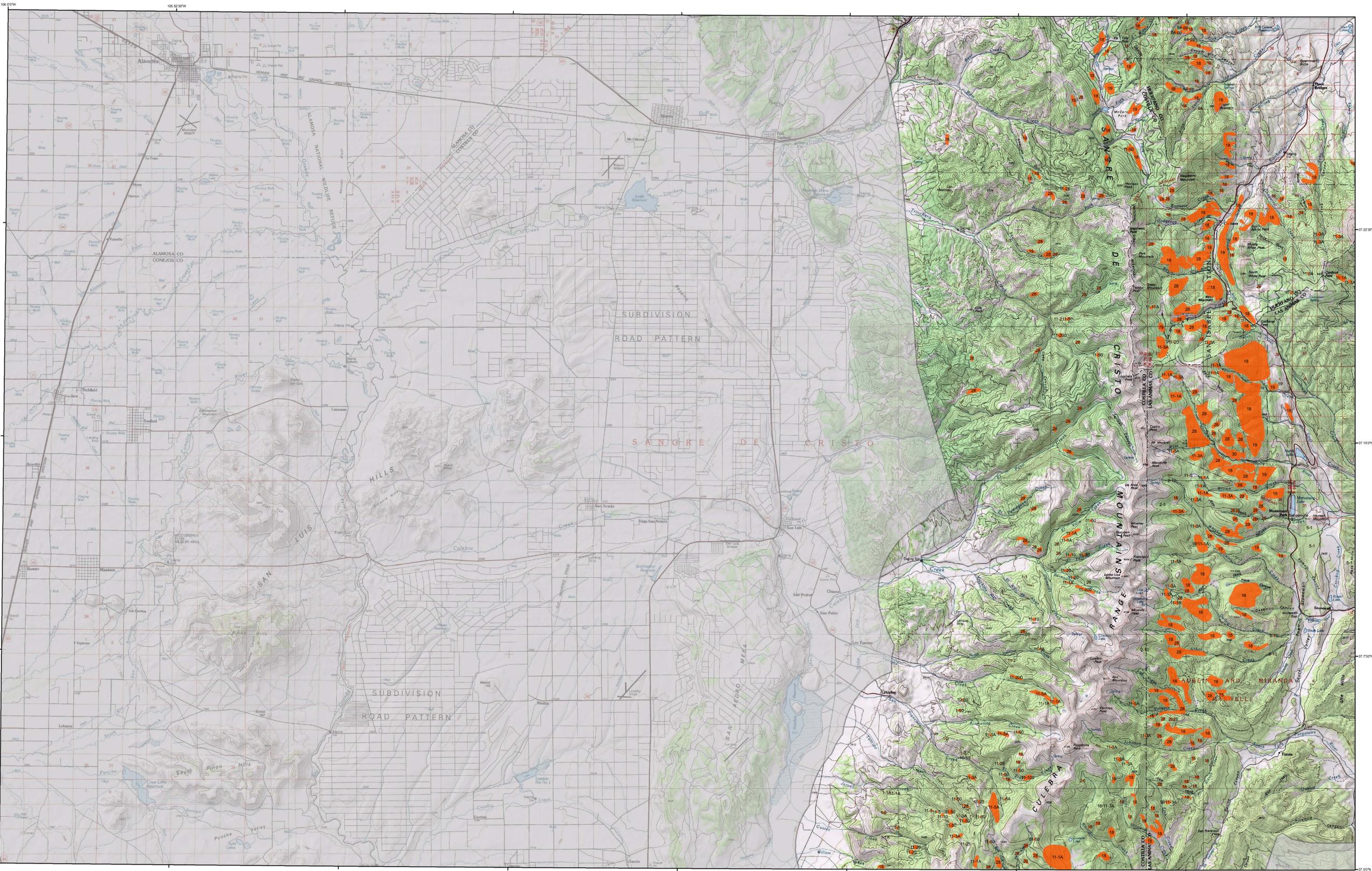


# 2007 Aerial Insect and Disease Survey Alamosa, Colorado USGS 100K TOPO!: 37105-A1



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 "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: 5-10A = 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: 5-2A = 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	107	Ice storm damage	Cottonwood/Poplar
2	Engelmann spruce beetle	Engelmann spruce	107	fall webworm	Cottonwood/Poplar
5	Mountain pine beetle	Ponderosa pine	108	oak leaf	Softwoods
6	Mountain pine beetle	Ponderosa pine	109	pine wood nematode	South Pine
7	Mountain pine beetle	Ponderosa pine	110	oak wilt	Oak
8	Western pine beetle	Ponderosa pine	111	Stagbeetle	All Tree Species
9	Fire Engraver	White fir	112	spine ips	White Spruce
10	Douglas-fir engraver beetle	Douglas-fir	113	bedford chestnut borer	Oak
11	Western balsam bark beetle	Subalpine fir	114	anthracnose like foliar disease	Bur Oak
12	Unidentified bark beetle	Softwoods	115	Dieback	All Tree Species
13	Pine engraver	Douglas-fir	116	Dieback	All Tree Species
14	Pine engraver	Ponderosa pine	117	Discoloration	All Tree Species
15	Ponderosa pine needle miner	Lodgepole pine	118	Herpetid	All Tree Species
16	Lodgepole pine needle miner	Ponderosa pine	119	Flagging	All Tree Species
17	Jack pine budworm	Jack pine	120	aspen tortrix	Quaking Aspen
18	Spine budworm, light defol.	Douglas-fir	121	Marsdenia Blight	Quaking Aspen
19	Spine budworm, heavy defol.	Douglas-fir	200	Dieback (ash)	Ash
20	Douglas-fir tussock moth	Douglas-fir	201	Dieback (cottonwood)	Cottonwood/Poplar
21	Pine butterfly	Ponderosa pine	202	Dieback (hardwood)	Hardwoods
22	Pine looper	Ponderosa pine	204	Dieback (oak)	Oak
23	Pine looper	Ponderosa pine	210	Mortality (old cottonwood)	Cottonwood/Poplar
24	Tent caterpillars	Hardwoods	211	Mortality (eastern cedar)	Eastern Red Cedar
25	Leaf beetles	Hardwoods	212	Mortality (hardwood)	Hardwoods
26	Oak leaf roller	Hardwoods	213	Mortality (oak)	Oak
27	Pine needle-sheath miner	Ponderosa pine	214	Mortality (spruce)	Spruce
28	Pine sawflies	Ponderosa pine	220	Discoloration (ash)	Ash
29	Pine tussock moth	Ponderosa pine	221	Discoloration (conifer)	Softwoods
30	Cankerworms	Hardwoods	222	Discoloration (cottonwood)	Cottonwood/Poplar
31	Variable oak leaf caterpillar	Hardwoods	223	Discoloration (eastern cedar)	Eastern Red Cedar
32	Unidentified defoliator	All Tree Species	224	Discoloration (hardwood)	Hardwoods
33	Interdecidation anemone (Fomes annosus)	Softwoods	225	Discoloration (oak)	Oak
34	Armillaria ostoyae (Armillaria mellea)	Softwoods	226	Discoloration (spruce)	Spruce
35	Phytophthora schweinitzii	Softwoods	230	Herpetid (cottonwood)	Cottonwood/Poplar
36	Phytophthora	Softwoods	231	Herpetid (eastern cedar)	Eastern Red Cedar
37	Cytospora	All Tree Species	240	Flagging (hardwood)	Hardwoods
38	Western gall rust	Unknown	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
39	Comandra rust	Unknown	251	Unidentified defoliator (oak)	Hardwoods
40	Sheathblow rust	Lodgepole pine	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.

Area surveyed by Wiliam Ciesla

Map Created: 01/29/2008

Projection: UTM NAD83 Zone 13

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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 not 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/>