

2006 Aerial Insect and Disease Survey Devils Tower, Wyoming USGS 100K TOPO! 44104-E1



1:100,000

Legend

- █ Causal Agent(s)
- █ Not Flown in 2006

Use of the Number System
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 counted, an intensity code of L-light, M-moderate, and H-high may be used after the causal agent code. Periodically, trees per acreage estimates are used after the causal agent code instead of number of dead "fader" trees for an intensity code. For example: 5-1/2A = The first number before the dash is the causal agent code. The number after the dash is an estimation of the number 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: 5-3A = that on the average, an estimated three trees per acre are dead "fader" trees. A / is used as a separator when a point polygon has more than one causal agent code.

Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host
1	Douglas-fir beetle	Douglas-fir	49	Altrypella	Lodgepole Pine	106	fox squirrel flagging	Cottonwood/Poplar
2	Engelmann spruce beetle	Engelmann Spruce	50	White pine blister rust	5-needle Pine	107	fall webworm	Cottonwood/Poplar
5	Mountain pine beetle	Ponderosa Pine	51	Dwarf mistletoe	Softwoods	108	road salt	Softwoods
6	Mountain pine beetle	Lodgepole Pine	52	Elysiptoma	Ponderosa Pine	109	pinewood nematode	Scotch Pine
7	Mountain pine beetle	5-needle Pine	53	Inulepis	All Tree Species	110	oak wilt	Oak
8	Western pine beetle	Ponderosa Pine	54	Air pollutants	All Tree Species	111	foliage disease	All Tree Species
9	Fir engraver	White Fir	55	Chemical damage	All Tree Species	112	spruce ice	White Spruce
10	Douglas-fir engraver beetle	Douglas-fir	56	Lophodermium pinastri	Softwoods	113	twined chestnut borer	Bur Oak
11	Western hemlock bark beetle	Subalpine Fir	57	Rhabdoclema pseudotsugae	Douglas-fir	114	ambrosia live foliar disease	White Spruce
12	Unidentified bark beetle	Softwoods	58	Lophodermium aculeata	Softwoods	115	Diseak	All Tree Species
13	Pine engraver	Lodgepole Pine	59	Lecanostoma acicola	Softwoods	116	Mortality	All Tree Species
14	Pine engraver	Ponderosa Pine	60	Lophodermium concolor	Softwoods	117	Discoloration	All Tree Species
15	Ponderosa pine needle miner	Lodgepole Pine	61	Dothistoma pini	Softwoods	118	Herbicide	All Tree Species
16	Lodgepole pine needle miner	Ponderosa Pine	62	Needle cast (Hippodermatidae)	Softwoods	119	Flagging	All Tree Species
17	Jack pine budworm	Jack Pine	63	Root Rot	All Tree Species	120	Aspen tortrix	Quaking Aspen
18	Spruce budworm, light defol.	Douglas-fir	64	Unidentified disease	All Tree Species	121	Mansonia blight	Quaking Aspen
19	Spruce budworm, medium defol.	Douglas-fir	65	Winter damage light	All Tree Species	200	Diseak (oak)	Oak
20	Spruce budworm, heavy defol.	Douglas-fir	66	Winter damage medium	All Tree Species	201	Diseak (cottonwood)	Cottonwood/Poplar
21	Douglas-fir sawtooth moth	Douglas-fir	67	Winter damage heavy	All Tree Species	202	Diseak (hardwood)	Hardwoods
22	Pine butterfly	Ponderosa Pine	68	Diplotis	Softwoods	204	Diseak (oak)	Oak
23	Pine looper	Ponderosa Pine	69	Prion black stain	All Tree Species	210	Mortality (oak cottonwood)	Oak
24	Pine sawfly	Ponderosa Pine	70	Fir	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
25	Pine sawtooth moth	Ponderosa Pine	71	Porcupine	Softwoods	212	Mortality (hardwood)	Hardwoods
26	Tent caterpillar	Hardwoods	72	Windthrow	All Tree Species	213	Mortality (oak)	Oak
27	Leaf beetles	Hardwoods	73	High water damage	All Tree Species	214	Mortality (spruce)	Spruce
28	Oak leaf roller	Hardwoods	74	Anisotoma	All Tree Species	215	Mortality (oak)	Oak
29	Pine needle-shaft miner	Ponderosa Pine	75	Aspen decline-multiple agents)	Common Pinyon	221	Discoloration (conifer)	Softwoods
30	Pine sawtooth moth	Ponderosa Pine	76	Prion pine mortality	Common Pinyon	222	Discoloration (cottonwood)	Cottonwood/Poplar
31	Caterpillars	Hardwoods	77	Prion pine mortality	Common Pinyon	223	Discoloration (eastern cedar)	Eastern Red Cedar
32	Unidentified defoliator	Hardwoods	78	Gambel oak decline-unknown agents)	Gambel Oak	224	Discoloration (hardwood)	Hardwoods
33	Heterobasidion annosum (Fomes annosus)	Softwoods	79	Limbic pine decline-multiple agents)	Limbic Pine	225	Discoloration (oak)	Oak
34	Amelara satyrea (Amelara melale)	Softwoods	80	Hail damage	All Tree Species	226	Discoloration (spruce)	Spruce
35	Polyopous schweinitzi	Softwoods	81	Unknown polygon	Unknown	228	Herbicide (cottonwood)	Cottonwood/Poplar
36	Phomopsis	Softwoods	100	old prion mortality	Common Pinyon	231	Herbicide (eastern cedar)	Eastern Red Cedar
37	Unidentified defoliator	All Tree Species	101	road salt tip	Lodgepole Pine	240	Flagging (hardwood)	Hardwoods
38	Unidentified defoliator	All Tree Species	102	oak elm disease	Elm	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
39	Western gall rust	Unknown	103	ispodiola blight	Ponderosa Pine	251	Unidentified defoliator (elm)	Elm
40	Comandra rust	Unknown	104	fox squirrel	Spruce White Spruce	252	Unidentified defoliator (hardwood)	Hardwoods
41	Stilactiform rust	Lodgepole Pine	105	brought killed narrow leaf cottonwood	Narrowleaf Cottonwood	300	Mortality (pine)	Pine

USGS 100K Quad - Location Map



- █ 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.

Area surveyed by Bill Schaupp & Al Dymerski 08/21 - 08/24 2006
Map Created: 01/12/2007
Projection: UTM NAD83 Zone 13
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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 data are available at: <http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>