



Forest Facts

LANDSLIDES AND DEBRIS FLOWS

March 2007

A landslide is a mass movement of rock, soil, and debris down a slope. In steep terrain, an ordinary landslide may transform into an especially dangerous type of landslide. These significant landslides may be referred to as debris flows, mudslides, mudflows, debris torrents or shallow, rapidly moving landslides. Debris flows often move rapidly and may exceed 30 mph, traveling several hundred feet or several miles. They often have major impacts on streams and can damage or destroy homes, roads, or other structures that are in their path.

Typically, debris flows consist of mud, boulders, and logs traveling down steep slopes, narrow stream channels, or v-shaped canyons. They often appear to be similar to flash floods, only with less water and more mud and debris.

Landslides are a natural, geologic process

Although they can be damaging, landslides and debris flows are also a natural geologic process that can provide important long-term benefits to stream ecosystems. In the short-term, the fine sediment from landslides may suffocate fish eggs and emerging young fry. But long-term, the logs and boulders that

landslides deliver provide nutrients and cover where fish can hide. Landslides do not just occur on forestlands. Because of the wet climate and rugged terrain found throughout western Oregon, landslides are common and many areas are at risk. It is not feasible to prevent all, or even a majority of landslides in Oregon.

The Oregon Forest Practices Act rules help minimize the potential for landslides

Forest practices may alter the physical landscape and its vegetation, which can affect the stability of steep slopes. They may also affect how often landslides occur and the nature of landslide deposits in streams. The Oregon Department of Forestry regulates forest practices to manage landslide risk to protect natural resources and the public's safety. Forest Practices Act rules for timber harvesting and constructing roads help minimize surface erosion and the potential for landslides. The department's geotechnical specialists assist foresters and landowners by providing guidance and assessing the risk for landslides.

Rule protections can vary to include measures such as prohibiting timber harvest, specifying how trees should

be replanted or roads should be constructed, leaving trees and vegetation undisturbed along streams, and requiring that trees be harvested with a skyline cable logging system, rather than using ground-based equipment.

An important partnership – Oregon’s Debris Flow Warning System

The State of Oregon operates a Debris Flow Warning System. This is a partnership between the Oregon Department of Forestry, The Oregon Department of Geology and Mineral Industries, the Oregon Emergency Response System, and the National Weather Service. For more information about how the system works and where warnings are currently being issued, visit:

<http://egov.oregon.gov/DOGAMI/Landslide/debrisflow1.shtml>

Landslides are addressed in the Forest Practices Act and Oregon Administrative Rules in several places:

Protection of public safety:
http://arcweb.sos.state.or.us/rules/OARS_600/OAR_629/629_623.html

Protection of natural resources in relation to roads:
http://arcweb.sos.state.or.us/rules/OARS_600/OAR_629/629_625.html

Protection of natural resources in relation to timber harvesting:
Protection of natural resources in relation to vegetation retention along streams:
http://arcweb.sos.state.or.us/rules/OARS_600/OAR_629/629_640.html

Specific information about adhering to rules related to landslides in the Forest Practices Act, Forest Practices Technical Note 2 and Technical Note 6:
oregon.gov/ODF/PRIVATE_FORESTS/docs/fp/LandslideHazNote2.pdf
oregon.gov/ODF/PRIVATE_FORESTS/docs/fp/LandslideTechNote6.pdf

For more information about landslides:

Oregon Department of Forestry Storm Impacts and Landslides of 1996: Final Report:
oregon.gov/ODF/PRIVATE_FORESTS/docs/fp/StormImpactsFinal.pdf

Landslides, Forestry, and Public Safety Issue Paper:
oregon.gov/ODF/PRIVATE_FORESTS/docs/fp/LandslidesPublicSafety.pdf

Oregon Revised Statute:
www.leg.state.or.us/ors/195.html

Oregon Department of Geology and Mineral Industries (DOGAMI): oregon.gov/DOGAMI/index.shtml