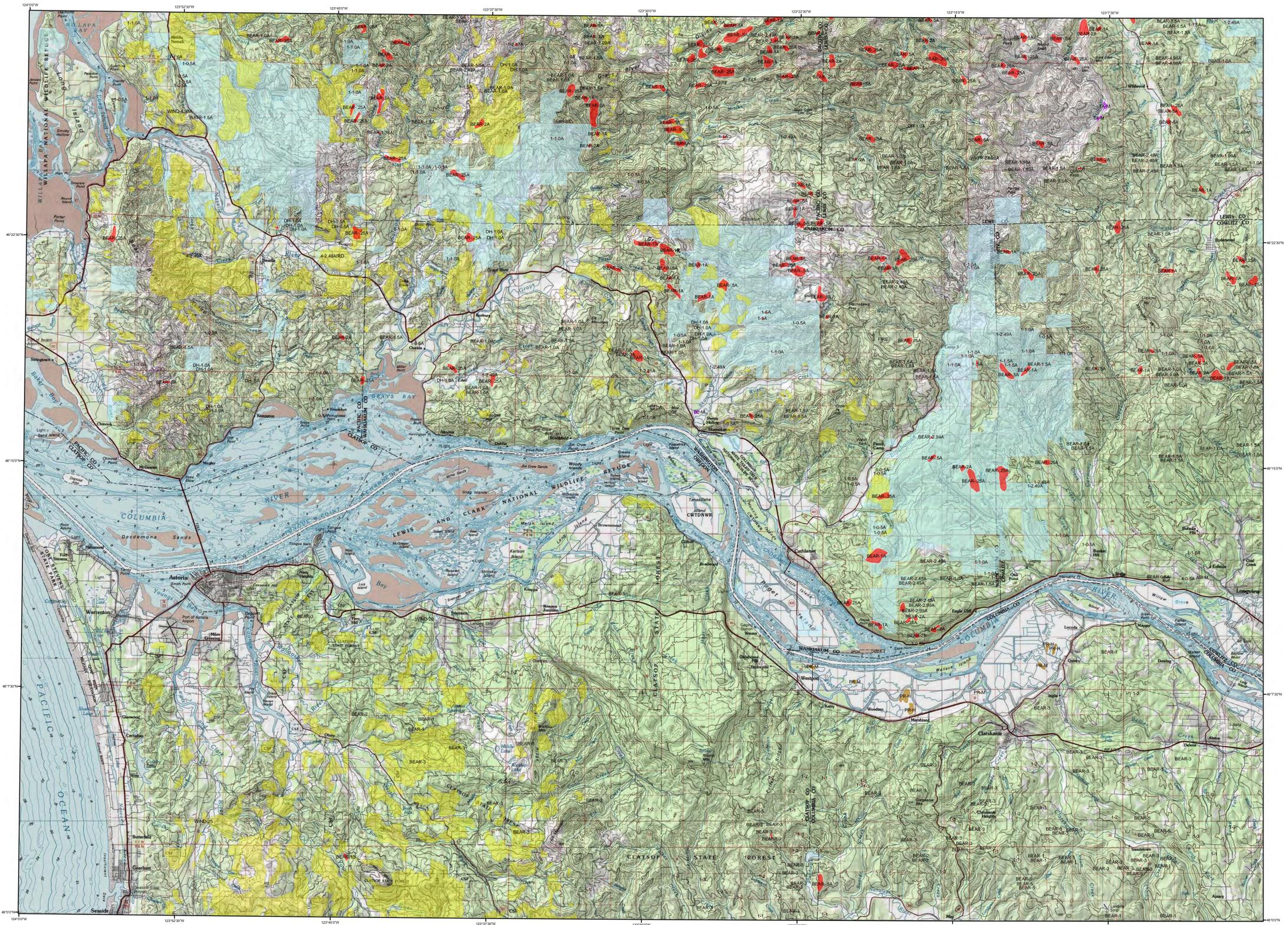


2012 Aerial Insect and Disease Survey

USGS 100K Quad: ASTORIA - A146123; 2F



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, Douglas fir, spruce
2	Douglas fir engraver	Douglas fir	AM	Leaf discoloration	Maple
3	Spruce beetle	Spruce	BR	Bitter rot	Fireweed pines
4	Fir engraver	Douglas fir	CC	Cystipora canker	True fir
5	Western balsam hawk beetle	Subalpine fir	CH	Cherry hornet	Hemlock
6B	Mountain pine beetle	Whitebark pine	FIRE	Fire	All species
6L	Mountain pine beetle	Lodgepole pine	HDA	Hardwood decline	Hardwoods
6P	Mountain pine beetle	Ponderosa pine	HDD	Hardwood decline	Alpine Oak
6W	Mountain pine beetle	Western white pine	NFN	Areas not flown - non host	
7	Tip top	Ponderosa, lodgepole pines	NFN	Areas not flown - host	Pacific madrone
8	Western pine beetle	Ponderosa pine	PMD	Pacific madrone decline	Poplars
8B	Western pine beetle	Pine-hickory ponderosa pine	PK	Leaf fall in poplars	All species
9	Bear damage	Douglas fir, ponderosa pine	RB	Red ball	All species
FL	Flamehead woodborer	Port Orford cedar	SAD	Silks	All species
RD	Root disease	Conifer	WIND	Windthrow	All species
WTR	Water damage	All species	WTR	Water damage	All species

Defoliators		
Code	Damaging Agent	Primary Host
BS	Western spruce budworm	True fir, Douglas fir, spruce
CH	Larch casebearer/typhlocyba	Western larch
LC	Western hemlock looper	Western hemlock
LS	Black pine/needle 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	Conifer
SH	Sawfly	True fir
SK	Sawfly	Kroonrose pine
SL	Sawfly	Lodgepole pine
SNC	Sitka spruce	Lodgepole pine
TC	Tree collar/rot	Douglas fir
TC	Tree collar/rot	Douglas fir
UNKD	Unknown defoliating agent	All species

USGS 100K Quad: ASTORIA - A146123; 2F
 2012 Aerial Insect and Disease Survey
 Map Scale: 1:100,000
 Date: 08 January 2013

Legend

- Defoliating Agents
- Mortality Agents
- Other Damage
- 2012 Special Swiss Needle Cast Survey
- 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/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/rhp/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. Separate surveys, such as Swiss needle cast surveys, are conducted when resources are available to address situations of sufficient economic, political or environmental importance.

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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) 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/ads/> 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.