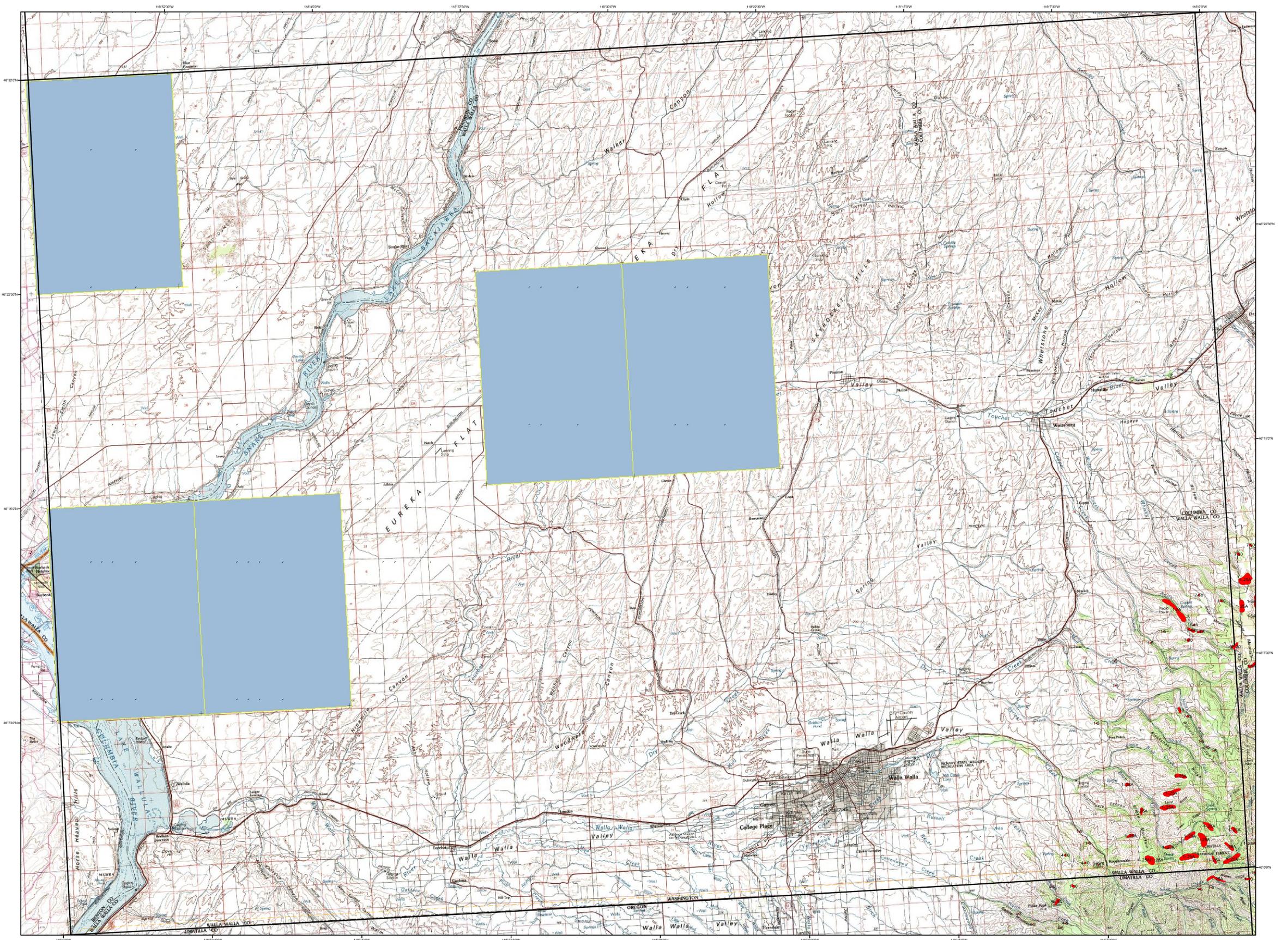


# \*\*Draft\*\* 2008 Aerial Insect and Disease Survey **\*\*Draft\*\*** USGS 100K Quad: Walla Walla 46118-A1



### Legend (For all Possible Agents)

Code	Damaging Agent	Primary Host
AS	Spruce aphid	Sitka spruce
BS	Western backheaded budworm	Hardwood, spruce, true fir
BSB	Mudoc budworm	White fir
BSL	Spruce pine looper	Lodgepole, ponderosa pines
BSM	Western spruce sawfly	True fir, Douglas-fir, spruce
BY	Byrrh's light/looper	Ponderosa pine
BYM	Byrrh's light/looper	Western larch
HL	Western hemlock looper	Western hemlock looper
LD	Green striped forest looper	Douglas-fir, Western hemlock
LL	Larch looper	Western larch
LS	Black pine needle scale	Douglas-fir
MD	Douglas fir burnworm	Douglas-fir
ML	Larch looper	Western larch
MS	Spruce budworm	Douglas-fir
MSL	Douglas fir needle midge	Douglas-fir
NU	Needle miner	Jeffrey pine
NUL	Needle miner	Lodgepole pine
NUL	Needle miner	Knobcone pine
NS	Needle miner	Ponderosa pine
NSL	Needle miner	Sugar pine
NW	Needle miner	Western white pine
NWL	Needle miner	Western larch
PH	Phantom hemlock looper	Hardwood, Douglas-fir
PHL	Phantom hemlock looper	Ponderosa, Jeffrey pines
PN	Pine needle scale	Pines
PS	Needle cast	Western larch
RC	Spruce beetle	Douglas-fir
SD	Sawfly	True fir
SH	Sawfly	Hardwood
SK	Sawfly	Knobcone pine
SU	Sawfly	Aspen
SUL	Sawfly	Douglas-fir
SUN	Sawfly	Ponderosa pine
TA	Tent caterpillar, alder	Alder
TM	Douglas fir bark beetle	True fir, Douglas-fir
TS	Tent caterpillar, aspen	Aspen

### Mortality Agents

Code	Damaging Agent	Primary Host
1	Douglas fir beetle	Douglas-fir
2	Douglas fir engraver	Douglas-fir
3	Spruce beetle	Spruce
4	Fire scar	True fir
5	Western spruce bark beetle	Whitebark pine
6B	Mountain pine beetle	Jeffrey pine
6K	Mountain pine beetle	Knobcone pine
6L	Mountain pine beetle	Lodgepole pine
6M	Mountain pine beetle	Ponderosa pine
6P	Mountain pine beetle	Sugar pine
6W	Mountain pine beetle	Western white pine
6S	Mountain pine beetle	Ponderosa, lodgepole pines
8B	Western pine beetle	Pole-situated ponderosa pine
8L	Western pine beetle	Shaw's fir
BEAR	Bark damage	Conifer
LW	Black stain root disease	Douglas-fir, ponderosa pine
PL	Pink Olfend cedar root disease	Pink Olfend cedar
RD	Root disease	Conifer
WATR	Water damage	All species

### Other Damaging Agents

Code	Damaging Agent	Primary Host
AB	Balsam woolly adelgid	True fir
AC	Colony spruce gall adelgid	Sitka spruce, Douglas-fir
AD	Leaf discoloration	Maple
AE	Black rot	True-needle pines
DH	Dying hemlock	Hemlock
GP	Gouly pitch midge	All species
HA	Hardwood decline	Ponderosa pine
HD	Hardwood decline	All species
HF	Aspen root rot	Hardwoods
OUT	No damage detected	
PMK	Pacific madrone decline	Madrone
PR	Leaf fall in poplars	All species
RB	Red bark	All species
SE	Sitka	All species
UNCD	Unknown defoliation	All species
UNKM	Unknown mortality	All species
WATR	Water damage	All species
WIND	Windthrow	All species
WNTR	Winter Damage	All species

Area Not Flown

**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.

Map base data created with TOPOI, Copyright 2001, National Geographic, All rights Reserved.

### \*\*Draft\*\* USGS 100K Quad: Walla Walla 46118-A1 Aerial Insect and Disease Survey Mapscale: 1:100,000 Thursday, September 11, 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.



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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.