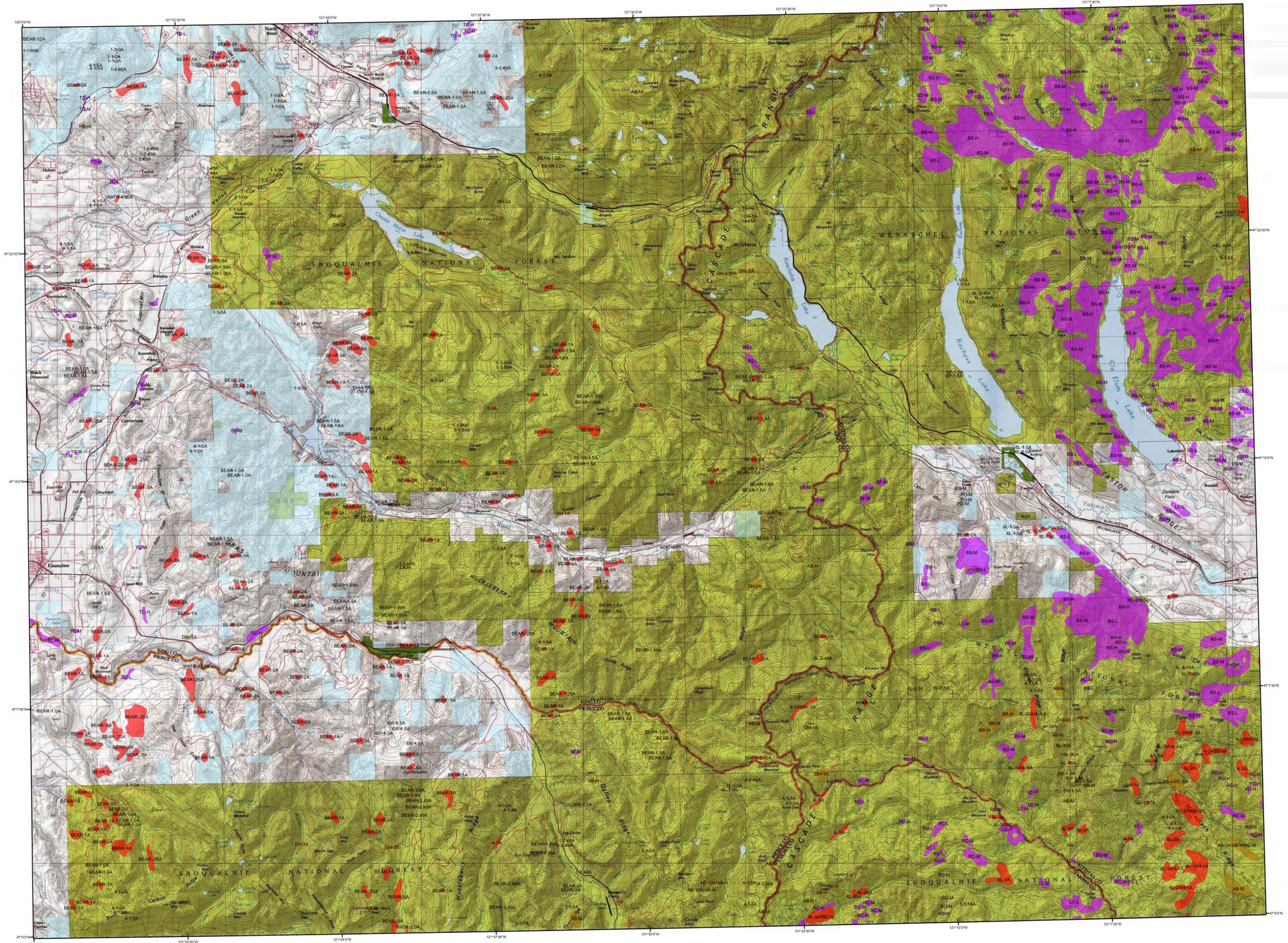


2012 Aerial Insect and Disease Survey

USGS 100K Quad: SNOQUALMIE PASS - A147121; 4D



| 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/cedar |
| 4 | Fir engraver | True fir | CC | Cystipora canker | True fir |
| 5 | Western balsam bark beetle | Subalpine fir | CH | Cherry neckrot | 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 |
| 6S | Mountain pine beetle | Sugar pine | HDD | Hardwood decline | Oak |
| 6W | Mountain pine beetle | Western white pine | NFN | Areas not flown - non host | |
| 7 | Incense cedar bark beetle | Pseudotsuga | NFN | Areas not flown - host | |
| 8 | Western pine beetle | Ponderosa pine | PMD | Pacific madrone decline | Pacific madrone |
| 9 | Western pine beetle | Pine-nut pine | PR | Leaf roll in Douglas fir | Douglas fir |
| 10 | Western pine beetle | Shiner fir, true fir | SLD | Shelf rot | All species |
| 11 | Bear damage | Douglas fir, ponderosa pine | WB | Windthrow | All species |
| 12 | Flame-weed woodborer | Pine-Oak-root disease | WDR | Water damage | All species |
| 13 | Root collar rot disease | Conifer | WDR | Water damage | All species |
| 14 | Root disease | Conifer | | | |
| 15 | Water damage | All species | | | |

| Defoliators | | |
|-------------|------------------------------|-------------------------------|
| Code | Damaging Agent | Primary Host |
| BS | Western spruce budworm | True fir, Douglas fir, spruce |
| CH | Larva casebearer/needleminer | Western larch |
| LC | Western hemlock looper | Western hemlock |
| LS | Black pine/needle scale | Ponderosa pine |
| PC | Pine needle cast | Ponderosa pine |
| PN | Pine needle cast | Ponderosa pine |
| SA | Needle cast | Western larch |
| SK | Needle cast | Conifer |
| SM | Needle cast | True fir |
| SN | Needle cast | Conifer |
| SP | Needle cast | Conifer |
| SR | Needle cast | Conifer |
| SS | Needle cast | Conifer |
| ST | Needle cast | Conifer |
| SW | Needle cast | Conifer |
| SY | Needle cast | Conifer |
| TA | Needle cast | Conifer |
| TC | Needle cast | Conifer |
| TD | Needle cast | Conifer |
| TE | Needle cast | Conifer |
| TF | Needle cast | Conifer |
| TG | Needle cast | Conifer |
| TH | Needle cast | Conifer |
| TI | Needle cast | Conifer |
| TJ | Needle cast | Conifer |
| TK | Needle cast | Conifer |
| TL | Needle cast | Conifer |
| TM | Needle cast | Conifer |
| TN | Needle cast | Conifer |
| TO | Needle cast | Conifer |
| TP | Needle cast | Conifer |
| TQ | Needle cast | Conifer |
| TR | Needle cast | Conifer |
| TS | Needle cast | Conifer |
| TT | Needle cast | Conifer |
| TU | Needle cast | Conifer |
| TV | Needle cast | Conifer |
| TW | Needle cast | Conifer |
| TX | Needle cast | Conifer |
| TY | Needle cast | Conifer |
| TZ | Needle cast | Conifer |
| UA | Needle cast | Conifer |
| UB | Needle cast | Conifer |
| UC | Needle cast | Conifer |
| UD | Needle cast | Conifer |
| UE | Needle cast | Conifer |
| UF | Needle cast | Conifer |
| UG | Needle cast | Conifer |
| UH | Needle cast | Conifer |
| UI | Needle cast | Conifer |
| UJ | Needle cast | Conifer |
| UK | Needle cast | Conifer |
| UL | Needle cast | Conifer |
| UM | Needle cast | Conifer |
| UN | Needle cast | Conifer |
| UO | Needle cast | Conifer |
| UP | Needle cast | Conifer |
| UQ | Needle cast | Conifer |
| UR | Needle cast | Conifer |
| US | Needle cast | Conifer |
| UT | Needle cast | Conifer |
| UU | Needle cast | Conifer |
| UV | Needle cast | Conifer |
| UW | Needle cast | Conifer |
| UX | Needle cast | Conifer |
| UY | Needle cast | Conifer |
| UZ | Needle cast | Conifer |
| VA | Needle cast | Conifer |
| VB | Needle cast | Conifer |
| VC | Needle cast | Conifer |
| VD | Needle cast | Conifer |
| VE | Needle cast | Conifer |
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| VS | Needle cast | Conifer |
| VT | Needle cast | Conifer |
| VU | Needle cast | Conifer |
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| VW | Needle cast | Conifer |
| VX | Needle cast | Conifer |
| VY | Needle cast | Conifer |
| VZ | Needle cast | Conifer |
| WA | Needle cast | Conifer |
| WB | Needle cast | Conifer |
| WC | Needle cast | Conifer |
| WD | Needle cast | Conifer |
| WE | Needle cast | Conifer |
| WF | Needle cast | Conifer |
| WG | Needle cast | Conifer |
| WH | Needle cast | Conifer |
| WI | Needle cast | Conifer |
| WJ | Needle cast | Conifer |
| WK | Needle cast | Conifer |
| WL | Needle cast | Conifer |
| WM | Needle cast | Conifer |
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| WO | Needle cast | Conifer |
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| WQ | Needle cast | Conifer |
| WR | Needle cast | Conifer |
| WS | Needle cast | Conifer |
| WT | Needle cast | Conifer |
| WU | Needle cast | Conifer |
| WV | Needle cast | Conifer |
| WW | Needle cast | Conifer |
| WX | Needle cast | Conifer |
| WY | Needle cast | Conifer |
| WZ | Needle cast | Conifer |
| XA | Needle cast | Conifer |
| XB | Needle cast | Conifer |
| XC | Needle cast | Conifer |
| XD | Needle cast | Conifer |
| XE | Needle cast | Conifer |
| XF | Needle cast | Conifer |
| XG | Needle cast | Conifer |
| XH | Needle cast | Conifer |
| XI | Needle cast | Conifer |
| XJ | Needle cast | Conifer |
| XK | Needle cast | Conifer |
| XL | Needle cast | Conifer |
| XM | Needle cast | Conifer |
| XN | Needle cast | Conifer |
| XO | Needle cast | Conifer |
| XP | Needle cast | Conifer |
| XQ | Needle cast | Conifer |
| XR | Needle cast | Conifer |
| XS | Needle cast | Conifer |
| XT | Needle cast | Conifer |
| XU | Needle cast | Conifer |
| XV | Needle cast | Conifer |
| XW | Needle cast | Conifer |
| XX | Needle cast | Conifer |
| XY | Needle cast | Conifer |
| XZ | Needle cast | Conifer |
| YA | Needle cast | Conifer |
| YB | Needle cast | Conifer |
| YC | Needle cast | Conifer |
| YD | Needle cast | Conifer |
| YE | Needle cast | Conifer |
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| YM | Needle cast | Conifer |
| YN | Needle cast | Conifer |
| YO | Needle cast | Conifer |
| YP | Needle cast | Conifer |
| YQ | Needle cast | Conifer |
| YR | Needle cast | Conifer |
| YS | Needle cast | Conifer |
| YT | Needle cast | Conifer |
| YU | Needle cast | Conifer |
| YV | Needle cast | Conifer |
| YW | Needle cast | Conifer |
| YX | Needle cast | Conifer |
| YY | Needle cast | Conifer |
| YZ | Needle cast | Conifer |
| ZA | Needle cast | Conifer |
| ZB | Needle cast | Conifer |
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| ZE | Needle cast | Conifer |
| ZF | Needle cast | Conifer |
| ZG | Needle cast | Conifer |
| ZH | Needle cast | Conifer |
| ZI | Needle cast | Conifer |
| ZJ | Needle cast | Conifer |
| ZK | Needle cast | Conifer |
| ZL | Needle cast | Conifer |
| ZM | Needle cast | Conifer |
| ZN | Needle cast | Conifer |
| ZO | Needle cast | Conifer |
| ZP | Needle cast | Conifer |
| ZQ | Needle cast | Conifer |
| ZR | Needle cast | Conifer |
| ZS | Needle cast | Conifer |
| ZT | Needle cast | Conifer |
| ZU | Needle cast | Conifer |
| ZV | Needle cast | Conifer |
| ZW | Needle cast | Conifer |
| ZX | Needle cast | Conifer |
| ZY | Needle cast | Conifer |
| ZZ | Needle cast | Conifer |

USGS 100K Quad: SNOQUALMIE PASS - A147121; 4D
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
- 2012 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: SA1 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 Arctics insect and disease data are available at: www.fs.usda.gov/gto/r/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

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) 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.fed.us/foresthealth/operations/> 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.