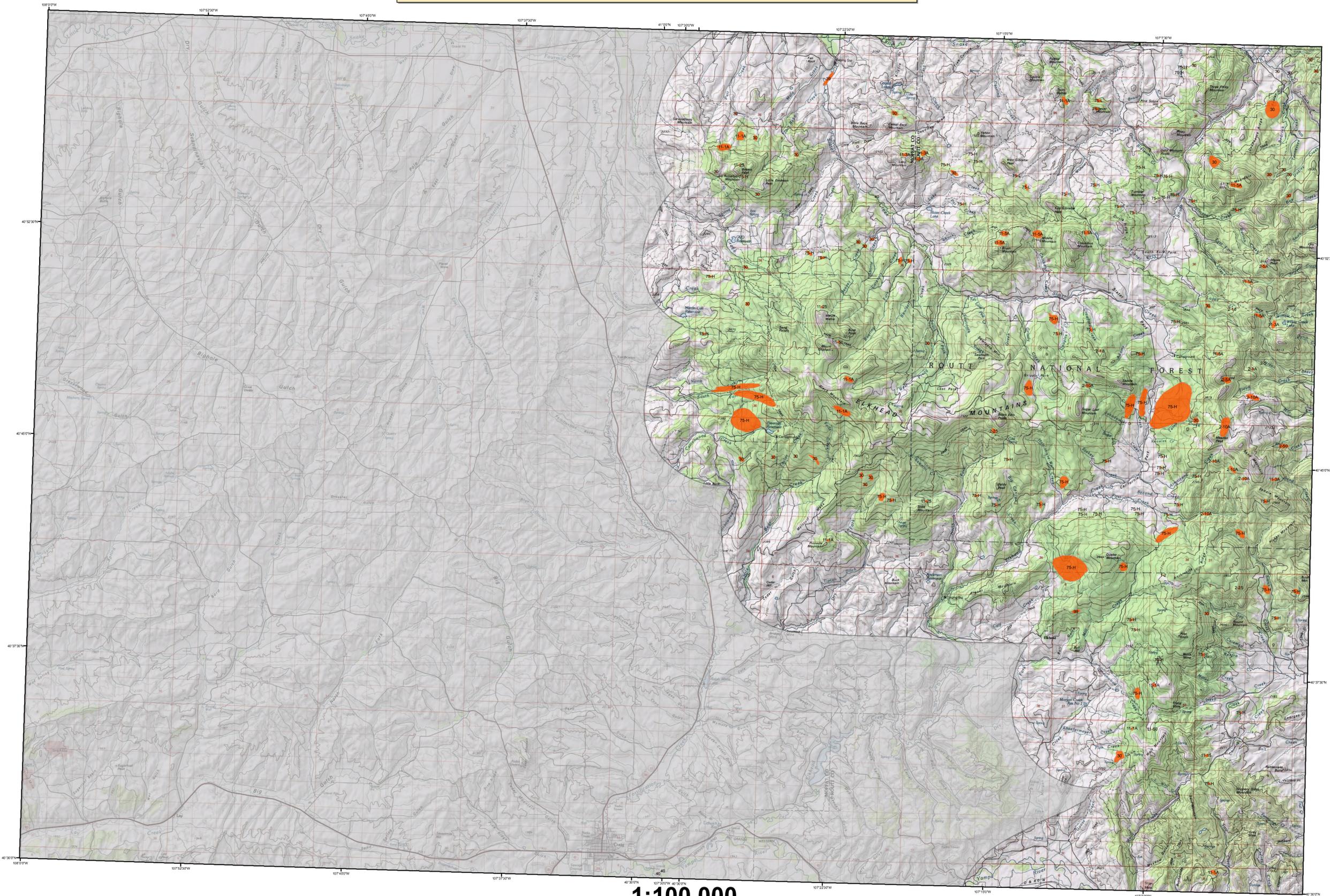
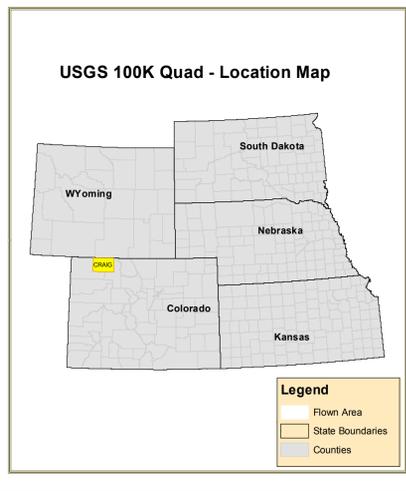


2011 Aerial Insect and Disease Survey Craig, Colorado USGS 100K DRG: 40107-E1



1:100,000

Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host
1	Douglas fir beetle	Douglas fir	49	Atypical	Cottonwood Poplar
2	Engelmann spruce beetle	Engelmann spruce	50	White pine blister rust	Softwood
3	Blue spruce ips	Blue spruce	51	Dwarf mistletoe	Scotch Pine
4	Mountain pine beetle	Ponderosa Pine	52	Elytromera	All Tree Species
5	Mountain pine beetle	Lodgepole Pine	53	Includes #65, 66 & 68	All Tree Species
6	Mountain pine beetle	S-Needle Pine	54	Air pollutants	White Spruce
7	Western pine beetle	Ponderosa Pine	55	Chemical damage	Oak
8	Fir engraver	White fir	56	Lophodermium pinastri	All Tree Species
9	Fir engraver	Douglas fir	57	Rhabdocline pseudotsugae	White Spruce
10	Douglas fir engraver beetle	Douglas fir	58	Lophodermium pinastri	All Tree Species
11	Western balsam bark beetle	Subalpine fir	59	Lecanora acicola	White Spruce
12	Unidentified bark beetle	Softwoods	60	Lophodermium pinastri	All Tree Species
13	Pine engraver	Lodgepole Pine	61	Dofhinostoma pinis	White Spruce
14	Pine engraver	Ponderosa Pine	62	Needle cast (Hypodermatomyces)	Quaking Aspen
15	Ponderosa pine needle miner	Lodgepole Pine	63	Root Rot	Quaking Aspen
16	Lodgepole pine needle miner	Ponderosa Pine	64	Unidentified disease	Ash
17	Jack pine budworm	Jack Pine	65	Winter damage light	Cottonwood Poplar
18	Spruce budworm, light defol.	Douglas fir	66	Winter damage medium	Hardwoods
19	Spruce budworm, medium defol.	Douglas fir	67	Winter damage heavy	Oak
20	Spruce budworm, heavy defol.	Douglas fir	68	Dipodia	Cottonwood Poplar
21	Douglas fir bark moth	Douglas fir	69	Pinon bark stain	Eastern Red Cedar
22	Pine looper	Ponderosa Pine	70	Fire	Hardwoods
23	Pine looper	Ponderosa Pine	71	Porcupine	Oak
24	Pine tortrix	Ponderosa Pine	72	Windthrow	Oak
25	Tent caterpillars	Hardwoods	73	High water damage	Hardwoods
26	Leaf beetles	Hardwoods	74	Aspen decline-multiple agents	Cottonwood Poplar
27	Aspen defoliation	Quaking Aspen	75	Pinon pine mortality (unknown agents)	Eastern Red Cedar
28	Oak leaf roller	Hardwoods	76	Juniper mortality (unknown agents)	Oak
29	Pine needle-shaft miner	Ponderosa Pine	77	Limber pine decline-multiple agents	Hardwoods
30	Pine sawflies	Ponderosa Pine	78	Hail damage	Cottonwood Poplar
31	Variable oak leaf caterpillar	Hardwoods	79	Unknown polygon	Eastern Red Cedar
32	Carionworms	Hardwoods	80	Unknown polygon	Hardwoods
33	Unidentified defoliator	All Tree Species	81	Unknown polygon	Hardwoods
34	Cottonwood Decline/Mortality	Cottonwood	82	Unknown polygon	Hardwoods
35	Unidentified defoliator	All Tree Species	83	Unknown polygon	Hardwoods
36	Unidentified defoliator	All Tree Species	84	Unknown polygon	Hardwoods
37	Unidentified defoliator	All Tree Species	85	Unknown polygon	Hardwoods
38	Unidentified defoliator	All Tree Species	86	Unknown polygon	Hardwoods
39	Unidentified defoliator	All Tree Species	87	Unknown polygon	Hardwoods
40	Unidentified defoliator	All Tree Species	88	Unknown polygon	Hardwoods
41	Unidentified defoliator	All Tree Species	89	Unknown polygon	Hardwoods
42	Unidentified defoliator	All Tree Species	90	Unknown polygon	Hardwoods
43	Unidentified defoliator	All Tree Species	91	Unknown polygon	Hardwoods
44	Unidentified defoliator	All Tree Species	92	Unknown polygon	Hardwoods
45	Unidentified defoliator	All Tree Species	93	Unknown polygon	Hardwoods
46	Unidentified defoliator	All Tree Species	94	Unknown polygon	Hardwoods
47	Unidentified defoliator	All Tree Species	95	Unknown polygon	Hardwoods



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.

Map Created December 1 2011
Projection: UTM NAD83 Zone 13
Author: J. Ross, USDA Forest Service

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/>

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*******DISCLAIMER*******

Forest Health Protection (FHP) and its partners strive to maintain an accurate Aerial Detection Survey (ADS) Dataset, but due to the conditions under which the data are collected, FHP and its partners shall not be held responsible for missing or inaccurate data. ADS are not intended to replace more specific information. An accuracy assessment has not been done for this dataset; however, ground checks are completed in accordance with local and national guidelines <http://www.fs.fed.us/foresthealth/aviation/qualityassurance.shtml>. Maps and data may be updated without notice. Please cite "USDA Forest Service, Forest Health Protection and its partners" as the source of this data in maps and publications.

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.