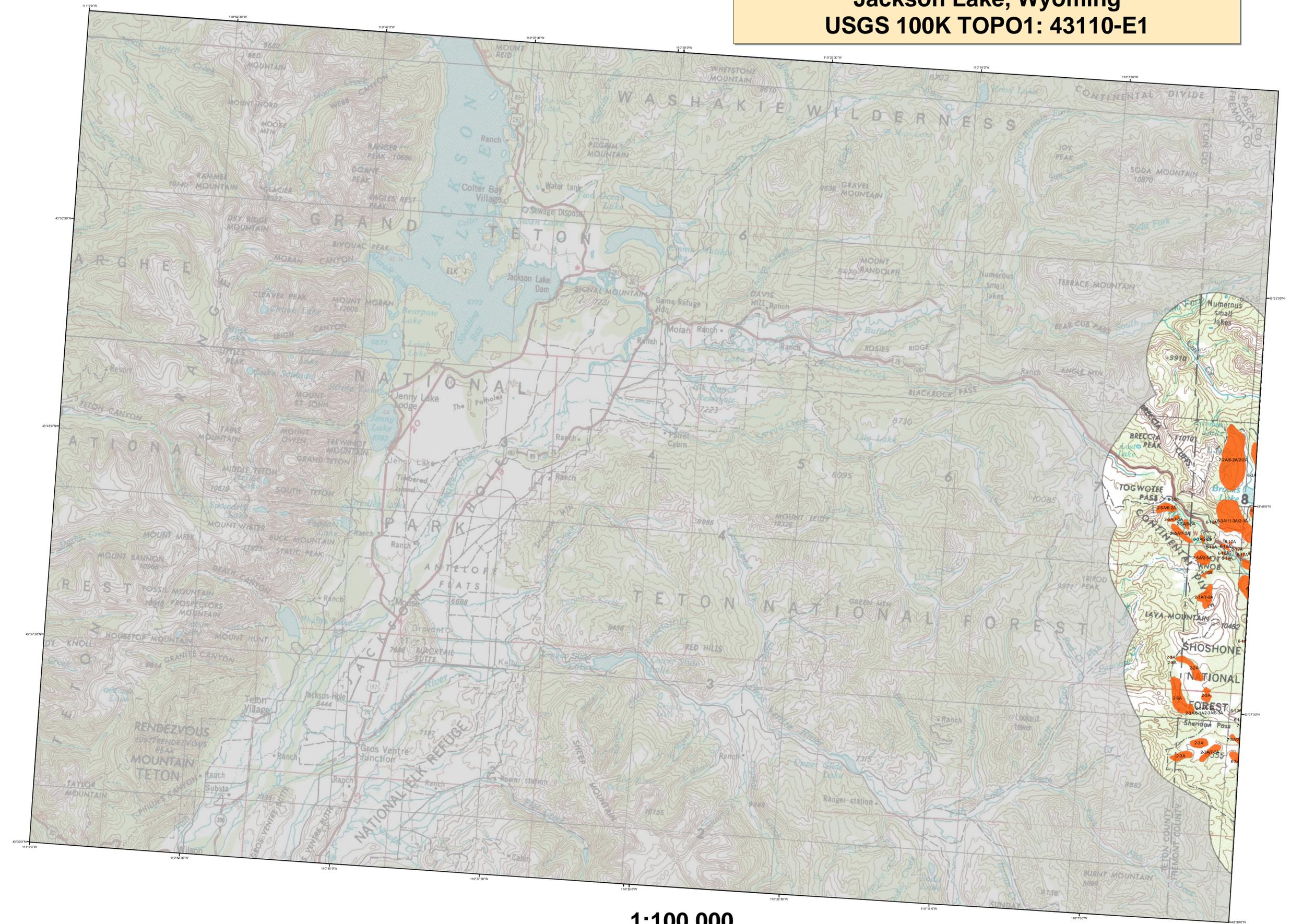


2010 Aerial Insect and Disease Survey Jackson Lake, Wyoming USGS 100K TOPO1: 43110-E1

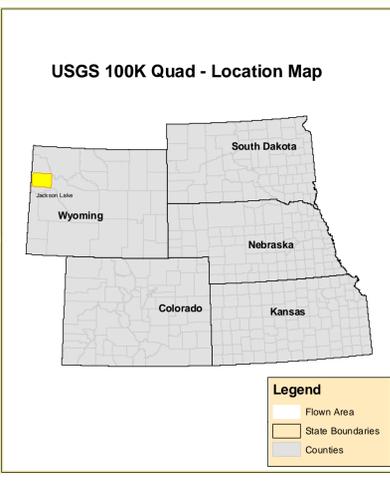


1:100,000

Legend

Example: 5-25 = The first number before the dash is the causal agent code. The number after the dash is the number of dead "ladder" 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 "ladder" trees (or an intensity code). For example: 5-102A = The first number before the dash is the causal agent code. The number after the dash is an estimation of the number of dead "ladder" 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 "ladder" tree. In another example: 5-3A = that on the average, an estimated three trees per acre are dead "ladder" trees. A "T" 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	50	White pine blister rust	Lodgepole Pine	105	Ice storm/icing	Cottonwood/Poplar
2	Engelmann Spruce Beetle	Engelmann Spruce	51	Dwarf mistletoe	S-Needle Pine	107	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	52	Eurosta	Softwoods	108	road salt	Softwoods
4	Mountain pine beetle	Lodgepole Pine	53	Inclusus #50, 55 & 55	Ponderosa Pine	109	greenwood nematode	Softwoods
5	Western pine beetle	Ponderosa Pine	54	Air pollution	All Tree Species	110	oak wilt	Oak
6	Fire Engraver	White Fir	55	Chemical damage	All Tree Species	111	ring-neck disease	All Tree Species
7	Douglas fir engraver beetle	Douglas fir	56	Lophodermium pinastri	Softwoods	112	spruce ips	White Spruce
8	Western balsam bark beetle	Subsopine Fir	57	Brachyotus pseudotsugae	Douglas fir	113	swarm of chestnut bore	Oak
9	Unidentified bark beetle	Softwoods	58	Lophodermium arcuta	Softwoods	114	androsace like foliar disease	Oak
10	Pine engraver	Lodgepole Pine	59	Lucanidus acicola	Softwoods	115	Dieback	All Tree Species
11	Pine engraver	Ponderosa Pine	60	Lophodermium concolor	Softwoods	116	Mortality	All Tree Species
12	Ponderosa pine needle miner	Lodgepole Pine	61	Ditana sp.	Softwoods	117	Discoloration	All Tree Species
13	Lodgepole pine needle miner	Ponderosa Pine	62	Needle cast (hypodermataceae)	Softwoods	118	Herbicide	All Tree Species
14	Jack pine budworm	Jack Pine	63	Rust	All Tree Species	119	Flagging	Quaking Aspen
15	Spruce budworm, light defol.	Douglas fir	64	Unidentified disease	Softwoods	120	aspen tortix	Quaking Aspen
16	Spruce budworm, medium defol.	Douglas fir	65	Winter damage light	All Tree Species	121	Marsipposia blight	Ash
17	Spruce budworm, heavy defol.	Douglas fir	66	Winter damage medium	All Tree Species	200	Dieback (ash)	Ash
18	Spruce budworm, heavy defol.	Douglas fir	67	Winter damage heavy	All Tree Species	201	Dieback (cottonwood)	Cottonwood/Poplar
19	Douglas fir tussock moth	Douglas fir	68	Diplota	All Tree Species	202	Dieback (hardwood)	Hardwoods
20	Pine Buttery	Ponderosa Pine	69	Prion bark stain	Softwoods	204	Dieback (oak)	Oak
21	Pine looper	Ponderosa Pine	70	Fire	All Tree Species	210	Mortality (oak cottonwood)	Cottonwood/Poplar
22	Tart caterpillars	Hardwoods	71	Porcine	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Leaf beetles	Hardwoods	72	Windthrow	Softwoods	212	Mortality (hardwood)	Hardwoods
24	Oak leaf roller	Hardwoods	73	High water damage	All Tree Species	213	Mortality (oak)	Oak
25	Pine needle-sheath miner	Ponderosa Pine	74	Anakiche	All Tree Species	214	Mortality (spruce)	Spruce
26	Pine sawflies	Ponderosa Pine	75	Aspen decline-multiple agents	Quaking Aspen	220	Discoloration (ash)	Ash
27	Pine tussock moth	Ponderosa Pine	76	Prion bark stain	Softwoods	221	Discoloration (cottonwood)	Softwoods
28	Variable oak leaf caterpillar	Hardwoods	77	Juniper mortality-unknown agents	Common Prunus	222	Discoloration (eastern cedar)	Eastern Red Cedar
29	Unidentified defoliator	All Tree Species	78	Gambel oak decline-unknown agents	Quaking Oak	224	Discoloration (hardwood)	Hardwoods
30	Unidentified defoliator	All Tree Species	79	Limber pine decline-multiple agents	Limber Pine	225	Discoloration (oak)	Oak
31	Heterobasidion annosum (Fomes annosus)	Softwoods	80	Hail damage	All Tree Species	226	Discoloration (spruce)	Spruce
32	Armillaria ostroyae (Armillaria mellea)	Softwoods	81	Unknown pathogen	All Tree Species	230	Mortality (cottonwood)	Cottonwood/Poplar
33	Polygonus schweinitzi	Softwoods	100	old pinon mortality	Lodgepole Pine	231	Herbicide (eastern cedar)	Eastern Red Cedar
34	Polygonus schweinitzi	Softwoods	101	old salt tip	Lodgepole Pine	240	Flagging (hardwood)	Hardwoods
35	Phragmites	All Tree Species	102	old elm disease	Elm	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
36	Cytospora	All Tree Species	103	old salt tip	Lodgepole Pine	251	Unidentified defoliator (elm)	Elm
37	Western gum rust	Unknown	104	old salt tip	Lodgepole Pine	252	Unidentified defoliator (hardwood)	Hardwoods
38	Coniophora rust	Lodgepole Pine	105	lps burners	Spruce, White Spruce	300	Mortality (pine)	Pine
39	Stackpole rust	Lodgepole Pine	106	drought killed narrow leaf cottonwood	Narrowleaf Cottonwood			



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 November 4 2010
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/hm/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) 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/for/health/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.