

Trygve Steen has documented this region's natural forests and logging practices for more than the last 45 years while at Portland State University. He has taught courses focused on forest ecology as well as on biological aspects of sustainability. For more see <http://forestlegacy.org/campaigns/homesteader/>

State Forest Land management needs to provide BALANCE to overall landscape level management of western Oregon forests and their watersheds in order to offset the short rotation logging of private lands. Oregon's State Forests need to be an anchor for biological diversity to the extent that they support older, more ecologically developed forest ecosystems. This is an essential insurance policy to protect the sustainability of our future forests and the many substantial benefits they provide. **ODF management of State Forest Lands needs to embrace both longer rotations and appropriately sensitive handling of forest soils, in order to maintain the rich genetic legacy of our natural forests.** Unfortunately, State Forest Lands are presently being managed too intensively over too much of their area to provide the protections they should be providing to the people of Oregon and to the long term sustainability of this state's timber industry. Present management of State Forest Land is fundamentally unsound and seriously risks the capacity of these forests to provide sustainable timber outputs as well as the protections needed for watersheds, recreation opportunities, clear streams, and aquatic habitat to support sustainable salmon fisheries.

We need a more solid scientific basis for management of our coastal forests. This is because our present intensive, short-rotation management of private forestland (as well as too much of our state forests) is a huge experiment with essentially no "control" on which to base any scientific conclusions or insights. Quality science involves doing studies in which there are unmodified or natural conditions (the "control") that can be compared with a manipulated or experimental situation. **The present widespread and high intensity of logging of Oregon's State forests eliminates the fundamental value of our State Forest Lands, to serve as a "control" for any scientific analysis both of forest ecology and of forest watersheds. Significant change is urgently needed.**

In addition to watershed impacts, **soil related impacts of logging can be very substantial.** My recent observations of soil compaction caused by mechanized logging of Homesteader Timber Sale Area 2 in the Clatsop State Forest, are very relevant to intensive logging on State Forest Lands. Measured in terms of the force needed to penetrate the soil, the top six inches of natural forest soil can be penetrated by a force of between 10 and 30 pounds per square inch (psi). The more firm clay natural subsoil at twelve inches in depth needs about 100 psi to penetrate it. All of these values will permit good growth of tree roots and would support the vital functions of the soil food web. Note, at a compaction level of 100 psi there will be some slowing of tree root growth and at about 300 psi tree root growth essentially stops. In the locations impacted by the logging machines, compaction levels in the top six inches were between 400 and 500 psi and at twelve inches between 400 and 600 psi. Clearly, these severe compaction levels will block the growth of tree roots in the top foot of forest soil. Soil compaction damage can take decades to recover, even 20 to 30 years is not sufficient. These levels of compaction caused by the machines used for logging are also sufficient to severely impact the soil food web which is vital to supporting above ground plants and the future growth of trees. Clearly, current logging practices need to change, in order to protect our forest soil resource.

Oregon's State Forests need to play an essential role in the sustainable management of all of Western Oregon's forests, not just focus on timber output, There is an urgent need for habitat conservation areas of sufficient size and old forest structure to support essential biodiversity components, both below and above ground. **Old forests need to be developed, expanded, and maintained because of their value for carbon sequestration and storage.** This is an appropriate emphasis for state forests, in order to protect the public interest in mitigating climate change. Moving Oregon State Forests to an older age structure, supports all of the important functions that these forest lands need to be providing.