Forest Health Unit

ODF Forest Health unit summary
The Forest Health unit is housed within the Oregon Department of Forestry's Forest Resources Division. It is tasked with improving the health and value of Oregon's forests and associated resources by preventing and minimizing the impacts of pests, diseases and other stressors, such as drought and extreme heat.

Forest health is a holistic and ecological concept that influences management objectives across forest types, ownerships, and management practices. Improving the health of forests makes them more tolerant or resistant to native and non-native pest insects, diseases, noxious plants, and climate stressors. Enhancing forest health is increasingly important for creating forests resilient to damage from wildfire and climate change.

Our small team of natural resource specialists monitors stressors on the landscape using ground and aerial surveys, trapping and sampling, and applied research projects. Our data is then used to provide diagnosis and management guidance for public and private landowners statewide.

Our work goes beyond pest prevention, mitigation, or control. We work closely with partner agencies to ensure that forest health standards are met from wildland to urban forests across all ownerships. Our staff represents forest interests in large multiagency efforts involving invasive species, integrated pest management, wildlife, and habitat conservation. When trees are healthy, they are better able to defend themselves or rebound from insect and disease pests. Often, pests become problematic due to underlying stressors to tree health, such as drought, storms, and wildfire. We address these primary causes of tree stress to prevent additional damage by insect and disease pests.

Insects
Very few of our native forest-dwelling insects kill trees. The species that have the potential to kill trees opportunistically take advantage of trees with underlying stress from drought, storm or mechanical damage or wildfire. Damaged trees suffer from reduced defenses Insect populations can build into unnatural levels in these weakened trees and spill over into nearby healthy trees and overcome *their* defenses, creating an outbreak. Landscape-level stress, such as Oregon's persistent drought, creates an abundance of weakened trees that are highly susceptible to insect outbreaks. In most years, the number of acres of damage and mortality from bark beetles alone is comparable to acres lost to wildfires. There are other insects that don't stress or kill trees but can cause defects that reduce timber value. These also require timely management actions.

It's not just about pests. Forests cover almost half of our state and serve as reservoirs and corridors for many insects that are beneficial parts of a healthy and functioning forest ecosystem (e.g., pollinators, predators, parasitoids). We work with landowners to promote habitat enhancement and conservation for non-pest species that provide important ecosystem services.

Diseases
Many forest pathogens cause diseases that reduce growth or kill trees, including various root and foliar diseases. For example, the most damaging root disease in Oregon is the mortality-causing laminated root rot, with Douglas-fir and grand fir being highly susceptible. Armillaria and blackstain are other root diseases that cause significant damage to conifers in Oregon, particularly Douglas-fir. Foliar diseases, such as Swiss needle cast, have contributed to significant decreases in Douglas-fir growth rates in coastal stands. Growth losses are estimated to cost $128 million in lost wages and tax revenue annually. Diseases can also predispose trees to insect pest attacks. Management of these stressors requires us to identify their location, delineate their boundaries, and work with landowners on containment if eradication is not feasible.

Invasives
Exotic insects, diseases, and plants are established in our forestlands and some have become invasive pests, while others are encroaching on our borders. Damage from these agents can occur in periodic bursts, while others can change our landscapes forever.

Noxious weeds outcompete tree seedlings for light and resources, while invasive insects and diseases have caused significant losses to the timber industry. Invasive weeds, such as the fast-growing Scotch broom and Himalayan blackberry, cost Oregon growers over $80 million annually in treatment costs and lost revenue. Invasive pathogens, such as sudden oak death cost Oregonians hundreds of millions of dollars to control and in lost commerce. Recent invaders (emerald ash borer) may result in similar costs. However, early detection and rapid response, and coordination with other agencies has led to the successful eradication of exotic species (spongy moth, previously called gypsy moth) that threaten rural and urban forests.

Guidance for managing forest health resilience:

- Match plant species, cultivars and genotypes to the site, with choices informed by projected changes to climate.
- Reduce stand density below unhealthy thresholds, removing struggling trees and competing noxious plants to improve the vigor of residual stands.
- Increase diversity of stand species, age, and general composition
- Reduce unnecessary fuels to reduce wildfire risk
- Practice sanitation by cleaning equipment and removing infested/infected material
- Remove and process damaged timber in a timely manner to minimize defect and value loss
- Use locally sourced native plants free of exotic insect pests or diseases for restoration work