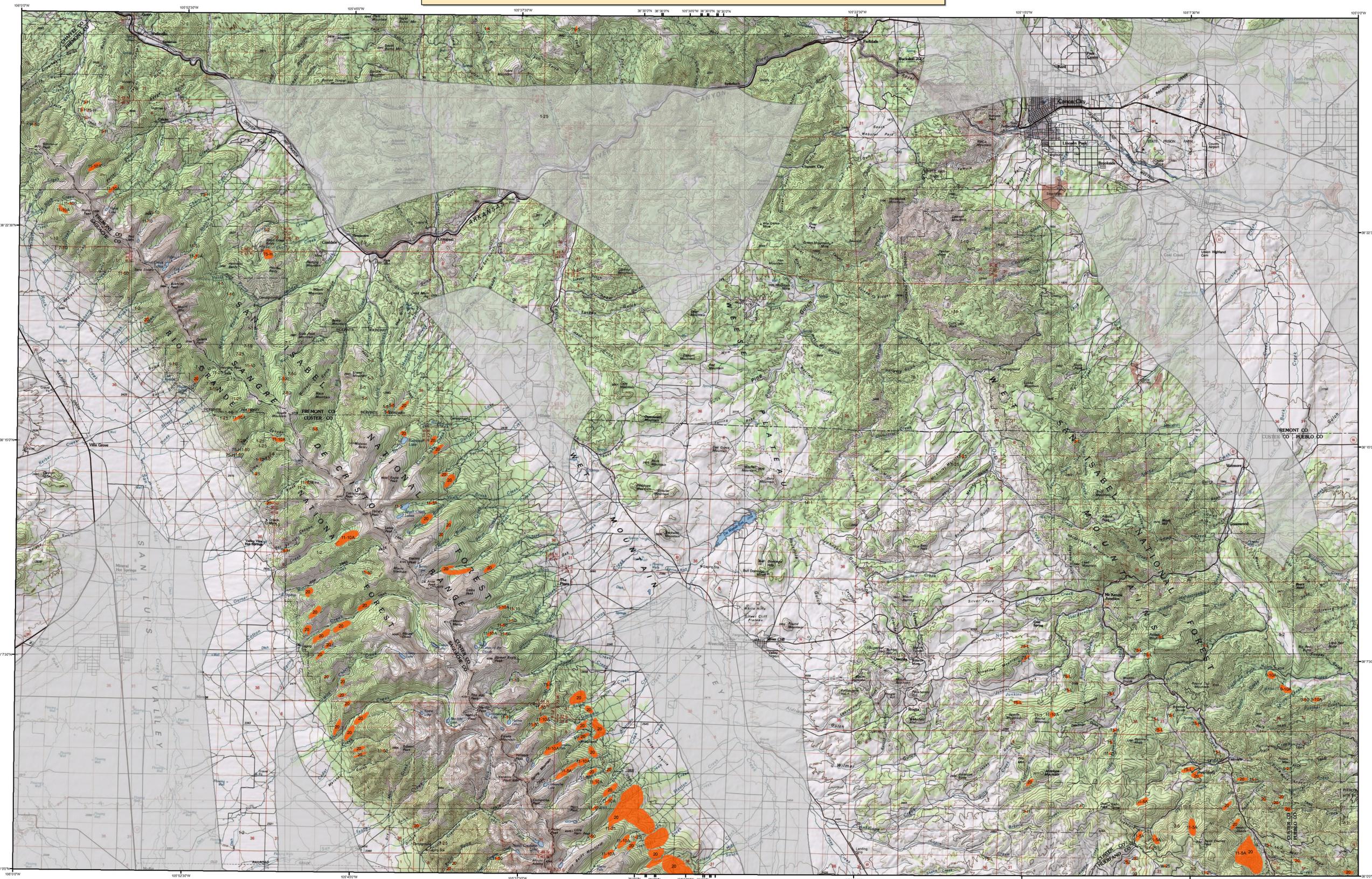
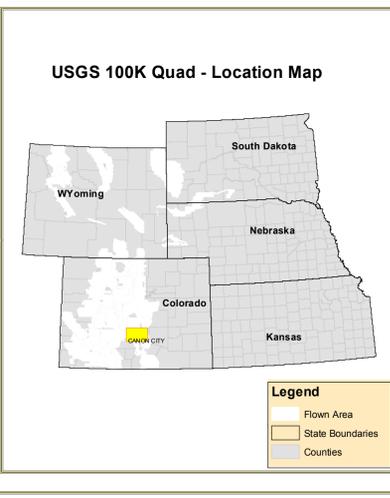


2011 Aerial Insect and Disease Survey Canon City, Colorado USGS 100K TOPO!: 38105-A1



1:100,000

Legend		Causal Agent(s)	Not Flown		
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 acreage estimates are used after the causal agent code instead of number of dead "faded" trees (or an intensity code). For example: 5-1/2A = The first number before the dash is the causal agent code. The number after the dash is an estimation of the number of dead "faded" 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 "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 point polygon has more than one causal agent code.					
Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host
1	Douglas fir beetle	Douglas fir	106	Red squirrel flagg	Cottonwood Poplar
2	Engelmann spruce beetle	Engelmann Spruce	107	fall webworm	Cottonwood Poplar
3	Blue spruce ips	Blue Spruce	108	root rot	Softwoods
4	Mountain pine beetle	Ponderosa Pine	109	pinewood nematode	Scotch Pine
5	Mountain pine beetle	Lodgepole Pine	110	oak wilt	Oak
6	Mountain pine beetle	5-Needle Pine	111	flagship disease	All Tree Species
7	Western pine beetle	White fir	112	spine ips	All Tree Species
8	Fire Enginer	White fir	113	honeylocust borer	White Spruce
9	Fire Enginer	Douglas fir	114	anthracnose like solar disease	Bur Oak
10	Douglas fir engraver beetle	Douglas fir	115	Dieback	All Tree Species
11	Western balsam bark beetle	Subalpine fir	116	Mortality	All Tree Species
12	Unidentified bark beetle	Softwoods	117	Discoloration	All Tree Species
13	Pine engraver	Lodgepole Pine	118	Flagging	All Tree Species
14	Pine engraver	Lodgepole Pine	119	Quaking Aspen	Quaking Aspen
15	Ponderosa pine needle miner	Lodgepole Pine	120	Quaking Aspen	Quaking Aspen
16	Lodgepole pine needle miner	Ponderosa Pine	121	Mansonia Blight	Quaking Aspen
17	Jack pine budworm	Jack Pine	200	Dieback (left)	Ash
18	Spruce budworm, light defol.	Douglas fir	201	Dieback (cottonwood)	Cottonwood Poplar
19	Spruce budworm, medium defol.	Douglas fir	202	Dieback (hardwood)	Hardwoods
20	Spruce budworm, heavy defol.	Douglas fir	203	Dieback (oak)	Oak
21	Douglas fir bark moth	Douglas fir	204	Mortality (eastern cedar)	Eastern Red Cedar
22	Pine tortrix	Ponderosa Pine	212	Mortality (hardwood)	Hardwoods
23	Tent caterpillar	Hardwoods	213	Mortality (oak)	Oak
24	Leaf beetles	Hardwoods	214	Mortality (hardwood)	Hardwoods
25	Aspen defoliation	Quaking Aspen	220	Discoloration (ash)	Ash
26	Oak leaf roller	Hardwoods	221	Discoloration (cedar)	Hardwoods
27	Pine needle-shaft miner	Ponderosa Pine	222	Discoloration (cottonwood)	Cottonwood Poplar
28	Pine sawflies	Ponderosa Pine	223	Discoloration (eastern cedar)	Eastern Red Cedar
29	Pine larch moth	Ponderosa Pine	224	Discoloration (hardwood)	Hardwoods
30	Carionworms	Hardwoods	225	Discoloration (oak)	Oak
31	Variable oak leaf caterpillar	Hardwoods	226	Discoloration (spruce)	Spruce
32	Unidentified defoliator	All Tree Species	230	Herdicade (cottonwood)	Cottonwood Poplar
33	Unidentified defoliator	All Tree Species	231	Herdicade (eastern cedar)	Eastern Red Cedar
34	Heterobasidion annosum (Fomes annosus)	Softwoods	240	Flagging (hardwood)	Hardwoods
35	Amelaria selysiae (Amelaria mellea)	Softwoods	250	Unidentified defoliator (cottonwood)	Cottonwood Poplar
36	Thrombia	Softwoods	251	Unidentified defoliator (elm)	Elm
37	Cystospora	All Tree Species	252	Unidentified defoliator (hardwood)	Hardwoods
38	Western gall rust	Unknown	300	Mortality (spruce)	Pine
39	Donaxia rust	Unknown			



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 1 2011
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/>

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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.