

# 2007 Aerial Insect and Disease Survey South Pass, Wyoming USGS 100K TOPO!: 42108-A1



1:100,000

## Legend

**Causal Agent(s)** (Orange square)  
**Not Flown** (Grey square)

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 acre estimates are used after the causal agent code instead of number of dead "fader" trees (or an intensity code). For example: 5-10(A) = 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	42	Abies	Lodgepole Pine	105	fox squirrel flagging	Cottonwood/Poplar
2	Engelmann spruce beetle	Engelmann Spruce	50	White pine blister rust	5-Needle Pine	107	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	51	Dwarf mistletoe	Softwoods	108	road salt	Softwoods
4	Mountain pine beetle	Lodgepole Pine	52	Elyrodemia	Ponderosa Pine	109	pinewood nematode	Scotch Pine
5	Needle scale	5-Needle Pine	53	Incluses #05, 06 & 08	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	54	Air pollutants	All Tree Species	111	foliage disease	All Tree Species
7	Fire Engraver	White Fir	55	Chemical damage	All Tree Species	112	spruce Ips	White Spruce
8	Western pine beetle	Douglas-fir	56	Lophodermium pinastri	Softwoods	113	twisted chestnut borer	Oak
9	Fire Engraver	Subalpine Fir	57	Rhabdocline pseudotsugae	Douglas-fir	114	anthracnose like foliar disease	Bur Oak
10	Douglas-fir engraver beetle	Softwoods	58	Lophodermium arcutae	Softwoods	115	Diaback	All Tree Species
11	Western balsam bark beetle	Lodgepole Pine	59	Lecanosticla acicola	Softwoods	116	Mortality	All Tree Species
12	Unidentified bark beetle	Ponderosa Pine	60	Lophodermium concolor	Softwoods	117	Discoloration	All Tree Species
13	Pine engraver	Lodgepole Pine	61	Dipterostoma pin	Softwoods	118	Hemlock	All Tree Species
14	Pine engraver	Ponderosa Pine	62	Needle cast (Hypodemateaceae)	Softwoods	119	Flagging	All Tree Species
15	Ponderosa pine needle miner	Lodgepole Pine	63	Rust Rot	All Tree Species	120	aspen borers	Quaking Aspen
16	Lodgepole pine needle miner	Ponderosa Pine	64	Unidentified disease	Softwoods	121	Marschneria Blight	Aspen
17	Jack pine budworm	Jack Pine	65	Winter damage light	All Tree Species	200	Diaback (ash)	Aspen
18	Spruce budworm, light defol.	Douglas-fir	66	Winter damage medium	All Tree Species	201	Diaback (cottonwood)	Cottonwood/Poplar
19	Spruce budworm, heavy defol.	Douglas-fir	67	Winter damage heavy	All Tree Species	202	Diaback (hardwood)	Hardwoods
20	Spruce budworm, heavy defol.	Douglas-fir	68	Diploids	Softwoods	204	Diaback (oak)	Oak
21	Douglas-fir tussock moth	Ponderosa Pine	69	Pinon bark stain	Common Pinon	210	Mortality (old cottonwood)	Cottonwood/Poplar
22	Pine butterfly	Ponderosa Pine	70	Fire	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Pine looper	Ponderosa Pine	71	Ponopine	Softwoods	212	Mortality (hardwood)	Hardwoods
24	Variable oak leaf caterpillar	Hardwoods	72	Windthrow	All Tree Species	213	Mortality (oak)	Oak
25	Leaf beetles	Hardwoods	73	High water damage	All Tree Species	214	Mortality (spruce)	Spruce
26	Oak leaf roller	Hardwoods	74	Avian	All Tree Species	220	Discoloration (ash)	Aspen
27	Pine needle-shaft miner	Ponderosa Pine	75	Pinon pine mortality	Common Pinon	222	Discoloration (cottonwood)	Cottonwood/Poplar
28	Pine needle-shaft miner	Ponderosa Pine	76	Juniper mortality-unknown agents)	Juniper	223	Discoloration (eastern cedar)	Eastern Red Cedar
29	Variable oak leaf caterpillar	Hardwoods	77	Quercus oak decline-unknown agents)	Lumber Oak	224	Discoloration (hardwood)	Hardwoods
30	Unidentified defoliator	All Tree Species	78	Limber pine decline-multiple agents)	Limber Pine	225	Discoloration (oak)	Oak
31	Heliothis virescens (Fomes annosus)	Softwoods	79	Hail damage	All Tree Species	228	Discoloration (spruce)	Spruce
32	Phoradendron (Amelara mellea)	Softwoods	80	Unknown polygon	Unknown	230	Hemlock (cottonwood)	Cottonwood/Poplar
33	Popillia schweinfurthii	Softwoods	89	old pinon mortality	Common Pinon	231	Hemlock (eastern cedar)	Eastern Red Cedar
34	Western gall nut	All Tree Species	100	mod leaf lpo	Lodgepole Pine	240	Flagging (hardwood)	Hardwoods
35	Western gall nut	Unknown	102	dutch elm disease	Elm	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
36	Commanda nut	Unknown	103	alpicola knight	Ponderosa Pine	261	Unidentified defoliator (elm)	Elm
37	Commanda nut	Unknown	104	los hunters	Spruce, White Spruce	252	Unidentified defoliator (hardwood)	Hardwoods
38	Strobiliforme rust	Lodgepole Pine	105	straght killed narrow leaf cottonwood	Narrowleaf Cottonwood	300	Mortality (pine)	Pine

## USGS 100K Quad - Location Map



**Legend**  
 Flown Area  
 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 AI Dymerski  
 Map Created: 12/30/2007  
 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/>