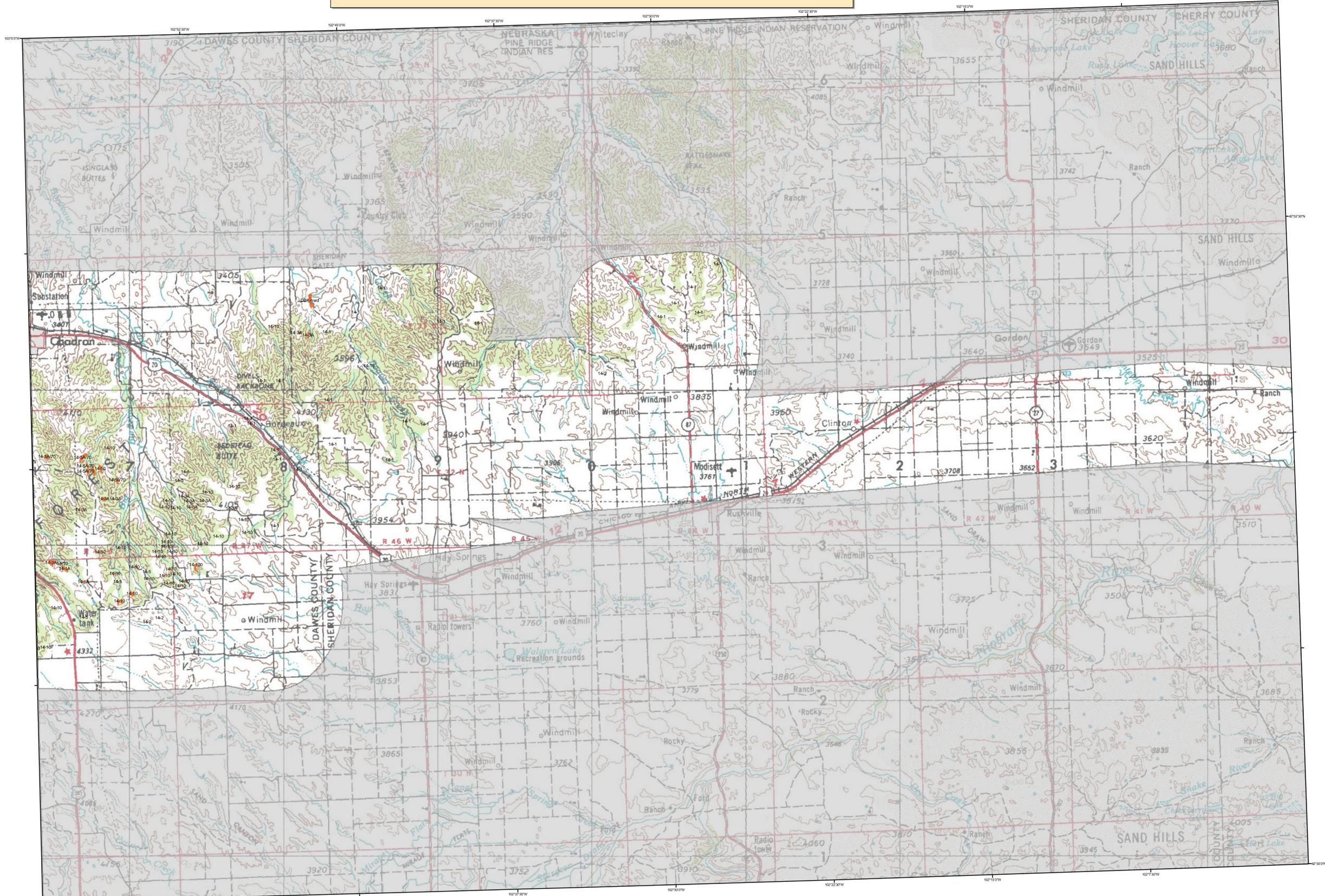


2008 Aerial Insect and Disease Survey Gordon, Nebraska USGS 100K DRG: 42102-E1

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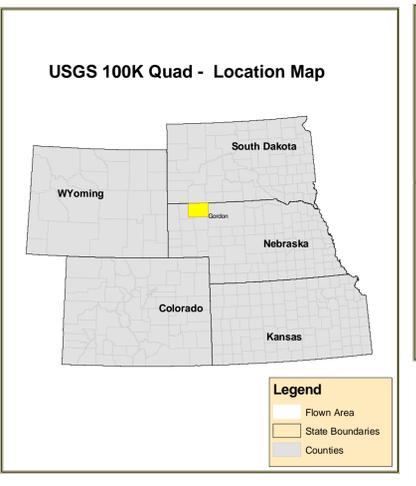


1:100,000

Legend

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 "ladder" 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 "ladder" trees (or an intensity code). For example: 5-120 = The first number before the dash is the causal agent code. The number after the dash is an estimation of the number of dead "ladder" 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 "ladder" tree. In another example: 5-3A = that on the average, an estimated three trees per acre are dead "ladder" 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	67	Anthracnose	Lodgepole Pine	106	fox squirrel flagging	Cottonwood/Poplar
2	Engelmann Spruce Beetle	Engelmann Spruce	68	White pine blister rust	S-Needle Pine	107	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	69	Dwarf mistlebe	Softwoods	108	road salt	Softwoods
4	Mountain pine beetle	Lodgepole Pine	70	Cynodermis	Ponderosa Pine	109	pinewood nematode	Scots Pine
5	Western pine beetle	S-Needle Pine	71	Includes #65, 66 & 68	All Tree Species	110	oak wilt	Oak
6	Western pine beetle	Ponderosa Pine	72	air pollutants	All Tree Species	111	krillage disease	All Tree Species
7	Fire Engriever	White Fir	73	Chemical damage	All Tree Species	112	ironic spots	White Spruce
8	Douglas fir engraver beetle	Douglas fir	74	Establishment pinestri	Douglas fir	113	acidic chestnut borer	Oak
9	Western balsam bark beetle	Subsopine Fir	75	Lothodermella arcuta	Softwoods	114	anthracnose foliar disease	Bar Oak
10	Unidentified bark beetle	Softwoods	76	Leucosticte acicola	Softwoods	115	Diaback	All Tree Species
11	Pine engraver	Ponderosa Pine	77	Lothodermella concolor	Softwoods	116	Discoloration	All Tree Species
12	Pine engraver	Lodgepole Pine	78	Dothistroma pin	Softwoods	117	Herbicide	All Tree Species
13	Pine engraver	Ponderosa Pine	79	Needle cast (Hypodermiteae)	Softwoods	118	Flagging	All Tree Species
14	Pine engraver	Ponderosa Pine	80	Root Rot	All Tree Species	119	Quaking Aspen	Quaking Aspen
15	Ponderosa pine needle miner	Ponderosa Pine	81	Unidentified disease	All Tree Species	120	aspen tinit	Quaking Aspen
16	Lodgepole pine needle miner	Ponderosa Pine	82	Winter damage light	All Tree Species	121	Mansonia Blight	Quaking Aspen
17	Jack pine budworm	Jack Pine	83	Winter damage medium	All Tree Species	122	Diaback (ash)	Ash
18	Spruce budworm, light defol.	Douglas fir	84	Winter damage heavy	All Tree Species	200	Diaback (cottonwood)	Cottonwood/Poplar
19	Spruce budworm, medium defol.	Douglas fir	85	Winter damage light	All Tree Species	201	Diaback (hardwood)	Hardwoods
20	Spruce budworm, heavy defol.	Douglas fir	86	Diplois	Softwoods	202	Mortality (old cottonwood)	Oak
21	Douglas fir tussock moth	Douglas fir	87	Common Piynon	All Tree Species	203	Mortality (eastern cedar)	Eastern Red Cedar
22	Pine butterfly	Ponderosa Pine	88	Fire	All Tree Species	204	Mortality (hardwood)	Oak
23	Pine looper	Ponderosa Pine	89	Phragmitis	All Tree Species	205	Discoloration (ash)	Ash
24	Pine tortrix	Softwoods	90	Windthrow	All Tree Species	206	Discoloration (cotton)	Softwoods
25	Leaf beetles	Hardwoods	91	High water damage	All Tree Species	207	Discoloration (cottonwood)	Cottonwood/Poplar
26	Oak leaf roller	Hardwoods	92	Avian/che	All Tree Species	208	Discoloration (eastern cedar)	Eastern Red Cedar
27	Pine needle-shed miner	Ponderosa Pine	93	Aspen decline-multiple agents)	Quaking Aspen	209	Mortality (cedar)	Eastern Red Cedar
28	Pine bark beetle	Ponderosa Pine	94	Juniper mortality-unknown agents)	Common Piynon	210	Discoloration (cedar)	Eastern Red Cedar
29	Variable oak leaf defoliator	Hardwoods	95	Limber pine decline-multiple agents)	Limber Pine	211	Discoloration (hardwood)	Oak
30	Carleworms	Hardwoods	96	Hail damage	All Tree Species	212	Discoloration (spruce)	Spruce
31	Phytophthora	Softwoods	97	Unknown polygon	All Tree Species	213	Discoloration (poplar)	Cottonwood/Poplar
32	Unidentified defoliator	Hardwoods	98	Unknown polygon	All Tree Species	214	Mortality (eastern cedar)	Eastern Red Cedar
33	Heterobasidion annosum (Pines annosus)	Softwoods	99	Unknown polygon	All Tree Species	215	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
34	Armillaria ostroyae (Amillaria melea)	Softwoods	100	old pinion mortality	Lodgepole Pine	216	Unidentified defoliator (ash)	Ash
35	Polytopora schweinitzi	Softwoods	101	road salt top	Softwoods	217	Unidentified defoliator (hardwood)	Hardwoods
36	Phytophthora	Softwoods	102	old pinion mortality	Lodgepole Pine	218	Mortality (pine)	Pine
37	Cylindrop	All Tree Species	103	old pinion mortality	Lodgepole Pine	219		
38	Western gall rust	Unknown	104	old pinion mortality	Lodgepole Pine	220		
39	Comandra rust	Unknown	105	old pinion mortality	Lodgepole Pine	221		
40	Stachytarax rust	Lodgepole Pine	106	old pinion mortality	Lodgepole Pine	222		



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 Bill Schupp & Al Dymerski
Map Created:
Projection: UTM NAD83 Zone 13
Author: J. Ross, USDA Forest Service

DIRECT ALL INQUIRIES TO:

Nebraska Forest Service
103 Plant Industry
University of Nebraska
Lincoln, NE 68583-0815

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/fhm/aerialsurvey/>