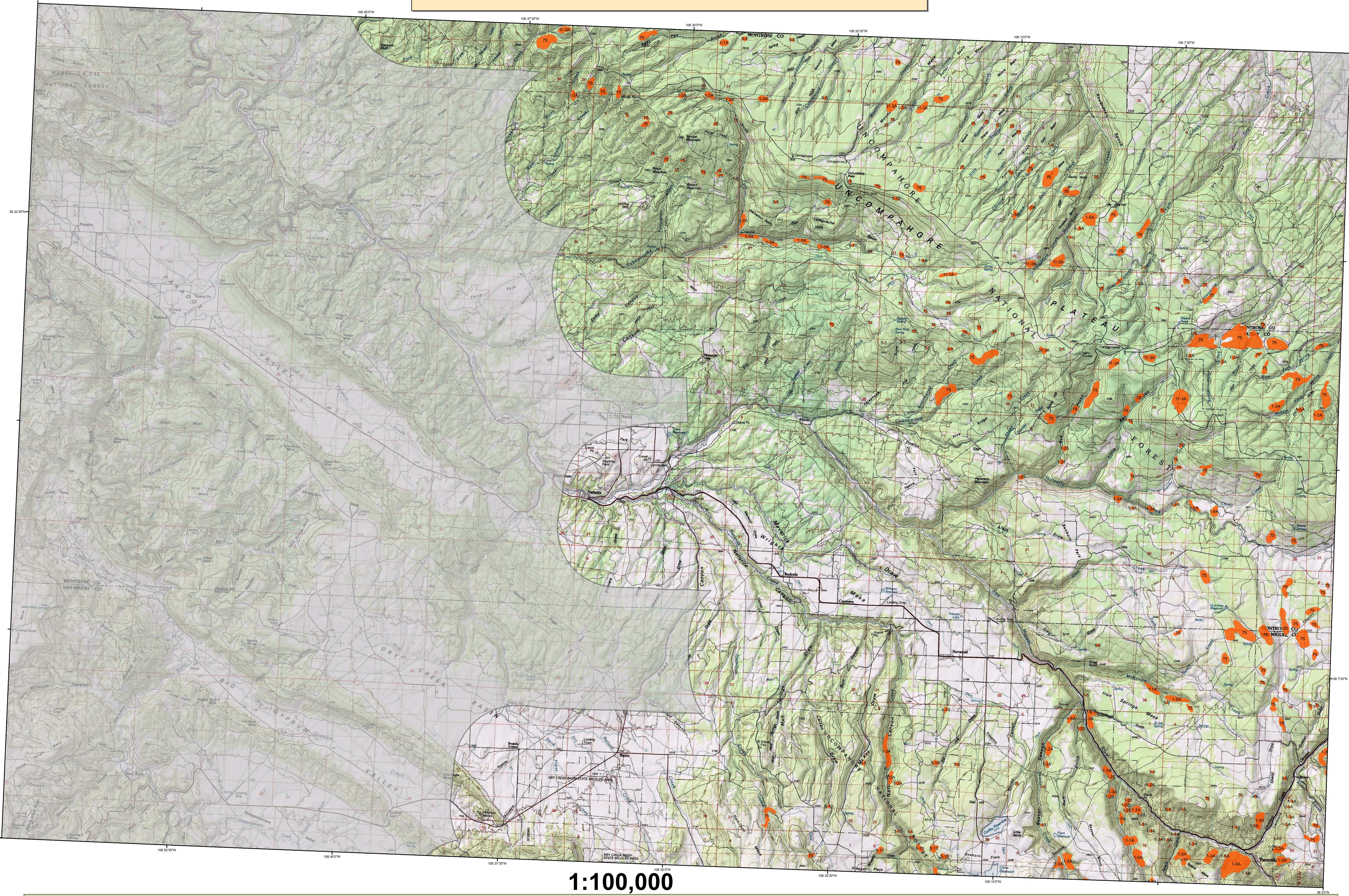


2007 Aerial Insect and Disease Survey

Nucla, Colorado

USGS 100K TOPO!: 38108-A1



Legend

Causal Agent(s) Not Flown

Use of the Number System
Example: 5-2-5 = The first number before 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(grey), M(medium), 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-5 = The first number before the dash is the causal agent code. 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, 5-3-A = that on the average, an estimated three trees per acre are dead "faded" trees. A / is used as a separator when a polygon contains 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	Arthropods	Lodgepole Pine	105	fox squirrel flagging	Cottonwood/Poplar
2	Mountain pine beetle	Engelmann Spruce	50	Aspen decline-blister rust	Aspens	107	Poplar/cottonwood	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	51	Dwarf mistletoe	Spruces	109	road salt	Spruces
4	Mountain pine beetle	Lodgepole Pine	52	Erytroleptus	Ponderosa Pine	110	pinewood nematode	Scots Pine
5	Mountain pine beetle	Schwarzea	53	Mountain pine beetle	All Tree Species	112	old growth	Oak
6	Mountain pine beetle	Ponderosa Pine	54	Air pollutants	All Tree Species	113	foliage disease	All Tree Species
7	Western pine beetle	White Fir	55	Chemical damage	All Tree Species	114	spruce ips	White Spruce
8	Fir Engraver	White Fir	56	Girdler	Schwarzea	115	dieback	Bur Oak
9	Fir Engraver	Douglas-fir	57	Rhododendron pseudotubus	Douglas-fir	116	asphens like foliar disease	All Tree Species
10	Pine engraver beetle	Subalpine Fir	58	Lophodermella aculeata	Schwarzea	117	Dieback	All Tree Species
11	Western balsam bark beetle	Subalpine Fir	59	Lophodermella aculeata	Schwarzea	118	Mortality	All Tree Species
12	Unidentified bark beetle	Schwarzea	60	Lophodermella concolor	Schwarzea	119	Discoloration	All Tree Species
13	Unidentified bark beetle	Lodgepole Pine	61	Dothistroma pinii	Schwarzea	120	Herbicide	All Tree Species
14	Pine engraver	Ponderosa Pine	62	Root rot	Schwarzea	121	Pruning	All Tree Species
15	Ponderosa pine needle miner	Ponderosa Pine	63	Unidentified disease	Schwarzea	122	aspen tortrix	Quaking Aspen
16	Ponderosa pine needle miner	Ponderosa Pine	64	Aspen decline-light	All Tree Species	123	Marcellina Blight	Quaking Aspen
17	Jack pine budworm	Jack Pine	65	Winter damage-light	All Tree Species	124	Dieback	Aspens
18	Spruce budworm, light defol.	Douglas-fir	66	Winter damage-light	All Tree Species	125	Dieback (cottonwood)	Cottonwood/Poplar
19	Spruce budworm, medium defol.	Douglas-fir	67	Winter damage-heavy	All Tree Species	126	Dieback (hardwood)	Cottonwood/Hardwood
20	Spruce budworm, heavy defol.	Douglas-fir	68	Winter damage-heavy	All Tree Species	127	Dieback (cottonwood)	Oak
21	Douglas-fir tussock moth	Douglas-fir	69	Winter damage-heavy	All Tree Species	128	Dieback (hardwood)	Cottonwood/Hardwood
22	Unidentified caterpillar	Ponderosa Pine	70	Yew root rot	Common Yew	129	Mortality (old cottonwood)	Cottonwood/Poplar
23	Unidentified caterpillar	Ponderosa Pine	71	Pinyon black stain	Common Pinyon	130	Mortality (eastern cedar)	Eastern Red Cedar
24	Pine looper	Ponderosa Pine	72	Fire	Common Pinyon	131	Mortality (hardwood)	Hardenwoods
25	Pine tortrix	Ponderosa Pine	73	Windthrow	Common Pinyon	132	Mortality (oak)	Oak
26	Unidentified caterpillar	Hardenwoods	74	All Tree Species	Common Pinyon	133	Mortality (palo)	Hardenwoods
27	Leaf beetles	Hardenwoods	75	High water damage	All Tree Species	134	Mortality (spruce)	Spruce
28	Oak leaf roller	Hardenwoods	76	All Tree Species	All Tree Species	135	Discoloration	Aspens
29	Aspen decline-light	Ponderosa Pine	77	Aspen decline-multiple agents)	Quaking Aspen	136	Discoloration (conifer)	Spruces
30	Aspen decline-light	Ponderosa Pine	78	Aspen pine needle	Common Pinyon	137	Discoloration (cottonwood)	Cottonwood/Poplar
31	Aspen tussack moth	Ponderosa Pine	79	Aspen decline-multiple agents)	Gambel Oak	138	Discoloration (cottonwood)	Eastern Red Cedar
32	Unidentified caterpillar	Hardenwoods	80	Gambel oak decline-unknown agent(s)	Gambel Oak	139	Discoloration (hardwood)	Hardenwoods
33	Variable oak leaf caterpillar	Hardenwoods	81	Larch pine decline-multiple agents)	Larch Pine	140	Discoloration (oak)	Oak
34	Unidentified defoliator	All Tree Species	82	Larch pine decline-multiple agents)	All Tree Species	141	Discoloration (spruce)	Spruce
35	Amillaria root rot (Fomes annosus)	Schwarzea	83	Unknown polygon	All Tree Species	142	Herbicide (cottonwood)	Cottonwood/Poplar
36	Amillaria root rot (Fomes annosus)	Schwarzea	84	Unknown polygon	Common Pinyon	143	Herbicide (eastern cedar)	Eastern Red Cedar
37	Amillaria root rot (Fomes annosus)	Schwarzea	85	Unknown polygon	Common Pinyon	144	Herbicide (hardwood)	Hardenwoods
38	Amillaria root rot (Fomes annosus)	Schwarzea	86	Old spruce mortality	Common Pinyon	145	Paggeria	Cottonwood/Poplar
39	Unidentified defoliator	Schwarzea	87	Old spruce mortality	Common Pinyon	146	Unidentified defolator (cottonwood)	Cottonwood/Poplar
40	Amillaria root rot (Amillaria mellea)	Schwarzea	88	Old spruce mortality	Lodgepole Pine	147	Unidentified defolator (elm)	Elm
41	Amillaria root rot (Amillaria mellea)	Schwarzea	89	Old spruce mortality	Lodgepole Pine	148	Unidentified defolator (hardwood)	Hardenwoods
42	Schwarzea	Schwarzea	90	Old spruce mortality	Lodgepole Pine	149	Mortality (pine)	Pine
43	Schwarzea	Schwarzea	91	Old spruce mortality	Lodgepole Pine	150	Mortality (pine)	Pine
44	Cypricola	All Tree Species	92	Old spruce mortality	Lodgepole Pine	151	Unidentified defolator (elm)	Elm
45	Cypricola	All Tree Species	93	Diploid elm disease	Lodgepole Pine	152	Unidentified defolator (hardwood)	Hardenwoods
46	Western gall rust	Unknown	94	Diploid elm disease	Lodgepole Pine	153	Mortality (pine)	Pine
47	Comandra rust	Unknown	95	Diploid elm disease	Lodgepole Pine	154	Mortality (pine)	Pine
48	Stigmelliforme rust	Lodgepole Pine	96	Drought killed narrow leaf cottonwood	Narrowleaf Cottonwood	155	Mortality (pine)	Pine

USGS 100K Quad - Location Map



Legend
Flown Area
State Boundaries
Counties

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 'snapshot' 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 Pat Ahern and Kelly Rogers

Map Created: 01/11/2008

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 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 were 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 survey are available at: <http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>