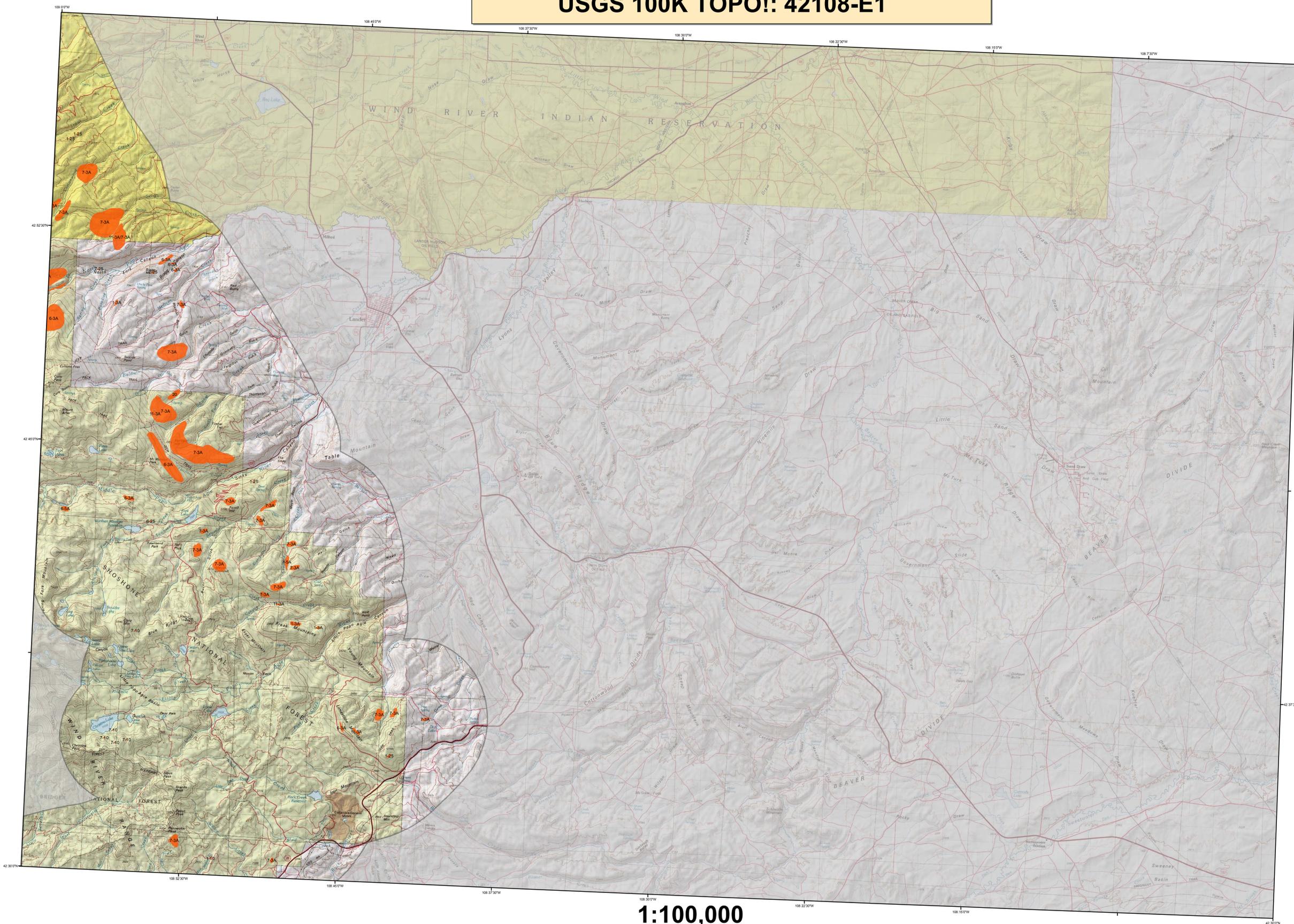


2007 Aerial Insect and Disease Survey Lander, Wyoming USGS 100K TOPO!: 42108-E1



1:100,000

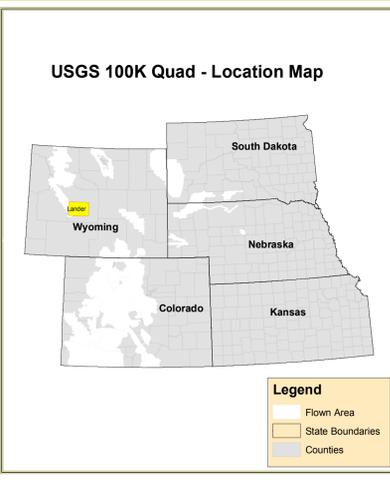
Legend

Causal Agent(s)

Not Flown

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 acre 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 / 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	Anisoplia	Lodgepole Pine	108	Tom spotted flagging	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	61	Dwarf mistletoe	Softwoods	108	road kill	Softwoods
4	Mountain pine beetle	Lodgepole Pine	62	Elyrodium	Ponderosa Pine	109	greenwood nematode	Sageon Pine
5	Mountain pine beetle	5-Needle Pine	63	Inclusio #65, 66 & 69	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	64	Air pollution	All Tree Species	111	foliage disease	All Tree Species
7	Fir Engraver	White Fir	65	Chemical damage	All Tree Species	112	spine us	White Spruce
8	Douglas-fir engraver beetle	Douglas-fir	66	Lophodermium praeurti	Softwoods	113	twined chestnut borer	Oak
9	Western balsam bark beetle	Subalpine Fir	67	Rhabdocline pseudotsugae	Douglas-fir	114	anthracnose like foliar disease	Bur Oak
10	Unidentified bark beetle	Softwoods	68	Lophodermella aruata	Softwoods	115	Dieback	All Tree Species
11	Pine engraver	Lodgepole Pine	69	Lecanocitta acicola	Softwoods	116	Mortality	All Tree Species
12	Pine engraver	Ponderosa Pine	70	Lophodermella concolor	Softwoods	117	Discoloration	All Tree Species
13	Pine engraver	Lodgepole Pine	81	Dobsonia pin	Softwoods	118	Mortality	All Tree Species
14	Pine engraver	Ponderosa Pine	82	Needle cast (hypodemateaceae)	Softwoods	119	Flagging	All Tree Species
15	Lodgepole pine needle miner	Ponderosa Pine	83	Root Rot	All Tree Species	120	aspen tortrix	Quaking Aspen
16	Lodgepole pine needle miner	Ponderosa Pine	84	Unidentified disease	Softwoods	121	Marsipposia Blight	Quaking Aspen
17	Jack pine budworm	Jack Pine	85	Winter damage light	All Tree Species	200	Dieback (ash)	Ash
18	Spruce budworm, light defol.	Douglas-fir	86	Winter damage medium	All Tree Species	201	Dieback (cottonwood)	Cottonwood/Poplar
19	Spruce budworm, medium defol.	Douglas-fir	87	Winter damage heavy	All Tree Species	202	Dieback (hardwood)	Hardwoods
20	Spruce budworm, heavy defol.	Douglas-fir	88	Dipodops	Softwoods	204	Dieback (oak)	Oak
21	Douglas-fir tussock moth	Douglas-fir	89	Pinon black stain	Common Pinyon	210	Mortality (old cottonwood)	Cottonwood/Poplar
22	Pine looper	Ponderosa Pine	90	Pinon mortality	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Pine tortrix	Ponderosa Pine	70	Fire	All Tree Species	212	Mortality (spruce)	Spruce
24	Tree caterpillars	Hardwoods	71	Pinuspin	All Tree Species	213	Mortality (oak)	Oak
25	Leaf beetles	Hardwoods	72	Windthrow	All Tree Species	214	Mortality (hardwood)	Hardwoods
26	Oak leaf roller	Hardwoods	73	High water damage	All Tree Species	215	Discoloration (ash)	Ash
27	Leaf miner	Ponderosa Pine	74	Avalanche	All Tree Species	220	Discoloration (oak)	Oak
28	Pine needle-shaft miner	Ponderosa Pine	75	Aspen decline-multiple agent(s)	Quaking Aspen	221	Discoloration (conifer)	Softwoods
29	Pine sawflies	Ponderosa Pine	76	Common Pinyon	Common Pinyon	222	Discoloration (cottonwood)	Cottonwood/Poplar
30	Pine tussock moth	Ponderosa Pine	77	Juniper mortality-unknown agent(s)	Juniper	223	Discoloration (eastern cedar)	Eastern Red Cedar
31	Variable oak leaf caterpillar	Hardwoods	78	Camille oak decline-unknown agent(s)	Camille Oak	224	Discoloration (hardwood)	Hardwoods
32	Unidentified defoliator	All Tree Species	79	Limber pine decline-multiple agent(s)	Limber Pine	225	Discoloration (oak)	Oak
33	Unidentified defoliator	Softwoods	80	Hail damage	All Tree Species	226	Discoloration (spruce)	Spruce
34	Heterobasidion annosum (Fomes annosus)	Softwoods	81	Unknown polygon	Unknown	230	Herbicide (cottonwood)	Cottonwood/Poplar
35	Amelara stylosa (Amelara malva)	Softwoods	100	old pinon mortality	Common Pinyon	231	Herbicide (eastern cedar)	Eastern Red Cedar
36	Polygonus schweinfelti	Softwoods	100	old spruce mortality	Lodgepole Pine	240	Flagging (hardwood)	Hardwoods
37	Polygonus schweinfelti	Softwoods	102	road salt tip	Elm	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
38	Phanoglossa	All Tree Species	104	dutch elm disease	Elm	261	Unidentified defoliator (elm)	Elm
39	Cytospora	Unknown	103	Spaldia blight	Ponderosa Pine	281	Unidentified defoliator (hardwood)	Hardwoods
40	Western gall rust	Unknown	104	los hurtado	Spruce, White Spruce	300	Mortality (pine)	Pine
41	Stalactiform rust	Lodgepole Pine	105	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.

Area surveyed by Al Dymerski
Map Created: 12/30/2007
Projection: UTM NAD83 Zone 13
Author: J. Ross, USDA Forest Service

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
 P.O. Box 25127
 Lakewood, Colorado 80225

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/>