STAFF REPORT

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Work Plan:	Private Forests
Topic:	Board Updates
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Contact Information:	Marganne Allen, Forest Health and Monitoring Manager 503-945-7240; marganne.allen@oregon.gov Christine Buhl, Forest Entomologist (503) 945-7396; christine.j.buhl@oregon.gov Sarah Navarro, Forest Pathologist (503) 945-7394; sarah.navarro@oregon.gov

SUMMARY

This agenda item provides an overview of the major insect, disease, and other damaging agents affecting Oregon forests in 2015, as required by Oregon Revised Statute (ORS) 527.335.

CONTEXT

The Board's 2011 Forestry Program for Oregon defines a healthy, vital forest landscape as one that maintains its functions, diversity, and resiliency within the context of natural and human disturbances and is capable of providing people with the array of values, uses, and products desired now and in the future. The Board supports protecting and improving the health and resiliency of Oregon's dynamic forest ecosystems, watersheds, and airsheds (Goal F). The Board's objectives for Goal F include promoting resilient forest landscape conditions and management practices that will lead to reductions in the adverse impacts from forest insects and diseases (Objective F.7). The Board's guiding principles and philosophies includes a commitment to continuous learning, evaluating and appropriately adjusting forest management policies and programs based upon ongoing monitoring, assessment, and research (Value Statement 11).

BACKGROUND

The annual aerial survey of Oregon forestlands for insect and disease damage began in 1947. The 2015 statewide cooperative aerial survey is the 69th year of collecting these data. Oregon's survey covers 28 million acres across all ownership categories and is one of the best long-term data sets on forest health conditions. The Oregon Department of Forestry (ODF) is also recognized nationally for developing and testing digital sketch mapping and aircraft technologies that improve information delivery and the safety of aviation personnel. Annual aerial surveys are accomplished through collaboration with the U.S. Department of Agriculture (USDA) Forest Service Pacific Northwest Region with additional funding and support provided by the U.S. Department of the Interior (USDI) Bureau of Land Management (BLM), private industrial forest landowners and cooperatives such as the Oregon State University (OSU) Swiss Needle Cast Cooperative.

A Cooperative Agreement signed in 1965 between the State Forester, the Board of Forestry, and the USDA Forest Service formalized the state and federal collaborative relationship by instructing personnel to carry out systematic surveillance and reporting of insect and disease conditions on forestlands. In addition, Oregon's Forest Integrated Pest Management Laws (ORS 527.310 to 527.370) requires 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.

While aerial surveys anchor Oregon Department of Forestry efforts to collect information on forest health conditions in Oregon's forests, they are not able to detect the occurrence of many agents including most root diseases and dwarf mistletoes, which can greatly affect forest health. These agents are assessed by ground surveys, which are completed annually in priority areas or as part of special ground survey projects.

In 2001, Oregon's aerial survey program detected sudden oak death (SOD) in Curry County. SOD is lethal to tanoak and poses a tremendous threat to tanoak ecosystems in Oregon. The disease also threatens commerce in the nursery and forest industries. A multi-agency group (ODF, the Oregon Department of Agriculture (ODA), USDA Forest Service, BLM, and OSU) is slowing the spread of the disease through ODA quarantine regulations and a program of early detection and eradication treatments involving the destruction of tanoak and other nearby host plants on new infested sites.

Annual aerial and ground surveys fulfill ORS 527.335 and support the following:

- Oregon Department of Forestry Key Performance Measures (KPM) #629-13: Damage To Oregon Forests From Insects, Diseases, And Other Agents;
- Private landowner reporting requirements for forest certification systems;
- Distribution of annual forest damage maps and data summaries to ODF Districts and other cooperators (public agencies, private forest landowners, the general public);
- Synthesis into the annual publication "Forest Health Highlights in Oregon" produced for professional foresters, other natural resource specialists, land managers, field technicians, educators and the general public (Attachment 1); and
- Incorporation into the USDA Forest Service National Insect & Disease Risk Map (NIDRM) project and forest health conditions report to the U.S. Congress.

ANALYSIS

The statewide aerial survey detected over 700,000 acres of tree mortality and other damage. The majority of tree mortality detected during aerial surveys over the last decade has been due to insect outbreaks, namely bark beetles. In 2015, over 600,000 acres of mortality was attributed to insect damage (Attachment 1).

2015 insect damage totals (acres):

Bark beetles: 530,000 **Wood borers:** 8,000 **Defoliators:** 5,000 **Sap-sucking insects:** 61,000

Many forest insects are secondary and are attracted to already stressed trees, which are in turn less resilient to withstand attack. In recent years drought has been the primary contributor to tree stress, leading to subsequent insect attack and tree mortality. Other primary stressors include various foliar, stem and root diseases and abiotic factors. For a summary, see *Forest Health Highlights in Oregon –2015* (Attachment 1).

In 2015, damage from bark beetles increased by 10% relative to 2014. Pine-infesting bark beetle species such as Ips beetles (pine engraver, California 5-spined), mountain and western pine beetles caused the vast majority of tree mortality although fir engravers also caused substantial mortality in true fir. Mortality from flatheaded fir borer (a wood borer) more than doubled in lower elevation Douglas-fir suffering from drought, poor site conditions, fire damage, etc. Despite higher levels of precipitation in 2016 in some areas of Oregon, we can expect continuing impacts of prolonged drought stress on host trees. Thinning and slash management are the primary management guidelines to help mitigate drought and beetle stress.

Damage from defoliators, whose outbreaks are often cyclical, were greatly reduced to around 5,000 acres in 2015. Most of this damage was the tail end of a western tent caterpillar outbreak. Because this pest attacks hardwoods that can reflush a full complement of foliage annually, mortality is infrequent unless attacks persist for several years. Damage from sap-sucking insects such as adelgids was also reduced in 2015 but populations of these insects are often chronic and result in growth loss over time.

Swiss needle cast (SNC), a native foliage disease, continued to damage Douglas-fir on the western slopes of the Coast Range. The 2015 SNC aerial survey (supported by the OSU Swiss Needle Cast Cooperative) covered 3.7 million acres and detected 589,851 acres impacted by Swiss needle cast, an increase to an all-time high for the sixth consecutive year. Growth loss due to SNC in Oregon is estimated at more than 190 million board feet per year. In addition to growth impacts, SNC alters wood properties and affects stand development.

Cooperative early detection trapping for invasive species, specifically emerald ash borer (EAB) and gypsy moth (GM), continued in 2015. ODF placed 294 baited EAB traps, 58 of which were multi-funnel traps in an attempt to diversify collection methods. Although EAB has yet to be found in Oregon, it continues to spread throughout the country. Westward expansion of this pest has not extended past Colorado but four adults were found in eastern Texas in 2016. EAB is the nation's costliest invasive forest pest with over $3.5 billion in damage since its detection in Michigan in 2001. Currently Oregon does not have an established response plan for EAB in place. ODF also placed baited GM traps at each EAB site in 2015. European subspecies of gypsy moth (EGM), which are establish in the eastern part of the country, have been caught in small numbers in Oregon for several years but are not believed to have become established. In 2015, the Asian subspecies was also found in monitoring traps. Asian gypsy moth (AGM), unlike EGM, has females that can fly, is better equipped to develop on coniferous host plants such as Douglas-fir and is not established in North America but may arrive on shipments from Asia and Russia. Two AGM adults were collected in traps along the Willamette River near the Port of Portland. A multi-agency (ODA, USDA-Forest Service and Animal and Plant Health Inspection Service or APHIS, local governments, etc.) eradication effort was initiated to address these AGM finds. The response plan consisted of three aerial applications of *Bacillus thuringiensis kurstaki* (Btk)

followed by two levels of delimitation trapping in 2016 (Attachments 2 and 3). Gypsy moth was also added to the Oregon Forest Pest Detector Program which was established in 2014 by ODF, OSU, ODA, USDA-Forest Service and APHIS. The purpose of the program is to train arborists, landscapers, and others on the early warning signs of high priority invasive pests.

Invasive forest plants continue to be a high priority for ODF Forest Health staff, who have provided trainings for ODF and other agency personnel on pathways for seed and plant establishment. New rules preventing movement and establishment of noxious weeds by requiring use of Weed Free Forage (WFF) on ODF lands was also requested of the Board in 2015.

Sudden Oak Death

Sudden oak death (*Phytophthera ramorum*) continued to intensify and spread in Curry County during 2015. Eighteen (18) new infestations, all on non-federal land, were found outside of the Generally Infested Area (GIA). The GIA is an area within the quarantine where eradication treatment of infested sites is no longer required. In 2014, the infestations along the northern edge of GIA were too large and costly to treat, two outlying sites were within a mile of the quarantine, and one was outside the quarantine. The GIA was expanded to include the northern infestations, leaving them untreated. In 2015, the quarantine area expanded for a seventh time to 515 square miles. The number of outlying sites in 2015 exceeded the program's capacity to treat all sites with large buffers, and the program prioritized three important sites for full buffers (300 feet), with remaining sites receiving at least minimal treatments.

In early 2015, another clonal lineage of P. ramorum (EU1) was detected on a single tanoak tree near the Pistol River. This is the first report of the EU1 lineage in US forests. Genetic analysis suggests a nearby private nursery (now closed) as the probable source. This finding is of particular concern because in Europe, the EU1 lineage kills or damages several conifer tree species and is considered more aggressive than the North American lineage (NA1). Furthermore, establishment of the EU1 lineage would create the potential for sexual reproduction and increased variability in the North American P. ramorum population. The EU1 infestation was cut and burned (13 acres) and has not been detected in post-treatment vegetation sampling and ground surveys in the vicinity.

Disease spread would have been greater without the ongoing sudden oak death (SOD) slow the spread program, currently funded by the USDA Forest Service's Forest Health Protection program, BLM, and State of Oregon. However, this program faces a shortage of funds for eradication treatments on new infested sites that fall outside of the GIA. To alleviate this shortage, the Department submitted an Emergency Board request for $250,000 of General Fund to the SOD program in May of 2016. The request was granted to the Department and the money will be allocated in three parts: $100,000 to increase treatment of the leading edge of infested sites in or near the quarantine boundary; $100,000 will be used to create an emergency treatment fund that will be held by the Department for rapid treatment of any site outside of the quarantine area; and $50,000 will be given as a block grant to the Association of Oregon Counties to convene and facilitate a local solutions task force. Staff believe the SOD task force will be helpful in increasing local engagement on this important invasive pathogen and help inform the interagency slow the spread strategy into the future.

Staffing

The Forest Health Section of the Private Forests Division in 2015 consisted of:

Title	Classification*	Name
Forest Pathologist	NRS 4	Alan Kanaskie
Forest Entomologist	NRS 4	Christine Buhl
Invasive Species Specialist	NRS 4	Wyatt Williams
Forest Health Survey and Monitoring Specialist	NRS 2	Danny Norlander
Forest Health Technician	FMT	Jon Laine
Forest Health Technician	FMT	Vacant
Student/Professional Forester Worker	FMT	Vacant

*NRS = Natural Resource Specialist; FMT = Forest Management Technician

In early 2016, Sarah Navarro filled the Forest Pathologist position vacated with the retirement of Alan Kanaskie. The vacant Forest Health technicians and student worker positions are federally funded and used to fulfill key work needs when such funds are available.

The Section is supported by the Coos District SOD field office in Brookings (Ron Rhatigan and Randy Weise). Due to Ron Rhatigan taking a SOD position with the USDA Forest Service in Gold Beach, the SOD field office in Brookings is now led by Randy Weise, Natural Resource Specialist 2 with Ryan Porter filling in behind Randy's promotion, as a limited direction Natural Resource Specialist 1.

Forest Health staff provide specialized expertise to ODF District Offices, the ODF State Forests Division, and other state agencies. Forest Health staff also provide training and subject matter expertise to Stewardship Foresters and OSU forestry extension agents and work closely with our partners to provide technical assistance, information and training to forest landowners and forest managers. Forest Health Section staff also work toward the advancement of forest health related science. Peer-reviewed and other publications by staff in 2015 include:

1. **Williams, W.** 2015. Geranium. ODF Fact Sheet. Oregon Department of Forestry. 2 p.
2. **Buhl, C., A. Kanaskie, S. Navarro, D. Norlander and W. Williams.** 2015. Forest Health Highlights in Oregon. USDA Forest Service.

Copies are available upon request.

RECOMMENDATIONS

None. This report is provided to the Board for informational purposes.

ATTACHMENTS

(1) Forest Health Highlights in Oregon – 2015

(2) Gypsy moth update: Project background and status of 2016 eradication

(3) 2016 Asian and European Gypsy Moth Eradication Proposal: Northwest Portland, Oregon and Vancouver, Washington.