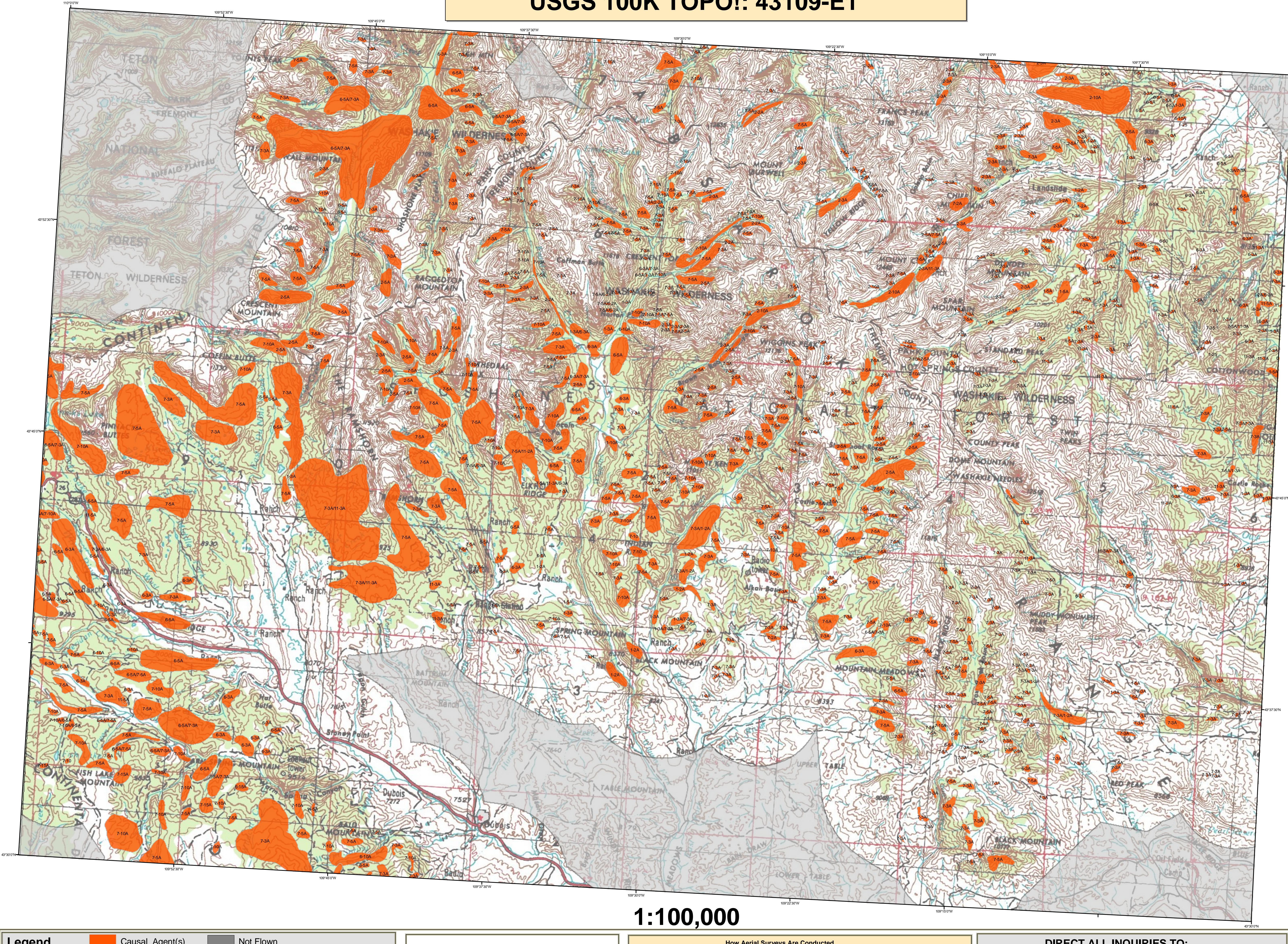


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# 2008 Aerial Insect and Disease Survey The Ramshorn, Wyoming USGS 100K TOPO!: 43109-E1

\*\*DRAFT\*\*



1:100,000

## Legend

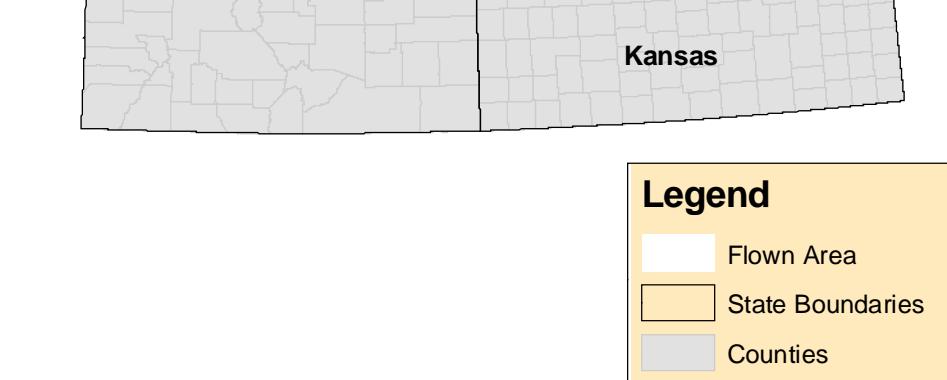
Causal Agent(s)

Not Flown

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 listed, causal agents not counted in intensity are L=low, M=moderate, H=high may be used as causal agent codes. Periodically, new causal agent codes are used after the causal agent code instead of numbers of dead "fader" trees in 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 "fader" trees in the polygon per acre. In this case it would be an estimation that, on the average, one tree per two acres would be a dead "fader" tree. In another example: 5-3-A = that on the average, estimated three trees per acre are dead "fader" trees.

Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host
1	Douglas-fir beetle	Douglas-fir	49	Atrypella	Lodgepole Pine	103	fox squirrel/Edding	Cottonwood/Poplar
2	Engelmann Spruce	Engelmann Spruce	50	Headspace blister rust	Spruce	104	fox weevils	Cottonwood/Poplar
3	Mountain pine beetle	Mountain pine beetle	51	Dwarf mistletoe	Spruce	105	ice salt	Schwarze
4	Mountain pine beetle	Mountain pine beetle	52	Indigo bunting, 60 & 68	Ponderosa Pine	106	pine wood nematode	Scots Pine
5	Whitebark pine beetle	Whitebark pine beetle	53	pollard pine	All Tree Species	107	red oak	Oak
6	Whitebark pine beetle	Whitebark pine beetle	54	whitebark pine	All Tree Species	111	spruce blight	All Tree Species
7	Fire Engraver	Fire Engraver	55	chemical damage	Spruce	112	spruce ips	White Spruce
8	Engelmann engraver beetle	Engelmann engraver beetle	56	engelmann spruce adelgus	Spruce	113	termites/boxelder	Oak
9	Engelmann engraver beetle	Engelmann engraver beetle	57	rhododendron pseudosuga	Spruce	114	termites/chestnut borer	Oak
10	Unidentified bark beetle	Unidentified bark beetle	58	Rhododendron arculata	Spruce	115	thunder-like foliar disease	All Tree Species
11	Whitebark bark beetle	Whitebark bark beetle	59	Lecanosticta acicula	Spruce	116	Dieback	All Tree Species
12	Unidentified bark beetle	Unidentified bark beetle	60	Lodgespole Pine	Spruce	117	Mortality	All Tree Species
13	Pine engraver	Pine engraver	61	Douglas-fir	Spruce	118	Mortality	All Tree Species
14	Pine engraver	Pine engraver	62	Leptothrix pini	Spruce	119	Hericidole	All Tree Species
15	Ponderosa pine needle miner	Ponderosa pine needle miner	63	Dermatophagoides cast (Hypoallergenae)	Spruce	120	Flagging	All Tree Species
16	Lodgepole pine needle miner	Lodgepole pine needle miner	64	Root Rot	Spruce	121	Quaking aspen	Quaking Aspen
17	Whitebark pine needle miner	Whitebark pine needle miner	65	Unidentified disease	Spruce	122	Dieback (ash)	Ash
18	Spruce budworm, light defol.	Spruce budworm, light defol.	66	Winter damage light	Spruce	123	Dieback (cottonwood)	Cottonwood/Poplar
19	Spruce budworm, medium defol.	Spruce budworm, medium defol.	67	Winter damage heavy	Spruce	202	Dieback (hardwood)	Hardwood
20	Western gall rust, heavy defol.	Western gall rust, heavy defol.	68	Diabotis	Spruce	204	Dieback (oak)	Oak
21	Douglas-fir tussock moth	Douglas-fir tussock moth	69	Diabotis black stain	Spruce	210	Dieback (cottonwood)	Cottonwood/Poplar
22	Douglas-fir tussock moth	Douglas-fir tussock moth	70	Fire	Spruce	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Pine Butterfly	Pine Butterfly	71	Pine sawyer	Spruce	212	Mortality (hardwood)	Hardwoods
24	Pine tortrix	Pine tortrix	72	Populus	Spruce	214	Mortality (spruce)	Spruce
25	Tert caterpillar	Tert caterpillar	73	High water damage	Spruce	222	Discoloration (ash)	Ash
26	Whitebark caterpillar	Whitebark caterpillar	74	Avalanche	Spruce	223	Discoloration (cottonwood)	Cottonwood/Poplar
27	Pine needle-sheath miner	Pine needle-sheath miner	75	Juniper pine mortality	Spruce	224	Discoloration (eastern cedar)	Eastern Red Cedar
28	Whitebark caterpillar	Whitebark caterpillar	76	Juniper mortality/unknown agent(s)	Spruce	225	Discoloration (oak)	Hardwoods
29	Unidentified defolator	Unidentified defolator	77	Larch	Spruce	226	Discoloration (spruce)	Spruce
30	All Tree Species	All Tree Species	78	Larch	Spruce	231	Hericidole (eastern cedar)	Eastern Red Cedar
31	Unidentified defolator	Unidentified defolator	79	Limber pine decline-multiple agent(s)	Spruce	240	Flagging (hardwood)	Hardwoods
32	All Tree Species	All Tree Species	80	Balsam fir	Spruce	250	Flagging (cottonwood)	Cottonwood/Poplar
33	Unidentified defolator	Unidentified defolator	81	Balsam fir	Spruce	251	Unidentified defolator (elm)	Elm
34	All Tree Species	All Tree Species	82	Balsam fir	Spruce	252	Unidentified defolator (hardwood)	Hardwoods
35	Unidentified defolator	Unidentified defolator	83	Balsam fir	Spruce	253	Mortality (pine)	Pine
36	Pine tussock moth	Pine tussock moth	84	Balsam fir	Spruce	254	Mortality (spruce)	Spruce
37	Cankerworms	Cankerworms	85	Balsam fir	Spruce	255	Mortality (white spruce)	White Spruce
38	Whitebark caterpillar	Whitebark caterpillar	86	Balsam fir	Spruce	256	Mortality (white spruce)	White Spruce
39	Unidentified defolator	Unidentified defolator	87	Balsam fir	Spruce	257	Mortality (white spruce)	White Spruce
40	All Tree Species	All Tree Species	88	Balsam fir	Spruce	258	Mortality (white spruce)	White Spruce
41	Heterobasidion annosum (Fomes annosus)	Heterobasidion annosum (Fomes annosus)	89	Balsam fir	Spruce	259	Mortality (white spruce)	White Spruce
42	Phomopsis sparsinervis	Phomopsis sparsinervis	90	old pine mortality	Spruce	260	Mortality (white spruce)	White Spruce
43	Phomopsis sparsinervis	Phomopsis sparsinervis	91	road salt lipp	Spruce	261	Mortality (white spruce)	White Spruce
44	Phomopsis	Phomopsis	92	road salt disease	Spruce	262	Mortality (white spruce)	White Spruce
45	Phomopsis	Phomopsis	93	road salt disease	Spruce	263	Mortality (white spruce)	White Spruce
46	Western gall rust	Western gall rust	94	dipodia bright	Ponderosa Pine	264	Mortality (white spruce)	White Spruce
47	Comandra rust	Comandra rust	95	los humenti	Spruce	265	Mortality (white spruce)	White Spruce
48	Unknown	Unknown	96	drught killed narrow leaf cottonwood	Narrowleaf Cottonwood	266	Mortality (white spruce)	White Spruce

## USGS 100K Quad - Location Map



## 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.

## DIRECT ALL INQUIRIES TO:

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1100 West 22nd Street  
Cheyenne, Wyoming 82022

USDA Forest Service, Region 2  
Renewable Resources  
Forest Health Management  
PO 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/thm/aerialsurvey/>

## Area surveyed by Al Dymerski

Map Created:

Projection: UTM NAD83 Zone 13

Author: J. Ross, USDA Forest Service