

## 2016 Insect Defoliator Conditions in Region 6 (Washington and Oregon)

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### Summary

Aerial surveys were completed on over 41 million acres of forest lands within Region 6 in 2016, covering a variety of ownerships. Approximately 1 million acres (in Washington only) were not surveyed in 2016 due to numerous large fires of 2015 (Figure 1). Areas burned by wildfire are not mapped until the second year following the fire. Aerial survey data in 2016 indicated approximately 147,000 acres in Washington and Oregon were affected by forest defoliators, a decline from over 165,000 acres reported in 2015 (Figure 2). Only Washington suffered damage from western spruce budworm in 2016, although acres of damage were half of that reported in 2015. Balsam woolly adelgid continues to be a chronic issue in both Washington and Oregon, although numbers dropped in Oregon, they doubled in Washington. Very low numbers were reported for western tent caterpillar in both Washington and Oregon as well as for larch casebearer in Oregon. Ten-year damage trends show a similar decline in defoliation for both states since 2012 (Figure 2). Asian gypsy moths were identified in both Oregon and Washington in 2015 and in 2016 a multi-agency spray and delimitation trapping effort addressed those finds.

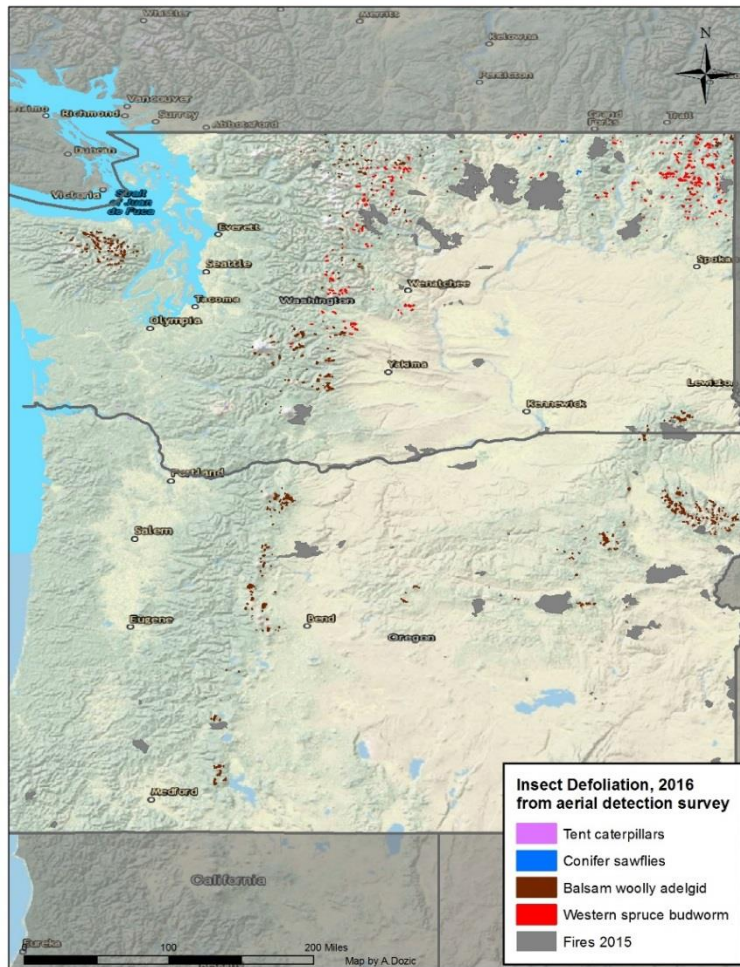


Figure 1: Areas affected by forest defoliators in WA and OR, 2016\* (\*Draft data)

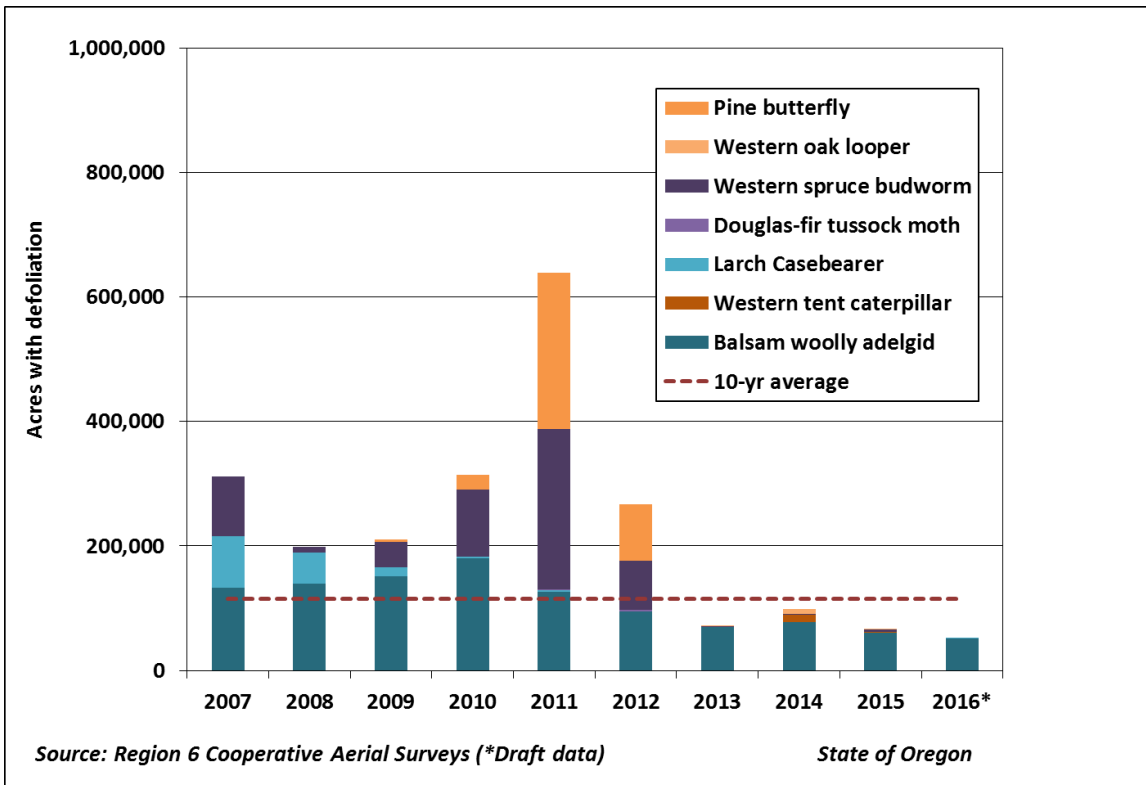
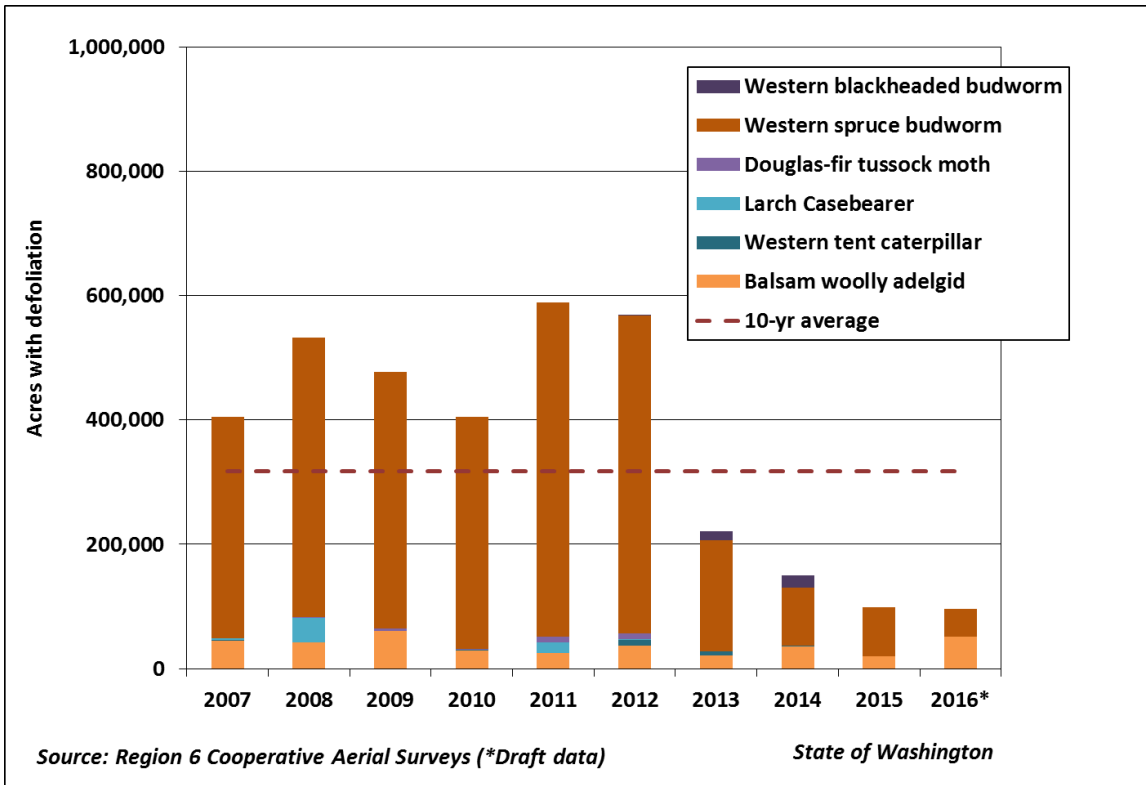


Figure 2: Ten-year trend for forest defoliators as detected by annual aerial surveys in Washington and Oregon, 2007-2016\* (\*Draft data for 2016)

## Washington\*

In 2016, aerial surveys detected approximately 98,000 acres of forest defoliation in WA. This is similar to the 99,000 acres reported in 2015 and the lowest amount in the last ten years. The average area with defoliation in WA for the last ten years is just over 350,000 acres. Three agents accounted for 99% percent of the total defoliation in 2016: balsam woolly adelgid (53%), western spruce budworm (45%) and conifer sawflies (1%).

### **Western spruce budworm (*Choristoneura freemani*)**

In 2016, areas with western spruce budworm (WSB) defoliation recorded in the aerial survey decreased to approximately 44,000 acres; well below the 79,000 acres recorded in 2015 and the lowest total since 2002. Mid-elevation forests of Kittitas, Okanogan, Ferry, Stevens, and Pend Oreille counties have been most heavily affected by this outbreak. WSB defoliation was very light and caterpillar activity was less evident in many areas of Kittitas County that have been heavily impacted by WSB in the last decade. The outbreak in this area is showing signs of decline, but 2016 traps catches have not yet been analyzed. After several consecutive years of defoliation in the central and north Cascades, subsequent mortality from Douglas-fir beetle and fir engraver are becoming more common. A severe summer drought in 2015 is also likely contributing to increased bark beetle-caused mortality. WSB pheromone traps were placed at approximately 180 locations across eastern WA.

### **Balsam woolly adelgid (*Adelges piceae*)**

Damage from the non-native, sap-feeding balsam woolly adelgid continues to be widespread and is primarily affecting subalpine fir in high elevation forests across WA. In 2016, approximately 52,000 acres of damage was observed, a large increase from over 20,000 acres in 2015 and above the 10-year average of 37,000 acres.

### **Douglas-fir tussock moth (*Orgyia pseudotsugata*)**

There was no Douglas-fir tussock moth (DFTM) defoliation recorded in 2016. The last year with any significant defoliation was in 2012 in the Umatilla National Forest in the Blue Mountains. The interagency network of "Early Warning System" pheromone traps at approximately 250 locations in WA continued to be monitored annually. Trap catches have not yet been analyzed; however, at time of writing it appears trap catches have increased in several areas which may indicate higher likelihood of defoliation occurring in the next few years. 2008 was the first year with defoliation in the last WA outbreaks.

### **Conifer sawflies (Family Diprionidae)**

Approximately 800 acres of sawfly defoliated ponderosa pines were observed from the air in 2015, primarily in Okanogan and Ferry counties. Heavily defoliated ponderosa were reported in areas of the Loomis State Forest. Approximately 300 acres with sawfly defoliation of true firs were also mapped in 2016.

### **Larch defoliation**

In 2016, defoliation by larch needle cast disease (*Meria laricis*) was mapped on approximately 2,900 acres and no defoliation by larch casebearer (*Coleophora laricella*) was recorded. Larch needle cast primarily affected areas in Yakima and Kittitas counties.

### **Western tent caterpillar (*Malacosoma californicum*)**

Only 255 acres of western tent caterpillar defoliation was mapped in 2016, similar to the 143 acres in 2015. The recent western WA outbreak from 2012 through 2014 has collapsed.

### **Gypsy Moth (*Lymantria dispar*) – report from Washington State Department of Agriculture**

In 2016, the Washington State Department of Agriculture (WSDA) placed 28,395 gypsy moth pheromone traps in Washington. 12,975 of these were for European gypsy moth (EGM) detection and delimiting and 15,420 were for Asian gypsy moth (AGM) detection and delimiting. A total of 25 gypsy moths were collected from 9 counties: Clark (1), Cowlitz (1), King (7), Kitsap (8), Kittitas (1), Mason (1), Pierce (4), Spokane (1), and Thurston (1). This is a decrease from the 42 moths caught in 2015. All moths collected in 2016 were the North American variety of EGM from the established European population in the eastern United States. No Asian gypsy moths were caught in 2016 following a record catch of 10 AGM in 2015, the first trapped in Washington since 1999. WSDA conducted a gypsy moth eradication project in spring 2016 treating more than 10,000 acres with Btk. Six of the sites were treated for AGM and one site (Seattle) was treated for an EGM introduction. Treatment areas were located in King, Pierce, Thurston and Clark counties. Following Btk treatments, WSDA placed 12,230 traps for delimitation around treated areas. None of the moths caught in summer 2016 were located in the areas that were treated for gypsy moth the previous spring.

## **Oregon\***

### **Summary**

In 2016, approximately 51,000 acres in OR were observed to have damage from defoliating insects during aerial surveys, which was down from the 78,000 acres detected in 2015. The majority of the defoliation detected this year was due to activity by balsam woolly adelgid, and to a much lesser extent larch casebearer and western tent caterpillar.

### **Balsam woolly adelgid (*Adelges piceae*)**

Damage from the non-native balsam woolly adelgid continues to be widespread and affects subalpine and Pacific silver fir in high elevation forests across central and eastern OR. In 2016 approximately 51,000 acres were mapped during aerial surveys, which represented a 10% decrease from 2015 and is half the 10-year average. Decreased detections in many areas appear to be due to the continued decline and mortality of highly preferred hosts.

### **Douglas-fir tussock moth (*Orgyia pseudotsugata*)**

There was no Douglas-fir tussock moth (DFTM) defoliation recorded in 2016. The last major outbreak was over 15 years ago in the Blue Mountains. The interagency network of “Early Warning System” pheromone traps at approximately 162 locations in OR continue to be monitored annually. 2016 trap catches have not yet been analyzed.

### **Western tent caterpillar (*Malacosoma californicum*)**

Only 72 acres of defoliation by western tent caterpillar was observed in 2016, signaling the end of the largest documented outbreak from this pest in OR over the last two decades. The majority of the defoliation was observed near the northern coast range where the primary species affected was red alder.

### **Larch casebearer (*Coleophora laricella*)**

The non-native but long-established larch casebearer contributed to only 737 acres of damage in 2016, which is double that from 2015 but still well below the 10-year average. Damage from this pest was isolated to a couple of locations in the Blue Mountains. Larch casebearer is also known to co-occur with two larch needle diseases, which can be hard to differentiate in aerial surveys.

### **Pandora moth (*Coloradia Pandora*)**

Pandora has reappeared! In 2015 a spike in Pandora moth adults at lights in residential areas was reported widely. This year we saw larvae and small, isolated pockets of defoliation in lodgepole and ponderosa pine near Chemult and near lava lands south of Bend. Pupae were also seen around the Upper Klamath Marsh south of Chemult. The damage was too small to arrange a special flight for Pandora but may be warranted in 2018.

### **Gypsy Moth (*Lymantria dispar*) – report from Oregon Department of Forestry**

In 2015, a record catch of 2 Asian Gypsy moths (AGM) were collected in Oregon (the first since 2006), both in Multnomah county. USDA USFS and APHIS, ODA and the Oregon Department of Forestry conducted a gypsy moth eradication project in spring 2016 treating more than 8,600 acres with Btk in the area of the AGM positive traps. That summer the Oregon Department of Agriculture (ODA) placed about 20,000 gypsy moth pheromone traps throughout Oregon. This included delimitation traps placed at a rate of 13 and 25 traps/acre at a 3 and 6 mile radius, respectively, around the 2015 AGM locations. No AGM were caught in 2016 but a total of 6 European gypsy moths were collected from 2 counties: Josephine (4) and Lane (2). This is a decrease from the 12 moths caught in 2015 and none of the moths were caught near areas that were treated for gypsy moth the previous spring.



***\*Disclaimer: All reporting here for 2016 was taken from draft aerial survey data that requires additional processing. It is intended as a BBTWG update; please do not distribute further or cite elsewhere.\****