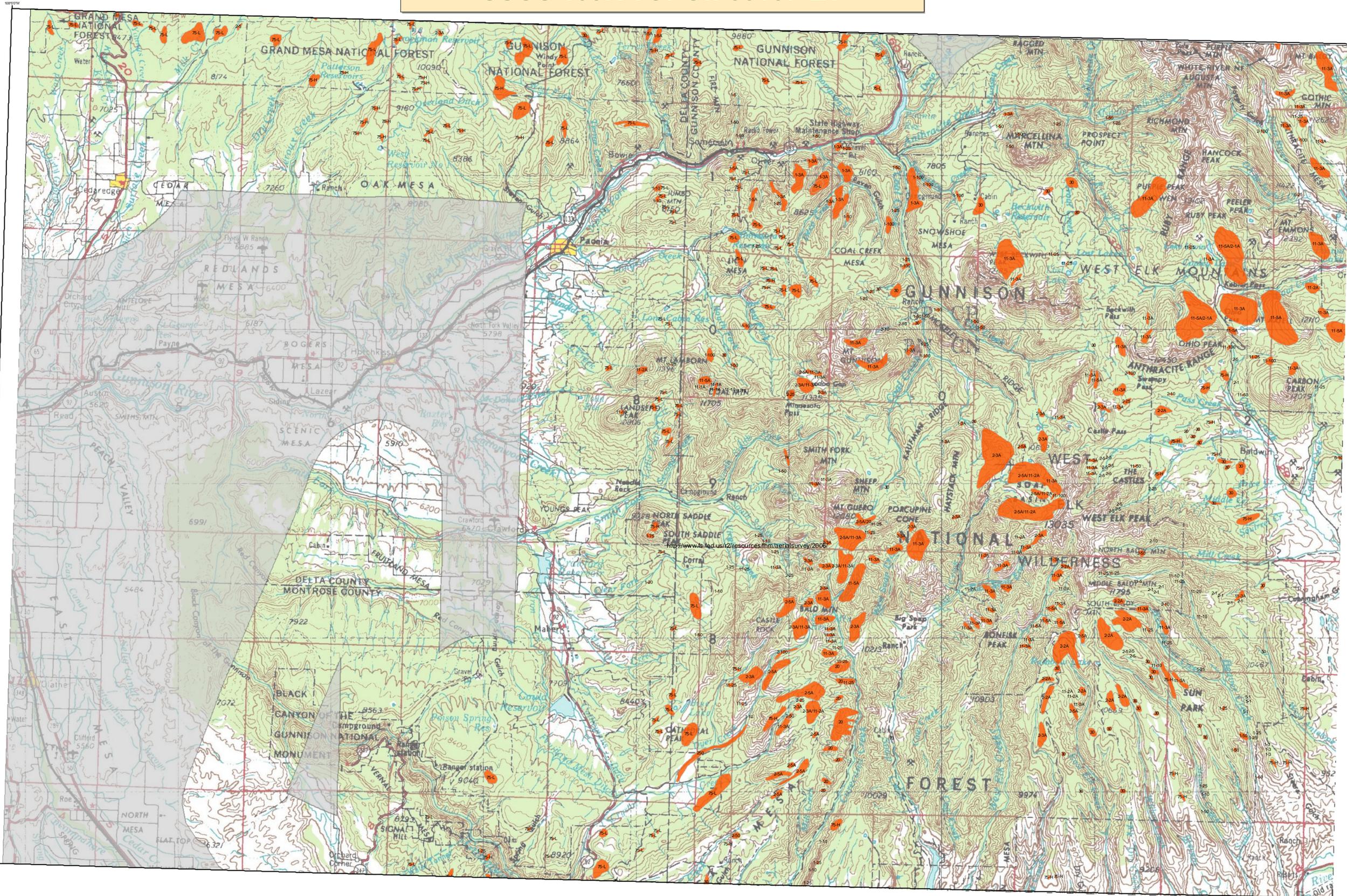


2010 Aerial Insect and Disease Survey Paonia, Colorado USGS 100K TOPO!: 38107-E1

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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 "ladder" 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 "ladder" trees (or an intensity code). For example: 5-125L = The first number before the dash is the causal agent code. The number after the dash is an estimation of the number of dead "ladder" 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 "ladder" tree. In another example: 5-3A = that on the average, an estimated three trees per acre are dead "ladder" 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	50	White pine blister rust	5-Needle Pine			
2	Engelmann spruce beetle	Engelmann Spruce	51	Dead mastitis	Softwoods			
3	Mountain pine beetle	Ponderosa Pine	52	Elytrodema	Ponderosa Pine			
4	Western pine beetle	White Pine	53	Inclusio 50, 50 & 69	All Tree Species			
5	Fire Engiever	Ponderosa Pine	54	Aspidiotus	All Tree Species			
6	Douglas-fir engraver beetle	Douglas-fir	55	Chemical damage	All Tree Species			
7	Western balsam bark beetle	Subalpine Fir	56	Lophodendrom prunasti	Softwoods			
8	Unidentified bark beetle	Softwoods	57	Rhabdocline pseudotsugae	Douglas-fir			
9	Pine engraver	Lodgepole Pine	58	Lophodermella arcuta	Softwoods			
10	Pine engraver	Lodgepole Pine	59	Leucostoma acicola	Softwoods			
11	Pine engraver	Ponderosa Pine	60	Lophodermella concolor	Softwoods			
12	Ponderosa pine needle-miner	Lodgepole Pine	61	Oothotropa pini	Softwoods			
13	Lodgepole pine needle-miner	Ponderosa Pine	62	Needle cast (Hypodemateaceae)	All Tree Species			
14	Jack pine budworm	Jack Pine	63	Rust spot	Softwoods			
15	Spouse budworm, light defol.	Douglas-fir	64	Unidentified disease	All Tree Species			
16	Spouse budworm, medium defol.	Douglas-fir	65	Winter damage light	All Tree Species			
17	Spouse budworm, heavy defol.	Douglas-fir	66	Winter damage medium	All Tree Species			
18	Douglas-fir tussock moth	Douglas-fir	67	Winter damage heavy	All Tree Species			
19	Pine looper	Ponderosa Pine	68	Dieback	Softwoods			
20	Pine tortrix	Ponderosa Pine	69	Pinon black stain	Common Pinon			
21	Test caterpillars	Hardwoods	70	Fire	All Tree Species			
22	Leaf beetles	Hardwoods	71	Firethrow	All Tree Species			
23	Oak leaf roller	Hardwoods	72	High water damage	All Tree Species			
24	Pine needle-sheath miner	Ponderosa Pine	73	Avianch	All Tree Species			
25	Pine sawflies	Ponderosa Pine	74	Aspen decline-multiple agents)	Quaking Aspen			
26	Variable oak leaf defoliation	Hardwoods	75	Pinon pine mortality	Common Pinon			
27	Unidentified defoliator	Hardwoods	76	Juniper mortality-unknown agents)	Juniper			
28	Heterobasidion annosum (Fomes annosus)	All Tree Species	77	Limber pine decline-multiple agents)	Limber Pine			
29	Armillaria ostoyae (Armillaria mellea)	Softwoods	78	Canine oak decline-unknown agents)	All Tree Species			
30	Pityopsis schwartzii	Softwoods	79	Unknown polygon	Unknown			
31	Phomopsis	All Tree Species	80	Unidentified mortality	Common Pinon			
32	Cytospora	All Tree Species	81	Dead salt tip	Lodgepole Pine			
33	Western gall rust	Unknown	82	Subn elm disease	Elm			
34	Coniophora rust	Unknown	83	Unidentified defoliator (softwood)	Cottwood/Poplar			
35	Stachytarax rust	Lodgepole Pine	84	Unidentified defoliator (hardwood)	Hardwoods			
36			85	Mortality (pine)	Pine			

USGS 100K Quad - Location Map



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
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/monitoring/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.

Map Created September 25 2010

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/fhm/aerialsurvey/>