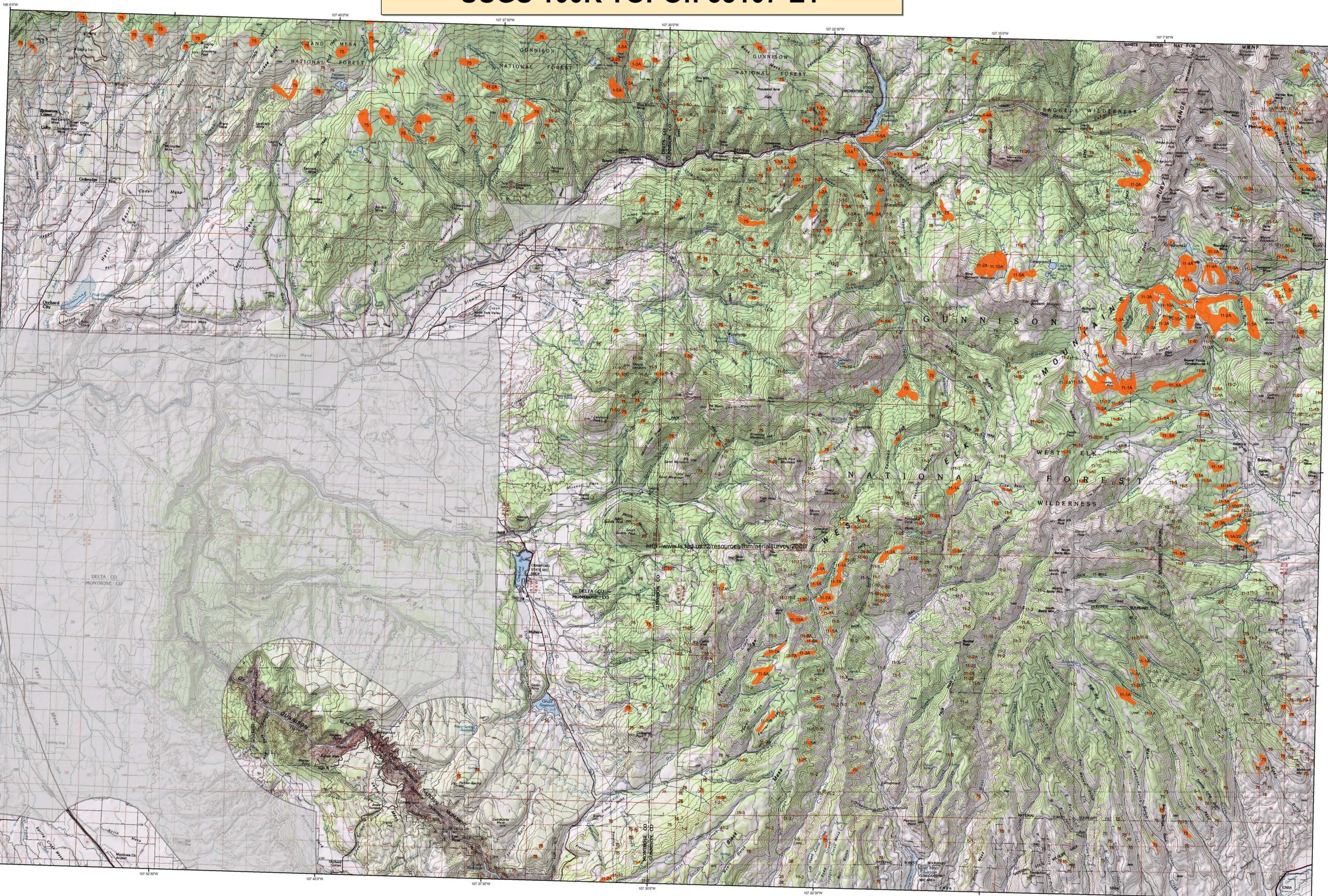


2006 Aerial Insect and Disease Survey Paonia, Colorado USGS 100K TOPO!: 38107-E1



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: 5-120A = 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: 5-2A = that on the average, an estimated three trees per acre are dead "ladder" trees. A "I" 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	Arthropods	Lodgepole Pine	105	For sawmill 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	Deer tick	Softwoods	108	road salt	Softwoods
4	Mountain pine beetle	Lodgepole Pine	52	Elytrodema	Ponderosa Pine	109	pinewood nematode	Scotch Pine
5	Mountain pine beetle	5-Needle Pine	53	Includes #55, 50 & 55	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	54	Aspidiotera	All Tree Species	111	foliar disease	All Tree Species
7	Fire Engulver	Douglas-fir	55	Chemical damage	All Tree Species	112	spruce ips	White Spruce
8	Western pine beetle	Douglas-fir	56	Lophodermium pinastri	Softwoods	113	tufted crownthorn borer	Oak
9	Fire Engulver	Douglas-fir	57	Rhabdocline pseudotsugae	Douglas-fir	114	anthracnose like foliar disease	Bur Oak
10	Douglas-fir engraver beetle	Subalpine Fir	58	Lothodermella arcuta	Softwoods	115	Dieback	All Tree Species
11	Western balsam bark beetle	Unidentified bark beetle	59	Lecanostoma acicola	Softwoods	116	Mortality	All Tree Species
12	Unidentified bark beetle	Softwoods	60	Lophodermella concolor	Softwoods	117	Discoloration	All Tree Species
13	Pine engraver	Lodgepole Pine	61	Cochlostoma pini	Softwoods	118	Herbicide	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	Root Rot	All Tree Species	120	Japan tortrix	Quaking Aspen
16	Lodgepole pine needle-miner	Lodgepole Pine	64	Unidentified disease	Softwoods	121	Mantona's Bight	Quaking Aspen
17	Jack pine budworm	Jack Pine	65	Winter damage light	All Tree Species	200	Dieback (ash)	Ash
18	Spruce budworm, light defol.	Douglas-fir	66	Winter damage medium	All Tree Species	201	Dieback (cottonwood)	Cottonwood/Poplar
19	Spruce budworm, medium defol.	Douglas-fir	67	Winter damage heavy	All Tree Species	202	Dieback (hardwood)	Hardwoods
20	Spruce budworm, heavy defol.	Douglas-fir	68	Quail	Softwoods	204	Dieback (oak)	Oak
21	Douglas-fir spruce moth	Ponderosa Pine	69	Pinon black stain	Common Pinon	210	Mortality (old cottonwood)	Cottonwood/Poplar
22	Pine butterfly	Ponderosa Pine	70	Pine	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Pine tortrix	Hardwoods	71	Fraxinose	Softwoods	212	Mortality (hardwood)	Hardwoods
24	Text caterpillars	Hardwoods	72	Windthrow	All Tree Species	213	Mortality (oak)	Oak
25	Lark beetles	Hardwoods	73	High water damage	All Tree Species	214	Mortality (spruce)	Spruce
26	Oak leaf roller	Hardwoods	74	Avalanche	All Tree Species	220	Discoloration (ash)	Ash
27	Pine needle-ash miner	Ponderosa Pine	75	Aspen decline-multiple agents)	All Tree Species	221	Discoloration (cotton)	Softwoods
28	Pine needle-ash miner	Ponderosa Pine	76	Limber pine mortality	Common Pinon	222	Discoloration (cottonwood)	Cottonwood/Poplar
29	Pine needle-ash miner	Hardwoods	77	Juniper mortality-unknown agents)	Juniper	223	Discoloration (eastern cedar)	Eastern Red Cedar
30	Unidentified defoliator	Hardwoods	78	Quaking Aspen	Quaking Aspen	224	Discoloration (hardwood)	Hardwoods
31	Variable oak leaf caterpillar	All Tree Species	79	Limber pine decline-unknown agents)	Limber Pine	225	Discoloration (oak)	Oak
32	Helminthosporium (Fomes annosus)	Softwoods	80	Hail damage	All Tree Species	226	Discoloration (spruce)	Spruce
33	Armillaria ostoyae (Armillaria mellea)	Softwoods	81	Unknown	Unknown	230	Herbicide (cottonwood)	Cottonwood/Poplar
34	Polygonus schweinfurthii	Softwoods	99	Unknown polygon	Common Pinon	231	Herbicide (eastern cedar)	Eastern Red Cedar
35	Unidentified defoliator	Hardwoods	100	dead pinon mortality	Common Pinon	240	Flagging (hardwood)	Hardwoods
36	Phytophthora	Softwoods	101	dead salt tip	Lodgepole Pine	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
37	Cytospora	All Tree Species	102	Subalpine elm disease	Elm	251	Unidentified defoliator (elm)	Elm
38	Western gall rust	Unknown	103	Spotted light	Ponderosa Pine	252	Unidentified defoliator (hardwood)	Hardwoods
39	Comandra rust	Unknown	104	Spice, White Spruce	Spruce, White Spruce	300	Mortality (pine)	Pine
40	Stachytarax rust	Lodgepole Pine	105	drought killed narrow leaf cottonwood	Narrowleaf Cottonwood			

USGS 100K Quad - Location Map



Legend
 Flow 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 Erik Johnson & Pat Ahern 07/24 - 07/31 2006
 Patrick Ahern, Kelly Rogers 09/19 - 09/20 2006
 Map Created: 01/04/2006
 Projection: UTM NAD83 Zone 13
 Author: J. Ross, USDA Forest Service

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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/>