

Forest Practices Technical Guidance

Equipment Limitation Zone (ELZ) and Retention–Equipment Limitation Zone (R-ELZ)

Effective January 1, 2024

Objective

Forest Practices Technical Guidance is advisory guidance, developed by the State Forester through a stakeholder process, to assist landowners and resource professionals to implement the Oregon Forest Practices Act and forest practices rules.

The objective of this Technical Guidance is to help identify appropriate corrective actions for soil disturbance from harvest equipment in the ELZs and R-ELZs near Type N streams and the outer zones of certain Type F streams in Eastern Oregon. This Technical Guidance is to assist operators to comply with OAR 629-630-700(6)(b) and -800(8)(b), see Appendix A. These rules require corrective actions when soil disturbance exceeds thresholds within the ELZs and R-ELZs of an operation unit. The goals of the rules are to limit disturbance through harvest planning, reduce the potential for sediment delivery to waters of the state, and replace lost ecological functions to the streamside habitats for amphibians and other wildlife when the disturbance exceeds thresholds.

Background

In 2022, the legislature passed Senate Bills 1501 and 1502 which changed the Forest Practices Act and directed the Board of Forestry to adopt administrative rules consistent with the Private Forest Accord Report.

Soil disturbance in an ELZ or R-ELZ that exceeds the thresholds set in OAR 629-630-0700 (6)(b) & -0800(8)(b), require corrective actions such as described below to replace lost ecological functions. The threshold for soil disturbance requiring corrective action is 10 percent for ground-based equipment and 20 percent for cable yarding. The percents are evaluated for the total surface area of the contiguous ELZ or R-ELZ in the operation unit and is specific for ground-based equipment and cable yarding.

Note: Roads and temporary stream crossings are allowed in RMAs but regulated under OAR 629-625-0320 and OAR 629-630-0800 respectively.

Terms

“**ELZ**” (OAR 629-600-0100) means an equipment limitation zone in which disturbance from equipment activity shall be minimized.

“**R-ELZ**” (OAR 629-600-0100) means an equipment limitation zone in which disturbance from equipment activity shall be minimized and all trees less than 6 inches DBH and shrub species are retained where possible.

Western Oregon’s ELZ and R-ELZ is 35 feet.

Eastern Oregon’s ELZ and R-ELZ is 30 feet.

“Soil disturbance” means the vegetation or litter layer has been displaced to expose bare soil; or soil has been moved in a manner that alter water drainage patterns so that a new channel is formed within which water flows or is confined and has potential to move loosened or exposed soil or debris toward the stream.

“Water bar” (OAR 629-600-0100) means a diversion ditch or hump in a trail or road for the purpose of carrying surface water runoff into the vegetation and duff so that it does not gain the volume and velocity which causes soil movement or erosion.

“Zone(s)” means ELZ or R-ELZ.

Overview

Equipment activity in the ELZ and R-ELZ: The goals for the Division 630 harvesting rules within the zones are to maintain soil function, retain understory vegetation, minimize soil and debris from entering waters of the state, and protect wildlife and fish habitat. The ELZ and R-ELZ apply to streams and riparian areas regulated in Division 643 of the rules.

To facilitate harvest, ground-based equipment and cable yarding are allowed within the zones near Type N streams and the outer zones of certain Type F streams in Eastern Oregon. Ground-based equipment use is to be minimized in the equipment limitation zones. Examples of ground-based equipment are feller-bunchers, skidders, or other tracked or wheeled equipment. Similarly, when cable yarding is utilized within the zones, operators need to minimize soil and vegetative disturbance from movement of logs during harvesting operations. An example of cable yarding is utilizing one-end log suspension where feasible.

Note: Operators are encouraged to evaluate soil disturbance continually during the operation and take corrective actions when soil disturbance occurs within the zones due ground-based equipment or cable yarding.

Calculating Soil Disturbance Percent Threshold: The operator will evaluate the total area of soil disturbance for each contiguous ELZ or R-ELZ in the operation unit, specifically for ground-based equipment and cable yarding. The percent threshold is determined as the total surface area of soil disturbance in each contiguous zone by operation type and divided by the total surface area in that zone. For streams, the zones are measured from the edge of the active channel or the channel migration zone if present. When outer zone ELZ requirements are applicable in Eastern Oregon region, the ELZ is measured from the outer edge of the inner zone extending away from stream.

Example of calculating the soil disturbance percent threshold: A Western Oregon harvest operation unit has an *ELZ-1* for cable yarding and an *ELZ-1* and *ELZ-2* for ground-based equipment activity. (*The ELZ-1 & -2 are references to Figure 1.*)

- A post-harvest inspection determined a total of 4,000 square feet of soil disturbance occurred in *ELZ-1* for ground-based equipment. The total surface area of *ELZ-1* is 35,000 square feet (500 feet x 35 feet x 2) because it is the total contiguous area of the *ELZ* located in the middle of the harvest unit. The percent of soil disturbance is 13%, which is 4,000 square feet divided by

35,000 square feet. Corrective action is required because the 13% of soil disturbance exceeded the 10% threshold for ground-based equipment.

- The same calculation method is required for ELZ-2 for ground-based equipment activity.
- The same calculation is required for the ELZ-1 for cable yarding, which is the total soil disturbance of a contiguous ELZ for cable yarding activity divided by the total surface area of the contiguous ELZ. Corrective action is required when the percent of soil disturbance exceeds the 20% threshold.

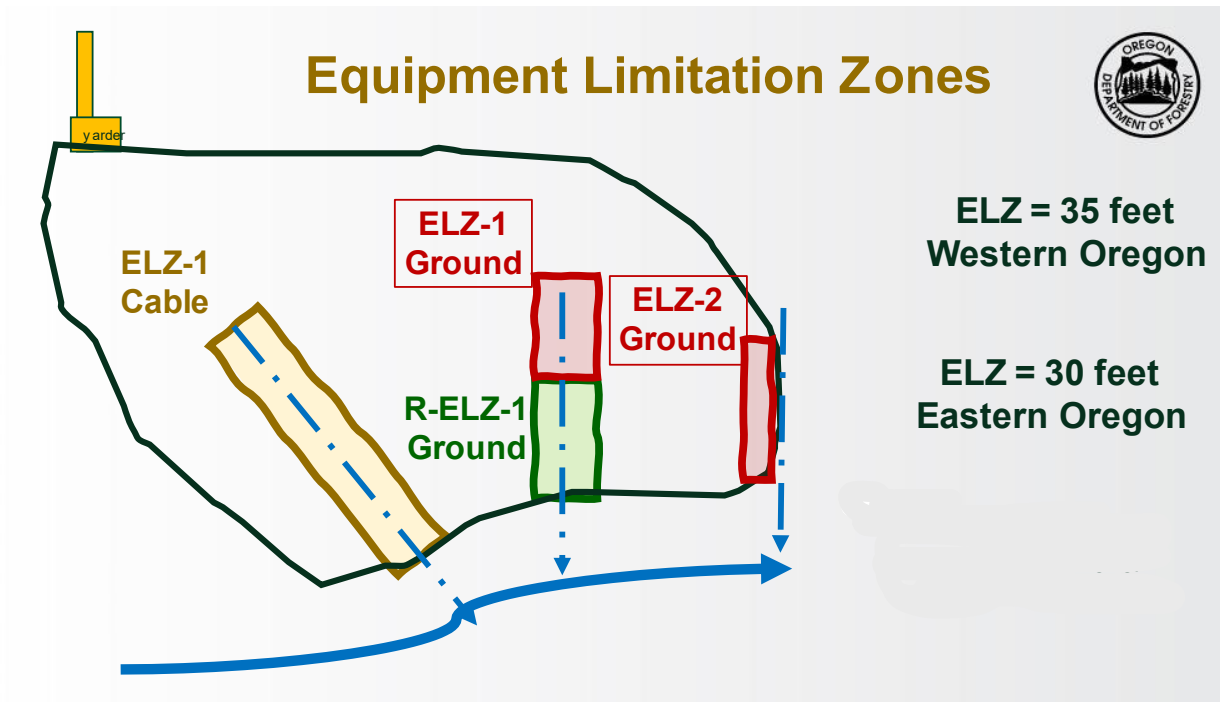


Figure 1. Equipment limitation zones (Western Oregon example).

Corrective Actions

The goal of corrective actions is to replace the equivalent lost ecological functions impacted in the ELZ that resulted from the excessive soil disturbance above the threshold. In consultation with the State Forester, the operator needs to select the appropriate corrective action(s) to lower the area of disturbed soil below the percent threshold.

The rule requires that:

Operators shall take corrective action(s) when soil disturbance from:

- *ground-based equipment exceeds 10 percent of the total area within any R-ELZ or ELZ within an operation unit or.*
- *soil disturbance due to cabled yarding exceeds 20 percent of the total area within any R-ELZ or ELZ within an operation unit.*

Corrective action(s) shall replace the equivalent of lost functions in consultation with the State Forester. Examples include but are not limited to water bars, grass seeding, logging slash, mulching, downed log placement in accordance with ORS 527.676(1), with a preference for utilizing on-site materials.

Timing: Operators are recommended to assess the ELZ or R-ELZ for soil disturbance during harvest operations. If soil disturbance is observed, the operator may take corrective actions as soon as operationally feasible and prior to disturbance threshold being exceeded.

Considerations: The selection of the corrective actions by operators are recommended to consider the following:

- The abundance and arrangement of existing large wood material within the ELZ or R-ELZ is to be considered when deciding whether to use materials within the zones that may be used for corrective action(s).
- If the abundance and arrangement of large wood or logging slash material utilized for corrective actions within the ELZ or R-ELZ is not conducive to moving or readily available, material located outside the zones is to be considered. Material brought from outside the zones is preferred to be sourced as near to corrective location(s) as possible.
- Operators should minimize additional soil disturbance when moving materials with heavy equipment or cable systems.
- The source of mulch and grass seed is to be weed free certified where feasible.

Actions: Operators may use the following options to meet the corrective action requirements in the rule. The list of actions is in order of priority based on the corrective action goals. The operator may consider other corrective actions in consultation with the State Forester.

- Logging slash placement
- Downed log placement
- Mulching
- Grass seeding
- Water bars

Logging slash placement

If the operator will place logging slash material in the zone, consider the following:

- Slash material should mainly be composed of large, coarse components that are stable and unlikely to move into the channel. Logging slash shall remain outside of the stream channel and not be placed in waters of the state (OAR 629-630-0600(3)).
- The operator may place slash material from harvesting as a preventive measure to help disperse soil disturbance from ground-based equipment. This measure will reduce the risk of soil disturbance.

Downed log placement

The operator may place downed logs to provide habitat benefit to certain riparian area species. The placement of downed logs is encouraged regardless of triggering the corrective action requirement. If corrective action is taken because of the soil disturbance trigger, retained downed wood that meet the size and distribution requirements in ORS 572.676, may be counted toward the down wood total for harvest units over 25 acres.

Mulching

Mulch may be placed in areas of soil disturbance to prevent further erosion in the zone. Mulch shall consist of weed free straw where feasible or other organic materials commonly used to prevent rill erosion.

Grass seeding

Grass or other seeding using native species may be an effective action along with other corrective techniques to minimize the potential for surface erosion. The State Forester recommends grass seeding be combined with other actions including mulching or constructing water bars. Cold winter months are the least favorable times for grass seeding because of poor seed germination due to exposure to freezing temperatures.

Water bar construction and placement

Construction of water bars within the riparian areas is recommended to be coupled with other corrective actions such as placing slash or mulch. Water bar construction is recommended to address situations that pose a risk of sediment entering waters of the state. Water bars prevent the potential for overland water flow to reach the stream channel. They divert the flow to an area that allows the water to soak into the soil. Construct water bars as needed or appropriate based on-site conditions and as follows:

- Only deep enough to move water off the disturbed soils and onto undisturbed and stable soils.
- Spaced to prevent runoff water from draining on to disturbed or unstable soil areas. Water bar spacing is closer for erodible soils (silts, sands and granitics) and as slope increases.
- Angle the water bar to allow water outflow and prevent ponding.
- Direct outflow of water bars onto rocks, slash, vegetation, duff, and other less erodible material.
- Place water bars above grade changes to prevent water from flowing down steeper portions of roads or skid trails.
- Avoid placing water bars in swales, gullies, or low areas where the water has no escape. Place water bars above these areas.

References

Oregon Department of Forestry, Forest Practices Note #1, Water Bars, June 1979

Oregon Department of Forestry, Guidance for Ground-Based Operations on Steep Slopes, November 7, 2018

Private Forest Accord Report, February 2, 2022. Chapters 2 and 5, 196 pages.

Appendix A. Oregon Administrative Rules.

OAR 629-630-0700

Yarding; Cable Equipment Near Waters of the State

- (6) Operators shall minimize disturbance from cable yarding near streams to maintain soil function, retain understory vegetation, and protect habitat for fish, amphibians, and other wildlife.
 - (a) The following equipment limitation zones shall be applied to streams and associated riparian management areas as described in division 643 Water Protection Rules Vegetation Retention Along Streams rules.
 - (A) An “R-ELZ” means an equipment limitation zone in which disturbance from equipment activity shall be minimized and all trees less than 6 inches DBH and shrub species are retained where possible.
 - (I) In Western Oregon, the R-ELZ is 35 feet.
 - (ii) In Eastern Oregon, the R-ELZ is 30 feet.
 - (B) An “ELZ” means an equipment limitation zone in which disturbance from equipment activity shall be minimized.
 - (i) In Western Oregon, the ELZ is 35 feet.
 - (ii) In Eastern Oregon, the ELZ is 30 feet.
 - (b) Operators shall take corrective action(s) when soil disturbance from cabled logs exceeds 20 percent of the total area within any R-ELZ or ELZ within an operation unit. Corrective action(s) shall be designed to replace the equivalent of lost functions in consultation with the State Forester. Examples include, but are not limited to, water bars, grass seeding, logging slash, mulching, downed log placement in accordance with ORS 527.676(1), with a preference for utilizing on-site materials.
 - (c) The department shall publish technical guidance, developed in consultation with Department of Fish and Wildlife to assist operators with selecting appropriate corrective measures.

OAR 629-630-0800

Yarding; Ground-based Equipment Near Waters of the State

- (8) Operators shall minimize ground-based equipment and subsequent disturbance near streams to maintain soil function, retain understory vegetation, and protect habitat for fish, amphibians, and other wildlife.
 - (a) The following equipment limitation zones shall be applied to streams and associated riparian management areas as described in division 643 Water Protection Rules Vegetation Retention Along Streams rules:
 - (A) An “R-ELZ” means an equipment limitation zone in which disturbance from equipment activity shall be minimized and all trees less than 6 inches DBH and shrub species are retained where possible.
 - (i) In Western Oregon, the R-ELZ is 35 feet.
 - (ii) In Eastern Oregon, the R-ELZ is 30 feet.
 - (B) An “ELZ” means an equipment limitation zone in which disturbance from equipment activity shall be minimized.
 - (i) In Western Oregon, the ELZ is 35 feet.
 - (ii) In Eastern Oregon, the ELZ is 30 feet.
 - (b) Operators shall take corrective action(s) when soil disturbance from ground-based equipment exceeds 10 percent of the total area within any R-ELZ or ELZ within an

operation unit. Corrective action(s) shall be designed to replace the equivalent of lost functions in consultation with the State Forester. Examples include but are not limited to water bars, grass seeding, logging slash, mulching, downed log placement in accordance with 527.676(1), with a preference for utilizing on-site materials.

- (c) The department shall publish Forest Practices Technical Guidance, developed in consultation with Department of Fish and Wildlife, to assist operators with selecting appropriate corrective measures.