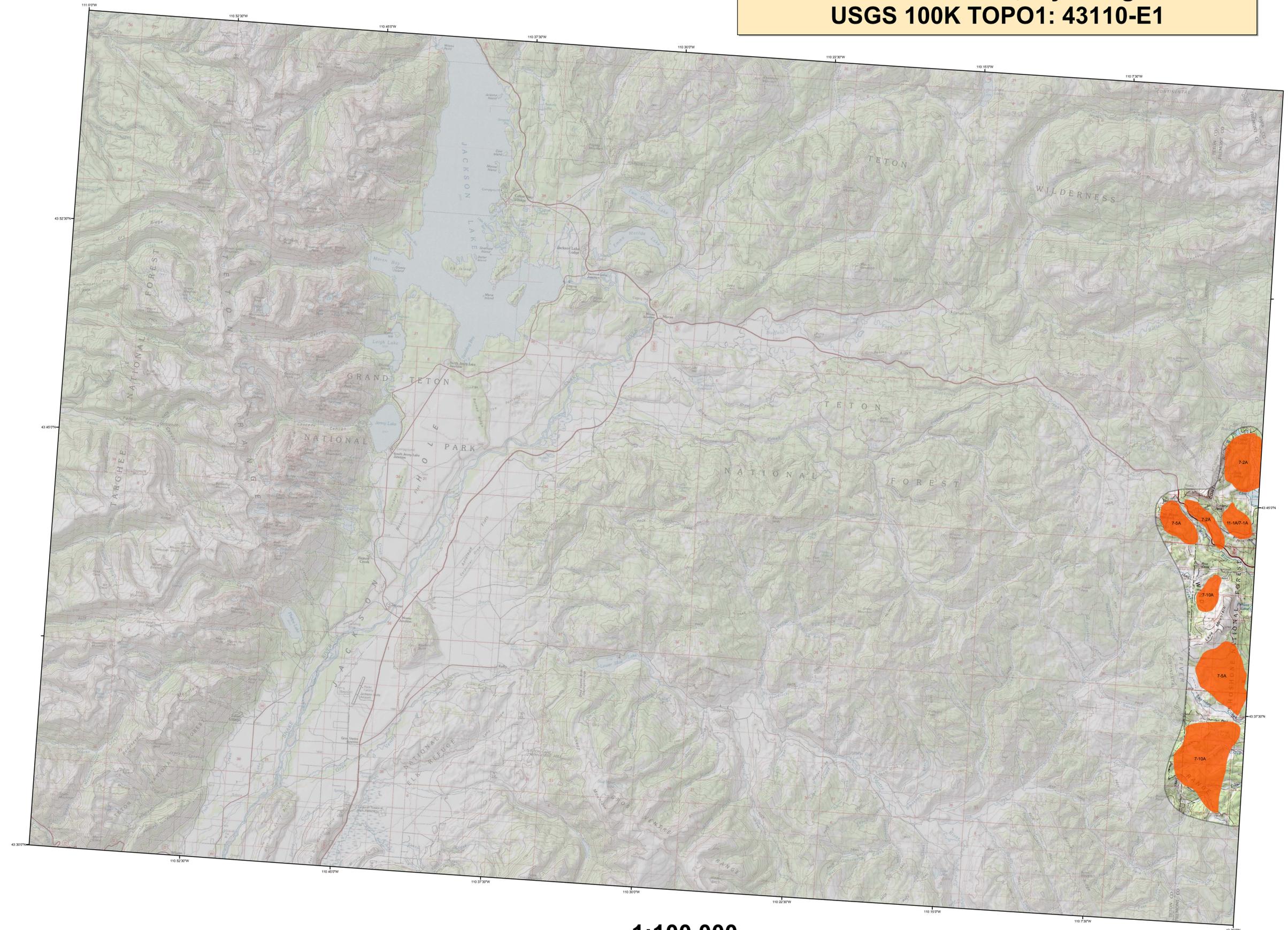
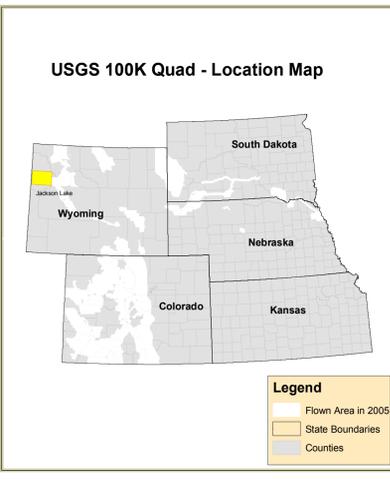


2005 Aerial Insect and Disease Survey Jackson Lake, Wyoming USGS 100K TOPO1: 43110-E1



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Legend		Causal Agent(s)		Not Flown in 2005	
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 "fader" 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 "fader" 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 "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 / 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
1	Douglas-fir beetle	Douglas-fir	40	Aspen	Lodgepole Pine
2	Engelmann Spruce Beetle	Engelmann Spruce	51	White pine blister rust	5-Needle Pine
3	Mountain pine beetle	Ponderosa Pine	61	Dwarf mistletoe	Softwoods
4	Mountain pine beetle	Lodgepole Pine	62	Eurosta	Ponderosa Pine
5	Mountain pine beetle	5-Needle Pine	63	Inclusus #55, 55 & 55	All Tree Species
6	Western pine beetle	Ponderosa Pine	54	Air pollutants	All Tree Species
7	Fire Engraver	White Fir	55	Chemical damage	All Tree Species
8	Douglas-fir engraver beetle	Douglas-fir	56	Lophodermium pinastri	Softwoods
9	Western balsam bark beetle	Subalpine Fir	57	Rhabdocline pseudotsugae	Douglas-fir
10	Unidentified bark beetle	Softwoods	58	Lophodermium arcuta	Softwoods
11	Pine engraver	Lodgepole Pine	59	Lucanotia acicola	Softwoods
12	Pine engraver	Ponderosa Pine	60	Lophodermium concolor	Softwoods
13	Ponderosa pine needle miner	Lodgepole Pine	61	Dichostoma jun	Softwoods
14	Lodgepole pine needle miner	Ponderosa Pine	62	Needle cast (hypodermataceae)	Softwoods
15	Jack pine budworm	Jack Pine	63	Root Rot	All Tree Species
16	Spruce budworm, light defol.	Douglas-fir	64	Unidentified disease	Softwoods
17	Spruce budworm, medium defol.	Douglas-fir	65	Winter damage light	All Tree Species
18	Spruce budworm, heavy defol.	Douglas-fir	66	Winter damage medium	All Tree Species
19	Douglas-fir tussock moth	Douglas-fir	67	Winter damage heavy	All Tree Species
20	Pine butterfly	Ponderosa Pine	68	Diplolela	Softwoods
21	Pine looper	Ponderosa Pine	69	Prion bark stain	Common Prinson
22	Tail casters	Ponderosa Pine	70	Fire	All Tree Species
23	Leaf beetles	Hardwoods	71	Porospora	Softwoods
24	Oak leaf roller	Hardwoods	72	Windthrow	All Tree Species
25	Pine needle-sheath miner	Ponderosa Pine	73	High water damage	All Tree Species
26	Pine tussock moth	Ponderosa Pine	74	Anisotoma	All Tree Species
27	Cankerworms	Hardwoods	75	Aspen decline-multiple agents(x)	Quaking Aspen
28	Variable oak leaf caterpillar	All Tree Species	76	Prion pine mortality	Common Prinson
29	Unidentified defoliator	All Tree Species	77	Juniper mortality-unknown agents(x)	Juniper
30	Heterobasidion annosum (Fomes annosus)	Softwoods	78	Quambark oak decline-unknown agents(x)	Quambark Oak
31	Armillaria ostroyae (Armillaria mellea)	Softwoods	79	Limber pine decline-multiple agents(x)	Limber Pine
32	Polyphorus schweinitzi	Softwoods	80	Hail damage	All Tree Species
33	Rhombus	Softwoods	81	Unkown	Unkown
34	Cytospora	All Tree Species	82	old poison mortality	Common Prinson
35	Western gall rust	Unknown	100	old salt tip	Lodgepole Pine
36	Conescale rust	Unknown	101	red salt tip	Lodgepole Pine
37	Stalkform rust	Lodgepole Pine	102	slutch elm disease	Elm
38			103	diplodia blight	Ponderosa Pine
39			104	lps burners	Spruce, White Spruce
40			105	drought killed narrow leaf cottonwood	Narrowleaf Cottonwood
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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.

Overview 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.

**Area surveyed by Al Dymerski
7/27-8/5 2005
Map Created: 02-06
Projection: UTM NAD83 Zone 13
Author: J. Ross, USDA Forest Service**

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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 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.

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/>