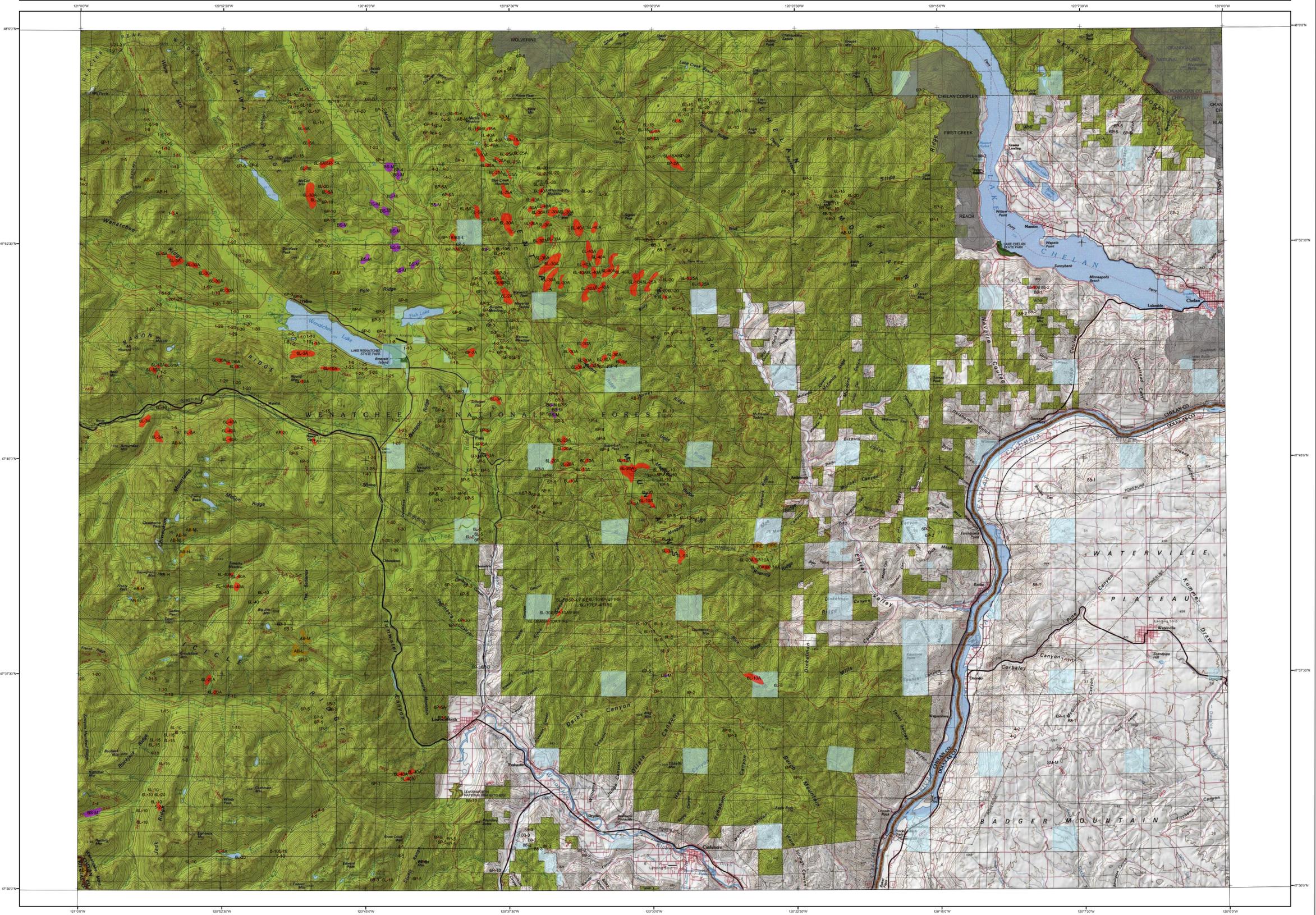


# 2015 Aerial Insect and Disease Survey

## USGS 100K Quad: CHELAN - E147120; 5C



Mortality Agents		
Code	Damaging Agent	Primary Host
1	Douglas-fir beetle	Douglas-fir
4	Fir engraver	True fir
5	W Balsam bark beetle	Subalpine fir
6B	Mtn. pine beetle	Whitebark pine
6L	Mtn. pine beetle	Lodgepole pine
6P	Mtn. pine beetle	Ponderosa pine
7	Oregon pine tip	Ponderosa pine
8B	W pine beetle pole	Ponderosa pine

Defoliators		
Code	Damaging Agent	Primary Host
BS	W spruce budworm	True fir, Douglas-fir, spruce
LS	Black pineleaf scale	Ponderosa pine
SM	Satin moth	Quaking aspen

Other Damaging Agents		
Code	Damaging Agent	Primary Host
AB	Balsam woolly adelgid	True fir
FIRE	Fire	All species
NF	Not flown	

NOTE: Only the damage agents present in this quad are listed in this legend. The cause of damage is described by an alpha numeric symbol on the map and is followed by the number of trees affected; number of trees per acre (example: 5A); or the intensity of damage (L - Light, M - Moderate, H - Heavy).

**USGS 100K Quad: CHELAN - E147120; 5C**  
**2015 Aerial Insect and Disease Survey**  
**Map Scale: 1:100,000**  
**Date: 24 November 2015**

### Legend

- Defoliating Agents
- Mortality Agents
- Other Damage
- WDNR Managed Lands
- Areas Not Flown During Overview Survey
- 2015 Large Fires

Source: USGS GeoMAC - <http://www.geomac.gov/>

Source: Washington Dept. of Natural Resources

#### How the Aerial Surveys Are Conducted

Data represented on this map are based on trees visibly affected by forest insects and diseases detected and recorded during aerial survey flights conducted by the USDA Forest Service, the Washington Department of Natural Resources and the Oregon Department of Forestry. Observers have just a few seconds to recognize the color difference between healthy and damaged trees of different species; diagnose causal agents correctly; estimate intensity; delineate the extent of damage; and precisely record this information on a georeferenced, digital map. Air turbulence, cloud shadows, distance from aircraft, haze, smoke and observer experience can all affect the quality of the survey. These data summaries provide an estimate of conditions on the ground and may differ from estimates derived by other methods.

The aerial survey provides information on the current status for many causal agents and is important when examining insect activity trends by comparing historical and current survey data over large areas.

Overview surveys are a 'snap shot' in time and therefore may not be timed to accurately capture the true extent or severity of a particular disturbance activity. Specially designed surveys with modified flight patterns and timing may be conducted to more accurately delineate the extent and severity of a particular disturbance agent. Special surveys, such as Swiss needle cast surveys, are conducted when resources are available to address situations of sufficient economic, political or environmental importance.

The basemap is an ESRI map service of TOPOI data (Copyright 2013 National Geographic) which is comprised of seamless, scanned images of USGS paper topographic maps. For more info on this map see [http://gto.arcgis.com/maps/USA\\_Topo\\_Maps](http://gto.arcgis.com/maps/USA_Topo_Maps).

A data dictionary, digital copies of this map and geospatial insect and disease data are available at: <http://www.fs.usda.gov/detail/forest-grasslandhealth/insects-diseases/>

DIRECT ALL INQUIRIES TO:



WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**

Washington State Department of  
Natural Resources  
Wildfire Division  
Forest Health  
1111 Washington St. SE  
Olympia, WA 98504

-- OR --



FOREST SERVICE  
U.S. DEPARTMENT OF AGRICULTURE

USDA Forest Service, Region 6  
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PO Box 3623  
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DISCLAIMER  
Forest Health Protection (FHP), Washington Department of Natural Resources (WDNR) and Oregon Department of Forestry (ODF) strive to maintain an accurate Aerial Detection Survey (ADS) Dataset, but due to the conditions under which the data are collected FHP, WDNR and ODF shall not be held responsible for missing or inaccurate data. ADS are not intended to replace more specific information. An accuracy assessment has not been done for this dataset; however, ground checks are completed in accordance with local and national guidelines: <http://www.fs.fed.us/foresthealth/monitoring/quality/assurance.shtml>. Maps and data may be updated without notice. Please cite: "USDA Forest Service, Forest Health Protection, Washington Department of Natural Resources, Wildfire Division, Forest Health, and Oregon Department of Forestry, Forest Health Management" as the source of this data.