



## WITH DIVERSITY, COMES STRENGTH AND RESILIENCE

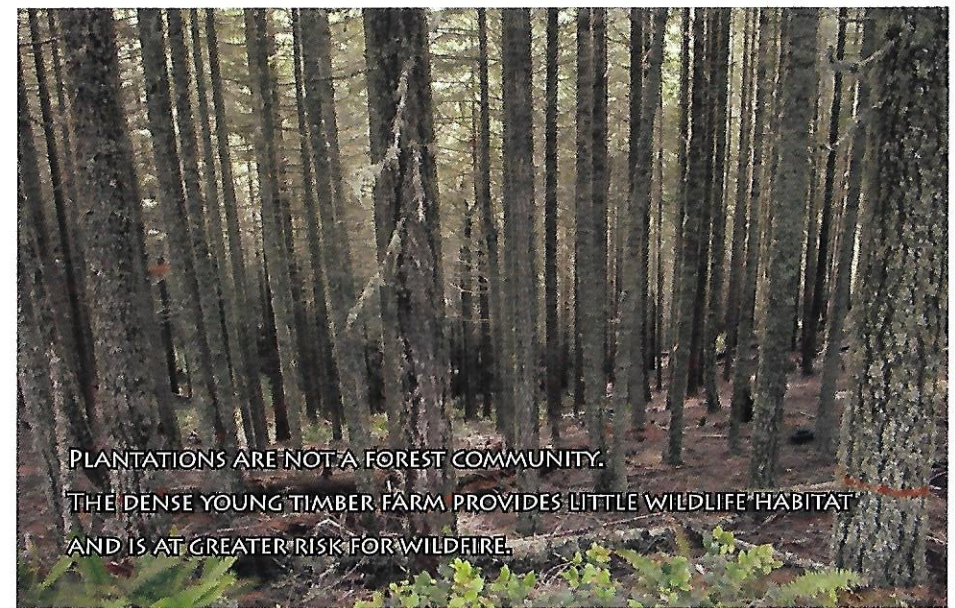
The Klamath-Siskiyou Mountain Range is one of the most biologically diverse hotspots in the world. Biodiversity is defined as the variety of life in a particular habitat or ecosystem. A greater amount of species diversity ensures natural sustainability for all life forms because each contributes differently to the health of the ecosystem or habitat. In forest ecosystems, each species has its own niche to fill, just like in our own communities.

The arrival of settlers in the early 1800s negatively impacted the natural biodiversity of our region. More than 90% of Oregon's pre-settlement oak woodlands and savannas were cleared to make way for farms and housing. In addition to the removal of Oregon's oak woodlands, clearcuts have moved us toward an industrial timber farm regime. These timber farms are not forests any more than a wheat field is a meadow.

The world is an ever-changing place, with natural disturbance events like fire, disease, wind, or insects impacting and altering forests; trees evolved to help each other survive. In order to develop into an old growth forest, defined characteristics need to be present. The acronym O.W.L.S. identifies attributes that pertain to old growth forests:

- O** - Old trees (>80 years)
- W** - Woody debris on the forest floor providing nutrients to the soils beneath them
- L** - Layered canopy consisting of diverse tree species at different heights
- S** - Standing dead trees also known as snags.

The characteristics present in an old growth forest provide habitat for diverse creatures—from the underground root structure to the forest floor to the canopy—helping forests develop resiliency to natural disturbance events. For instance, during intense forest



PLANTATIONS ARE NOT A FOREST COMMUNITY.  
THE DENSE YOUNG TIMBER FARM PROVIDES LITTLE WILDLIFE HABITAT  
AND IS AT GREATER RISK FOR WILDFIRE.

fires, high canopies are harder for flames to reach; therefore, tree tops from older and taller trees survive unscarred, continuing to photosynthesize energy for the tree. Older tree trunks often survive with minimum damage, since their protective bark has time to develop into a thick protective layer from the heat.

Beneath old growth forests lies a root system that is far more extensive than one would expect. Roots soak up water and send nutrients up the trees. These roots also share soils with miles of fungus filaments, which connect trees to each other, forming complex webs of nutrient cycling.

Trees provide sugars photosynthesized from the sun to the network of underground fungi. In return, the fungi provide trees with minerals as a direct trade, known as symbiosis. This process provides trees with a connected network to share messages with one another. By sending distress signals through the fungi neighboring trees alter their behavior to share resources. Similarly, mother trees, the biggest and oldest trees in the forest, can use the network to share water, nutrients, and sugar into the roots of young saplings, increasing their chances of survival.

Alternatively, a homogenous timber farm does not contain any of these characteristics, resulting in a weaker defense against natural disturbance events. Timber farms are one age-class of one type of tree species, planted on the same day with equal distance from its neighbor. These farms do not have woody debris or standing dead trees, since the trees never live long enough to die naturally; they are harvested on a 40 year rotation clearcut schedule. Timber farms lack the ability to develop into multi-layered canopies since they are planted at the same time and grow at the same rate, providing absolutely no opportunity for complexity.

Diversity strengthens a community—human communities, plant communities, and animal communities. Our communities can take a lesson from trees in how they adapt, share resources, and help each other out in times of need.