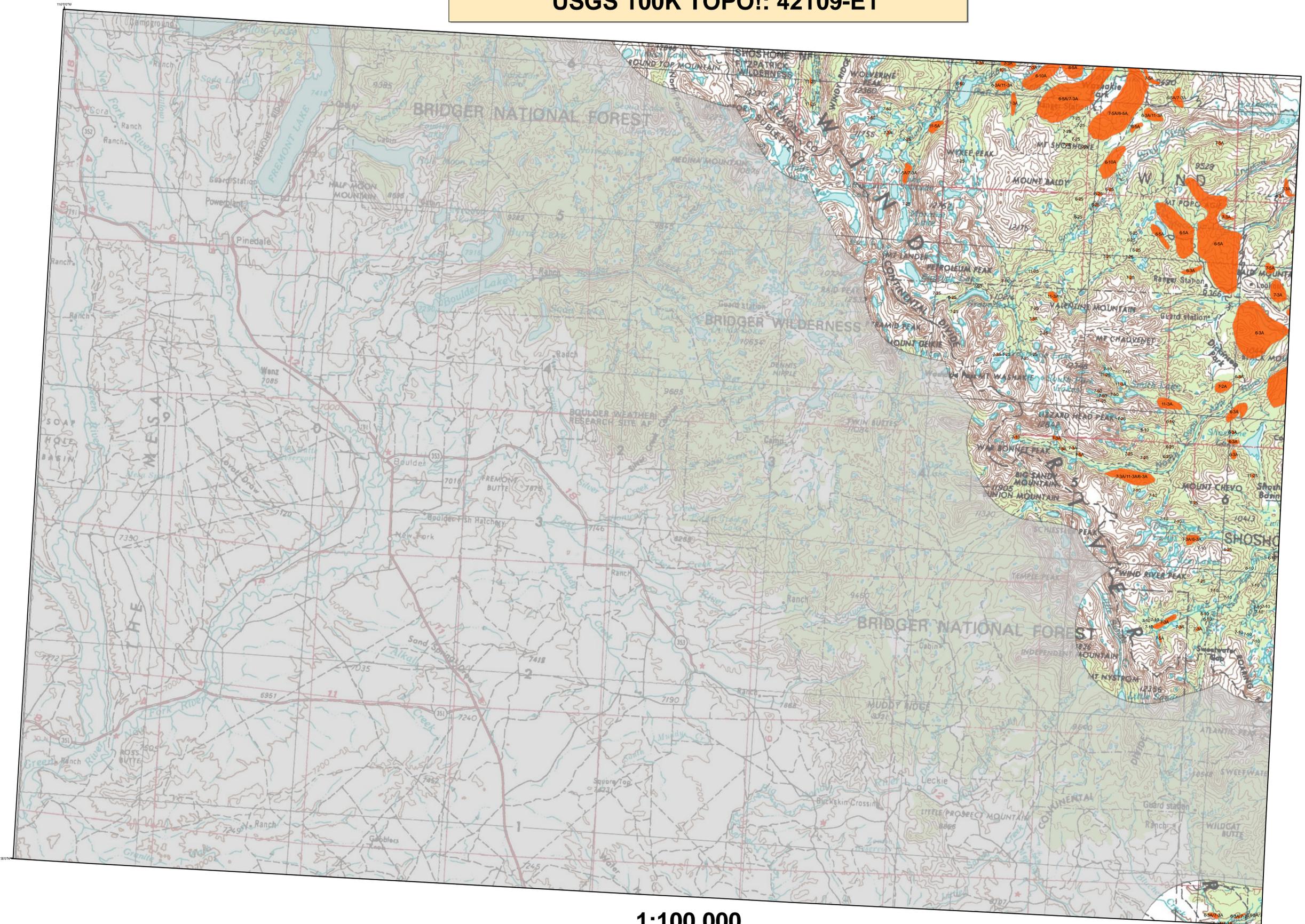


2009 Aerial Insect and Disease Survey Pinedale, Wyoming USGS 100K TOPO!: 42109-E1

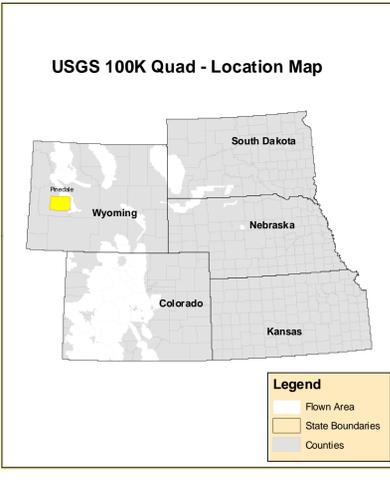


1:100,000

Legend

Use of the Number System
 Example: 5-25 = The first number before the dash is the number of dead "fader" trees in the polygon or point. The number after the dash is the causal agent code. Periodically, trees per acreage estimates are used after the causal agent code instead of number of dead "fader" 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 "fader" 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 "fader" tree. In another example: 5-3A = that on the average, an estimated three trees per acre are dead "fader" trees. A "7" 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	40	Altripea	Lodgepole Pine	109	fox squirrel flagg	Cottonwood/Poplar
2	Engelmann spruce beetle	Engelmann Spruce	41	White pine blister rust	Sitka Pine	110	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	42	Dwarf mistletoe	Softwoods	111	road salt	Softwoods
4	Mountain pine beetle	Lodgepole Pine	43	Erythronium	Ponderosa Pine	112	powdered nematode	Scion Tree
5	Mountain pine beetle	5-Needle Pine	44	Inclusio #05, 00 & 03	All Tree Species	113	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	45	Air pollutants	All Tree Species	114	foliage disease	All Tree Species
7	Fire Engraver	White Fir	46	Chemical damage	All Tree Species	115	spore tip	White Spruce
8	Douglas-fir engraver beetle	Douglas-fir	47	Lophodermium pinastri	Softwoods	116	twined/dretnut borer	Oak
9	Western balsam bark beetle	Subalpine Fir	48	Rhizodiplosis pseudotsugae	Douglas-fir	117	anthracnose (see foliar disease)	Bur Oak
10	Unidentified bark beetle	Softwoods	49	Lophodermium arcuta	Softwoods	118	Diaback	All Tree Species
11	Pine engraver	Lodgepole Pine	50	Lecanospira acicola	Softwoods	119	Mortality	All Tree Species
12	Pine engraver	Ponderosa Pine	51	Lophodermium concolor	Softwoods	120	Discoloration	All Tree Species
13	Ponderosa pine needle miner	Lodgepole Pine	52	Dobsonia pini	Softwoods	121	Harbicide	All Tree Species
14	Jack pine budworm	Ponderosa Pine	53	Needle cast (Vippemataceae)	Softwoods	122	Flagging	All Tree Species
15	Spruce budworm, light defol.	Douglas-fir	54	Root Rot	All Tree Species	123	aspen tortrix	Quaking Aspen
16	Spruce budworm, medium defol.	Douglas-fir	55	Unidentified disease	Softwoods	124	Masopina Blight	Quaking Aspen
17	Spruce budworm, heavy defol.	Douglas-fir	56	Winter damage light	All Tree Species	200	Diaback (ash)	Ash
18	Douglas-fir tussock moth	Douglas-fir	57	Winter damage medium	All Tree Species	201	Diaback (cottonwood)	Cottonwood/Poplar
19	Pine butterfly	Ponderosa Pine	58	Winter damage heavy	All Tree Species	202	Diaback (hardwood)	Hardwoods
20	Pine looper	Ponderosa Pine	59	Dipodops	Softwoods	203	Diaback (oak)	Oak
21	Pine tortrix	Ponderosa Pine	60	Pinyon black stain	Common Pinyon	204	Mortality (eastern cedar)	Eastern Red Cedar
22	Tart caterpillar	Hardwoods	61	Fire	All Tree Species	205	Mortality (hardwood)	Hardwoods
23	Leaf beetles	Hardwoods	62	Panicle	All Tree Species	206	Mortality (oak)	Oak
24	Oak leaf roller	Hardwoods	63	Windthrow	All Tree Species	207	Mortality (spruce)	Spruce
25	Pine needle-shaft miner	Ponderosa Pine	64	High water damage	All Tree Species	208	Mortality (larch)	Larch
26	Pine sawflies	Ponderosa Pine	65	Avalanche	All Tree Species	209	Discoloration (ash)	Softwoods
27	Pine sawflies	Ponderosa Pine	66	Aspen decline-multiple agents	Quaking Pinyon	210	Discoloration (conifer)	Softwoods
28	Cankerworms	Hardwoods	67	Pinyon pine mortality	Common Pinyon	211	Discoloration (eastern cedar)	Eastern Red Cedar
29	Variable oak leaf caterpillar	All Tree Species	68	Juniper mortality-unknown agent(s)	Juniper	212	Discoloration (hardwood)	Oak
30	Unidentified defoliator	All Tree Species	69	Limbic pine decline-multiple agent(s)	Limbic Pine	213	Discoloration (oak)	Oak
31	Heterobasidion annosum (Fomes annosus)	Softwoods	70	Hail damage	All Tree Species	214	Discoloration (spruce)	Spruce
32	Amelara corymbosa (Amelara melale)	Softwoods	71	Unknown polygon	Unknown	215	Harbicide (cottonwood)	Cottonwood/Poplar
33	Pityopsis schweinitzi	Softwoods	72	old pinon mortality	Common Pinyon	216	Harbicide (eastern cedar)	Eastern Red Cedar
34	Phomopsis	Softwoods	73	road salt tip	Lodgepole Pine	217	Flagging (hardwood)	Hardwoods
35	Corticosora	All Tree Species	74	dutch elm disease	Elm	218	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
36	Western gall rust	Unknown	75	dipodops blight	Ponderosa Pine	219	Unidentified defoliator (elm)	Elm
37	Coniotheca rust	Unknown	76	fox burble	Spruce White Spruce	220	Unidentified defoliator (hardwood)	Hardwoods
38	Shabdoma rust	Lodgepole Pine	77	drought killed narrow leaf cottonwood	Narrowleaf Cottonwood	300	Mortality (pine)	Pine



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 3 2009
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 2 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.