) streams. Stream buffers that will benefit stream dwelling amphibians include the following:
    - Large fish streams: 110' no harvest
    - Medium fish streams: 110' no harvest
    - Small fish streams: 100' no harvest
    - Large no-fish steams: 75' no harvest
    - Medium non-fish streams: 75' no harvest
    - Small perennial streams:
        - Np streams flowing into salmon/ steelhead/ bull trout streams: 75' no harvest for 500 feet and then 50' no harvest for 650' (1150' total)
        - Np streams flowing into other fish bearing streams: 75' no harvest for 600 feet.

    - Additional protections for stream adjacent seeps, springs and wetlands
    - 35’ equipment limitation zones with retention of shrubs and up to 6’ diameter trees on unbuffered Np streams
- Protection of some landslide initiation sites and torrent debris channels, 35’ equipment limitation zones along seasonal streams, enlarged culvert standards and expanded protections for wetlands will provide additional protections for stream dwelling amphibians including some over-ridge connectivity for stream dwelling amphibians
- Adaptive management and effectiveness monitoring: Monitoring strategies will prioritize stream dwelling amphibians. Recommendations include $1.5 million/ year in funding to research the following topics: presence, spatial distribution, abundance, detectability and connectivity.

Discussion: The Private Forest Accord will provide significant new benefits for stream dwelling amphibians including protections higher in the stream network.

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Compliance, Adaptive Management, and Enforcement

Importance: It's one thing to have a system of rules and laws designed to protect ecological function on private forestlands. It is quite another to ensure that those rules and laws are actually being followed. Along with accurate tracking of compliance and the ability to effectively deter rulebreakers with strong enforcement, this section of the PFA lays out a brand new adaptive management program for the state in the hopes that forest practices will evolve over time in response to the science.

Current Law/System: Oregon's compliance monitoring program has come under heavy criticism in recent years for lacking statistical rigor and overinflating compliance rates. ODF's enforcement program suffers from a lack of adequate staffing and a penalty structure that does not adequately punish serial rule violators such that they are deterred from breaking the rules in the future. Research at ODF is dramatically underfunded and, when combined with statutes like the current version of ORS 527.714 that flips the precautionary principle on its head, rule change is often slow and inadequate.

Proposed Change: While compliance and enforcement efforts at ODF get increased funding and better direction, a key element of the proposed changes is the new requirement for allowing access to lands so that the state can conduct compliance audits. Previously, compliance monitoring sampling suffered because property owners were under no obligation to allow ODF onto their land to conduct monitoring evaluations.

The adaptive management program gets a complete overhaul and dramatically increased funding. There is a new and diverse stakeholder body to direct science work and assist ODF in pursuing rule changes over time as the science shows they are necessary. This science work will be conducted by an independent science team that will report findings to the Board of Forestry. Critically, ORS 527.714 gets some important changes that make the statute more balanced (ie: economic analysis not just centering on the timber industry) and provides a more reasonable framework under which the Board of Forestry will consider future changes.

Discussion: The agreement solves a long-lingering problem with the compliance monitoring program so that Oregonians will actually know whether or not forest laws are being followed. Significantly, Oregon will have an adaptive management program that improves on the model created in WA twenty years ago by making the science work more independent from stakeholders and a process less reliant on full consensus (which has stymied rule changes in WA over the years).

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Mitigation

Importance: Under an HCP, mitigation can be used as an additional tool to off-set regulatory take of the covered species from the permitted activities. According to the HCP handbook, mitigation measures "must be based on the biological needs of covered species and should be designed to offset the impacts of the take from the covered activities to the maximum extent practicable."

Current Law/System: Currently, no mitigation is required under the Forest Practices Act, although various state agencies invest in the conservation and recovery of aquatic species through a variety of mechanisms.

Proposed Change: Under the new agreement, the timber industry will be obligated to contribute $5 million of funding annually for the life of the HCP to be administered through the Oregon Conservation and Recreation Fund, and the State of Oregon agrees to contribute an additional $10 million annually. Mitigation will include both permittee-implementation on industrial timber lands, as well as in-lieu fee mitigation. Eligible activities will include aquatic organism passage, wood augmentation, beaver conservation and reintroduction, wildfire resiliency efforts through riparian restoration, land preservation, instream flow augmentation, and grazing management. Mitigation funding may also be used to conduct active outreach to secure priority projects.

Discussion: The mitigation funding should be allocated through the technical review of project quality and evaluated to assure that the desired level of uplift is achieved. The parties agreed that annual tracking of mitigation implementation for both in-lieu free and permittee implementation should be completed, with assessments of progress completed in coordination with the jurisdictional agencies every 5 years.