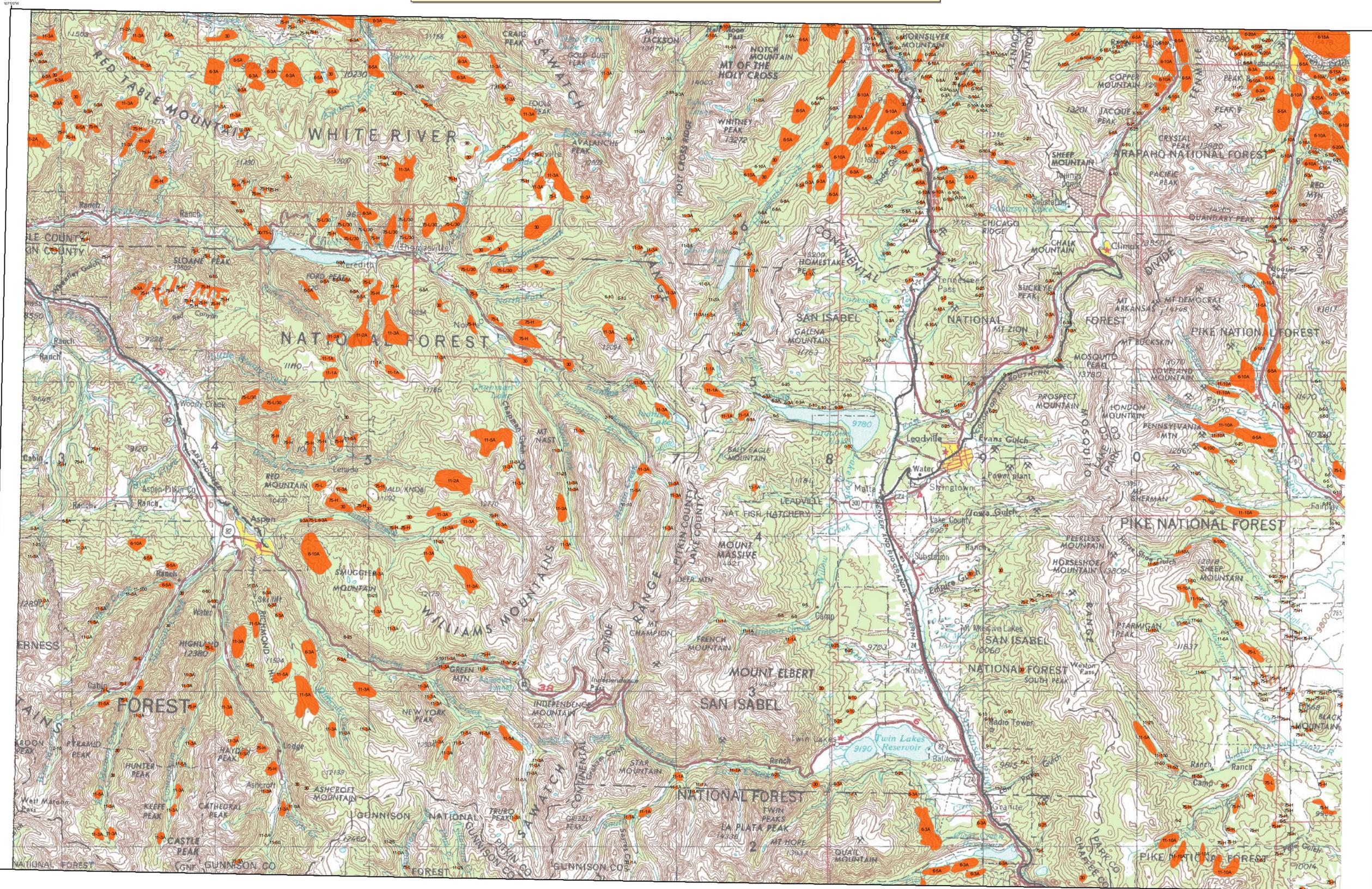


2009 Aerial Insect and Disease Survey Leadville, Colorado USGS 100K TOPO!: 39106-A1



1:100,000

Legend

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 "faded" 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 "faded" trees (or an intensity code). For example: 5:125A = The first number before the dash is the causal agent code. The number after the dash is an estimate of the number of dead "faded" trees in the polygon per acre. In this case it would be an estimate that, on the average, one tree per every two acres would be a dead "faded" tree. In another example: 5-3A = that on the average, an estimated three trees per acre are dead "faded" trees. A "-" is used as a separator when a polygon/point has more than one causal agent code.

Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host
01	Douglas-fir beetle	Douglas-fir	01	White pine blister rust	Lodgepole Pine
02	Engelmann Spruce Beetle	Engelmann Spruce	02	Dwarf mistletoe	Softwoods
03	Mountain pine beetle	Lodgepole Pine	03	Encephalartos	Ponderosa Pine
04	Mountain pine beetle	5-Needle Pine	04	Inclusus #55, 55 & 55	All Tree Species
05	Western pine beetle	Ponderosa Pine	05	Air pollution	All Tree Species
06	White Fir	White Fir	06	Chemical damage	All Tree Species
07	Douglas-fir engraver beetle	Douglas-fir	07	Lophodermium pinastri	Softwoods
08	Western balsam bark beetle	Sitka Spruce	08	Rhabdocline pseudotsugae	Douglas-fir
09	Unidentified bark beetle	Lodgepole Pine	09	Leucostictia aculeata	Softwoods
10	Pine engraver	Ponderosa Pine	10	Lophodermium concolor	Softwoods
11	Pine engraver	Lodgepole Pine	11	Dactylospora sp.	Softwoods
12	Ponderosa pine needle miner	Ponderosa Pine	12	Needle cast (hypodermataceae)	All Tree Species
13	Lodgepole pine needle miner	Lodgepole Pine	13	Root Rot	All Tree Species
14	Jack pine budworm	Jack Pine	14	Unidentified disease	All Tree Species
15	Spruce budworm, light defol.	Douglas-fir	15	Winter damage light	All Tree Species
16	Spruce budworm, medium defol.	Douglas-fir	16	Winter damage medium	All Tree Species
17	Spruce budworm, heavy defol.	Douglas-fir	17	Winter damage heavy	All Tree Species
18	Douglas-fir tussock moth	Douglas-fir	18	Diplota	Softwoods
19	Pine Buttery	Ponderosa Pine	19	Prionus bark stain	Common Pinon
20	Pine looper	Ponderosa Pine	20	Fire	All Tree Species
21	Leaf beetles	Ponderosa Pine	21	Mortality (eastern cedar)	Eastern Red Cedar
22	Tent caterpillars	Hardwoods	22	Mortality (hardwood)	Hardwoods
23	Leaf miner	Hardwoods	23	High water damage	All Tree Species
24	Oak leaf roller	Hardwoods	24	Anisulch	All Tree Species
25	Pine needle-sheath miner	Ponderosa Pine	25	Mortality (oak)	Oak
26	Pine tussock moth	Ponderosa Pine	26	Mortality (spruce)	Softwoods
27	Variable oak leaf defoliation	Hardwoods	27	Discoloration (cottonwood)	Cottonwood/Poplar
28	Unidentified leaf defoliation	All Tree Species	28	Discoloration (eastern cedar)	Eastern Red Cedar
29	Heterodermoidium (Fomes annosus)	Softwoods	29	Discoloration (hardwood)	Hardwoods
30	Armillaria ostroyae (Armillaria mellea)	Softwoods	30	Discoloration (oak)	Oak
31	Polyporus schweinitzii	Softwoods	31	Discoloration (spruce)	Spruce
32	Phomopsis	Softwoods	32	Herbicide (cottonwood)	Cottonwood/Poplar
33	Cytospora	All Tree Species	33	Herbicide (eastern cedar)	Eastern Red Cedar
34	Western gall rust	Unknown	34	Herbicide (hardwood)	Hardwoods
35	Coniostictis rust	Unknown	35	Unidentified defoliation (elm)	Cottonwood/Poplar
36	Strobilomyces rust	Lodgepole Pine	36	Unidentified defoliation (hardwood)	Hardwoods
37			37	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.

Map Created December 3 2009
 Projection: UTM NAD83 Zone 13
 Author: J. Ross, USDA Forest Service

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/hm/aerialsurveys/>

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*****DISCLAIMER*****
 Forest Health Protection (FHP) and its partners strive to maintain an accurate Aerial Detection Survey (ADS) Dataset, but due to the conditions under which the data are collected, FHP and its partners 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/aviation/qualityassurance.shtml>. Maps and data may be updated without notice. Please cite "USDA Forest Service, Forest Health Protection and its partners" as the source of this data in maps and publications.

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.