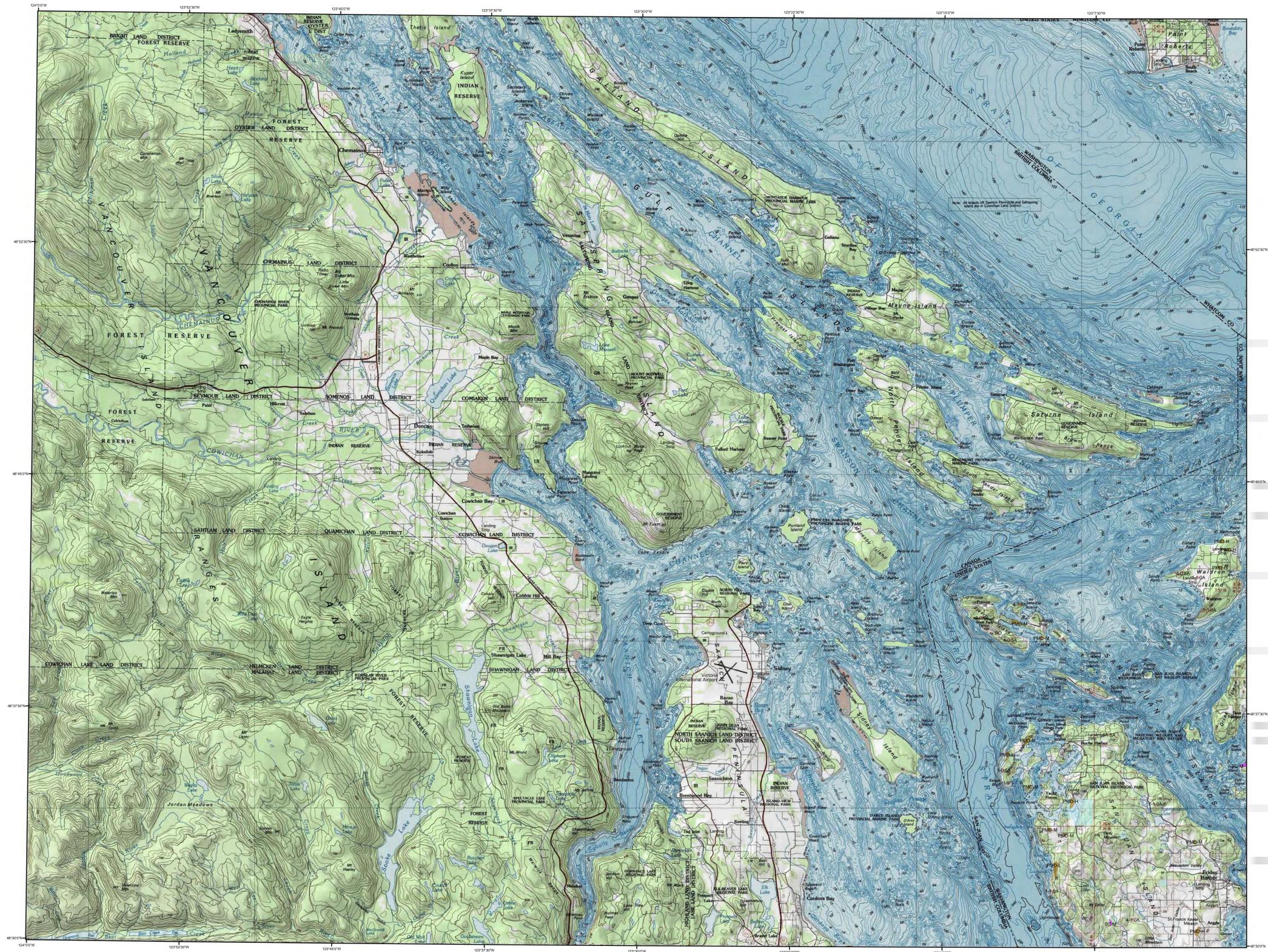


2012 Aerial Insect and Disease Survey

USGS 100K Quad: ROCHE HARBOR - E148123; 2A



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	Spine beetle	Spine	BR	Bitter rot	Pine needles
4	Fir engraver	Sub-spruce fir	CC	Cystipora canker	True fir
5	Western balsam bark beetle	Sub-spruce fir	CH	Chytrium canker	Hemlock
6B	Mountain pine beetle	Whitebark pine	FIRE	Fire	All species
6L	Mountain pine beetle	Lodgepole pine	HDA	Heartwood decline	Heartwoods
6P	Mountain pine beetle	Ponderosa pine	HDD	Heartwood decline	Aspen
6S	Mountain pine beetle	Sugar pine	NFN	Areas not flown - non host	Oak
6W	Mountain pine beetle	Western white pine	NFN	Areas not flown - non host	
7	Loose bark	Ponderosa, lodgepole pines	NFN	Areas not flown - host	Pacific madrone
8	Western pine beetle	Pine	PMD	Pacific madrone decline	Maples
9	Western pine beetle	Pine	PR	Red ball	All species
BEAR	Bear damage	Douglas fir, true fir	SLD	Slit	All species
FL	Flattened woodborer	Douglas fir, ponderosa pine	WIND	Windthrow	All species
RD	Root disease	Pine	WDR	Water damage	All species
WATER	Water damage	Conifer			

Defoliators	
Code	Damaging Agent
BS	Western spruce budworm
CH	Larva casebearer/budworm
LC	Needle cast
LS	Black pine/needle scale
PS	Pine bark scale
PC	Pine needle scale
PN	Pine needle sheath
RC	Needle cast
SA	Sawfly
SF	Sawfly
SH	Sawfly
SK	Sawfly
SL	Sawfly
SM	Sawfly
SN	Sawfly
TC	Tent caterpillar
TR	Douglas fir trunk moth
UNKD	Unknown defoliating agent

USGS 100K Quad: ROCHE HARBOR - E148123; 2A
 2012 Aerial Insect and Disease Survey
 Map Scale: 1:100,000
 Date: 12 December 2012

Legend

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

Source: Washington Dept. of Natural Resources

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://goto.arcgisonline.com/maps/USA_Topo_Maps

A data dictionary, digital copies of this map and ArcGIS insect and disease data are available at: www.fs.usda.gov/goto/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
 State and Private Forestry
 Forest Health Protection
 PO Box 3623
 Portland, Oregon 97208

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) Database, 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.usda.gov/foresthealth/operations/qualityassurance.shtml>. 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.