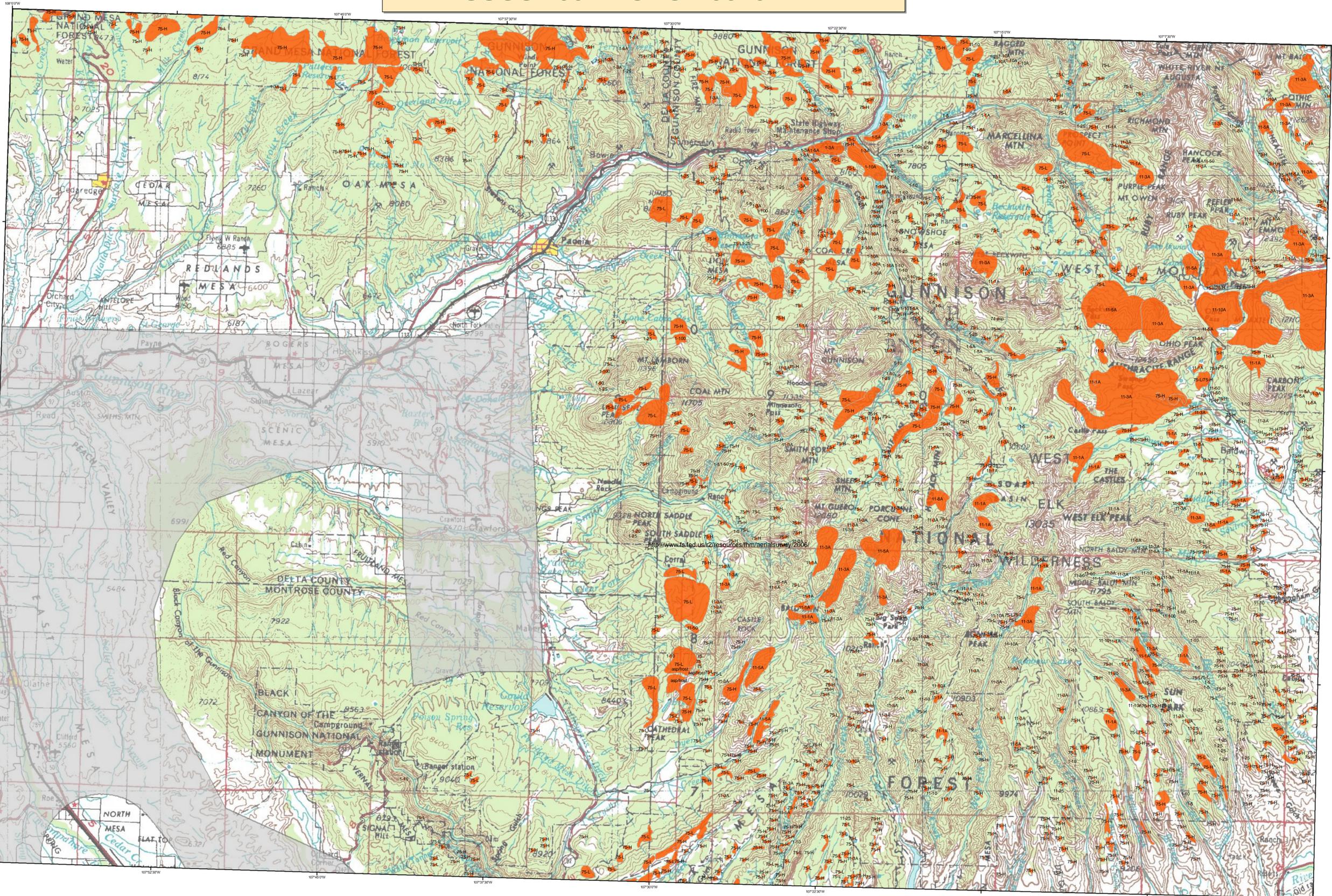


**\*\*DRAFT\*\***

# 2008 Aerial Insect and Disease Survey Paonia, Colorado USGS 100K TOPO!: 38107-E1

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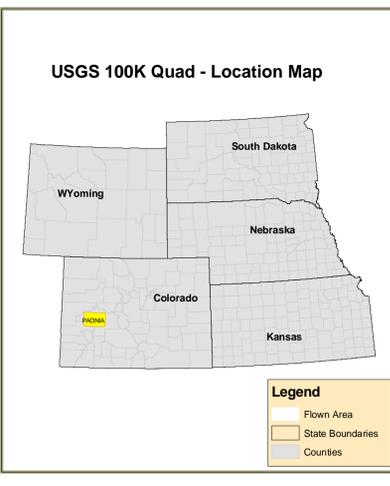


1:100,000

**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 acre 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 "T" 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
1	Douglas-fir beetle	Engelmann Spruce	51	White pine blister rust	Lodgepole Pine
2	Engelmann Spruce Beetle	Engelmann Spruce	52	Dwarf mistletoe	Softwoods
3	Mountain pine beetle	Ponderosa Pine	53	Elytrodema	Ponderosa Pine
4	Mountain pine beetle	Ponderosa Pine	54	Incluses #05, 00 & 09	All Tree Species
5	Western pine beetle	Ponderosa Pine	55	Ascomycetes	All Tree Species
6	Western pine beetle	Ponderosa Pine	56	Chemical damage	All Tree Species
7	Mountain pine beetle	Ponderosa Pine	57	Rhabdocline pseudotsugae	Softwoods
8	Douglas-fir engraver beetle	White Fir	58	Lophodermella arcuta	Softwoods
9	Fire Engraver	White Fir	59	Leucostoma acicola	Softwoods
10	Douglas-fir engraver beetle	Subalpine Fir	60	Lophodermella concolor	Softwoods
11	Western balsam bark beetle	Subalpine Fir	61	Cotyledon (Pinales)	Softwoods
12	Unidentified bark beetle	Subalpine Fir	62	Needle cast (Hypodemateaceae)	All Tree Species
13	Pine engraver	Lodgepole Pine	63	Root Rot	All Tree Species
14	Pine engraver	Ponderosa Pine	64	Unidentified disease	All Tree Species
15	Ponderosa pine needle-miner	Lodgepole Pine	65	Winter damage light	All Tree Species
16	Lodgepole pine needle-miner	Lodgepole Pine	66	Winter damage medium	All Tree Species
17	Jack pine budworm	Jack Pine	67	Winter damage heavy	All Tree Species
18	Spine budworm, light defol.	Douglas-fir	68	Diptera	Softwoods
19	Spine budworm, medium defol.	Douglas-fir	69	Pinion bark stain	Common Pinon
20	Spine budworm, heavy defol.	Douglas-fir	70	Fire	All Tree Species
21	Douglas-fir tussock moth	Ponderosa Pine	71	Fire	All Tree Species
22	Pine tussock moth	Ponderosa Pine	72	Windthrow	All Tree Species
23	Pine looper	Ponderosa Pine	73	High water damage	All Tree Species
24	Pine tortrix	Ponderosa Pine	74	Avalanche	All Tree Species
25	Oak leaf roller	Hardwoods	75	Aspen decline-multiple agents)	Common Pinon
26	Pine needle-needle miner	Ponderosa Pine	76	Limber pine decline-multiple agents)	Common Pinon
27	Variable oak leaf caterpillar	Hardwoods	77	Juniper mortality-unknown agents)	Juniper
28	Unidentified defoliator	Hardwoods	78	Quaking aspen (unknown agents)	Quaking Aspen
29	Hemiblastis annosus (Fomes annosus)	All Tree Species	79	Limber pine decline-unknown agents)	Limber Pine
30	Unidentified defoliator	Softwoods	80	Unidentified defoliator (unknown agents)	All Tree Species
31	Armillaria ostoyae (Armillaria mellea)	Softwoods	81	Unidentified defoliator (unknown agents)	All Tree Species
32	Populus sawtooth	Softwoods	82	Herbicide (cottonwood)	Cottonwood
33	Phytophthora	Softwoods	83	Herbicide (eastern cedar)	Eastern Red Cedar
34	Cytospora	All Tree Species	84	Unidentified defoliator (cottonwood)	Cottonwood
35	Western gall rust	Unknown	85	Unidentified defoliator (cedar)	Eastern Red Cedar
36	Comandra rust	Unknown	86	Unidentified defoliator (hardwood)	Hardwoods
37	Stachyridium rust	Lodgepole Pine	87	Mortality (pine)	Pine



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

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Renewable Resources  
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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 2 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/>