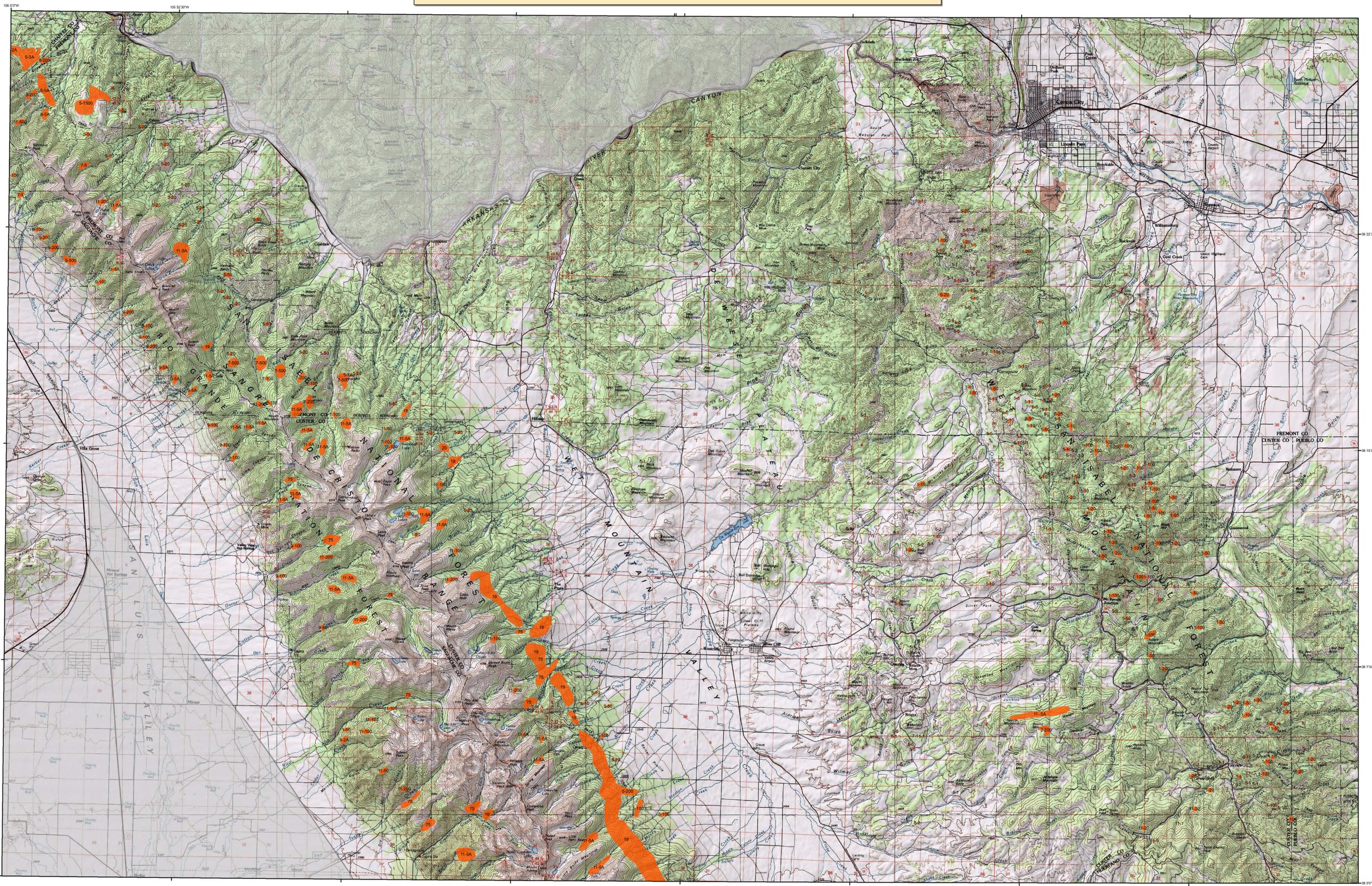


2005 Aerial Insect and Disease Survey Canon City, Colorado USGS 100K TOPO!: 38105-A1



1:100,000

Legend

Causal Agent(s) **Not Flown in 2005**

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 acreage estimates are used after the causal agent code instead of number of dead "fader" trees (or an intensity code). For example: 5-122A = 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	89	Rhinoceros	Lodgepole Pine	105	Box squirrel fraying	Cottonwood/Poplar
2	Engelmann spruce beetle	Engelmann Spruce	90	White pine blister rust	S-Needle Pine	107	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	91	European mistletoe	Lodgepole Pine	108	road salt	Softwoods
4	Western pine beetle	Ponderosa Pine	92	Elysiadema	Ponderosa Pine	109	pine-wood nematode	Scottish Pine
5	Mountain pine beetle	S-Needle Pine	93	Inclusa #65, 66 & 67	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	94	Air pollution	All Tree Species	111	ring-neck disease	All Tree Species
7	Fire Engulver	White Fir	95	Chemical damage	All Tree Species	112	spruce Ips	White Spruce
8	Douglas fir engraver beetle	Douglas fir	96	Lophodermium pinastri	Softwoods	113	bedford chestnut borer	Oak
9	Western balsam bark beetle	Subsopine Fir	97	Rhizobolite pseudotsugae	Douglas fir	114	anthracnose like foliar disease	Sur Oak
10	Unidentified bark beetle	Softwoods	98	Unidentified disease	Softwoods	115	Dieback	All Tree Species
11	Pine engraver	Lodgepole Pine	99	Winter damage light	All Tree Species	116	Mortality	All Tree Species
12	Pine engraver	Ponderosa Pine	100	Winter damage medium	All Tree Species	117	Discoloration	All Tree Species
13	Pine engraver	Lodgepole Pine	101	Winter damage heavy	All Tree Species	118	Herbicide	All Tree Species
14	Ponderosa pine needle miner	Lodgepole Pine	102	Juniper mortality	Juniper	119	Flagging	All Tree Species
15	Ponderosa pine needle miner	Lodgepole Pine	103	Juniper mortality	Juniper	120	aspen tortrix	Quaking Aspen
16	Ponderosa pine needle miner	Lodgepole Pine	104	Juniper mortality	Juniper	121	Margosona Blight	Quaking Aspen
17	Jack pine budworm	Jack Pine	105	Juniper mortality	Juniper	200	Dieback (ash)	Ash
18	Spruce budworm, light defol.	Douglas fir	106	Juniper mortality	Juniper	201	Dieback (cottonwood)	Cottonwood/Poplar
19	Spruce budworm, medium defol.	Douglas fir	107	Juniper mortality	Juniper	202	Dieback (hardwood)	Hardwoods
20	Spruce budworm, heavy defol.	Douglas fir	108	Juniper mortality	Juniper	204	Dieback (oak)	Oak
21	Douglas fir tussock moth	Douglas fir	109	Juniper mortality	Juniper	210	Mortality (oak cottonwood)	Cottonwood/Poplar
22	Pine butterfly	Ponderosa Pine	110	Juniper mortality	Juniper	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Pine looper	Ponderosa Pine	111	Juniper mortality	Juniper	212	Mortality (hardwood)	Hardwoods
24	Pine tortrix	Ponderosa Pine	112	Juniper mortality	Juniper	213	Mortality (oak)	Oak
25	Tent caterpillars	Hardwoods	113	Juniper mortality	Juniper	214	Mortality (spruce)	Spruce
26	Leaf beetles	Hardwoods	114	Juniper mortality	Juniper	220	Discoloration (ash)	Ash
27	Oak leaf roller	Hardwoods	115	Juniper mortality	Juniper	221	Discoloration (conifer)	Softwoods
28	Pine needle-sheath miner	Ponderosa Pine	116	Juniper mortality	Juniper	222	Discoloration (cottonwood)	Cottonwood/Poplar
29	Pine sawflies	Ponderosa Pine	117	Juniper mortality	Juniper	223	Discoloration (eastern cedar)	Eastern Red Cedar
30	Pine tussock moth	Ponderosa Pine	118	Juniper mortality	Juniper	224	Discoloration (hardwood)	Hardwoods
31	Variable oak leaf caterpillar	Hardwoods	119	Juniper mortality	Juniper	225	Discoloration (oak)	Oak
32	Carabid weevils	Hardwoods	120	Juniper mortality	Juniper	226	Discoloration (spruce)	Spruce
33	Unidentified defoliator	All Tree Species	121	Juniper mortality	Juniper	230	Discoloration (oak cottonwood)	Cottonwood/Poplar
34	Heterobasidion annosum (Pines annosus)	Softwoods	122	Juniper mortality	Juniper	231	Herbicide (eastern cedar)	Eastern Red Cedar
35	Armillaria ostroyae (Amillaria media)	Softwoods	123	Juniper mortality	Juniper	240	Flagging (hardwood)	Hardwoods
36	Polytopus schweinitzi	Softwoods	124	Juniper mortality	Juniper	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
37	Phytophthora	All Tree Species	125	Juniper mortality	Juniper	251	Unidentified defoliator (elm)	Elm
38	Cytospora	All Tree Species	126	Juniper mortality	Juniper	252	Unidentified defoliator (hardwood)	Hardwoods
39	Western gall rust	Unknown	127	Juniper mortality	Juniper	300	Mortality (pine)	Pine
40	Comandra rust	Unknown	128	Juniper mortality	Juniper			
41	Shastacorn rust	Lodgepole Pine	129	Juniper mortality	Juniper			
42			130	drought killed narrow leaf cottonwood	Narrowleaf Cottonwood			

USGS 100K Quad - Location Map



Legend
 Flow Area in 2005
 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.

Aerial surveyed by William Ciesla & Crystal Tischler 8/16 - 8/17 2005
 Al Dymerski 8/8 - 8/12 2005
 Map Created: 02-06
 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/>