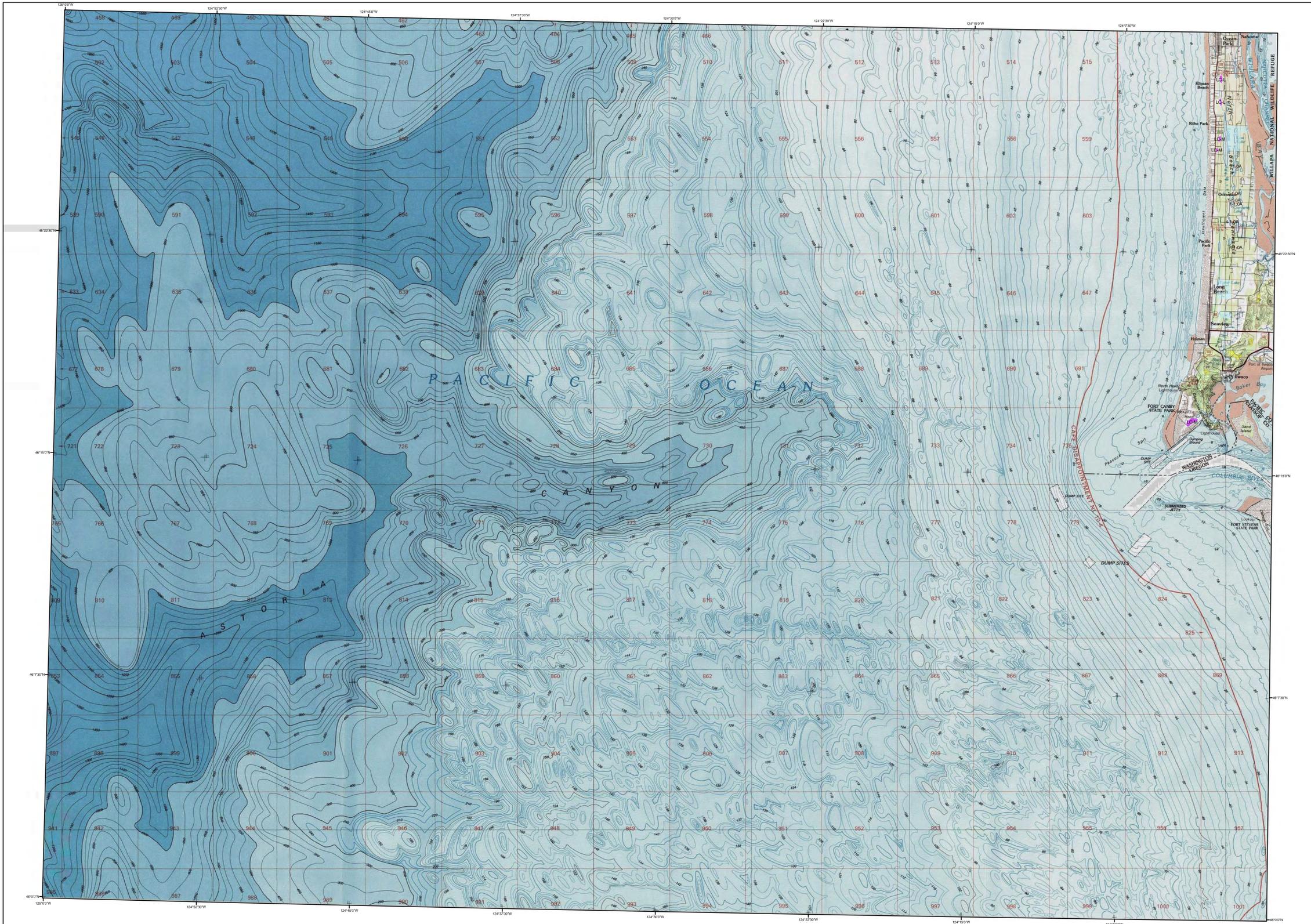


# 2012 Aerial Insect and Disease Survey

## USGS 100K Quad: ILWACO - A146124; 1F



Mortality Agents			Other Damaging Agents		
Code	Damaging Agent	Primary Host	Code	Damaging Agent	Primary Host
1	Douglas fir beetle	Douglas fir	AB	Balsam woolly adelgid	True fir
2	Douglas fir engraver	Douglas fir	AM	Leaf discoloration	Maple
3	Spruce beetle	Spruce	BR	Bitter root	Fireweed
4	Fire engraver	True fir	CC	Cystipora canker	True fir
5	Western balsam hawk beetle	Sub-alpine fir	DH	Downy hemlock	Maple
6B	Mountain pine beetle	Whitebark pine	FIRE	Fire	All species
6L	Mountain pine beetle	Lodgepole pine	HDD	Hardwood decline	Hardwoods
6P	Mountain pine beetle	Ponderosa pine	HDD	Hardwood decline	Aspen
6W	Mountain pine beetle	Western white pine	NFN	Arms not flown - non host	Pacific madrone
7	Sp. app.	Ponderosa, lodgepole pines	NFN	Arms not flown - host	Poplar
8	Western pine beetle	Ponderosa pine	PMD	Pacific madrone decline	All species
8B	Western pine beetle	Pine-hazel ponderosa pine	PIE	Leaf fall in poplar	All species
9	Fl. spruce beetle	Douglas fir	RB	Red belt	All species
BEAR	Bear damage	Douglas fir, ponderosa pine	SLD	Slit	All species
FL	Fl. spruce beetle	Douglas fir	WIND	Windthrow	All species
WD	Water damage	Pine/Oak/cedar root disease	WNTR	Winter damage	All species
WATER	Water damage	Canifer			
					All species

Defoliators		
Code	Damaging Agent	Primary Host
BS	Western spruce budworm	True fir, Douglas fir, spruce
CH	Larch casebearer/epidemia	Western larch
LC	Western hemlock looper	Western hemlock
LS	Black pine/velvet scale	Lodgepole pine
PB	Pine budworm	Ponderosa pine
PC	Pine needle cast	Ponderosa pine
PN	Pine needle sheathminer	Ponderosa pine
RC	Needle cast	Western larch
SA	Sawfly	Canifer
SH	Sawfly	True fir
SK	Sawfly	Kobresia pine
SL	Swain moth	Lodgepole pine
SNC	Swain moth	Douglas fir
TA	Tent caterpillar	Canifer
TC	Tent caterpillar	Canifer
UD	Unknown defoliating agent	All species
UNKD	Unknown defoliating agent	All species

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 2012 Aerial Insect and Disease Survey  
 Map Scale: 1:100,000  
 Date: 08 January 2013

### Legend

- Defoliating Agents
- Mortality Agents
- Other Damage
- Areas Not Flown
- WaDNR Managed Lands

Source: Washington Dept. of Natural Resources

The cause of damage is described by a symbol above and is followed by: number of trees affected; number of trees (example: SA) or intensity of damage (L- Light, M- Moderate, H- Heavy).

The TOPO maps used as background maps are seamless, scanned images of United States Geological Survey (USGS) paper topographic maps. For more information on this map, visit them online at: [http://gto.arcgis.com/arcgis/rest/services/USA\\_Topo\\_Maps](http://gto.arcgis.com/arcgis/rest/services/USA_Topo_Maps)

A data dictionary, digital copies of this map and ArcGIS insect and disease data are available at: [www.fs.usda.gov/gto/r6/fhp/ads](http://www.fs.usda.gov/gto/r6/fhp/ads)

### 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.

WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**

OREGON  
DEPARTMENT OF FORESTRY

FOREST SERVICE  
DEPARTMENT OF AGRICULTURE

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) Database, 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/assess/> quality assurance sheet. Maps and data may be updated without notice. Please cite: "USDA Forest Service, Forest Health Protection, Washington Department of Natural Resources, Resource Protection Division, and Oregon Department of Forestry, Forest Health Management" as the source of this data.

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