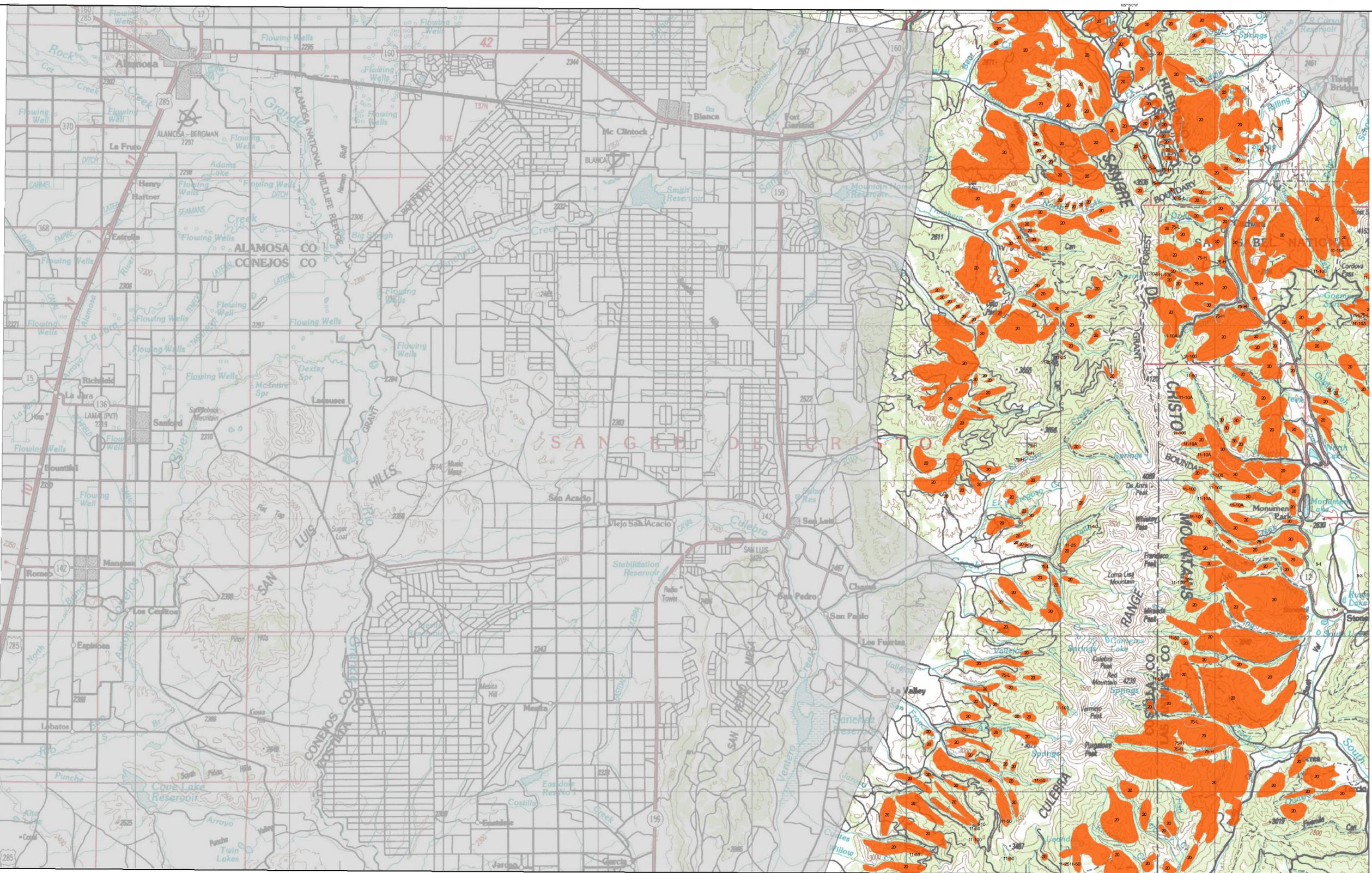


# 2009 Aerial Insect and Disease Survey Alamosa, Colorado USGS 100K TOPO!: 37105-A1



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 a report dead trees are not counted, an intensity code of 1 (light), 2 (moderate), and 3 (high) may be used after the causal agent code. Periodically, trees per acre estimates are used after the causal agent code instead of number of dead "fader" 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 "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	69	Atriplex	Logpole Pine	100	Ice squirrel lagging	Cottonwood/Poplar
2	Engelmann spruce beetle	Engelmann Spruce	70	White pine blister rust	5-Needle Pine	107	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	71	Oswald mistle	Softwoods	108	oak leaf	Softwoods
4	Mountain pine beetle	Logpole Pine	72	Elytosomea	Ponderosa Pine	109	pinewood nematode	Scotch Pine
5	Needle Pine	5-Needle Pine	73	Inducida ruf. 50 & 59	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	74	Air pollutants	All Tree Species	111	foliage disease	All Tree Species
7	White fir	White Fir	75	Chemical damage	All Tree Species	112	spruce iris	White Spruce
8	White fir engraver beetle	Douglas-fir	76	Lophodermium praeurti	Softwoods	113	leafhopper/cedar borer	Oak
9	White fir engraver beetle	Douglas-fir	77	Rhabdocline pseudotsugae	Douglas-fir	114	anthracnose like foliar disease	Bur Oak
10	Western balsam bark beetle	Softwoods	78	Lophodermium arcauta	Softwoods	115	Dieback	All Tree Species
11	Unidentified bark beetle	Logpole Pine	79	Lecanosticta alocosia	Softwoods	116	Mortality	All Tree Species
12	Unidentified bark beetle	Ponderosa Pine	80	Lophodermium concolor	Softwoods	117	Discoloration	All Tree Species
13	Pine engraver	Logpole Pine	81	Cotryporosa sp.	Softwoods	118	Herpetis	All Tree Species
14	Pine engraver	Ponderosa Pine	82	Needle cast (Hypodermataceae)	Softwoods	119	Flagging	All Tree Species
15	Ponderosa pine needle miner	Logpole Pine	83	Rust for	All Tree Species	120	Japan tortix	Quaking Aspen
16	Logpole pine needle miner	Logpole Pine	84	Unidentified disease	Softwoods	121	Marssonina Blight	Quaking Aspen
17	Jack pine budworm	Jack Pine	85	Winter damage light	All Tree Species	122	Dieback (softwood)	Cottonwood/Poplar
18	Spruce budworm, light defol.	Douglas-fir	86	Winter damage medium	All Tree Species	200	Dieback (hardwood)	Hardwoods
19	Spruce budworm, heavy defol.	Douglas-fir	87	Winter damage heavy	All Tree Species	201	Dieback (oak)	Hardwoods
20	Spruce budworm, heavy defol.	Douglas-fir	88	Pinon black stain	All Tree Species	210	Mortality (old cottonwood)	Cottonwood/Poplar
21	Douglas-fir tussock moth	Douglas-fir	89	Pine	Common Pinon	211	Mortality (western cedar)	Eastern Red Cedar
22	Pine butterfly	Ponderosa Pine	90	Porcupine	Softwoods	212	Mortality (hardwood)	Hardwoods
23	Pine looper	Ponderosa Pine	91	Windthrow	All Tree Species	213	Mortality (oak)	Oak
24	Pine looper	Ponderosa Pine	92	High water damage	All Tree Species	214	Mortality (herpoc)	Spruce
25	Tent caterpillars	Hardwoods	93	Avalanche	All Tree Species	220	Discoloration (ash)	Ash
26	Leaf beetles	Hardwoods	94	Aspen decline-multiple agents)	Common Pinon	221	Discoloration (softwood)	Softwoods
27	Oak leaf roller	Hardwoods	95	Pinon pine mortality	Common Pinon	222	Discoloration (cottonwood)	Cottonwood/Poplar
28	Pine needle-shaft miner	Ponderosa Pine	96	Juniper mortality-unknown agents)	Juniper	223	Discoloration (eastern cedar)	Eastern Red Cedar
29	Pine sawflies	Ponderosa Pine	97	Limber oak decline-unknown agents)	Limber Oak	224	Discoloration (oak)	Oak
30	Pine tussock moth	Ponderosa Pine	98	Unidentified defolator	Softwoods	230	Discoloration (herpoc)	Spruce
31	Carlekinomys	Hardwoods	99	Unknown polygon	Unknown	231	Herpetis (cottonwood)	Cottonwood/Poplar
32	Unidentified defolator	Softwoods	100	Unidentified defolator (softwood)	Common Pinon	232	Herpetis (eastern cedar)	Eastern Red Cedar
33	Intercedation anomum (Fomes anomus)	Softwoods	101	road salt top	Logpole Pine	233	Flagging (hardwood)	Hardwoods
34	Armillaria ostoyae (Armillaria mellea)	Softwoods	102	Salub elm disease	Elm	234	Unidentified defolator (cottonwood)	Cottonwood/Poplar
35	Phytophthora lateralis	Softwoods	103	Unidentified defolator (elm)	Ponderosa Pine	235	Unidentified defolator (hardwood)	Hardwoods
36	Phomopsis	Softwoods	104	loss numbers	Spruce, White Spruce	300	Mortality (pine)	Pine
37	Cytospora	All Tree Species	105	Strongly killed narrow leaf cottonwood	Narrowleaf Cottonwood			
38	Western gall rust	Unkown						
39	Camandra rust	Logpole Pine						
40	Sheepstem rust	Logpole 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 December 8 2009

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.