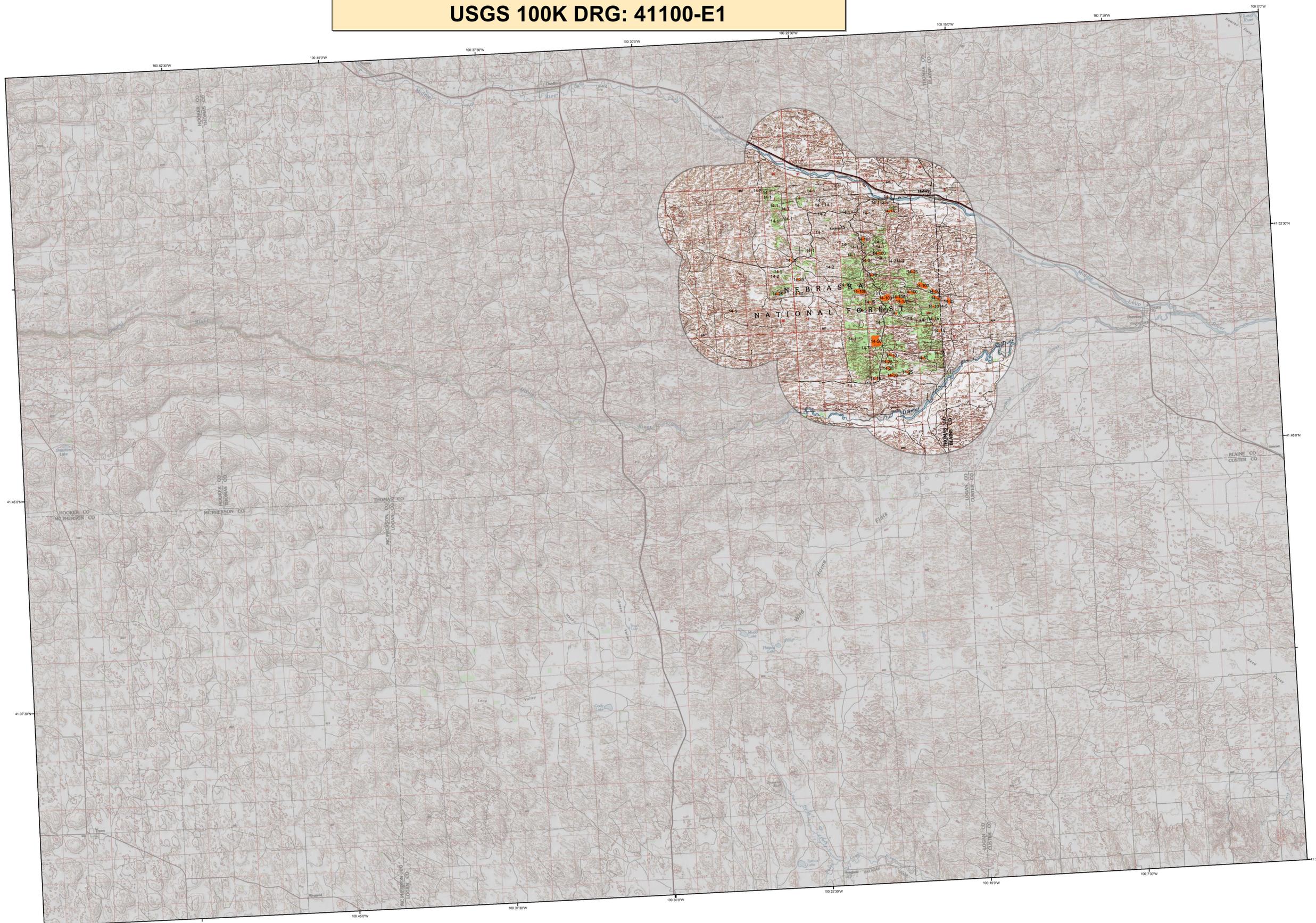


# 2005 Aerial Insect and Disease Survey Dismal River, Nebraska USGS 100K DRG: 41100-E1



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 "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: 5-120L = 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	42	Anisoplia	Lodgepole Pine	108	fox squirrel flagging	Cottonwood/Poplar
2	Engelmann spruce beetle	Engelmann spruce	43	White pine blister rust	Sitka Spruce	107	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	44	Dwarf mistletoe	Softwoods	109	road salt	Softwoods
4	Mountain pine beetle	Lodgepole Pine	45	Erythronium	Ponderosa Pine	110	powdered nematode	Scrubby Pine
5	Mountain pine beetle	Sitka Spruce	46	Includes #05, 06 & 08	All Tree Species	111	oak wilt	Oak
6	Mountain pine beetle	White Fir	47	Arizonicus	All Tree Species	112	stagger disease	All Tree Species
7	Mountain pine beetle	White Fir	48	Chemical damage	All Tree Species	113	spruce Ips	White Spruce
8	Western pine beetle	Douglas-fir	49	Lophodermium pinastri	Softwoods	114	twined chestnut borer	Bur Oak
9	Western pine beetle	Douglas-fir	50	Phaeodectonus pseudoscutiger	Softwoods	115	ambrosia saw solar disease	All Tree Species
10	Douglas-fir engraver beetle	Softwoods	51	Lophodermium arcauata	Softwoods	116	Daback	All Tree Species
11	Western balsam bark beetle	Lodgepole Pine	52	Lecanostoma acicola	Softwoods	117	Mortality	All Tree Species
12	Unidentified bark beetle	Ponderosa Pine	53	Lophodermium concolor	Softwoods	118	Discoloration	All Tree Species
13	Pine engraver	Lodgepole Pine	54	Dochotoma pin	Softwoods	119	Flagging	All Tree Species
14	Pine engraver	Ponderosa Pine	55	Heptic cast (Hypodemateaceae)	Softwoods	120	aspen tortix	Quaking Aspen
15	Ponderosa pine needle miner	Jack Pine	56	Root Rot	All Tree Species	121	Mansueta blight	Quaking Aspen
16	Lodgepole pine needle miner	Douglas-fir	57	Unidentified disease	Softwoods	122	Manueta blight	Ash
17	Jack pine budworm	Douglas-fir	58	Winter damage light	All Tree Species	123	Daback (ash)	Cottonwood/Poplar
18	Spruce budworm, light defol.	Douglas-fir	59	Winter damage medium	All Tree Species	124	Daback (cottonwood)	Cottonwood/Poplar
19	Spruce budworm, medium defol.	Douglas-fir	60	Winter damage heavy	All Tree Species	200	Daback (hardwood)	Hardwoods
20	Spruce budworm, heavy defol.	Douglas-fir	61	Diplota	Softwoods	204	Daback (oak)	Oak
21	Douglas-fir tussock moth	Ponderosa Pine	62	Prion black stain	Common Prion	212	Mortality (old cottonwood)	Cottonwood/Poplar
22	Pine butterfly	Ponderosa Pine	63	Fire	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Pine looper	Ponderosa Pine	64	Pinus mortality	Common Prion	212	Mortality (hardwood)	Hardwoods
24	Pine tortix	Ponderosa Pine	65	Windthrow	All Tree Species	213	Mortality (oak)	Oak
25	Tart caterpillars	Hardwoods	66	High water damage	All Tree Species	214	Mortality (spruce)	Spruce
26	Leaf beetles	Hardwoods	67	Anisoplia	All Tree Species	220	Discoloration (oak)	Ash
27	Oak leaf roller	Ponderosa Pine	68	Aspen decline-multiple agents)	Quaking Aspen	221	Discoloration (cottonwood)	Cottonwood/Poplar
28	Pine needle-shaft miner	Ponderosa Pine	69	Juniper mortality-unknown agents)	Juniper	222	Discoloration (eastern cedar)	Eastern Red Cedar
29	Variable oak leaf caterpillar	Hardwoods	70	Limber pine decline-multiple agents)	Limber Pine	223	Discoloration (conifer)	Softwoods
30	Unidentified defoliator	All Tree Species	71	Hail damage	All Tree Species	224	Discoloration (oak)	Oak
31	Heterobasidion annosum (Fomes annosus)	Softwoods	72	Unkown polygon	All Tree Species	225	Discoloration (spruce)	Spruce
32	Armillaria ostoyae (Armillaria mellea)	Softwoods	73	Unkown polygon	Common Prion	230	Herbicide (cottonwood)	Cottonwood/Poplar
33	Polyporus schweinitzii	Softwoods	74	old prison mortality	Lodgepole Pine	231	Herbicide (eastern cedar)	Eastern Red Cedar
34	Phymastix	Softwoods	75	old salt top	Softwoods	240	Flagging (hardwood)	Hardwoods
35	Cytospora	All Tree Species	76	butch elm disease	Elm	250	Unidentified defoliator (cottonwood)	Cottonwood/Poplar
36	Western gall rust	Unknown	77	104 box tunnel	Ponderosa Pine	251	Unidentified defoliator (elm)	Elm
37	Comandra rust	Lodgepole Pine	78	drought killed narrow leaf cottonwood	Narrowleaf Cottonwood	262	Unidentified defoliator (hardwood)	Hardwoods
38	Shaktiforme rust	Lodgepole Pine	79			300	Mortality (pine)	Pine

## 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.

Area surveyed by Bill Schaupp & Al Dymerski 9/12 - 9/14 2005  
Map Created: 01-06  
Projection: UTM NAD83 Zone 13  
Author: J. Ross, USDA Forest Service

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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 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/>