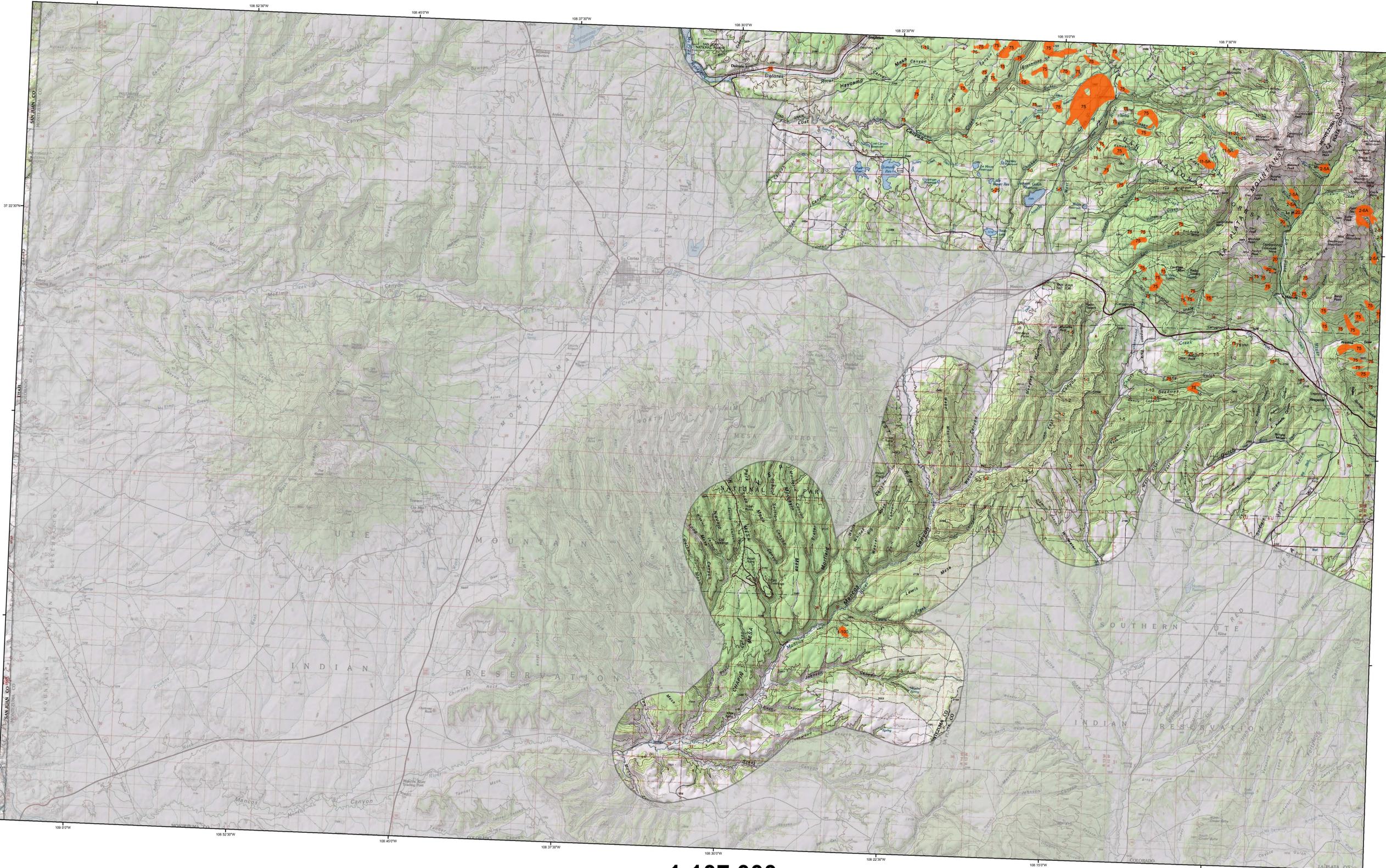


2006 Aerial Insect and Disease Survey Cortez and Bluff, Colorado USGS 100K DRG: 37108-A1&37109-A1



1:107,000

Legend		Causal Agent(s)	Not Flown in 2006		
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 1 (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: 5-12A = The first number before the dash is the causal agent code. The number after the dash is an estimation of the number of dead "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	50	White pine blister rust	5-Needle Pine
2	Engelmann spruce beetle	Engelmann Spruce	51	Cherry root disease	Softwoods
3	Mountain pine beetle	Ponderosa Pine	52	Elytrodemia	Ponderosa Pine
4	Mountain pine beetle	5-Needle Pine	53	Inclusa RES. 50 & 69	All Tree Species
5	Western pine beetle	Ponderosa Pine	54	Air pollutants	All Tree Species
6	Western pine beetle	White Fir	55	Chemical damage	All Tree Species
7	Western pine beetle	Douglas-fir	56	Lophodermium pinastri	Softwoods
8	White fir engraver beetle	Subalpine Fir	57	Rhabdocline pseudotsugae	Douglas-fir
9	White fir engraver beetle	Softwoods	58	Lophodermium arcauata	Softwoods
10	White fir engraver beetle	Douglas-fir	59	Lecanosticla acicola	Softwoods
11	Western balsam bark beetle	Ponderosa Pine	60	Lophodermium concolor	Softwoods
12	Unidentified bark beetle	Lodgepole Pine	61	Cotyloneura spp.	Softwoods
13	Unidentified bark beetle	Ponderosa Pine	62	Needle cast (Hypodermataceae)	All Tree Species
14	Unidentified bark beetle	Lodgepole Pine	63	Rust	All Tree Species
15	Unidentified bark beetle	Ponderosa Pine	64	Unidentified disease	Softwoods
16	Unidentified bark beetle	Douglas-fir	65	Winter damage light	All Tree Species
17	Unidentified bark beetle	Douglas-fir	66	Winter damage medium	All Tree Species
18	Unidentified bark beetle	Douglas-fir	67	Winter damage heavy	All Tree Species
19	Unidentified bark beetle	Ponderosa Pine	68	Pinon black stain	Common Pinon
20	Unidentified bark beetle	Ponderosa Pine	69	Pinon black stain	All Tree Species
21	Unidentified bark beetle	Ponderosa Pine	70	Fire	All Tree Species
22	Unidentified bark beetle	Hardwoods	71	Porcupine	Softwoods
23	Unidentified bark beetle	Hardwoods	72	Windthrow	All Tree Species
24	Unidentified bark beetle	Hardwoods	73	High water damage	All Tree Species
25	Unidentified bark beetle	Ponderosa Pine	74	Avian/ho	All Tree Species
26	Unidentified bark beetle	Ponderosa Pine	75	Asian decline-multiple agents)	Quaking Aspen
27	Unidentified bark beetle	Ponderosa Pine	76	Pinon pine mortality	Common Pinon
28	Unidentified bark beetle	Hardwoods	77	Juniper mortality-unknown agents)	Juniper
29	Unidentified bark beetle	Hardwoods	78	Juniper mortality-unknown agents)	Lambert Oak
30	Unidentified bark beetle	Softwoods	79	Limber pine decline-unknown agents)	Limber Pine
31	Unidentified bark beetle	Softwoods	80	Leaf damage	All Tree Species
32	Unidentified bark beetle	Softwoods	81	Unknown polygon	Unknown
33	Unidentified bark beetle	Softwoods	82	Unknown polygon	Unknown
34	Unidentified bark beetle	Softwoods	83	Unknown polygon	Unknown
35	Unidentified bark beetle	Softwoods	84	Unknown polygon	Unknown
36	Unidentified bark beetle	Softwoods	85	Unknown polygon	Unknown
37	Unidentified bark beetle	Softwoods	86	Unknown polygon	Unknown
38	Unidentified bark beetle	Softwoods	87	Unknown polygon	Unknown
39	Unidentified bark beetle	Softwoods	88	Unknown polygon	Unknown
40	Unidentified bark beetle	Softwoods	89	Unknown polygon	Unknown
41	Unidentified bark beetle	Softwoods	90	Unknown polygon	Unknown
42	Unidentified bark beetle	Softwoods	91	Unknown polygon	Unknown
43	Unidentified bark beetle	Softwoods	92	Unknown polygon	Unknown
44	Unidentified bark beetle	Softwoods	93	Unknown polygon	Unknown
45	Unidentified bark beetle	Softwoods	94	Unknown polygon	Unknown
46	Unidentified bark beetle	Softwoods	95	Unknown polygon	Unknown
47	Unidentified bark beetle	Softwoods	96	Unknown polygon	Unknown
48	Unidentified bark beetle	Softwoods	97	Unknown polygon	Unknown
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51	Unidentified bark beetle	Softwoods	100	Unknown polygon	Unknown
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56	Unidentified bark beetle	Softwoods	105	Unknown polygon	Unknown
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58	Unidentified bark beetle	Softwoods	107	Unknown polygon	Unknown
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60	Unidentified bark beetle	Softwoods	109	Unknown polygon	Unknown
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66	Unidentified bark beetle	Softwoods	115	Unknown polygon	Unknown
67	Unidentified bark beetle	Softwoods	116	Unknown polygon	Unknown
68	Unidentified bark beetle	Softwoods	117	Unknown polygon	Unknown
69	Unidentified bark beetle	Softwoods	118	Unknown polygon	Unknown
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79	Unidentified bark beetle	Softwoods	128	Unknown polygon	Unknown
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150	Unidentified bark beetle	Softwoods	199	Unknown polygon	Unknown
151	Unidentified bark beetle	Softwoods	200	Unknown polygon	Unknown



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 Erik Johnson, Patrick Ahern 09/13 - 09/14 2006
Patrick Ahern 09/25 - 09/26 2006**
Map Created: 01/04/2006
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/>