

Agenda Item No.:	H
Presentation Title:	Annual Forest Health Report
Date of Presentation:	January 7, 2009
Contact Information:	Peter Daugherty, Deputy Chief, Private Forests Division 503-945-7482; pdaugherty@odf.state.or.us

SUMMARY

This agenda item provides an overview of the major insect, disease, and other damaging agents affecting Oregon forests in 2007 (ORS 527.335 and Programmatic Annual Work Plan item), and an update on the sudden oak death eradication program (ORS 561.510). On a statewide level, increasing levels of insect damage were observed for a number of bark beetles, defoliators, and sap-feeding insects in 2007. Ongoing monitoring for non-native insects detected a small number of European gypsy moths, but no high-priority non-native wood-boring species were found. Despite an aggressive eradication program, favorable weather conditions appear to have facilitated the spread of sudden oak death (SOD) beyond the quarantine boundaries near Brookings in southwestern Oregon. The ongoing SOD eradication program has effectively slowed the spread of the disease, resulting in a sub-county quarantine as opposed to the multiple county quarantines currently found in coastal California. Swiss needle cast has continued to damage Douglas-fir forests in the Coast Range, with damage detection this year approaching the all-time high. Powerful winter storms were responsible for thousands of acres of timber breakage and blowdown along the North Coast. Bio-monitoring plots did not indicate any ozone damage in Oregon this year, while black bear damage to forest areas of western Oregon decreased overall.

CONTEXT

A Cooperative Agreement signed in 1965 between the State Forester, the Board of Forestry, and the USDA Forest Service provided for personnel to carry out systematic surveillance and reporting of insect and disease conditions on forest lands. In addition, Oregon's Forest Insect and Disease Law, ORS 527.335, mandates that the State Forester conduct surveys to determine the presence, extent, trend, and impact of native and invasive pests as well as overall forest health. Annual aerial and ground surveys fulfill this statute and support the following critical functions/asures:

- Departmental Key Performance Measures (KPM #629-14);
- *Forestry Program for Oregon*: Indicators of Sustainable Forest Management (Strategy F.a. and F.b.), adopted by the Board in January 2007;
- Private landowner reporting requirements for forest certification systems;
- Distribution of annual forest damage maps and data summaries to Departmental personnel and other cooperators (public agencies, private industry, the general public);
- Synthesis into the annual USDA publication, "Forest Health Highlights in Oregon," targeting professional/non-professional foresters, land managers and the general public; (Attachment 1)
- Incorporation into the USDA Forest Service National Insect & Disease Risk Map (NIDRM) project and forest health conditions report to the U.S. Congress.

BACKGROUND & ANALYSIS

The annual aerial survey of forest lands in Oregon began in 1947. The sixty years of aerial survey information collected for Oregon has been recognized at the regional and national level as one of the best long-term data sets on forest health information available. The Department has also been recognized nationally for developing and testing digital sketch-mapping and aircraft safety technologies that have improved the efficiency of information delivery. In cooperation with the USDA Forest Service,

Departmental personnel currently map damage due to insects, diseases, and other agents on over 28 million acres each year. Departmental ownership of the survey aircraft allows staff to meet both public and private landowner needs for specialized aerial surveys which currently include sudden oak death (SOD), Swiss needle cast, and black bear damage. Although the native damaging agents listed below may cause significant tree mortality or growth loss each year, they are a natural part of forest ecosystems and may contribute to greater decomposition rates, nutrient cycling, vegetation diversity, and wildlife habitat.

The following is a summary of Forest Health Conditions in Oregon, 2007 (Attachment 1):

- In the 2007 statewide aerial survey of Oregon forests, over 900,000 acres of tree damage and mortality were observed. Bark beetles accounted for nearly two-thirds of the overall damage detected. Favorable survey conditions, in addition to the greater activity of some damage agents, increased detection by over 350,000 acres this year.
- Mountain pine beetle (MPB) is the most destructive bark beetle in Oregon. Low levels are always present and normally focus attacks on stressed trees. Large outbreaks, leading to widespread damage, are cyclic events that have occurred historically and are linked to vulnerable stand conditions and below-normal precipitation. Outbreaks often begin in large-diameter, dense lodgepole pine stands, but can spread across large areas, leading to damage that may continue for a decade or more. The area affected by MPB rose for the seventh consecutive year, increasing to over 500,000 acres in 2007. The majority of damage was restricted to lodgepole pine stands, but other pine hosts (ponderosa and 5-needle pines) have been increasingly affected in recent years.
- Outbreaks of fir engraver bark beetle have historically caused high levels of mortality in Oregon, and are often triggered by consecutive years of below-average moisture. Moderate levels of damage occurred in 2007, with beetles affecting over 68,000 acres. Severe winter storms in recent years, which often lead to high levels of wind-damaged trees, may have contributed to increased damage from Douglas-fir beetle, which rose to over 18,000 acres this year.
- Damage from defoliating insects increased substantially in 2007, due in large part to the activity of western spruce budworm and an established, non-native moth, the larch casebearer. Western spruce budworm damage was detected on over 95,000 acres in central Oregon this year, while larch casebearer damage in northeast Oregon was observed on over 82,000 acres. Defoliation intensity was generally considered low to moderate, with a limited degree of tree mortality observed.
- Damage from sap-feeding insects also increased in 2007. The established, non-native balsam woolly adelgid continued to cause decline and mortality in true fir species in the Cascades and Northeast Oregon, and was observed on over 132,000 acres. Increased damage by a native sap-feeding pest, the black pineleaf scale, also increased on ponderosa pine and Douglas-fir in areas of central Oregon.
- Sudden oak death, caused by the non-native pathogen *Phytophthora ramorum*, expanded in 2007 despite aggressive eradication efforts. Six new sites were found outside the quarantine area, with several of the sites more than two miles from previously infested sites. The majority of other detections were located near the center of the quarantine zone. The forest area under quarantine increased from 26 mi² to 162 mi² in 2008. Consecutive years of unusually wet spring weather conditions appear to have favored long-distance spread of the pathogen. Despite the new occurrences, the distribution in Oregon forests remains limited to a small area near Brookings, suggesting that eradication efforts have significantly slowed the spread of the pathogen and limited the economic and ecological impact of this pathogen on Oregon's forests and industries.

- The 2007 Swiss Needle Cast (SNC) aerial survey mapped over 338,000 acres of symptomatic Douglas-fir, the largest area detected since an all-time high of 387,000 acres in 2002. The majority of areas with obvious symptoms of the disease occurred within 18 miles of the coast, consistent with previous observations.
- A large and powerful winter storm struck the Oregon coast on December 2-3, 2007. High, sustained winds and intense rainfall caused extensive damage to forest stands as well as trees in public parks and municipalities along the North Coast. Clatsop and Tillamook Counties sustained considerable wind damage and blowdown over approximately 16,000 acres, with losses estimated at 390 million bd. ft. of timber.
- Departmental Forest Health staff and the USDA Forest Service cooperate in a national ozone bio-monitoring program. To date, no ozone injury to plants has been detected in any of the 35 plots in Oregon.
- Black bears damage or kill forest trees in the spring of the year by peeling the bark and feeding on inner bark tissues. An annual aerial survey of damage in western Oregon was initiated in 1989 with support from State forests, federal agencies, and private industry. In 2007, black bear damage was estimated on over 37,000 acres. While damage levels declined overall this year, they were generally consistent with the 5-year average.

RECOMMENDATION

This report is provided to the Board for informational purposes.

ATTACHMENT

- (1) Forest Health Highlights in Oregon – 2007