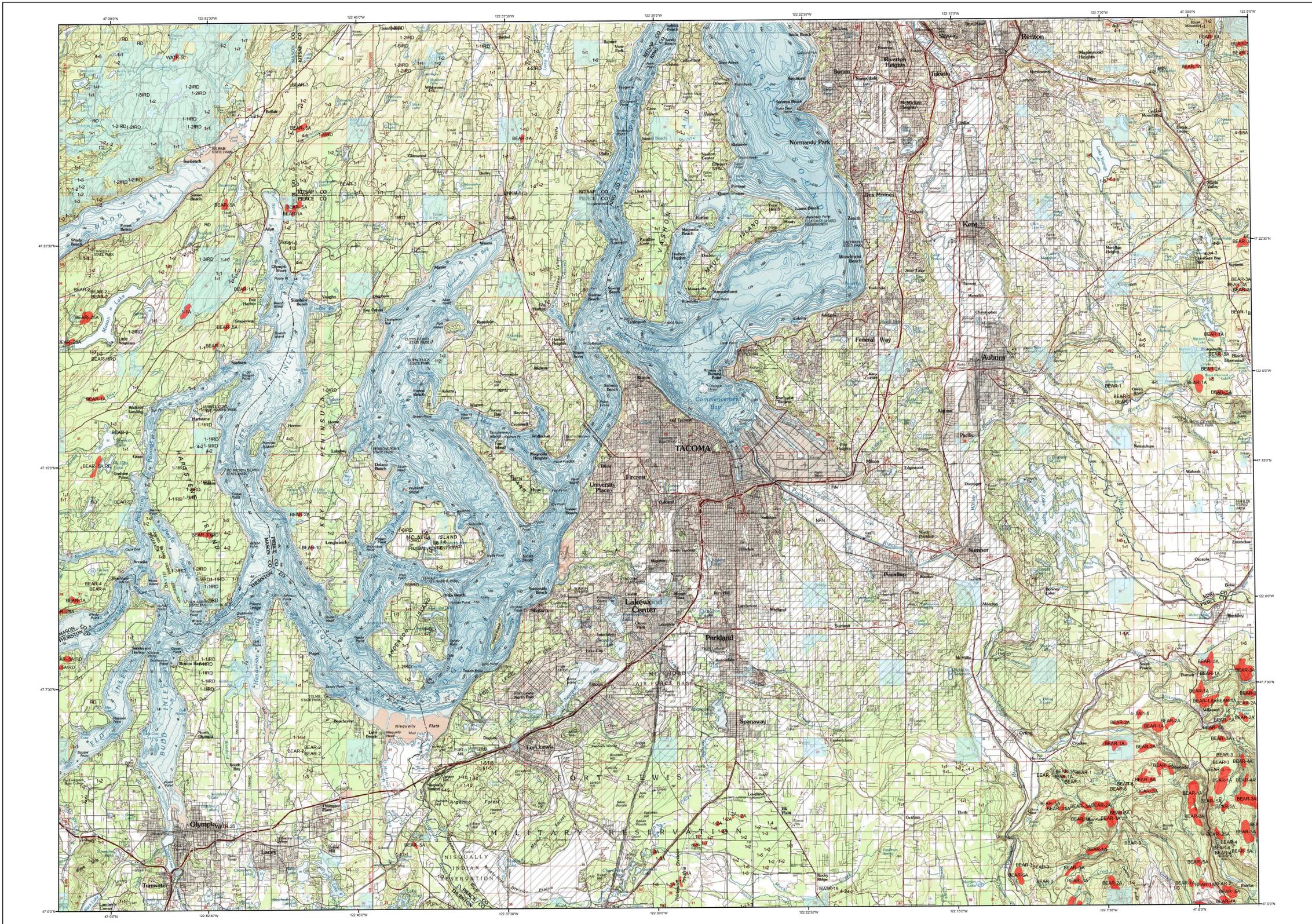


# 2009 Aerial Insect and Disease Survey

## USGS 100K Quad: Tacoma - A147122; 3D



Defoliators		Mortality Agents	
Code	Damaging Agent	Code	Damaging Agent
AS	Spruce aphid	1	Douglas-fir beetle
BB	Western blackheaded budworm	2	Douglas-fir engraver
BM	Motid budworm	3	Spruce beetle
BP	Sugar pine tortrix	4	Fire engraver
BS	Western spruce budworm	5	Western balsam bark beetle
BY	Bynum's blight/lophodermella	6B	Mountain pine beetle
CH	Larch	6C	Mountain pine beetle
HL	Western hemlock looper	6L	Mountain pine beetle
LG	Green striped forest looper	6P	Ponderosa pine beetle
LL	Larch looper	6S	Mountain pine beetle
LS	Black pine needle scale	6W	Western white pine
ML	Larch budmoth	7	Uls spp.
MN	Douglas-fir needle midge	8	Western pine beetle
MS	Spruce budmoth	9	Bear damage
NJ	Needle miner	LD	Black stain root disease
NK	Needle miner	LD	Port Orford cedar root disease
NL	Needle miner	RD	Root disease
NI	Needle miner	WTR	Water damage
NP	Needle miner		
NS	Needle miner		
NT	Needle miner		
OL	Western oak looper		
PB	Pine butterfly		
PC	Pine needle cast		
PH	Phantom hemlock looper		
PI	Pine needle scale		
PN	Pine needle sheath miner		
PS	Needle scale		
RC	Needle cast		
S	Sucker mite		
SA	Sawfly		
SD	Sawfly		
SE	Sawfly		
SH	Sawfly		
SK	Sawfly		
SL	Sawfly		
SM	Satin moth		
SN	Swiss needle cast		
SP	Sawfly		
SW	Sawfly		
TA	Tent caterpillar, alder		
TC	Tent caterpillar, other		
TD	Douglas-fir bark moth		
TS	Tent caterpillar, aspen		

USGS 100K Quad: Tacoma - A147122; 3D  
 2009 Aerial Insect and Disease Detection Survey  
 Mapscale: 1:100,000  
 Date: January 20, 2010

### Legend

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

Source: Washington Dept. of Natural Resources

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

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 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/avistat/qualityassurance.shtml>  
 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.