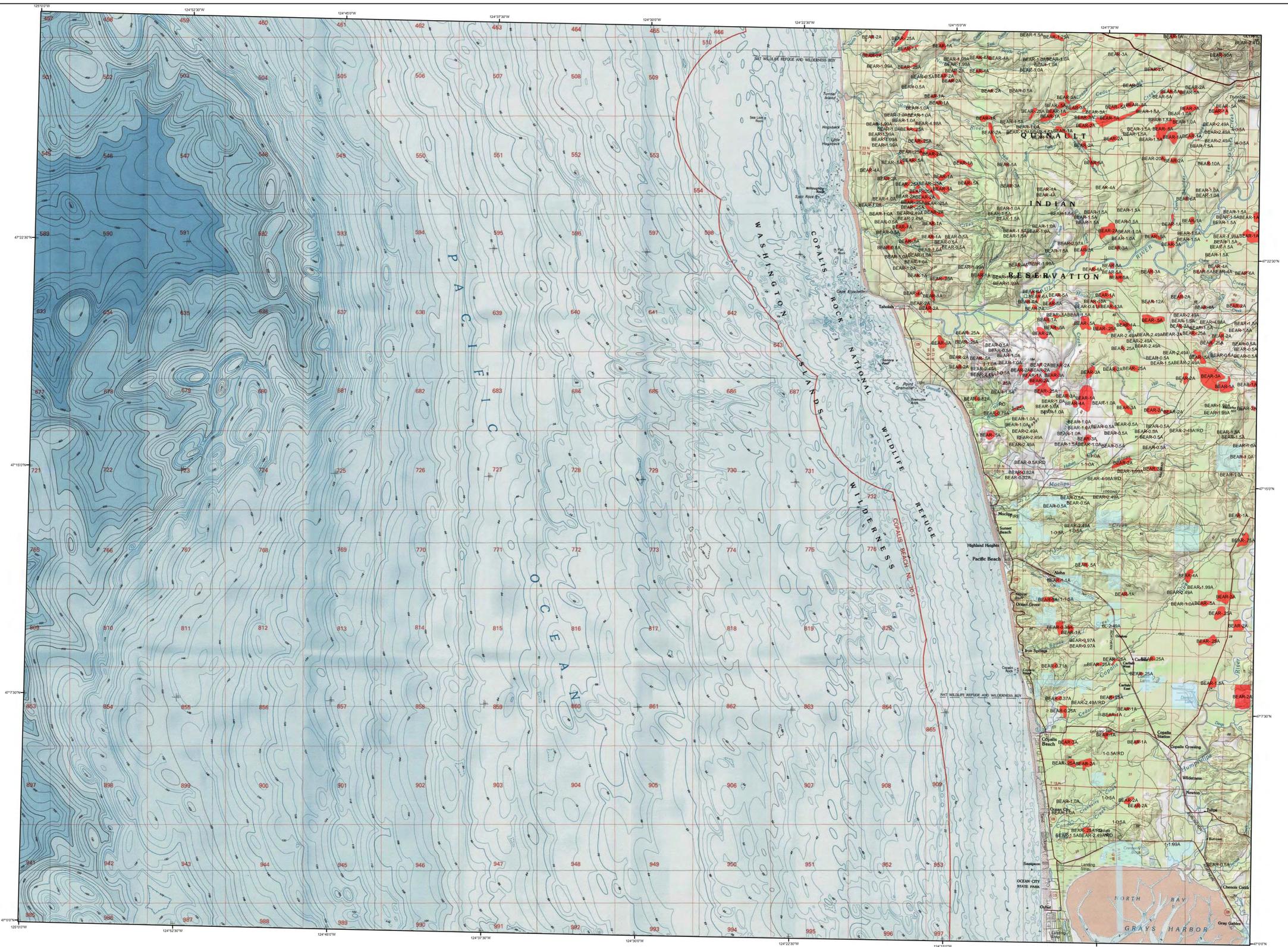


2011 Aerial Insect and Disease Survey

USGS 100K Quad: COPALIS BEACH - A147124; 1D



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	AC	Cooley spruce gall adelgid	Spruce, Douglas fir
3	Spineless knitter	Spineless	AD	Leaf-miner	Maple
4	Pit engraver	True fir	AE	Leaf-tying sawfly	True fir
5	Western balsam bark beetle	Sub-alpine fir	AF	Chrysomelid canker	True fir
6B	Mountain pine beetle	Whitebark pine	AG	Brister rust	True fir
6L	Mountain pine beetle	Lodgepole pine	AI	Leaf-tying sawfly	True fir
6P	Mountain pine beetle	Ponderosa pine	AK	Fire	All species
6S	Mountain pine beetle	Sugar pine	AL	Hardwood decline	Hardwoods
6W	Mountain pine beetle	Western white pine	AM	Hardwood decline	Hardwoods
7	Sit spruce	Ponderosa pine	AN	Arabis root borer - host	Aspen
8	Western pine beetle	Pine-needle ponderosa pine	AO	Arabis root borer - non host	Oak
9	Western pine beetle	Pine-needle ponderosa pine	AP	Pacific madrone decline	Pacific madrone
9A	Bear damage	Conifer	AR	Rust	Maple
9B	Fire	Conifer	AS	Rust	All species
9C	Flameweed woodborer	Douglas fir	AT	Winter damage	All species
9D	Black stem root disease	Douglas fir	AW	Winter damage	All species
9E	Pine bark beetle	Conifer	AX	Winter damage	All species
9F	Water Damage	Conifer	AY	Winter damage	All species

Defoliators		
Code	Damaging Agent	Primary Host
BS	Western spruce budworm	True fir, Douglas fir, spruce
CH	Larch casebearer/typhlocyba	Western larch
CL	Western hemlock looper	Western hemlock
LD	Needle cast	Lodgepole pine
LS	Black pine leaf scale	Ponderosa pine
ML	Larch tussock moth	Western larch
PL	Pine tussock moth	Ponderosa pine
PC	Pine needle cast	Ponderosa pine
HC	Needle cast	Western larch
SP	Sawfly	True fir
SH	Sawfly	Aspen
SM	Satin moth	Douglas fir
SN	Swain needle cast	Ponderosa pine
SP	Sawfly	Ponderosa pine
TA	Tent caterpillar, alder	Alder
TM	Douglas fir tussock moth	Truefir, Douglas fir

USGS 100K Quad: COPALIS BEACH - A147124; 1D
 2011 Aerial Insect and Disease Survey
 Map Scale: 1:100,000
 Date: 13 December 2011

Legend

- Defoliating Agents
- Mortality Agents
- Other Damage
- WaDNR Managed Lands
- Areas Not Flown
- 2011 Large Fires

Source: Northwest Interagency Coordination Center

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 TOPOI maps are seamless, scanned images of United States Geological Survey (USGS) paper topographic maps. For more information on this map, visit us online at http://gto.arcgis.com/maps/USA_Topo_Maps

A data dictionary, digital copies of this map and Arctis insect and disease data are available at: 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.

DIRECT ALL INQUIRIES TO:

Washington State Department of Natural Resources
 Resource Protection Division
 Forest Health
 1111 Washington St. SE
 MS 47037
 Olympia, WA 98504-7037

-- OR --

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

DISCLAIMER
 Forest Health Protection (FHP), Washington Department of Natural Resources (WONR) 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, WONR 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/ads/>