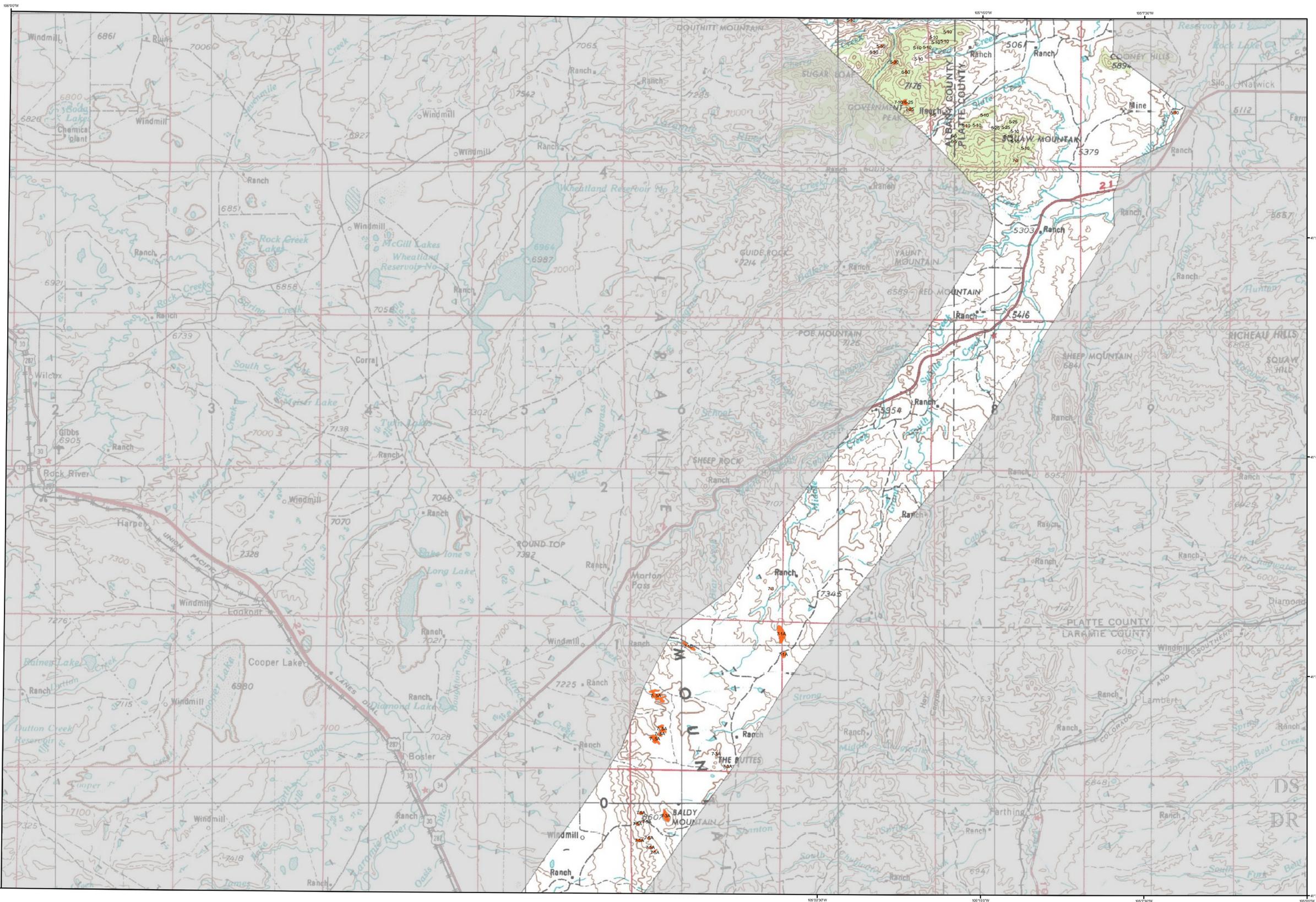


2009 Aerial Insect and Disease Survey Rock River, Wyoming USGS 100K TOPO! 41105-E1

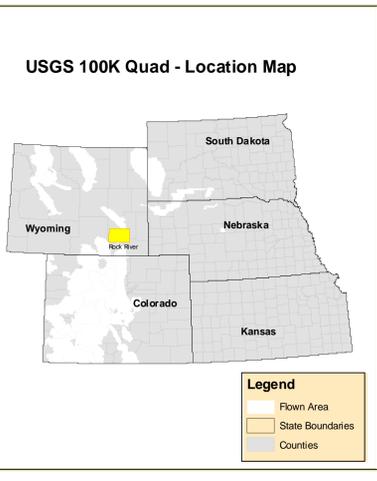


1:100,000

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: 5-12(A) = 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: 5-3A = that on the average, an estimated three trees per acre are dead "faded" trees. A "P" 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	Engelmann spruce beetle	Engelmann Spruce	49	Aspen	Lodgepole Pine	105	Iron leafhopper	Cottonwood/Poplar
2	Engelmann spruce beetle	Engelmann Spruce	50	White pine blister rust	5-Needle Pine	107	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	51	Dwarf mistletoe	Softwoods	108	road salt	Softwoods
4	Mountain pine beetle	Lodgepole Pine	52	Elytridemia	Ponderosa Pine	109	ground nematode	Spice Pine
5	Mountain pine beetle	5-Needle Pine	53	Inclusives #05, 06 & 09	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	54	Air pollution	All Tree Species	111	foliage disease	All Tree Species
7	White Fir	White Fir	55	Chemical damage	All Tree Species	112	spine louse	White Spruce
8	Douglas-fir engraver beetle	Douglas-fir	56	Lophodermium annotinum	Softwoods	113	redlined chestnut borer	Oak
9	Western balsam bark beetle	Subalpine Fir	57	Rhabdocline pseudotsugae	Douglas-fir	114	anthracnose like foliage disease	Bur Oak
10	Undersized bark beetle	Lodgepole Pine	58	Lophodermium arcutum	Softwoods	115	Diaback	All Tree Species
11	Pine engraver	Lodgepole Pine	59	Lecanotia aspicota	Softwoods	116	Mortality	All Tree Species
12	Pine engraver	Ponderosa Pine	60	Lophodermium concolor	Softwoods	117	Discoloration	All Tree Species
13	Ponderosa pine needle miner	Lodgepole Pine	61	Dithelmia sp.	Softwoods	118	Heteroleia	All Tree Species
14	Pine needle miner	Ponderosa Pine	62	Needle cast (hypodemateaceae)	Softwoods	119	Flapping	All Tree Species
15	Jack pine budworm	Jack Pine	63	Rust Rot	All Tree Species	120	aspen tortrix	Quaking Aspen
16	Spruce budworm, light defol.	Douglas-fir	64	Unidentified disease	Softwoods	121	Mesopiza Blight	Quaking Aspen
17	Spruce budworm, medium defol.	Douglas-fir	65	Winter damage light	All Tree Species	200	Diaback (ash)	Ash
18	Spruce budworm, heavy defol.	Douglas-fir	66	Winter damage medium	All Tree Species	201	Diaback (cottonwood)	Cottonwood/Poplar
19	Douglas-fir tussock moth	Douglas-fir	67	Winter damage heavy	All Tree Species	202	Diaback (hardwood)	Hardwoods
20	Pine butterfly	Ponderosa Pine	68	Diploleia	Softwoods	204	Diaback (oak)	Oak
21	Pine looper	Ponderosa Pine	69	Pinyon black stain	Common Pinyon	205	Mortality (cottonwood)	Cottonwood/Poplar
22	Pine tortrix	Ponderosa Pine	70	Fire	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	tree caterpillars	Hardwoods	71	Pungent	Softwoods	212	Mortality (hardwood)	Hardwoods
24	Leaf beetles	Hardwoods	72	Wintrow	All Tree Species	213	Mortality (oak)	Oak
25	Oak leaf roller	Hardwoods	73	High water damage	All Tree Species	214	Mortality (spruce)	Spruce
26	Pine needle-shaft miner	Ponderosa Pine	74	Avulsion	All Tree Species	220	Discoloration (ash)	Ash
27	Pine sawflies	Ponderosa Pine	75	Aspen decline-multiple agents)	Quaking Aspen	221	Discoloration (conifer)	Softwoods
28	Variable oak leaf caterpillar	Hardwoods	76	Pinyon pine mortality	Common Pinyon	222	Discoloration (cottonwood)	Cottonwood/Poplar
29	Unidentified defoliator	All Tree Species	77	Juniper mortality-unknown agents)	Juniper	223	Discoloration (eastern cedar)	Eastern Red Cedar
30	Heterobasidion annosum (Fomes annosus)	Softwoods	78	Quercus oak decline-unknown agents)	Quercus Oak	224	Discoloration (hardwood)	Hardwoods
31	Amelara corymbosa (Amelara melba)	Softwoods	79	Limber pine decline-multiple agents)	Limber Pine	225	Discoloration (oak)	Oak
32	Polygonus schweinfurii	Softwoods	80	Hail damage	All Tree Species	226	Discoloration (spruce)	Spruce
33	Phanoglossa	Softwoods	81	Unknown polygon	Common Pinyon	227	Heteroleia (cottonwood)	Cottonwood/Poplar
34	Cytospora	All Tree Species	82	old pinion mortality	Lodgepole Pine	231	Heteroleia (eastern cedar)	Eastern Red Cedar
35	Western gall rust	Unknown	100	old oak mortality	Lodgepole Pine	245	Mortality (hardwood)	Hardwoods
36	Comandra rust	Unknown	101	oak leaf lerp	Blm	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
37	Strobiliforme rust	Lodgepole Pine	102	dutch elm disease	Blm	103	Spizella blight	Blm
			104	los huerfano	Ponderosa Pine	251	Unidentified defoliator (elm)	Blm
			105	drought killed narrow leaf cottonwood	Narrowleaf Cottonwood	252	Mortality (pine)	Hardwoods
						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 8 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/>

DIRECT ALL INQUIRIES TO:

Wyoming State Forestry Division
 1100 West 22nd Street
 Cheyenne, Wyoming 82002

USDA Forest Service, Region 2
 Renewable Resources
 Forest Health Management
 PO Box 25127
 Lakewood, Colorado 80225

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

Forest Health Protection (FHP) and its partners strive to maintain an accurate Aerial Detection Survey (ADS) Database, 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.