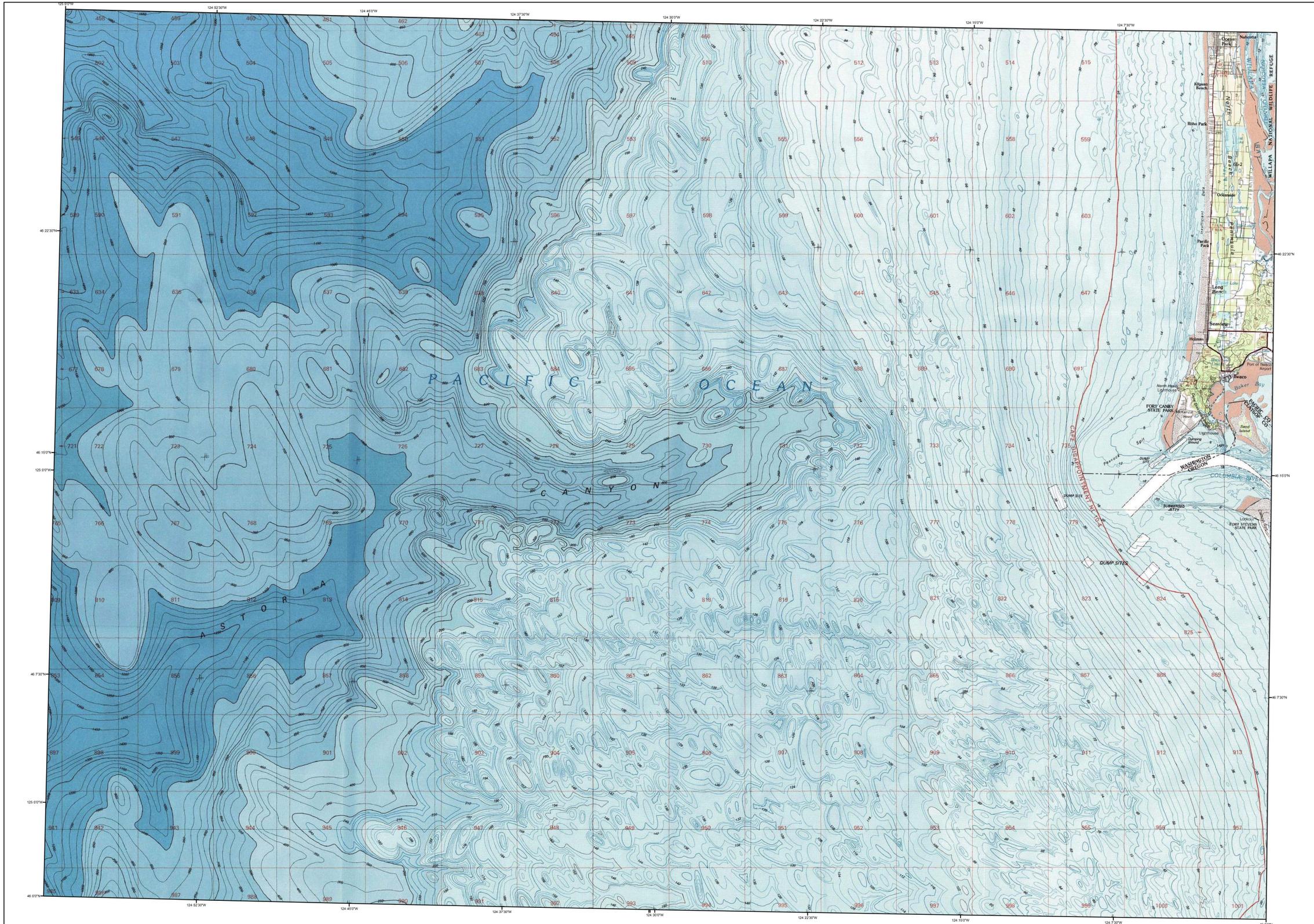


# 2009 Aerial Insect and Disease Survey Ilwaco - USGS 100K Quad E146124; 1F



Defoliators		Mortality Agents			
Code	Damaging Agent	Primary Host	Code	Damaging Agent	Primary Host
AS	Spruce aphid	Sitka spruce	1	Douglas fir beetle	Douglas fir
BB	Western blackheaded budworm	Hemlock, spruce, true fir	2	Douglas fir engraver	Douglas fir
BM	Mudoc budworm	White fir	3	Spruce beetle	Spruce
BS	Sugar pine tortrix	Lodgepole, ponderosa pines	4	Fir engraver	True fir
BP	Western spruce budworm	True fir, Douglas fir, spruce	5	Western balsam bark beetle	Sub-alpine fir
BY	Dynimus's bright/Lophodermella	Ponderosa pine	6	Mountain pine beetle	Whitebark pine
CH	Larch	Western larch	6A	Mountain pine beetle	Knobcone pine
HL	Western hemlock looper	Western hemlock looper	6B	Mountain pine beetle	Lodgepole pine
LG	Green striped forest looper	Douglas fir, Western hemlock	6C	Mountain pine beetle	Ponderosa pine
LL	Larch looper	Western larch	6D	Mountain pine beetle	Sugar pine
LS	Black pine needle scale	Ponderosa pine	6E	Mountain pine beetle	Western white pine
MD	Douglas fir budmoth	Douglas fir	6F	Mountain pine beetle	Ponderosa, lodgepole pines
ML	Larch budmoth	Western larch	6G	Mountain pine beetle	Silver fir, true fir
MN	Douglas fir needle midge	Douglas fir	7	Western white pine	Pole-sitad ponderosa pine
MS	Spruce budmoth	Spruce	8	Western white pine	Western white pine
ND	Needle miner	Jeffrey pine	8A	Western white pine	Ponderosa, lodgepole pines
NJ	Needle miner	Jeffrey pine	8B	Western white pine	Ponderosa, lodgepole pines
NK	Needle miner	Knobcone pine	8C	Western white pine	Ponderosa, lodgepole pines
NL	Needle miner	Lodgepole pine	8D	Western white pine	Ponderosa, lodgepole pines
NI	Needle miner	Conifer	8E	Western white pine	Ponderosa, lodgepole pines
NP	Needle miner	Ponderosa pine	8F	Western white pine	Ponderosa, lodgepole pines
NS	Needle miner	Sugar pine	8G	Western white pine	Ponderosa, lodgepole pines
NT	Needle miner	True fir	8H	Western white pine	Ponderosa, lodgepole pines
NW	Needle miner	Western white pine	8I	Western white pine	Ponderosa, lodgepole pines
OL	Western oak looper	Oaks	8J	Western white pine	Ponderosa, lodgepole pines
OB	Pine butterfly	Ponderosa pine	8K	Western white pine	Ponderosa, lodgepole pines
OC	Pine needle cast	Ponderosa pine	8L	Western white pine	Ponderosa, lodgepole pines
PH	Phantom hemlock looper	Hemlock, Douglas fir	8M	Western white pine	Ponderosa, lodgepole pines
PI	Pine moth	Ponderosa, Jeffrey pines	8N	Western white pine	Ponderosa, lodgepole pines
PN	Pine needles/health miner	Ponderosa, Jeffrey pines	8O	Western white pine	Ponderosa, lodgepole pines
PR	Pine needle scale	Ponderosa pine	8P	Western white pine	Ponderosa, lodgepole pines
RC	Needle cast	Western larch	8Q	Western white pine	Ponderosa, lodgepole pines
S	Spindle mite	Conifer	8R	Western white pine	Ponderosa, lodgepole pines
SA	Sawfly	Conifer	8S	Western white pine	Ponderosa, lodgepole pines
SD	Sawfly	Conifer	8T	Western white pine	Ponderosa, lodgepole pines
SE	Sawfly	Conifer	8U	Western white pine	Ponderosa, lodgepole pines
SH	Sawfly	Hemlock	8V	Western white pine	Ponderosa, lodgepole pines
SK	Sawfly	Knobcone pine	8W	Western white pine	Ponderosa, lodgepole pines
SL	Sawfly	Lodgepole pine	8X	Western white pine	Ponderosa, lodgepole pines
SM	Satin moth	Anderson	8Y	Western white pine	Ponderosa, lodgepole pines
SN	Swiss needle cast	Douglas fir	8Z	Western white pine	Ponderosa, lodgepole pines
SP	Sawfly	Ponderosa pine	8AA	Western white pine	Ponderosa, lodgepole pines
SW	Sawfly	Western larch	8AB	Western white pine	Ponderosa, lodgepole pines
TA	Tent caterpillar, alder	Alder	8AC	Western white pine	Ponderosa, lodgepole pines
TC	Tent caterpillar, other	Hardwoods	8AD	Western white pine	Ponderosa, lodgepole pines
TM	Douglas fir tussock moth	True fir, Douglas fir	8AE	Western white pine	Ponderosa, lodgepole pines
TS	Tent caterpillar, aspen	Aspen	8AF	Western white pine	Ponderosa, lodgepole pines

**USGS 100K Quad - Ilwaco; E146124; 1F**  
**2009 Aerial Insect and Disease Detection Survey**  
**Mapscale: 1:100,000**  
**Date: January 12, 2010**

## Legend

- Defoliating Agents
- Mortality Agents
- Other Damage
- WaDNR Managed Lands

Vicinity Map

The map base was created with TOPOI (Copyright 2001, National Geographic); available online at: [www.ngmapstore.com](http://www.ngmapstore.com)

A data dictionary, digital copies of this map and ArcGIS insect and disease data are available at: [www.fs.fed.us/r6/nr/fid/data.shtml](http://www.fs.fed.us/r6/nr/fid/data.shtml)

### 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 and the Washington Department of Natural Resources. 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.

**DIRECT ALL INQUIRIES TO:**

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

-- OR --

USDA Forest Service, Region 6  
 Natural Resources  
 Forest Health Protection  
 PO Box 3623  
 Portland, Oregon 97208

DISCLAIMER  
 Forest Health Protection (FHP) and Washington Department of Natural Resources (WDNR) strive to maintain an accurate Aerial Detection Survey (ADS) Dataset, but due to the conditions under which the data are collected, FHP and WDNR 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/operations/ads/ads.htm>  
 Maps and data may be updated without notice. Please cite USDA Forest Service, Forest Health Protection and Washington Department of Natural Resources, Resource Protection Division, Forest Health, as the source of this data in maps and publications.