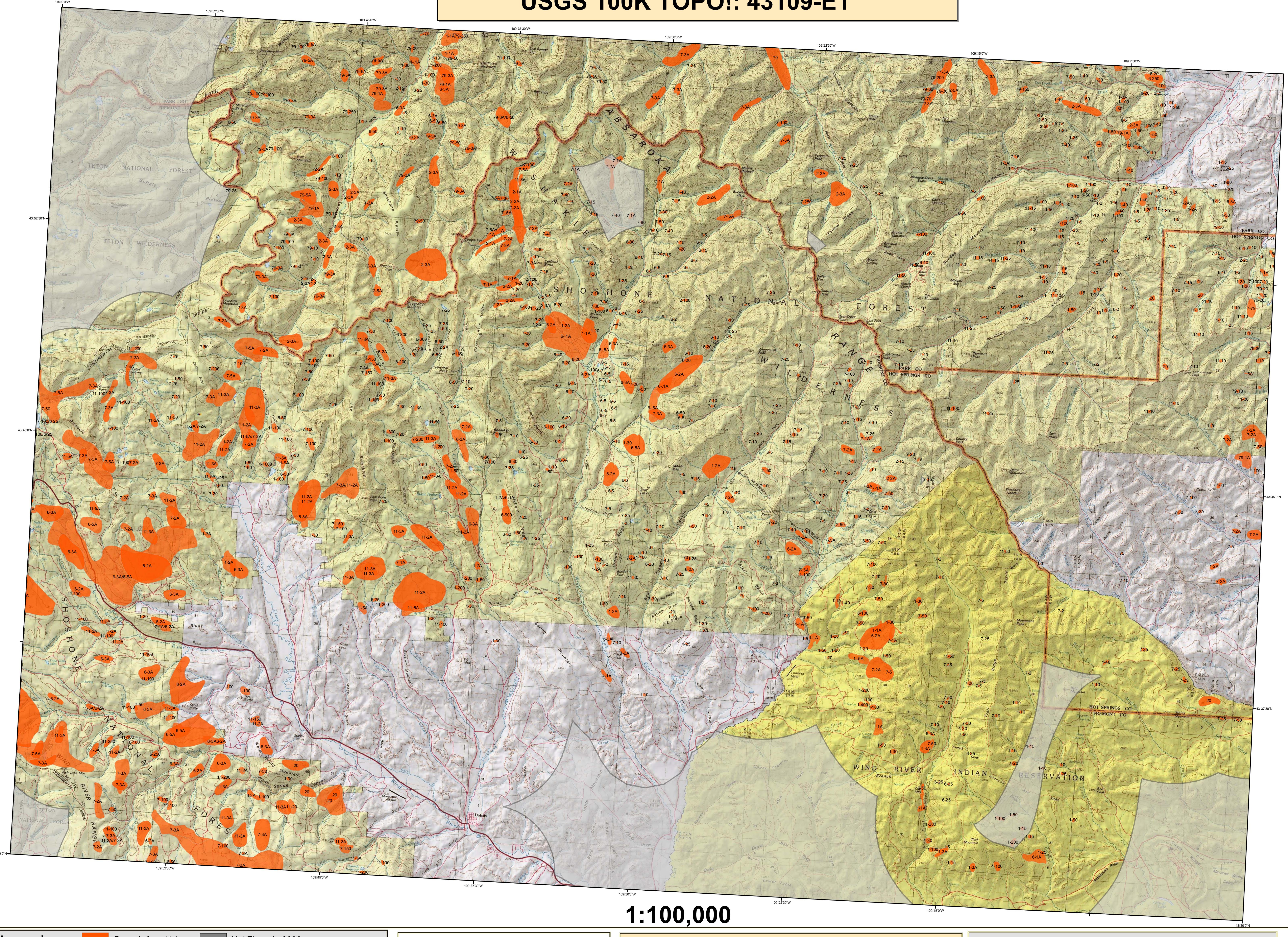


2006 Aerial Insect and Disease Survey

The Ramshorn, Wyoming

USGS 100K TOPO!: 43109-E1



Legend

Causal Agent(s) Not Flown in 2006

Example: 5-25 = The first number before the dash is the causal agent code. The number after the dash is the number of dead "fader" trees in the polygon or point. When recent dead trees are not present an interim code of L-light, M-moderate, and H-heavy are used after the causal agent code. Periodically, new per acre damage estimates are made after the causal agent code instead of numbers of dead "fader" trees in the polygon per acre. In this case it would be an estimation that, on the average, one tree per every two acres would be a dead "fader" tree. In another example: 5-3 = that on the average, an estimated three trees per acre are dead "fader" trees.

Code Causal Agent Primary Host Code Causal Agent Primary Host Code Causal Agent Primary Host

1 Douglas-fir	Douglas-fir	49 Atriplex	Lodgepole Pine	109 fox squirrel	Fagopyrum
2 Engelm. Spruce	Engelm. Spruce	50 Alpine white birch	Spruce	110 red squirrel	Cotterwood, Poplar
3 Mountain pine beetle	Mountain pine beetle	51 Dwarf mistletoe	Mistletoe	110 red squirrel	Cotterwood, Poplar
4 Mountain pine beetle	Mountain pine beetle	52 Elytrodema	Ponderosa Pine	110 red squirrel	Cotterwood, Poplar
5 Winter bark beetle	Winter bark beetle	53 D-Needle Pine	All Tree Species	110 red squirrel	Cotterwood, Poplar
6 Winter bark beetle	Winter bark beetle	54 Air pollutants	All Tree Species	111 spruce blight	Oak
7 Winter bark beetle	Winter bark beetle	55 Chemical damage	All Tree Species	112 spruce ips	All Tree Species
8 Winter bark beetle	Winter bark beetle	56 Bark beetles	All Tree Species	112 spruce ips	White Spruce
9 Fire Engraver	Fire Engraver	57 Choristoneura fumiferana	Spruce	113 spruce chestnut borer	Oak
10 Fire Engraver	Fire Engraver	58 Rhododendron pseudotubus	Douglas-fir	113 spruce chestnut borer	Bigleaf Maple
11 Whitebark bark beetle	Whitebark bark beetle	59 Rhododendron arculata	Spruce	114 spruce bark beetle	All Oak
12 Undescribed bark beetle	Undescribed bark beetle	60 Leucostoma acuminata	Spruce	115 mortality	All Tree Species
13 Pine engraver	Pine engraver	61 Leucostoma canker	Spruce	117 mortality	All Tree Species
14 Pine engraver	Pine engraver	62 Pseudotsuga	Spruce	118 hercules	All Tree Species
15 Ponderosa pine needle miner	Ponderosa pine needle miner	63 Pseudotsuga cast (Hypodermatidae)	Spruce	119 flagging	All Tree Species
16 Lodgepole pine needle miner	Lodgepole pine needle miner	64 Root rot	Spruce	120 spruce	Quaking Aspen
17 Lodgepole pine needle miner	Lodgepole pine needle miner	65 unidentified disease	Spruce	121 Marssonina Blight	Ash
18 Spruce budworm, light defol.	Spruce budworm, light defol.	66 Winter damage light	All Tree Species	122 Diaback (ash)	Ash
19 Spruce budworm, medium defol.	Spruce budworm, medium defol.	67 Winter damage heavy	All Tree Species	123 Diaback (cotterwood)	Cotterwood, Poplar
20 Spruce budworm, heavy defol.	Spruce budworm, heavy defol.	68 Diaback	Spruce	124 Diaback (oak)	Oak
21 Douglas-fir tussock moth	Douglas-fir tussock moth	69 Diaback (black stain)	Ponderosa Pine	125 Diaback (cotterwood)	Cotterwood, Poplar
22 Douglas-fir tussock moth	Douglas-fir tussock moth	70 Fire	Ponderosa Pine	121 Mortality (eastern cedar)	Eastern Red Cedar
23 Pine Butterfly	Pine Butterfly	71 Ponderosa pine	Ponderosa Pine	122 Mortality (eastern cedar)	Hardwoods
24 Pine tussock moth	Pine tussock moth	72 High water damage	Hemlock	123 Mortality (spruce)	Oak
25 Pine tussock moth	Pine tussock moth	73 High water damage	Hemlock	124 Mortality (spruce)	Spruce
26 Tert caterpillar	Tert caterpillar	74 Avalanche	Ponderosa Pine	223 Diaback (ash)	Ash
27 Pine tussock moth	Pine tussock moth	75 Pinyon pine mortality	Ponderosa Pine	224 Diaback (cotterwood)	Spruce
28 Tert caterpillar	Tert caterpillar	76 Juniper mortality/unseen agent(s)	Ponderosa Pine	225 Diaback (cotterwood)	Cotterwood, Poplar
29 Pine tussock moth	Pine tussock moth	77 Juniper mortality/unseen agent(s)	Juniper	226 Diaback (eastern cedar)	Eastern Red Cedar
30 Pine tussock moth	Pine tussock moth	78 Old world spruce	Old world spruce	227 Diaback (oak)	Hardwoods
31 Pine tussock moth	Pine tussock moth	79 Limber pine decline-multiple agents(s)	Limber Pine	228 Diaback (spruce)	Oak
32 Pine tussock moth	Pine tussock moth	80 Old world spruce	Common Pinyon	229 Diaback (cotterwood)	Spruce
33 Old leaf roller	Old leaf roller	81 Old world spruce	Lodgepole Pine	230 Diaback (eastern cedar)	Cotterwood, Poplar
34 Pine needle-sheath miner	Pine needle-sheath miner	82 Old world spruce	Lodgepole Pine	231 Hercules (eastern cedar)	Eastern Red Cedar
35 Pine needle-sheath miner	Pine needle-sheath miner	83 Old world spruce	Lodgepole Pine	240 Flagging (hardwood)	Hardwoods
36 Pine tussock moth	Pine tussock moth	84 Old world spruce	Lodgepole Pine	241 Flagging (cotterwood)	Cotterwood, Poplar
37 Cankerworms	Cankerworms	85 Old world spruce	Lodgepole Pine	250 Unidentified defol (elm)	Elm
38 Pine tussock moth	Pine tussock moth	86 Old world spruce	Lodgepole Pine	251 Unidentified defol (hardwood)	Hardwoods
39 Undescribed defolator	Undescribed defolator	87 Old world spruce	Lodgepole Pine	252 Mortality (pine)	Pine
40 Heterobasidion annosum (Fomes annosus)	Heterobasidion annosum (Fomes annosus)	88 Old world spruce	Lodgepole Pine		
41 Phomopsis	Phomopsis	89 Old world spruce	Lodgepole Pine		
42 Phomopsis	Phomopsis	90 Old world spruce	Lodgepole Pine		
43 Polytopus schweinitzii	Polytopus schweinitzii	91 Old world spruce	Lodgepole Pine		
44 Phomopsis	Phomopsis	92 Old world spruce	Lodgepole Pine		
45 Western gall rust	Western gall rust	93 Old world spruce	Lodgepole Pine		
46 Comandra rust	Comandra rust	94 Old world spruce	Lodgepole Pine		
47 Strobiliforme rust	Strobiliforme rust	95 Old world spruce	Lodgepole Pine		

USGS 100K Quad - Location Map



Legend
Flown Area in 2006
State Boundaries
Counties

How Aerial Surveys Are Conducted

Data represented on this map are based on aerial observations manually recorded onto a map. This procedure is considered both an art form and a form of scientific data collection, and is highly subjective. An observer only has 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 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.

Aerial surveys provide information on the current status for many causal agents, and are 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. Aerial surveys can be thought of as the first stage in a multi-stage sampling design. Other remote sensing approaches, including aerial photography, electro-optical sensors, and specially designed aerial surveys with modified flight patterns, can be used to more accurately delineate the extent and severity of a particular disturbance agent. The preceding methods are often more costly than overview surveys, and are generally reserved to address situations of sufficient environmental, economic, or political importance.

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*****DISCLAIMER*****
Due to the nature of aerial surveys, the data on this map will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented on this map because these agents are not detectable from aerial surveys. The data presented on this map should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. Shaded areas show locations where tree mortality or defoliation were apparent from the air. Intensity of damage is variable and not all trees in shaded areas are dead or defoliated.

The insect and disease data represented on this map are available digitally from the USDA Forest Service, Region Two Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this map for purposes other than those for which it was intended may yield inaccurate or misleading results.

A data dictionary and digital copies of this map and the insect and disease survey are available at: <http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>

Area surveyed by Al Dymerski
08/01 - 08/03 & 08/15 - 08/17 / 2006
Map Created: 01/12/2007
Projection: UTM NAD83 Zone 13
Author: J. Ross, USDA Forest Service