Forest of the Living Dead:

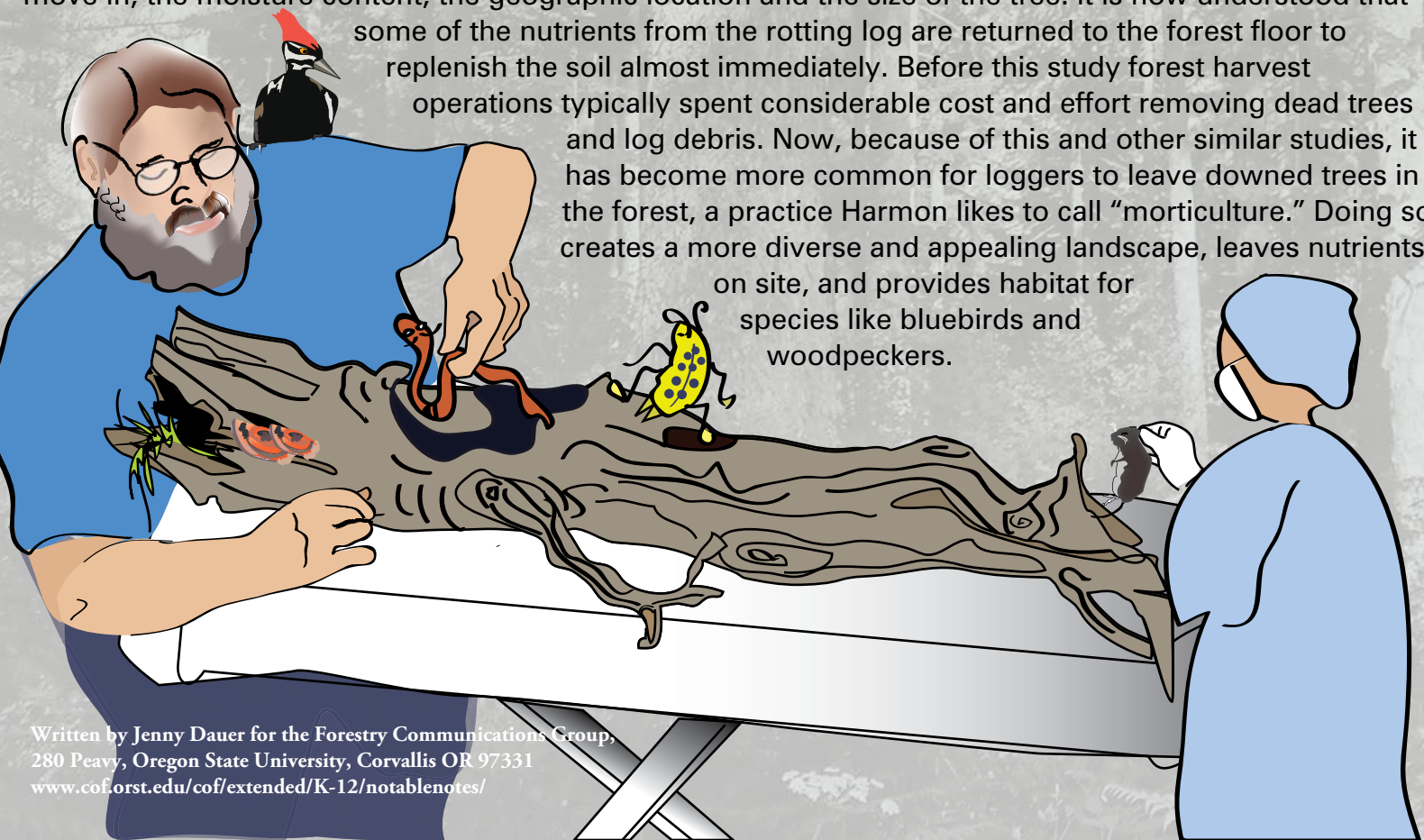
The longest science project ever

Notable notes in forest research at Oregon State University College of Forestry

Which is more alive: a live tree or a dead tree? If "alive" means growing, breathing cells, a dead tree wins hands down. While only a thin layer of wood and bark are growing and actively transporting water and nutrients from roots to leaves in a live tree, all of a dead tree's cells are teeming with insects, fungi, and bacteria. Some dead trees even have new plants and moss growing on them.

Even with all this activity in dead trees, trees take a long time to break down, decompose, and disappear. Mark Harmon, of OSU College of Forestry (Forest Ecosystems and Society), also known as "Dr. Death" for his scientific pursuit of mortality, is part of a 200-year-old study to monitor the decomposition of trees. That does seem like quite a long science project, but it reflects the pace at which change occurs to the logs. In the mid-1980s Harmon and other scientists dragged about seven hundred logs of different diameters into an old growth Douglas-fir forest. They watched as beetles first move into the dead log. The beetles aid further decomposition because of fungal spores that they track deep into the log on their feet. These fungi are capable of using the toughest part of the wood for food energy and in doing so, release nutrients into the soil. Over 20 years of observation, scientists have observed thousands of species that call these dead trees home.

Despite the common expectation that dead wood decomposes at a fairly slow and steady rate, Harmon has found that tree rotting is a unique process and depends on the tree species, the fungi that move in, the moisture content, the geographic location and the size of the tree. It is now understood that some of the nutrients from the rotting log are returned to the forest floor to replenish the soil almost immediately. Before this study forest harvest operations typically spent considerable cost and effort removing dead trees and log debris. Now, because of this and other similar studies, it has become more common for loggers to leave downed trees in the forest, a practice Harmon likes to call "morticulture." Doing so creates a more diverse and appealing landscape, leaves nutrients on site, and provides habitat for species like bluebirds and woodpeckers.



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