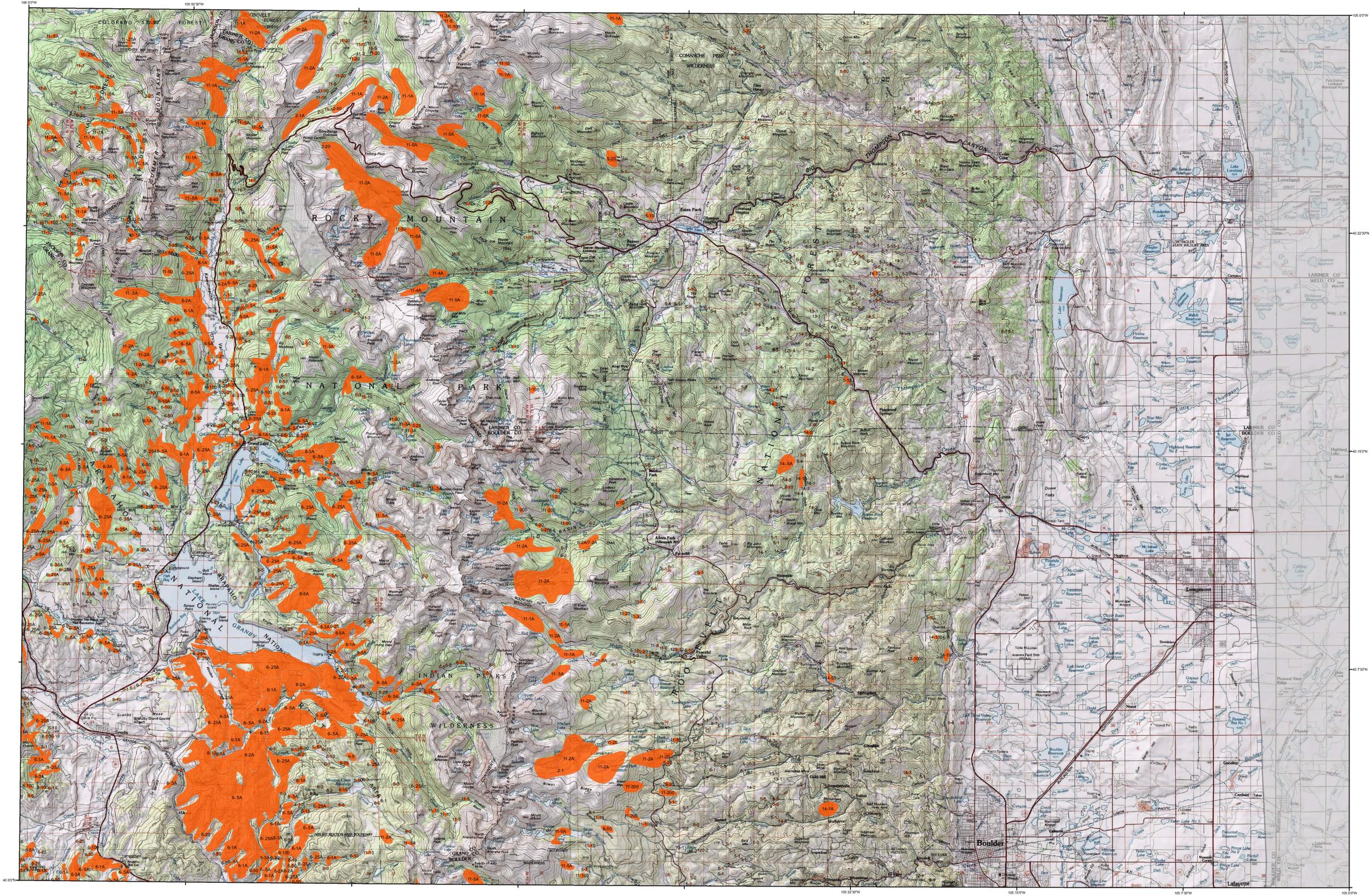


2005 Aerial Insect and Disease Survey Estes Park, Colorado USGS 100K TOPO!: 40105-A1



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: 5-120A = 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	Code	Causal Agent	Primary Host
1	Douglas-fir beetle	Douglas-fir	49	Atropis	Lodgepole Pine	102	fox squirrel flagging	Cottonecod/Poplar
2	Engelmann Spruce Beetle	Engelmann Spruce	50	White pine blister rust	5-Needle Pine	107	fall webworm	Cottonecod/Poplar
3	Mountain pine beetle	Ponderosa Pine	51	Dwarf mistle	Softwoods	108	road kill	Softwoods
4	Mountain pine beetle	Lodgepole Pine	52	Elytrodema	Ponderosa Pine	109	pinewood nematode	Scotch Pine
5	Mountain pine beetle	White Pine	53	Inclusus #05, 50 & 55	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	54	Air pollution	All Tree Species	111	spore disease	White Spruce
7	Fire Engenver	White Fir	55	Chemical damage	Softwoods	112	tailed woodrat tower	Oak
8	Douglas-fir engraver beetle	Douglas-fir	56	Lophodermium pinastri	Douglas-fir	114	anthracnose like foliar disease	Bur Oak
9	Western bark beetle	Subalpine Fir	57	Rhabdoles pseudotsugae	Softwoods	116	Dieback	All Tree Species
10	Unidentified bark beetle	Softwood	58	Lophodermium arcaus	Softwoods	118	Mortality	All Tree Species
11	Pine engraver	Lodgepole Pine	59	Lecanospira acicola	Softwoods	119	Discoloration	All Tree Species
12	Pine engraver	Ponderosa Pine	60	Lophodermium concolor	Softwoods	120	Heterosia	All Tree Species
13	Pine engraver	Lodgepole Pine	61	Cotoneospora	Softwoods	121	Flagging	All Tree Species
14	Pine engraver	Lodgepole Pine	62	Needle cast (Hypodermataceae)	Softwoods	122	Japan beetle	Quaking Aspen
15	Ponderosa pine needle miner	Lodgepole Pine	63	Root Rot	All Tree Species	123	Japanese beetle	Quaking Aspen
16	Lodgepole pine needle miner	Lodgepole Pine	64	Unidentified disease	Softwoods	124	Marronina Bight	Quaking Aspen
17	Jack pine budworm	Jack Pine	65	Winter damage light	All Tree Species	200	Dieback (ash)	Ash
18	Jack pine budworm	Douglas-fir	66	Winter damage medium	All Tree Species	201	Dieback (cottonwood)	Cottonwood/Poplar
19	Jack pine budworm	Douglas-fir	67	Winter damage heavy	All Tree Species	202	Dieback (hardwood)	Hardwoods
20	Jack pine budworm	Douglas-fir	68	Opilidia	Softwoods	204	Dieback (oak)	Oak
21	Jack pine budworm	Douglas-fir	69	Pinonj black stain	Common Pinonj	210	Mortality (old cottonwood)	Cottonwood/Poplar
22	Jack pine budworm	Douglas-fir	70	Fire	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Jack pine budworm	Douglas-fir	71	Parasitism	Softwoods	212	Mortality (hardwood)	Hardwoods
24	Jack pine budworm	Douglas-fir	72	Windthrow	All Tree Species	213	Mortality (oak)	Oak
25	Jack pine budworm	Douglas-fir	73	High water damage	All Tree Species	214	Mortality (spruce)	Spruce
26	Jack pine budworm	Douglas-fir	74	Avian/hoax	All Tree Species	220	Discoloration (ash)	Ash
27	Jack pine budworm	Douglas-fir	75	Alpen decline-multiple agents)	Common Pinonj	221	Discoloration (cottonwood)	Cottonwood/Poplar
28	Jack pine budworm	Douglas-fir	76	Unidentified disease	Common Pinonj	222	Discoloration (cottonwood)	Cottonwood/Poplar
29	Jack pine budworm	Douglas-fir	77	Juniper mortality-unknown agents)	Juniper	223	Discoloration (eastern cedar)	Eastern Red Cedar
30	Jack pine budworm	Douglas-fir	78	Limber pine decline-unknown agents)	Gambel Oak	224	Discoloration (hardwood)	Hardwoods
31	Jack pine budworm	Douglas-fir	79	Limber pine decline-multiple agents)	Limber Pine	225	Discoloration (oak)	Oak
32	Jack pine budworm	Douglas-fir	80	Hail damage	All Tree Species	230	Discoloration (spruce)	Spruce
33	Jack pine budworm	Douglas-fir	81	Unknown	Unknown	231	Herbicide (cottonwood)	Cottonwood/Poplar
34	Jack pine budworm	Douglas-fir	82	Unknown	Unknown	232	Herbicide (eastern cedar)	Eastern Red Cedar
35	Jack pine budworm	Douglas-fir	83	Unknown	Unknown	233	Flagging (hardwood)	Hardwoods
36	Jack pine budworm	Douglas-fir	84	Unknown	Unknown	234	Discoloration (oak)	Oak
37	Jack pine budworm	Douglas-fir	85	Unknown	Unknown	235	Discoloration (spruce)	Spruce
38	Jack pine budworm	Douglas-fir	86	Unknown	Unknown	236	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
39	Jack pine budworm	Douglas-fir	87	Unknown	Unknown	237	Unidentified defoliator (oak)	Oak
40	Jack pine budworm	Douglas-fir	88	Unknown	Unknown	238	Unidentified defoliator (spruce)	Spruce
41	Jack pine budworm	Douglas-fir	89	Unknown	Unknown	239	Unidentified defoliator (hardwood)	Hardwoods
42	Jack pine budworm	Douglas-fir	90	Unknown	Unknown	240	Mortality (pine)	Pine
43	Jack pine budworm	Douglas-fir	91	Unknown	Unknown			
44	Jack pine budworm	Douglas-fir	92	Unknown	Unknown			
45	Jack pine budworm	Douglas-fir	93	Unknown	Unknown			
46	Jack pine budworm	Douglas-fir	94	Unknown	Unknown			
47	Jack pine budworm	Douglas-fir	95	Unknown	Unknown			
48	Jack pine budworm	Douglas-fir	96	Unknown	Unknown			

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 and Crystal Tischler 7/18 - 8/8 2005;
Erik Johnson 8/1 - 8/8 2005; William Ciesla 8/8 - 8/11 2005
Map Created: 02-06
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 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/>