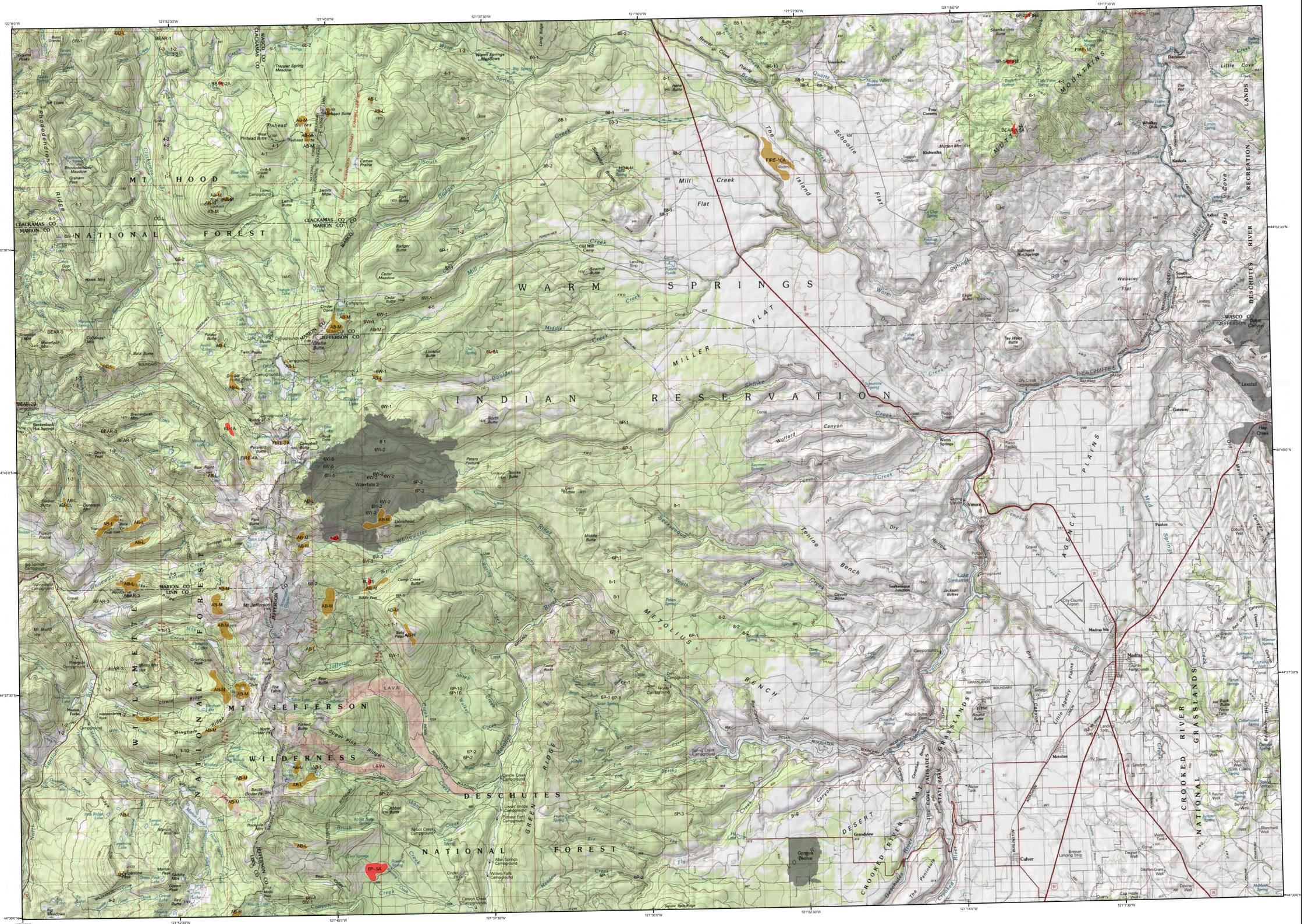


2012 Aerial Insect and Disease Survey

USGS 100K Quad: MADRAS - E144121; 4I



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 engraver	True fir
5L	Western balsam hawk beetle	Whitebark pine
6B	Mountain pine beetle	Ponderosa pine
6S	Mountain pine beetle	Lodgepole pine
6W	Mountain pine beetle	Western white pine
7	Tip-top	Ponderosa, lodgepole pines
8	Western pine beetle	Ponderosa pine
9	Western pine beetle	Pine-bark ponderosa pine
10	Shiver fir beetle	Silver fir, true fir
BEAR	Bear damage	Douglas fir
FL	Flattened woodborer	Pine/Oak root disease
RD	Root disease	Pine/Oak root disease
WATER	Water Damage	Conifer

Defoliators		
Code	Damaging Agent	Primary Host
BS	Western spruce budworm	True fir, Douglas fir, spruce
CH	Larch casebearer/typhlocyba	Western larch
LC	Western hemlock looper	Western hemlock
LS	Black pine/needle scale	Lodgepole pine
PS	Pine budweevil	Ponderosa pine
PC	Pine needle case	Ponderosa pine
PN	Pine needle sheathminer	Ponderosa pine
NC	Needle cast	Western larch
SA	Sawfly	Conifer
SH	Sawfly	True fir
SK	Sawfly	Kobresia pine
SL	Sawfly	Lodgepole pine
SN	Sawfly	Diapine pine
SNC	Sawfly	Diapine pine
TC	Tree collarer	Diapine pine
TR	Douglas fir bark moth	Diapine pine
UNKD	Unknown defoliating agent	All species

Other Damaging Agents		
Code	Damaging Agent	Primary Host
AB	Balsam woolly adelgid	True fir
AM	Leaf discoloration	Maple
BR	Bitter rot	Fireweed
CC	Cystipora canker	True fir
DH	Dying hemlock	Hemlock
FIRE	Fire	All species
HDA	Heartwood decline	Heartwoods
HDD	Heartwood decline	Aspen
NFN	Areas not flown - non host	
NFH	Areas not flown - host	
PMD	Pacific madrone decline	Pacific madrone
PR	Leaf fall in poplars	Poplars
RD	Red belt	All species
SAD	Site	Site
WIND	Windthrow	All species
WTR	Water damage	All species

USGS 100K Quad: MADRAS - E144121; 4I
 2012 Aerial Insect and Disease Survey
 Map Scale: 1:100,000
 Date: 08 January 2013

Legend

- Defoliating Agents
- Mortality Agents
- Other Damage
- 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 TOPO maps used as background maps are seamless, scanned images of United States Geological Survey (USGS) paper topographic maps. For more information on this map, visit them online at: http://gto.arcgis.com/maps/USA_Topo_Maps

A data dictionary, digital copies of this map and Argo's 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. Separate 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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 Forest Health Management
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-- OR --

USDA Forest Service, Region 6
 State and Private Forestry
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 PO Box 3623
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DISCLAIMER
 Forest Health Protection (FHP), Washington Department of Natural Resources (WDNR) 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, WDNR 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/ads/>