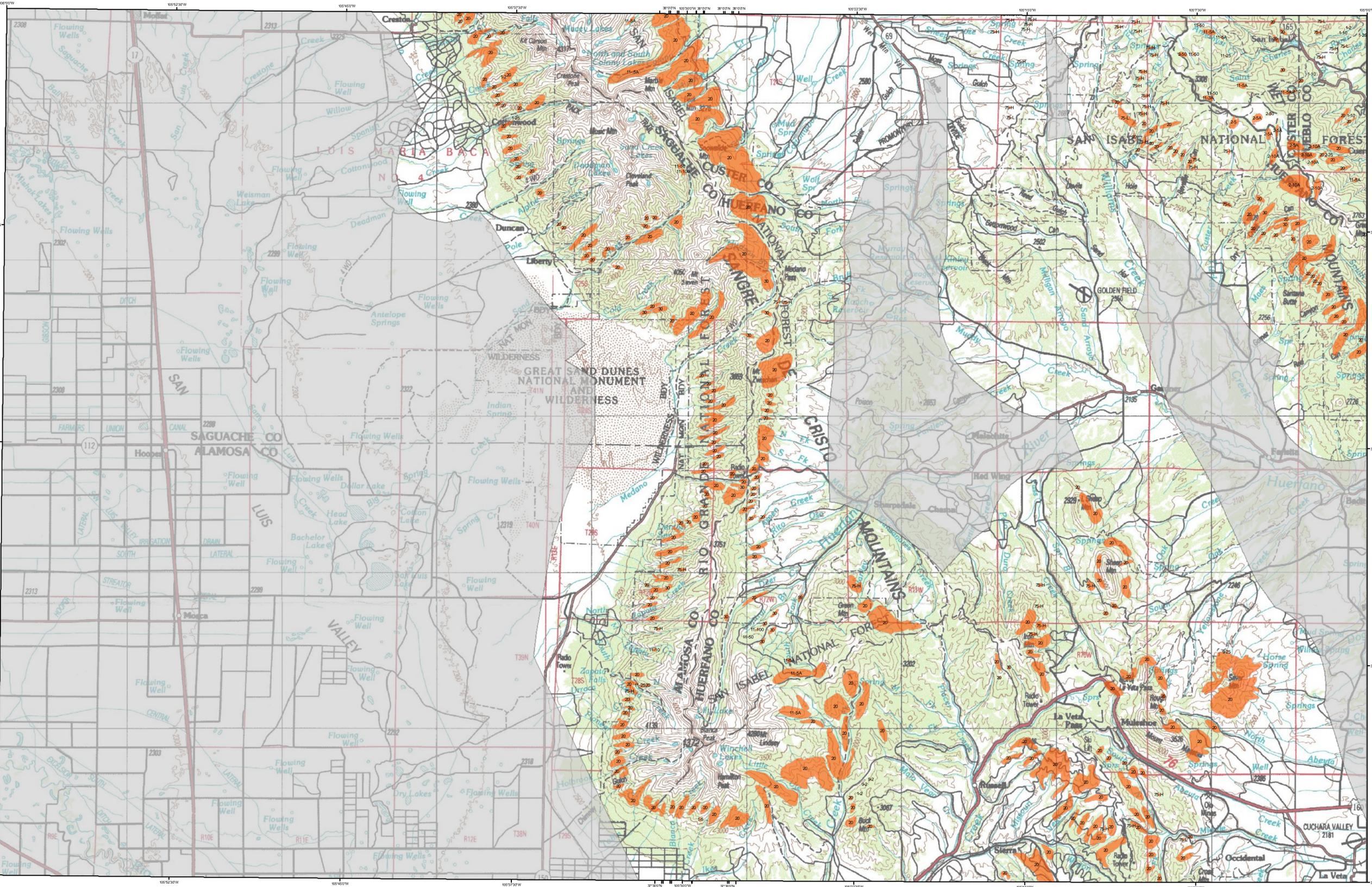


# 2010 Aerial Insect and Disease Survey Blanca Peak, Colorado USGS 100K TOPO!: 37105-E1



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 "fader" trees in the polygon or point. When recent dead trees are not counted, an intensity code of Light, Moderate, and High may be used after the causal agent code. Periodically, trees per acre age estimates are used after the causal agent code instead of number of dead "fader" trees (or an intensity code). For example: 5-12A = 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 "Y" is used as a separator when a causal polygon has more than one causal agent code.

Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host
1	Douglas-fir beetle	Douglas-fir	49	Atropis	Lodgepole Pine
2	Engelmann Spruce Beetle	Engelmann Spruce	50	White pine blister rust	5-Needle Pine
5	Mountain pine beetle	Ponderosa Pine	61	Dwarf mistletoe	Softwoods
8	Mountain pine beetle	Lodgepole Pine	62	Cytospora	Ponderosa Pine
7	Mountain pine beetle	5-Needle Pine	63	Inclusus 60, 65 & 68	All Tree Species
9	Western pine beetle	Ponderosa Pine	64	Air pollutants	All Tree Species
9	Fire Enginer	White Fir	65	Chemical damage	All Tree Species
10	Douglas-fir engraver beetle	Douglas-fir	66	Lophodermium pinasti	Softwoods
11	Western balsam bark beetle	Douglas-fir	67	Rhabdocline pseudotsugae	Douglas-fir
12	Unidentified bark beetle	Softwoods	68	Lophodermium arcauata	Softwoods
13	Fire engraver	Lodgepole Pine	69	Lecanotia aculeata	Softwoods
14	Pine engraver	Ponderosa Pine	60	Lophodermium concolor	Softwoods
15	Ponderosa pine needle miner	Lodgepole Pine	61	Dactylostroma pin	Softwoods
16	Lodgepole pine needle miner	Ponderosa Pine	62	Needle cast (Hymenoptera)	All Tree Species
17	Jack pine budworm	Jack Pine	63	Root Rot	All Tree Species
18	Spice budworm, light defol.	Douglas-fir	64	Unidentified disease	All Tree Species
19	Spice budworm, medium defol.	Douglas-fir	65	Winter damage light	All Tree Species
20	Spice budworm, heavy defol.	Douglas-fir	66	Winter damage medium	All Tree Species
21	Douglas-fir balsam moth	Douglas-fir	67	Winter damage heavy	All Tree Species
22	Pine butterfly	Douglas-fir	68	Diploids	Softwoods
23	Pine looper	Ponderosa Pine	69	Pinyon bark stain	Common Pinon
24	Pine tortrix	Ponderosa Pine	70	Fire	All Tree Species
25	Tree caterpillars	Hardwoods	71	Fungus	Softwoods
26	Leaf beetles	Hardwoods	72	Windthrow	All Tree Species
27	Oak leaf roller	Hardwoods	73	High water damage	All Tree Species
28	Pine needle-shaft miner	Ponderosa Pine	74	Avian/rodent	All Tree Species
29	Pine sawflies	Ponderosa Pine	75	Aspen decline-multiple agents	Quaking Aspen
30	Pine sawtooth moth	Ponderosa Pine	76	Physio pine mortality	Common Pinon
31	Cankerworms	Hardwoods	77	Juniper mortality-unknown agents	Juniper
32	Variable oak leaf caterpillar	Hardwoods	78	Gambel oak decline-unknown agents	Gambel Oak
33	Unidentified defoliator	Softwoods	79	Lumber pine decline-multiple agents	Lumber Pine
34	Heterobasidion annosum (Fomes annosus)	Softwoods	80	Hail damage	All Tree Species
35	Armillaria ostroyae (Armillaria mellea)	Softwoods	81	Unknown polygon	Unknown
36	Polyozia schwartzii	Softwoods	100	old pinon mortality	Common Pinon
37	Phomopsis	Softwoods	101	dead salt tip	Lodgepole Pine
38	Cytospora	All Tree Species	102	dead salt tip	Elm
39	Western gall rust	Unknown	103	diploids blight	Ponderosa Pine
40	Comandra rust	Unknown	104	soa tumors	Spouse, White Spruce
41	Stactactoma rust	Lodgepole Pine	105	straght killed narrow leaf cottonwood	Narrowleaf Cottonwood
106	fox squirrel foraging	Cottonwood/Poplar	107	fall webworm	Cottonwood/Poplar
108	road salt	Softwoods	109	pinewood nematode	Socion Pine
109	pinewood nematode	Oak	110	oak wilt	All Tree Species
111	foliage disease	White Spruce	112	spring ice	All Tree Species
113	twined chestnut borer	Bur Oak	114	anthracnose leaf blotch disease	All Tree Species
115	Dieback	All Tree Species	116	Mortality	All Tree Species
117	Discoloration	All Tree Species	118	Herbicide	All Tree Species
119	Flagging	All Tree Species	120	aspen tortix	Quaking Aspen
121	Mansonia blight	Quaking Aspen	200	Dieback (ash)	Ash
201	Dieback (cottonwood)	Cottonwood/Poplar	202	Dieback (hardwood)	Hardwoods
204	Dieback (oak)	Oak	205	Discoloration (oak)	Oak
211	Mortality (old cottonwood)	Cottonwood/Poplar	212	Mortality (eastern cedar)	Eastern Red Cedar
213	Mortality (hardwood)	Hardwoods	214	Mortality (spruce)	Spruce
215	Mortality (oak)	Oak	220	Discoloration (ash)	Ash
221	Discoloration (cottonwood)	Softwoods	222	Discoloration (cottonwood)	Cottonwood/Poplar
223	Discoloration (eastern cedar)	Eastern Red Cedar	224	Discoloration (hardwood)	Hardwoods
225	Discoloration (oak)	Oak	226	Discoloration (spruce)	Spruce
230	Herbicide (cottonwood)	Cottonwood/Poplar	231	Herbicide (eastern cedar)	Eastern Red Cedar
232	Discoloration (oak)	Oak	233	Flagging (hardwood)	Hardwoods
234	Discoloration (cottonwood)	Cottonwood/Poplar	235	Discoloration (oak)	Oak
251	Unidentified defoliator (elm)	Elm	252	Unidentified defoliator (hardwood)	Hardwoods
300	Mortality (pine)	Pine			

## USGS 100K Quad - Location Map



## 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 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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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.