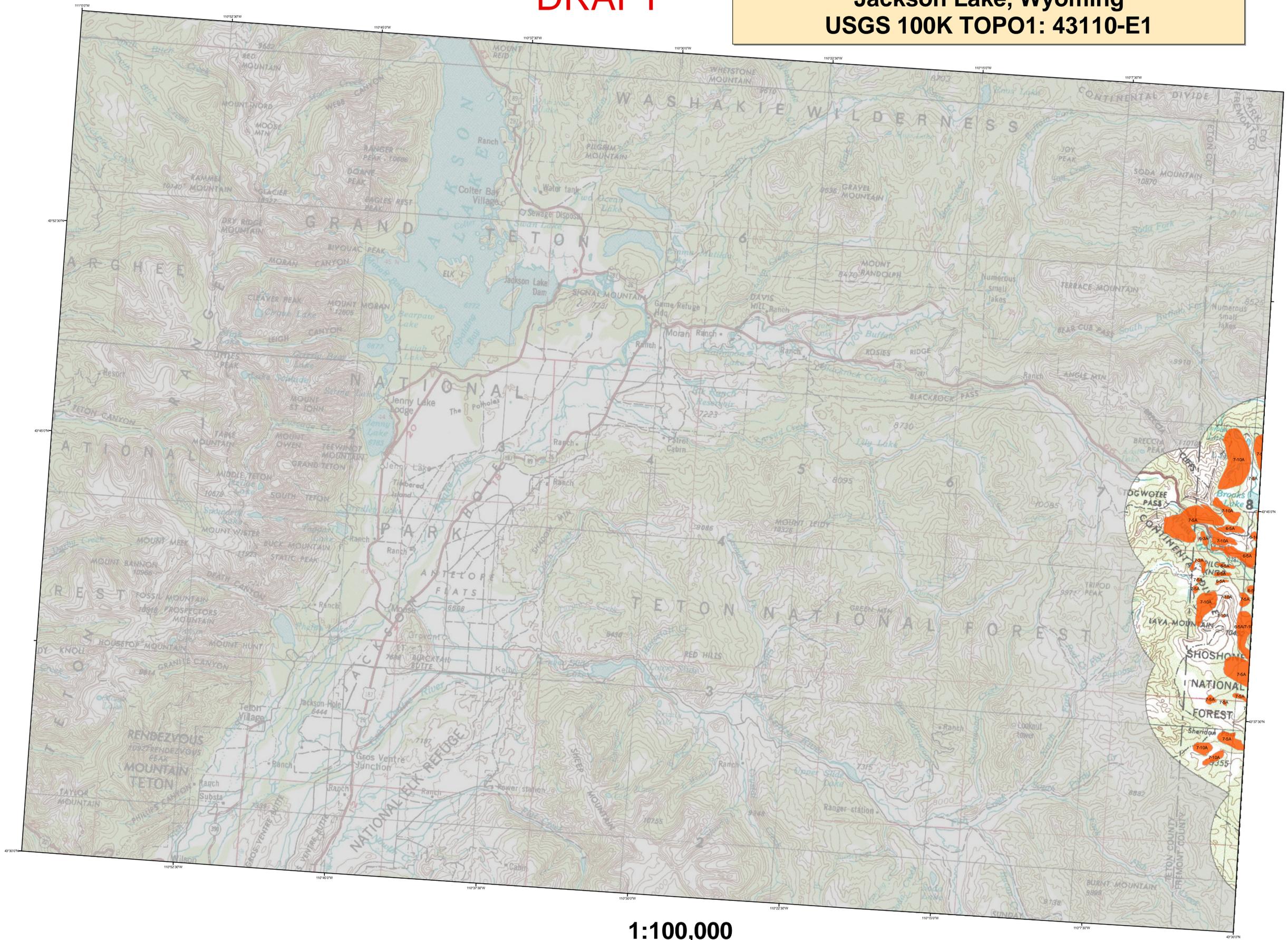


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2008 Aerial Insect and Disease Survey Jackson Lake, Wyoming USGS 100K TOPO1: 43110-E1



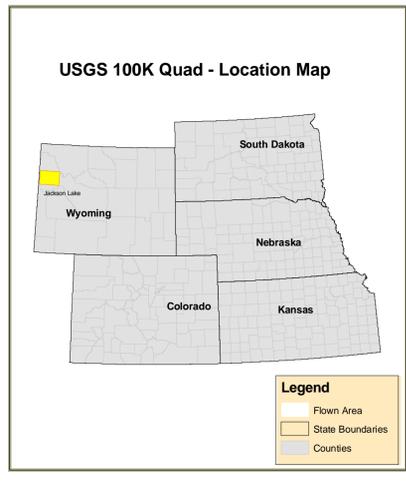
1:100,000

Legend

Causal Agent(s) (Orange box) **Not Flown** (Grey box)

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: 5-122A = 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	60	Anthracnose	Lodgepole Pine	102	Ice storm/icing	Cottonwood/Poplar
2	Engelmann Spruce Beetle	Engelmann Spruce	61	White pine blister rust	5-Needle Pine	107	fall aseworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	62	Dwarf mistletoe	Softwoods	108	road salt	Softwoods
4	Mountain pine beetle	Lodgepole Pine	63	Euprostoma	Ponderosa Pine	109	greenwood nematode	Softwoods
5	Mountain pine beetle	5-Needle Pine	64	Includes #60, 65 & 66	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	65	Air pollution	All Tree Species	111	hollis disease	All Tree Species
7	Fire Engraver	White Fir	66	Chemical damage	All Tree Species	112	spruce ips	White Spruce
8	Douglas fir engraver beetle	Douglas fir	67	Lophodermium pinastri	Softwoods	113	swirled chestnut borer	Oak
9	Western balsam bark beetle	Subsyringine Fir	68	Brachyotus pseudotsugae	Douglas fir	114	androsace leaf folder disease	Bur Oak
10	Unidentified bark beetle	Softwoods	69	Lophodermium acicula	Softwoods	115	Diabrotica	All Tree Species
11	Pine engraver	Lodgepole Pine	70	Leucosticte acicola	Softwoods	116	Mortality	All Tree Species
12	Pine engraver	Ponderosa Pine	71	Lophodermium concolor	Softwoods	117	Discoloration	All Tree Species
13	Ponderosa pine needle miner	Lodgepole Pine	72	Distonisoma	Softwoods	118	Heterosid	All Tree Species
14	Lodgepole pine needle miner	Ponderosa Pine	73	Needle cast (hypodermataceae)	Softwoods	119	Flagging	All Tree Species
15	Jack pine budworm	Jack Pine	74	Rust Rot	All Tree Species	120	aspen tortrix	Quaking Aspen
16	Spruce budworm, light defol.	Douglas fir	75	Unidentified disease	Softwoods	121	Marsipposia Blight	Quaking Aspen
17	Spruce budworm, medium defol.	Douglas fir	76	Winter damage light	All Tree Species	200	Diabrotica (ash)	Ash
18	Spruce budworm, heavy defol.	Douglas fir	77	Winter damage medium	All Tree Species	201	Diabrotica (cottonwood)	Cottonwood/Poplar
19	Douglas fir tussock moth	Douglas fir	78	Winter damage heavy	All Tree Species	202	Diabrotica (hardwood)	Hardwoods
20	Pine butterfly	Ponderosa Pine	79	Dipterids	Softwoods	204	Diabrotica (oak)	Oak
21	Pine looper	Ponderosa Pine	80	Prion bark stain	Common Prion	210	Mortality (old cottonwood)	Cottonwood/Poplar
22	Pine looper	Ponderosa Pine	81	Fire	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Leaf beetles	Hardwoods	82	Fire	All Tree Species	212	Mortality (hardwood)	Hardwoods
24	Leaf beetles	Hardwoods	83	High water damage	All Tree Species	213	Mortality (oak)	Oak
25	Oak leaf roller	Hardwoods	84	Avianiche	All Tree Species	214	Mortality (spruce)	Spruce
26	Pine needle-sheath miner	Ponderosa Pine	85	Aspen decline-multiple agents(x)	Quaking Aspen	220	Discoloration (ash)	Ash
27	Pine tussock moth	Ponderosa Pine	86	Prion bark stain	Common Prion	221	Discoloration (conifer)	Softwoods
28	Cankerworms	Hardwoods	87	Juniper mortality	Juniper	222	Discoloration (cottonwood)	Cottonwood/Poplar
29	Variable oak leaf caterpillar	Hardwoods	88	Juniper mortality-unknown agents(x)	Juniper	223	Discoloration (eastern cedar)	Eastern Red Cedar
30	Unidentified defoliator	All Tree Species	89	Quaking oak decline-unknown agents(x)	Quaking Oak	224	Discoloration (hardwood)	Hardwoods
31	Heterobasidion annosum (Fomes annosus)	Softwoods	90	Lumber pine decline-multiple agents(x)	Lumber Pine	225	Discoloration (oak)	Oak
32	Armillaria ostroyae (Armillaria mellea)	Softwoods	91	Hail damage	All Tree Species	226	Discoloration (spruce)	Spruce
33	Polyphorus schweinitzi	Softwoods	92	Unkown	Unkown	230	Heterosid (cottonwood)	Cottonwood/Poplar
34	Phragmites	Softwoods	93	Old pinon mortality	Common Prion	231	Heterosid (eastern cedar)	Eastern Red Cedar
35	Cytospora	All Tree Species	94	Old oak mortality	Lodgepole Pine	240	Flagging (hardwood)	Hardwoods
36	Western gall rust	Unknown	95	Old slash tip	Elm	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
37	Concord rust	Unknown	96	Old slash tip	Ponderosa Pine	251	Unidentified defoliator (elm)	Elm
38	Stackflor rust	Lodgepole Pine	97	Old slash tip	Spruce, White Spruce	252	Unidentified defoliator (hardwood)	Hardwoods
39	Stackflor rust	Lodgepole Pine	98	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.

Area surveyed by Al Dymerski
Map Created:
Projection: UTM NAD83 Zone 13
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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 locators 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/>