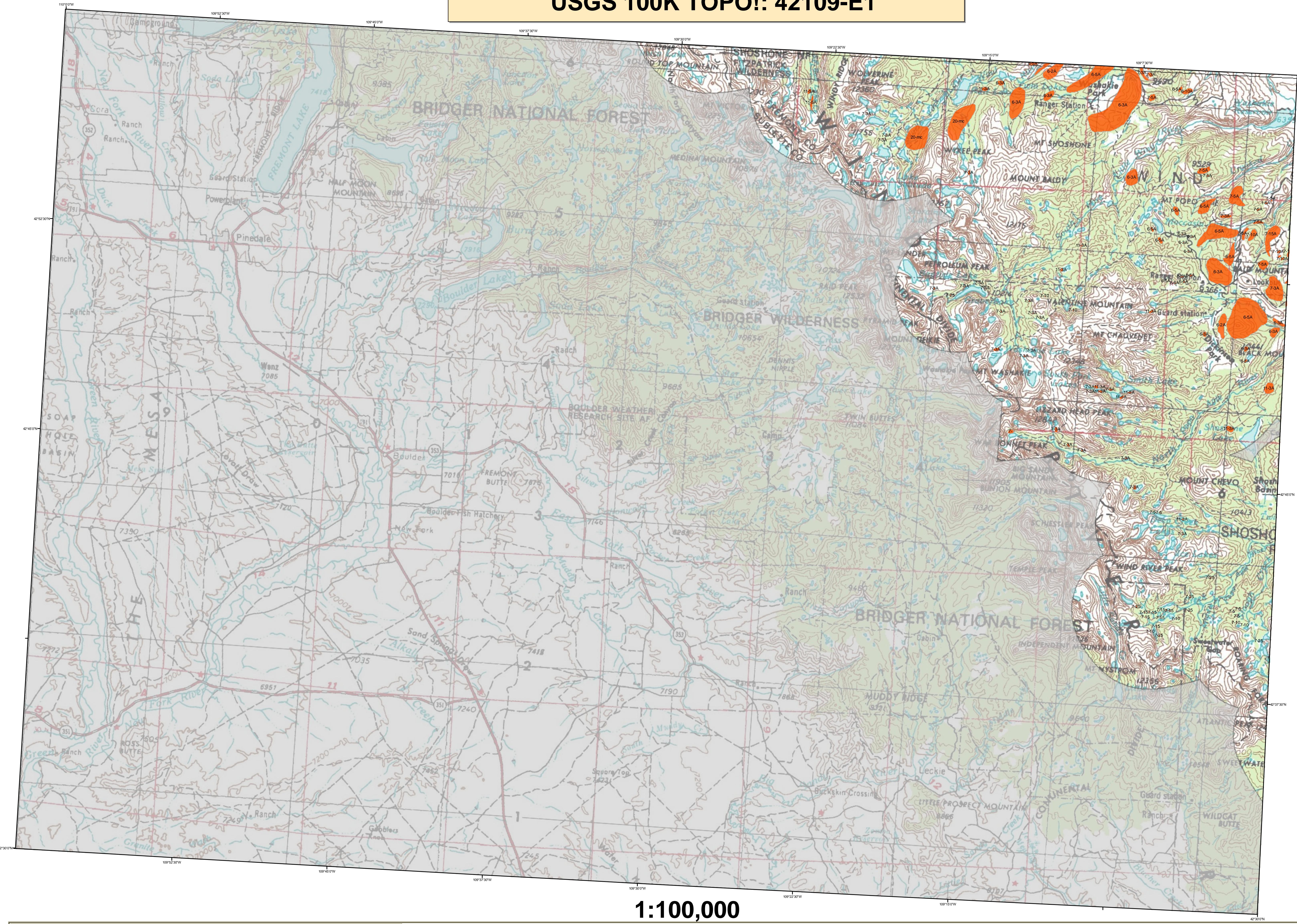


**\*\*DRAFT\*\***

**2008 Aerial Insect and Disease Survey  
Pinedale, Wyoming  
USGS 100K TOPO!: 42109-E1**

**\*\*DRAFT\*\***



1:100,000

**Legend**

Causal Agent(s) Not Flown

Use of the Number System  
The first number before the dash is the number of dead "fader" trees in the polygon or point. When report dead trees are not counted, an intensity code is used. The number after the dash is the causal agent code. Periodically, tree 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: 3-5A = On the average, an estimated three trees per acre are dead "fader" trees. A/V is used as a separator when a point contains more than one causal agent.

Code Causal Agent	Primary Host	Code Causal Agent	Primary Host	Code Causal Agent	Primary Host	Code Causal Agent	Primary Host	Code Causal Agent	Primary Host
1 Douglas-fir beetle	Douglas-fir	49 Atropos	Lodgepole Pine	108 Fox squirrel flagging	Cottonwood, Poplar				
2 Engelmann Spruce Beetle	Engelmann Spruce	50 White pine blister rust	Schwarze Pine	107 Fall webworm	Schwarze Pine				
3 European spruce beetle	European Spruce	51 Spruce budworm	Schwarze Pine	108 Fall webworm	Schwarze Pine				
4 Mountain pine beetle	Mountain Pine	52 Elytrurus	Ponderosa Pine	109 Pine wood nematode	Scotch Pine				
5 Mountain pine beetle	Mountain Pine	53 Includes #55, 66 & 68	All Tree Species	110 Oak wilt	Oak				
6 Mountain pine beetle	Mountain Pine	54 Mountain pine beetle	All Tree Species	111 Pine needle disease	All Tree Species				
7 Mountain pine beetle	Mountain Pine	55 Chemical damage	All Tree Species	112 Spruce ips	White Spruce				
8 Mountain pine beetle	Mountain Pine	56 Lophodermella pinastri	Schwarze Pine	113 Twisted chestnut borer	Oak				
9 Pine engraver beetle	White Fir	57 Lophodermella pini	Schwarze Pine	114 Twisted chestnut borer like foliar disease	Birch				
10 Douglas-fir engraver beetle	Douglas-fir	58 Lophodermella arctica	Schwarze Pine	115 Debake	All Tree Species				
11 Douglas-fir bark beetle	Sabine Fir	59 Leucania aciculana	Schwarze Pine	116 Debake	All Tree Species				
12 Unidentified bark beetle	Sabine Fir	60 Leucania aciculana	Schwarze Pine	117 Debake	All Tree Species				
13 Pine engraver	Schwarze Pine	61 Drosophila pini	Schwarze Pine	118 Herbivore	All Tree Species				
14 Pine engraver	Schwarze Pine	62 Nefidia cast (Hydrodemaetae)	Schwarze Pine	119 Flagging	All Tree Species				
15 Ponderosa pine needle miner	Lodgepole Pine	63 All Tree Species	All Tree Species	120 Flagging	All Tree Species				
16 Lodgepole pine needle miner	Lodgepole Pine	64 unidentified disease	Schwarze Pine	121 Marsannina blight	Quaking Aspen				
17 Jack pine	Jack Pine	65 Winter damage light	All Tree Species	122 Debake (ash)	Ash				
18 Spruce budworm, light defol.	Douglas-fir	66 Winter damage medium	All Tree Species	123 Debake (black cottonwood)	Cottonwood, Poplar				
19 Spruce budworm, medium defol.	Douglas-fir	67 Winter damage heavy	All Tree Species	124 Debake (hardwood)	Hardwoods				
20 Douglas-fir tussock moth	Douglas-fir	68 Diplolepis	Schwarze Pine	125 Debake (oak)	Oak				
21 Douglas-fir tussock moth	Douglas-fir	69 Galleria rileyana	Galleria rileyana	126 Debake (white cottonwood)	Cottonwood, Poplar				
23 Pine Butterfly	Ponderosa Pine	70 Fire	All Tree Species	127 Mortality (eastern cedar)	Eastern Red Cedar				
24 Pine butterfly	Ponderosa Pine	71 Porcupine	Schwarze Pine	128 Mortality (hardwood)	Hardwoods				
25 Pine tortrix	Ponderosa Pine	72 All Tree Species	All Tree Species	129 Mortality (oak)	Oak				
26 Tert caterpillars	Hardwoods	73 High water damage	All Tree Species	130 Mortality (spruce)	Spruce				
27 Tert caterpillars	Hardwoods	74 Avalanche	All Tree Species	131 Marsannina blight	Ash				
28 Tert caterpillars	Hardwoods	75 All Tree Species-multiple agents	All Tree Species	132 Debake (ash)	Schwarze Pine				
29 Tert caterpillars	Hardwoods	76 Pinon pine mortality	Common Pinon	133 Debake (black cottonwood)	Cottonwood, Poplar				
30 Tert caterpillar	Hardwoods	77 Juniper mortality-black cottonwood	Juniperus	134 Debake (cottonwood)	Hardwoods				
31 Heterobasidion annosum (Fomes annosus)	All Tree Species	78 Juniper mortality-white cottonwood	Juniperus	135 Debake (oak)	Oak				
32 Polytopus schweitzeri	Schwarze Pine	79 All Tree Species-multiple agents	All Tree Species	136 Debake (spruce)	Spruce				
33 Polytopus schweitzeri	Schwarze Pine	80 Old pine mortality	Common Pinon	137 Debake (eastern cedar)	Eastern Red Cedar				
34 Pine needle-sheath miner	Ponderosa Pine	81 Old salt lip	Lodgepole Pine	138 Debake (hardwood)	Hardwoods				
35 Pine needle-sheath miner	Ponderosa Pine	82 Diptelia	Lodgepole Pine	139 Debake (oak)	Oak				
36 Pine tussock moth	Ponderosa Pine	83 Dipodia blight	Ponderosa Pine	140 Debake (white spruce)	White Spruce				
37 Cankerworms	Hardwoods	84 Los humerell	Spruce	141 Debake (hardwood)	Hardwoods				
38 Tert caterpillar	Hardwoods	85 Drought killed narrow leaf cottonwood	Narrowleaf Cottonwood	142 Mortality (pine)	Pine				

**USGS 100K Quad - Location Map**



Legend  
Flown Area  
State Boundaries  
Counties

**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 82020



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.

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

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 dictionary and digital copies of this map and the insect and disease data are available at: <http://www.fs.fed.us/r2/resources/fhm/aerialsurveys/>

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