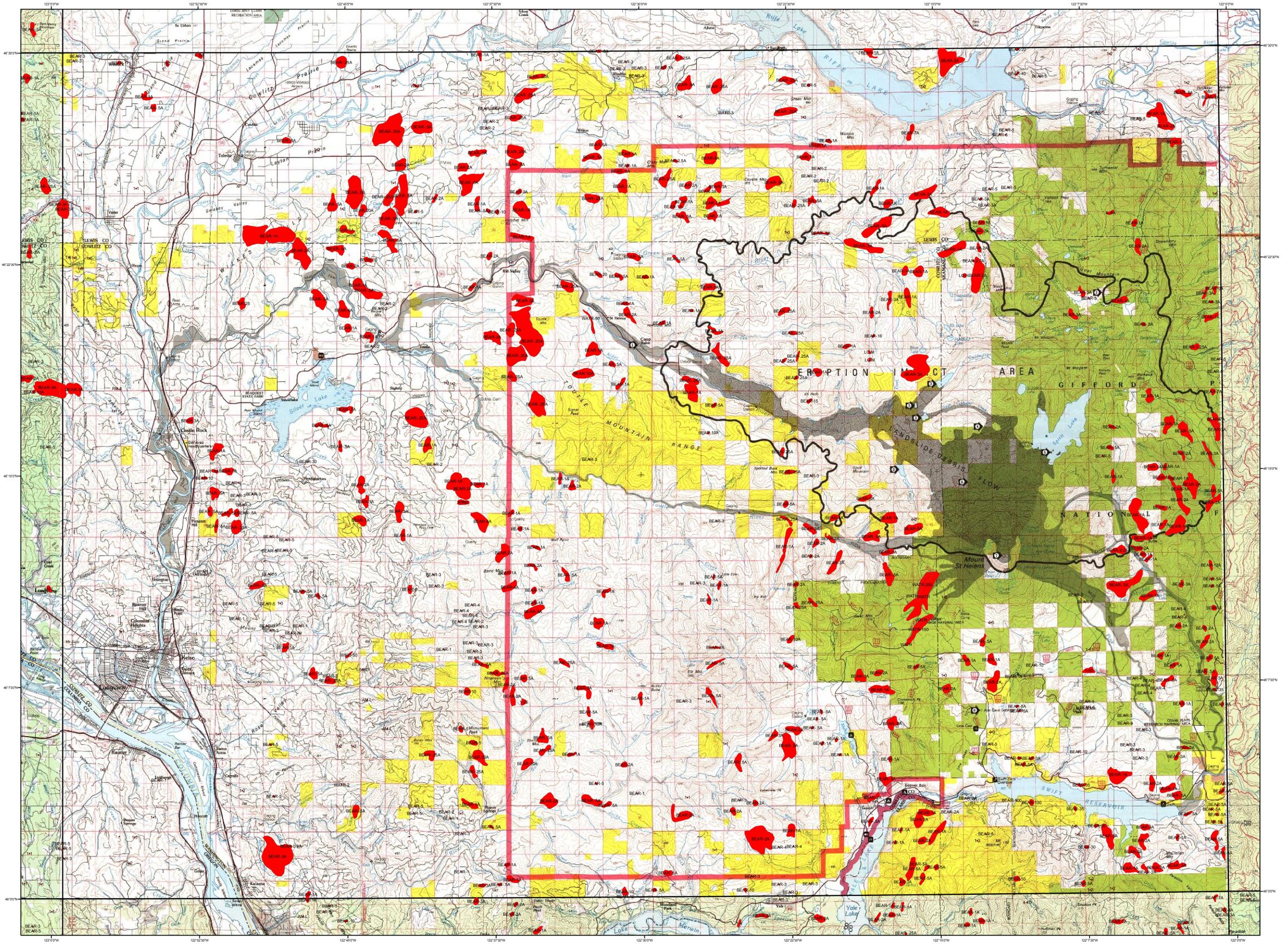


Draft 2008 Aerial Insect and Disease Survey ****Draft**** USGS 100K Quad: Mount Saint Helens 46122-A1



Legend (For all Possible Agents)

Defoliating Agents			Mortality Agents			Other Damaging Agents		
Code	Damaging Agent	Primary Host	Code	Damaging Agent	Primary Host	Code	Damaging Agent	Primary Host
AS	Spittle bug	Sitka spruce	1	Douglas fir beetle	Douglas fir	AB	Balsam woolly adelgid	Tree fir
BS	Western backheaded bushhorn	Hemlock, spruce, tree fir	2	Douglas fir engraver	Douglas fir	AC	Colony spruce gall adelgid	Spurce, Douglas fir
BS	Modoc bushhorn	Lodgepole pine	3	Spittle beetle	Spurce	AD	Leaf discoloration	Maple
BS	Spurce pine tortrix	Lodgepole, ponderosa pines	4	Triangular sawyer	Jeffrey pine	AE	Brown rust	Trifoliates pines
BY	Western spruce sawfly	Spurce	5	Mountain pine beetle	Mountain pine	BF	Dying hemlock	Hemlock
BY	Bynum's light/ophidomyiella	Ponderosa pine	6B	Mountain pine beetle	Mountain pine	DF	Gray patch midge	Ponderosa pine
HL	Western hemlock looper	Western hemlock	6C	Mountain pine beetle	Lodgepole pine	DF	Hardwood decline	Hardwoods
LD	Green striped forest looper	Douglas fir, Western hemlock	6D	Mountain pine beetle	Lodgepole pine	DF	Aspen root borer	Aspen
LL	Larch looper	Western larch	6E	Mountain pine beetle	Lodgepole pine	DF	No damage detected	All species
LL	Black pine needle scale	Western larch	6F	Mountain pine beetle	Lodgepole pine	DF	Pacific mountain decline	All species
MD	Douglas fir budmoth	Douglas fir	6G	Mountain pine beetle	Lodgepole pine	DF	Red bark	All species
ML	Larch needle miner	Western larch	6H	Mountain pine beetle	Lodgepole pine	DF	Unknown defoliation	All species
MS	Spurce budmoth	Spurce	6I	Mountain pine beetle	Lodgepole pine	DF	Water damage	All species
MS	Douglas fir needle midge	Douglas fir	6J	Mountain pine beetle	Lodgepole pine	DF	Winter Damage	All species
NU	Needle miner	Jeffrey pine	6K	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Jeffrey pine	6L	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Lodgepole pine	6M	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Ponderosa pine	6N	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Spurce	6O	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6P	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6Q	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6R	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6S	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6T	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6U	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6V	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6W	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6X	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6Y	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6Z	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AA	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AB	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AC	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AD	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AE	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AF	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AG	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AH	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AI	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AJ	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AK	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AL	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AM	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AN	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AO	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AP	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AQ	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AR	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AS	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AT	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AU	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AV	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AW	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AX	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AY	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6AZ	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BA	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BB	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BC	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BD	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BE	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BF	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BG	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BH	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BI	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BJ	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BK	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BL	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BM	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BN	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BO	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BP	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BQ	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BR	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BS	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BT	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BU	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BV	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BW	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BX	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BY	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6BZ	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CA	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CB	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CC	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CD	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CE	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CF	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CG	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CH	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CI	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CJ	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CK	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CL	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CM	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CN	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CO	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CP	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CQ	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CR	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CS	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CT	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CU	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CV	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CW	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CX	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CY	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6CZ	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6DA	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6DB	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6DC	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6DD	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6DE	Mountain pine beetle	Lodgepole pine	DF		
NU	Needle miner	Western white pine	6DE	Mountain pine beetle	Lodgepole pine	DF		

Coding Convention:
The cause of damage is described by a code (example: BS=western spruce budworm) and is followed by a modifier. A modifier can be either: intensity of damage (L=light, M=moderate, H=heavy); or number of trees killed (example: 1-20 = 20 trees killed by Douglas-fir beetle); or number of trees/acre killed (example: 4-4A = 4 trees/acre killed by fir engraver). There can be up to three damaging agent-modifier combinations recorded for each polygon. Each agent-modifier combination is separated by a "+" (example: BS-M1+2014-4A). The color of the polygon is dictated by the first agent recorded.

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Draft USGS 100K Quad: Mount Saint Helens 46122-A1 Aerial Insect and Disease Survey Mapscale: 1:100,000 Thursday, August 21, 2008 Vicinity Map



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.



**WASHINGTON STATE DEPARTMENT OF
Natural Resources**
Doug Sutherland - Commissioner of Public Lands

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USDA Forest Service:
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*****DISCLAIMER*****
The insect and disease data presented should only be used as an indicator of insect and disease activity, and should be ground-checked for precise location, extent, severity and causal agent.
Color coded polygons show locations where trees were recently killed or defoliated. Intensity of damage is variable and not all trees within coded polygons are dead or defoliated.
The cooperators reserve the right to correct, update, modify or replace GIS products without notice. Using the map for purposes other than those for which it was intended may yield inaccurate or misleading results.