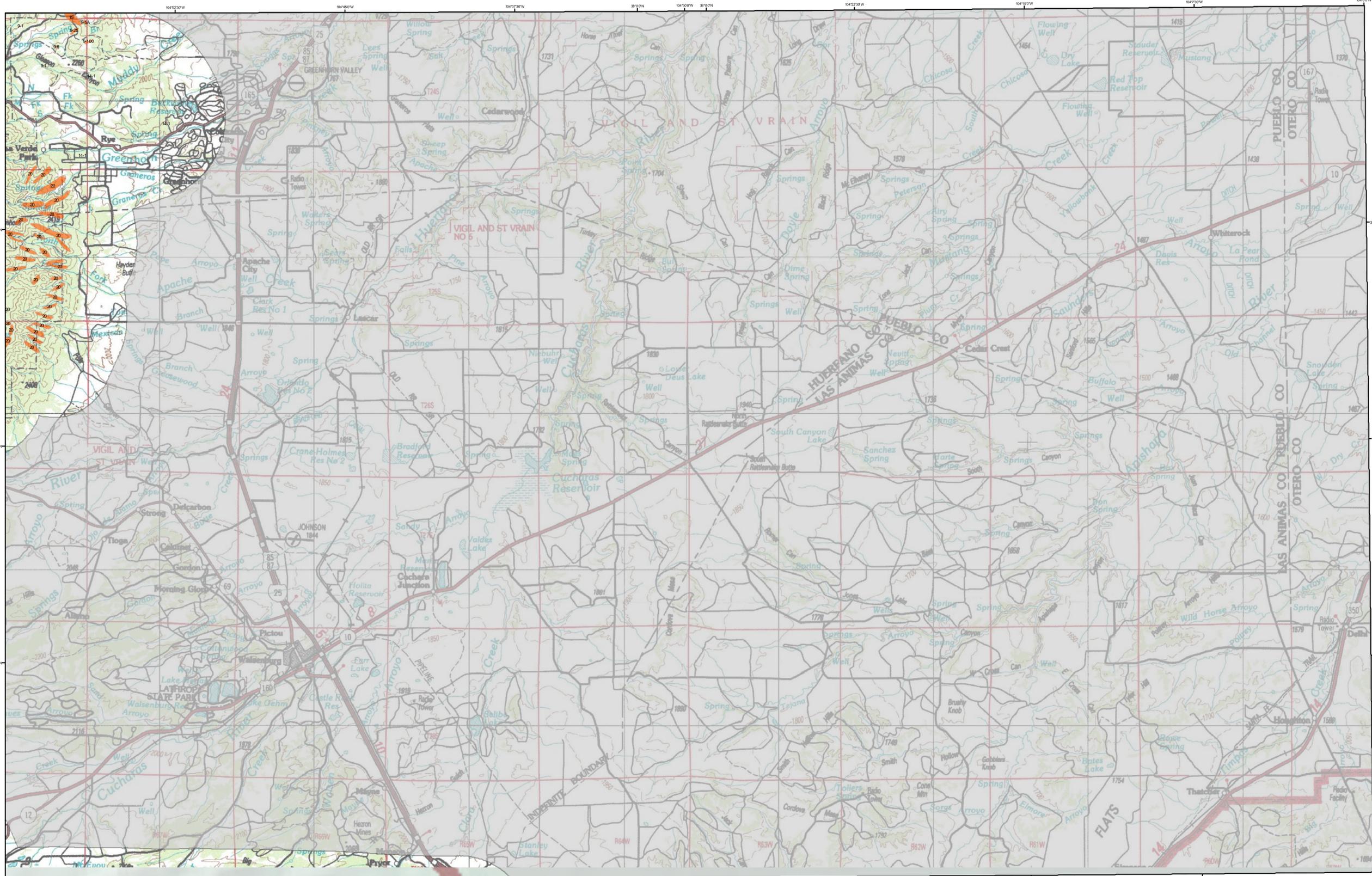


2010 Aerial Insect and Disease Survey Walsenburg, Colorado USGS 100K TOPO!: 37104-E1



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: 5-1/2A = The first number before the dash is the causal agent code. The number after the dash is an estimation of the number of dead "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
01	Arthropod	Lodgepole Pine	107	fall weevil	Cottonwood/Poplar
02	Engelmann Spruce Beetle	Engelmann Spruce	108	road salt	Softwoods
03	Mountain pine beetle	Ponderosa Pine	109	greenwood nematode	Softwood
04	Mountain pine beetle	5-Needle Pine	110	oak wilt	Softwood
05	Western pine beetle	Ponderosa Pine	111	ring-neck disease	All Tree Species
06	White Fir	White Fir	112	snout tip	White Spruce
07	Douglas-fir engraver beetle	Douglas-fir	113	brood nest/cheat/boer	Oak
08	Western balsam bark beetle	Subsone Fir	114	anthracnose like foliar disease	Bur Oak
09	Unidentified bark beetle	Softwoods	115	Dieback	All Tree Species
10	Pine engraver	Lodgepole Pine	116	Mortality	All Tree Species
11	Pine engraver	Ponderosa Pine	117	Discoloration	All Tree Species
12	Ponderosa pine needle miner	Lodgepole Pine	118	Herbicide	All Tree Species
13	Lodgepole pine needle miner	Ponderosa Pine	119	Flagging	All Tree Species
14	Jack pine budworm	Jack Pine	120	aspen tortix	Quaking Aspen
15	Spruce budworm, light defol.	Douglas-fir	121	Marsdenia Blight	Quaking Aspen
16	Spruce budworm, medium defol.	Douglas-fir	200	Dieback (ash)	Ash
17	Spruce budworm, heavy defol.	Douglas-fir	201	Dieback (cottonwood)	Cottonwood/Poplar
18	Douglas-fir tussock moth	Douglas-fir	202	Dieback (hardwood)	Hardwoods
19	Pine Buttefly	Ponderosa Pine	204	Dieback (oak)	Oak
20	Pine looper	Ponderosa Pine	210	Mortality (old cottonwood)	Cottonwood/Poplar
21	Tank oaks	Hardwoods	211	Mortality (eastern cedar)	Eastern Red Cedar
22	Leaf beetles	Hardwoods	212	Mortality (hardwood)	Hardwoods
23	Oak leaf roller	Hardwoods	213	Mortality (oak)	Oak
24	Pine needle-sheath miner	Ponderosa Pine	214	Mortality (spruce)	Spruce
25	Pine tussock moth	Ponderosa Pine	220	Discoloration (ash)	Ash
26	Variable oak leaf caterpillar	Hardwoods	221	Discoloration (conifer)	Softwoods
27	Unidentified defoliator	All Tree Species	222	Discoloration (cottonwood)	Cottonwood/Poplar
28	Heterobasidion annosum (Pines annosus)	Softwoods	223	Discoloration (eastern cedar)	Eastern Red Cedar
29	Armillaria ostroyae (Amillaria meka)	Softwoods	224	Discoloration (hardwood)	Hardwoods
30	Polyporus schweinitzi	Softwoods	225	Discoloration (oak)	Oak
31	Unidentified fungus	All Tree Species	226	Discoloration (spruce)	Spruce
32	Cytospora	All Tree Species	227	Herbicide (cottonwood)	Cottonwood/Poplar
33	Western gall rust	Unknown	231	Herbicide (eastern cedar)	Eastern Red Cedar
34	Conedale rust	Unknown	240	Flagging (hardwood)	Hardwoods
35	Stackpole rust	Lodgepole Pine	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
36	Stackpole rust	Lodgepole Pine	251	Unidentified defoliator (elm)	Elm
37	Stackpole rust	Lodgepole Pine	252	Unidentified defoliator (hardwood)	Hardwoods
38	Stackpole rust	Lodgepole Pine	300	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 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 November 1 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/>

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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/operations/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.