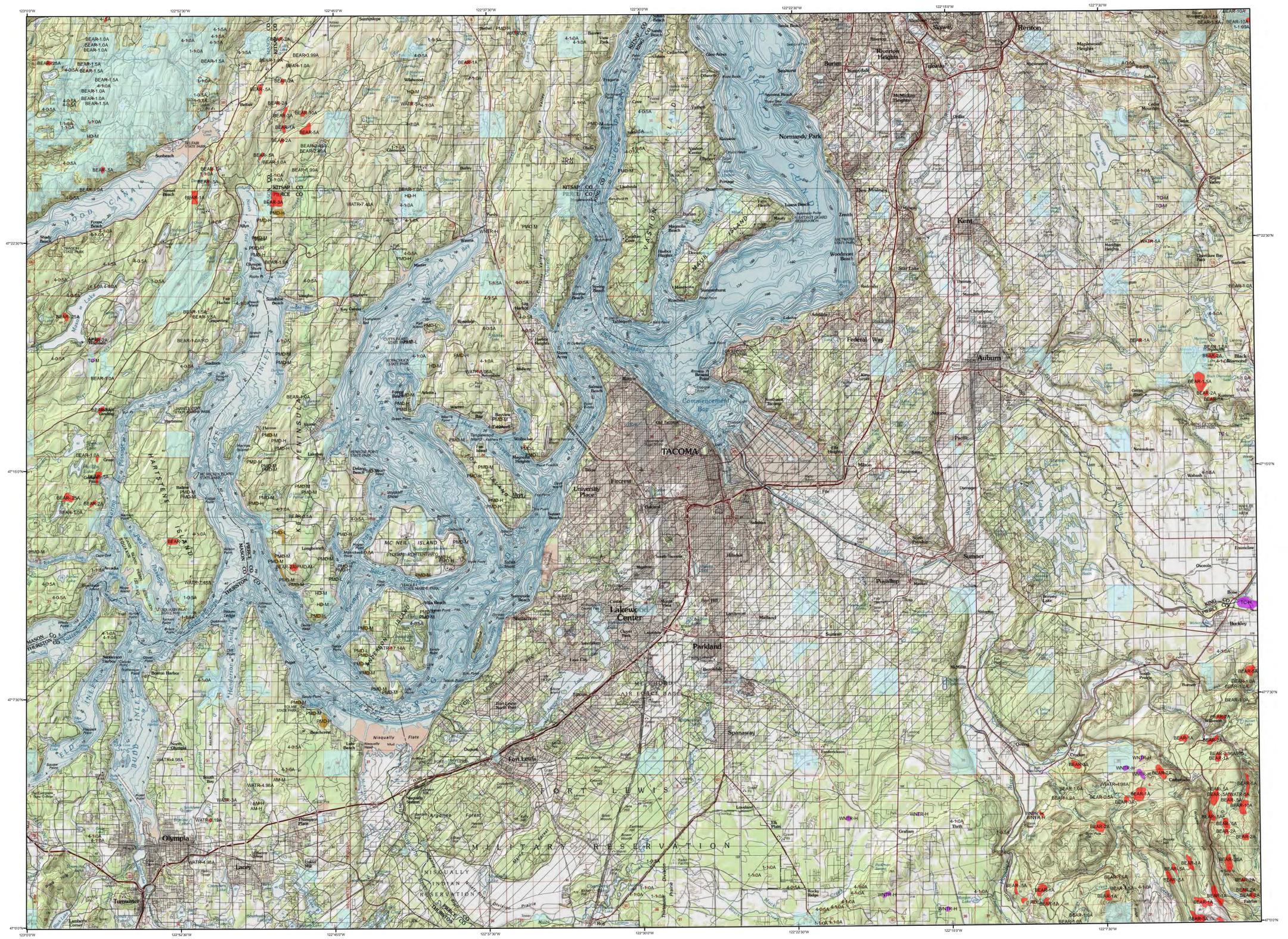


2012 Aerial Insect and Disease Survey

USGS 100K Quad: TACOMA - A147122; 3D



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	Bitter root	BR	Bitter root	Pine needles
4	Fir engraver	Subalpine fir	CC	Cystipora canker	True fir
5	Western balsam bark beetle	Subalpine fir	DH	Dying hemlock	Hemlock
6B	Mountain pine beetle	Whitebark pine	FIRE	Fire	All species
6L	Mountain pine beetle	Lodgepole pine	HDD	Hardwood decline	Hemlock
6P	Mountain pine beetle	Ponderosa pine	HDD	Hardwood decline	Aspen
6W	Mountain pine beetle	Sugar pine	NFN	Areas not flown - non host	Oak
7	Western white pine	Ponderosa, lodgepole pines	NFN	Areas not flown - host	Pacific madrone
8	Western pine beetle	Pine-stem ponderosa pine	PMD	Pacific madrone dieback	Poplar
9B	Western pine beetle	Pine-stem ponderosa pine	PIE	Leaf roll in poplar	Poplar
9L	Western pine beetle	Pine-stem ponderosa pine	PIE	Leaf roll in poplar	Poplar
9W	Western pine beetle	Pine-stem ponderosa pine	PIE	Leaf roll in poplar	Poplar
BEAR	Bear damage	Silver fir, true fir	SAD	Shade	All species
FL	Flattened woodborer	Douglas fir, ponderosa pine	WIND	Windthrow	All species
RD	Root collar root disease	Port Orford cedar	WTR	Water damage	All species
WD	Water damage	Conifer			
WTR	Water damage	All species			

Defoliators		
Code	Damaging Agent	Primary Host
BS	Western spruce budworm	True fir, Douglas fir, spruce
CH	Larch casebearer/podometrid	Western larch
HL	Western hemlock looper	Western hemlock
LC	Needle cast	Lodgepole pine
LS	Black pine/needle scale	Ponderosa pine
PE	Pine needle scale	Ponderosa pine
PC	Pine needle cast	Ponderosa pine
PN	Pine needle sheathminer	Ponderosa pine
NC	Needle cast	Western larch
SA	Sawfly	Conifer
SP	Sawfly	True fir
SK	Sawfly	Conifer
SK	Sawfly	Koboocone pine
SL	Sawfly	Lodgepole pine
SM	Satin moth	Aspen
SNC	Swain needle cast	Douglas fir
TA	Tent caterpillar	Aspen
TC	Tent caterpillar	Western larch
TM	Douglas fir tussock moth	True fir, Douglas fir
UNWD	Unknown defoliating agent	All species

USGS 100K Quad: TACOMA - A147122; 3D
2012 Aerial Insect and Disease Survey
Map Scale: 1:100,000
Date: 11 December 2012

Legend

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

Source: Washington Dept. of Natural Resources

The TOPO! 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:

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 State and Private Forestry
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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.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.