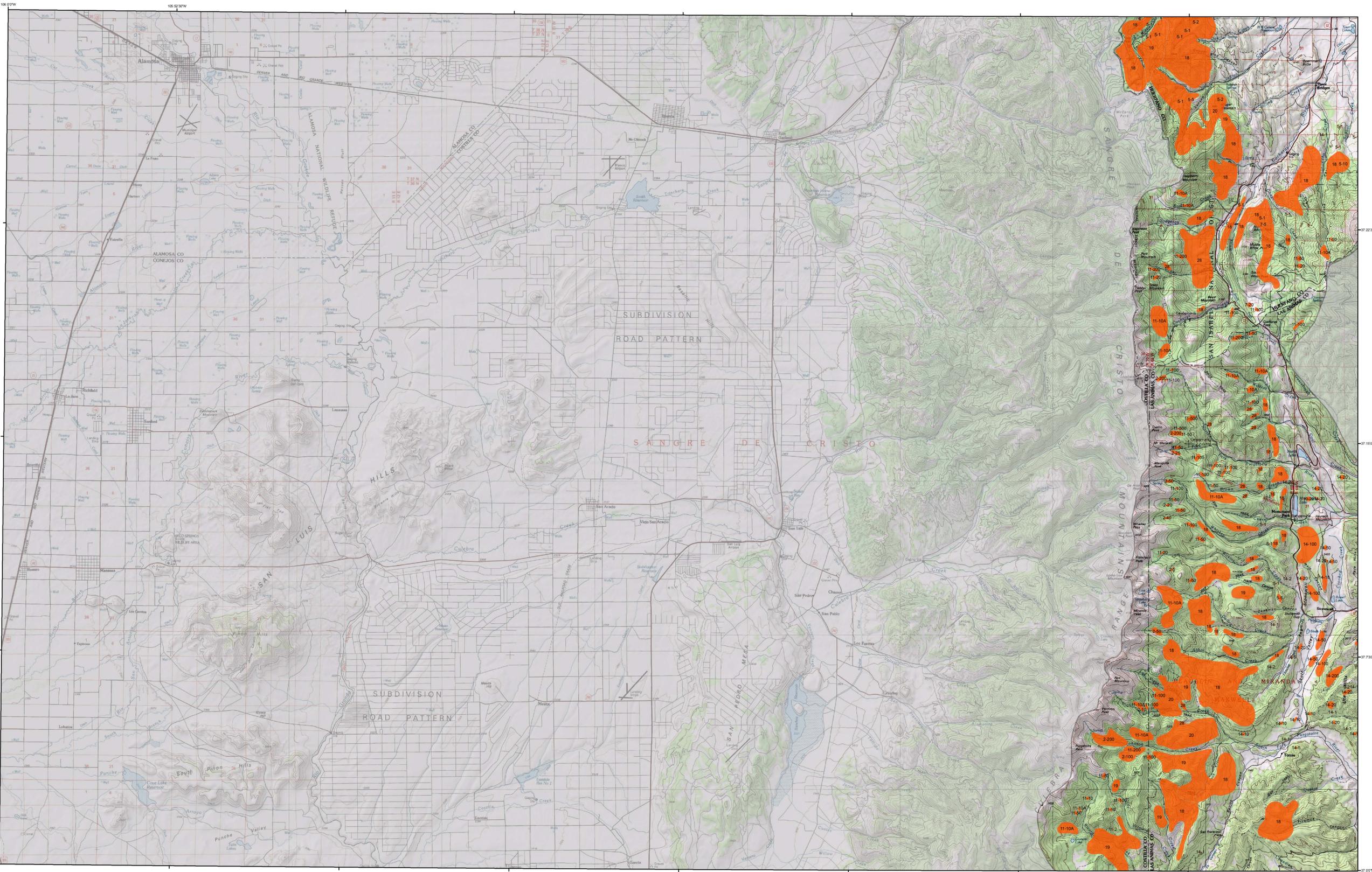


2006 Aerial Insect and Disease Survey Alamosa, Colorado USGS 100K TOPO!: 37105-A1



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 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	Code	Causal Agent	Primary Host
1	Douglas-fir beetle	Douglas-fir	57	Arthropod	Lodgepole Pine	100	Ice storm damage	Cottonwood/Poplar
2	Engelmann spruce beetle	Engelmann Spruce	60	White pine blister rust	5-Needle Pine	107	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	61	Cedar root disease	Softwoods	108	oak leaf	Softwoods
4	Mountain pine beetle	Lodgepole Pine	62	Elytromelia	Ponderosa Pine	109	pinewood nematode	South Pine
5	Western pine beetle	5-Needle Pine	63	Inclusa spp. SO & OS	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	64	Air pollutants	All Tree Species	111	oak wilt	All Tree Species
7	White fir engraver beetle	White Fir	65	Chemical damage	All Tree Species	112	spine ips	White Spruce
8	White fir engraver beetle	Douglas-fir	66	Lophodermium pinasti	Softwoods	113	bedford chestnut borer	Oak
9	White fir engraver beetle	Subalpine Fir	67	Rhabdocline pseudotsugae	Douglas-fir	114	anthracnose like foliar disease	Bur Oak
10	Western balsam bark beetle	Softwoods	68	Lophodermium arcaudae	Softwoods	115	Dieback	All Tree Species
11	Western balsam bark beetle	Lodgepole Pine	69	Lecanosticosis acicola	Softwoods	116	Dieback	All Tree Species
12	Undersized bark beetle	Ponderosa Pine	70	Needle cast (Hypodermataceae)	All Tree Species	117	Discoloration	All Tree Species
13	Pine engraver	Lodgepole Pine	71	Needle cast (Hypodermataceae)	Softwoods	118	Herbicide	All Tree Species
14	Pine engraver	Ponderosa Pine	72	Undersized disease	Softwoods	119	Flagging	All Tree Species
15	Ponderosa pine needle miner	Lodgepole Pine	73	Winter damage light	All Tree Species	120	Flagging	Quaking Aspen
16	Lodgepole pine needle miner	Ponderosa Pine	74	Winter damage medium	All Tree Species	121	Marssonina Blight	Quaking Aspen
17	Jack pine budworm	Jack Pine	75	Winter damage heavy	All Tree Species	122	Dieback (oak)	Quaking Aspen
18	Jack pine budworm	Douglas-fir	76	Winter damage light	All Tree Species	200	Dieback (oak)	Quaking Aspen
19	Jack pine budworm	Douglas-fir	77	Winter damage medium	All Tree Species	201	Dieback (oak)	Quaking Aspen
20	Jack pine budworm	Douglas-fir	78	Winter damage heavy	All Tree Species	202	Dieback (oak)	Quaking Aspen
21	Jack pine budworm	Douglas-fir	79	Pinon black stain	Common Pinon	210	Mortality (old cottonwood)	Cottonwood/Poplar
22	Jack pine budworm	Douglas-fir	80	Fire	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Jack pine budworm	Douglas-fir	81	Fire	All Tree Species	212	Mortality (oak)	Oak
24	Jack pine budworm	Douglas-fir	82	Fire	All Tree Species	213	Mortality (spruce)	Spruce
25	Jack pine budworm	Douglas-fir	83	Fire	All Tree Species	214	Mortality (spruce)	Spruce
26	Jack pine budworm	Douglas-fir	84	Fire	All Tree Species	220	Discoloration (ash)	Ash
27	Jack pine budworm	Douglas-fir	85	Fire	All Tree Species	221	Discoloration (oak)	Softwoods
28	Jack pine budworm	Douglas-fir	86	Fire	All Tree Species	222	Discoloration (oak)	Cottonwood/Poplar
29	Jack pine budworm	Douglas-fir	87	Fire	All Tree Species	223	Discoloration (eastern cedar)	Eastern Red Cedar
30	Jack pine budworm	Douglas-fir	88	Fire	All Tree Species	224	Discoloration (hardwood)	Hardwoods
31	Jack pine budworm	Douglas-fir	89	Fire	All Tree Species	225	Discoloration (hardwood)	Oak
32	Jack pine budworm	Douglas-fir	90	Fire	All Tree Species	226	Discoloration (hardwood)	Oak
33	Jack pine budworm	Douglas-fir	91	Fire	All Tree Species	227	Discoloration (hardwood)	Oak
34	Jack pine budworm	Douglas-fir	92	Fire	All Tree Species	228	Discoloration (hardwood)	Oak
35	Jack pine budworm	Douglas-fir	93	Fire	All Tree Species	229	Discoloration (hardwood)	Oak
36	Jack pine budworm	Douglas-fir	94	Fire	All Tree Species	230	Discoloration (hardwood)	Oak
37	Jack pine budworm	Douglas-fir	95	Fire	All Tree Species	231	Discoloration (hardwood)	Oak
38	Jack pine budworm	Douglas-fir	96	Fire	All Tree Species	232	Discoloration (hardwood)	Oak
39	Jack pine budworm	Douglas-fir	97	Fire	All Tree Species	233	Discoloration (hardwood)	Oak
40	Jack pine budworm	Douglas-fir	98	Fire	All Tree Species	234	Discoloration (hardwood)	Oak
41	Jack pine budworm	Douglas-fir	99	Fire	All Tree Species	235	Discoloration (hardwood)	Oak
42	Jack pine budworm	Douglas-fir	100	Fire	All Tree Species	236	Discoloration (hardwood)	Oak
43	Jack pine budworm	Douglas-fir	101	Fire	All Tree Species	237	Discoloration (hardwood)	Oak
44	Jack pine budworm	Douglas-fir	102	Fire	All Tree Species	238	Discoloration (hardwood)	Oak
45	Jack pine budworm	Douglas-fir	103	Fire	All Tree Species	239	Discoloration (hardwood)	Oak
46	Jack pine budworm	Douglas-fir	104	Fire	All Tree Species	240	Discoloration (hardwood)	Oak
47	Jack pine budworm	Douglas-fir	105	Fire	All Tree Species	241	Discoloration (hardwood)	Oak
48	Jack pine budworm	Douglas-fir	106	Fire	All Tree Species	242	Discoloration (hardwood)	Oak

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 William Ciesla & Chad Nelson
9/6 - 9/7 2006
Map Created: 12/2006
Projection: UTM NAD83 Zone 13
Author: J. Ross, USDA Forest Service**

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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 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/>