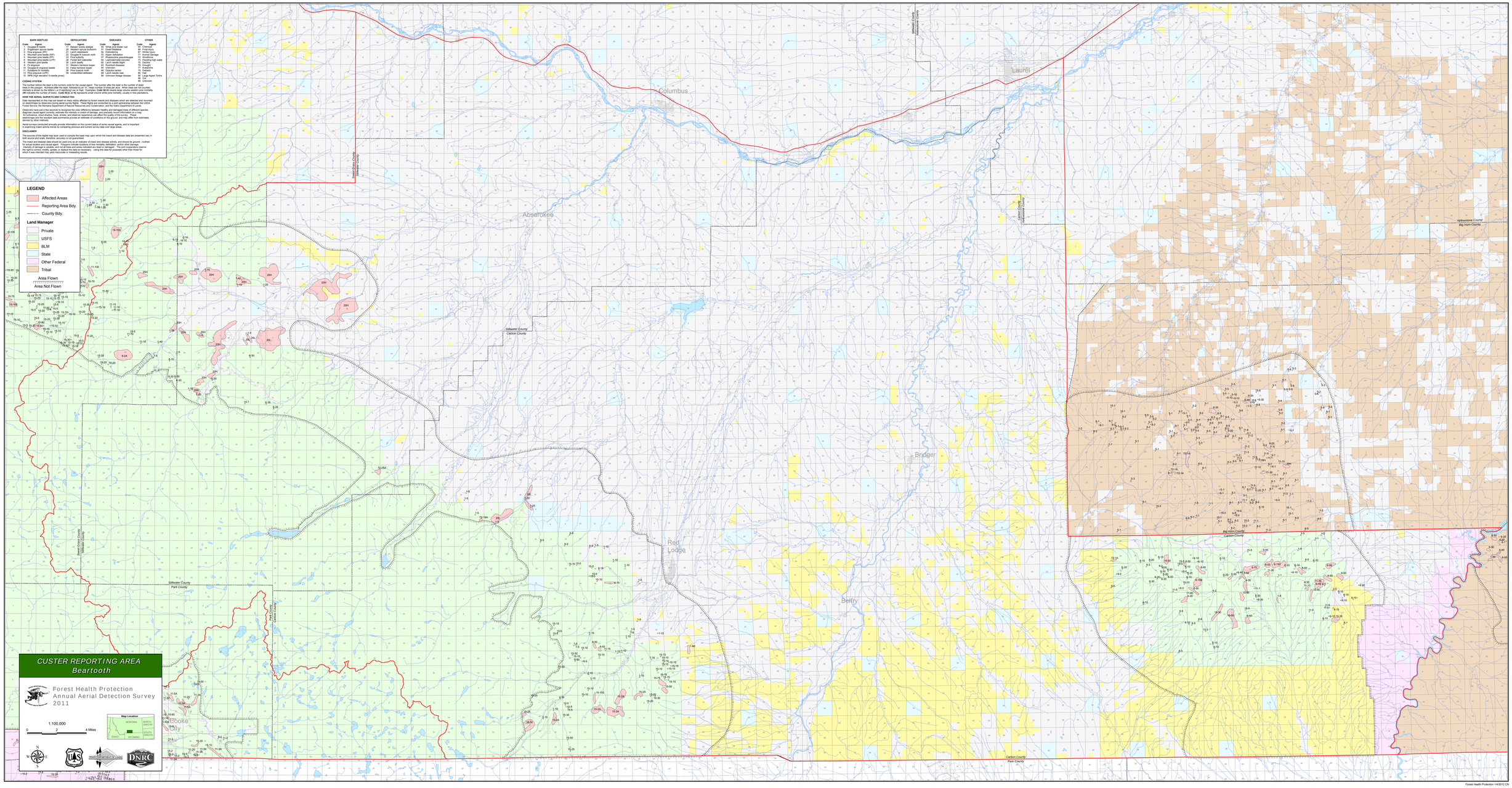

BARK BEETLES

Code	Agent:
1	Douglas-fir beetle
2	Engelmann spruce beetle
3	Western pine beetle
4	Mountain pine beetle (MPB)
5	Western balsam bark beetle
6	Mountain pine beetle (LPP)
7	Spruce beetle (SB)
9	Fir engraver
10	Douglas-fir engraver beetle
11	Western pine engraver
13	Pine engraver (LPP)
15	MPB (high elevation 5-needle pines)

DEFOLIATORS

Code	Agent:
17	Sixteen-spots elaeglut
20	Western spruce budworm
21	Douglas-fir tussock
22	Douglas-fir tussock moth
23	Douglas-fir tussock
26	Forest tent caterpillar
27	Aspen leaf roller
31	Western hemlock looper
33	False hemlock looper
34	Western spruce budworm
36	Unidentified defoliator

DISEASES

Code	Agent:
50	White pine blister rust
51	Dwarf Mistletoe
52	Root disease
53	Aspen defoliation
54	Aspen decline
60	Lophodermella concolor
61	Red band needle blight
62	Rhizofunli diseases
64	Unknown
67	Ponderosa pine
68	Larch needle cast
84	Unknown foliage disease

OTHER

Code	Agent:
69	Chemicals
70	Frost injury
71	Animal Damage
72	Animal Damage
73	Fire damage
74	Flooding-high water
75	Hail damage
76	Drought
77	Avalanche
78	Lightning
80	Hail
82	Large Aspen Tortrix
90	Fire
99	Unknown

CODING SYSTEM

The number before the dash is the numeric code for the causal agent. The number after the dash is the number of dead trees/acre. Causal agents are listed in order of their importance. Only the three most important causal agents are recorded. Intensity is shown by the letters L or H signifying Low or High. Examples: **Code 50-H** means large volume western pine mortality. **-99** indicates the number of trees. **Code 50-L or 50** represents small volume white pine mortality, usually in tree plantations.

HOW THE AERIAL SURVEYS ARE CONDUCTED

Data represented on the map are based on mapping of damage by forest insects and diseases which are detected and recorded during aerial surveys conducted by the Forest Health Protection, Annual Aerial Detection Survey, cooperative between the USDA Forest Service, the Montana Department of Natural Resources and Conservation, and the Idaho Department of Lands.

Observers have just a few seconds to recognize the color difference between healthy and damaged trees of different species, estimate the number of damaged trees, and record the information on a sketch map or digitally on a tablet PC. Air turbulence, cloud shadow haze, smoke, and observer experience can affect the quality of the survey. These factors mean that the resulted data summaries provide an estimate of conditions on the ground, and may differ from estimates derived by other means.

Aerial surveys conducted annually provide information on the current status of some causal agents, and is important in examining insect activity trends by comparing previous and current survey data over large areas.

DISCLAIMER

The sources of the digital map layer used to compile the base map upon which the insect and disease data are presented vary in accuracy, currency, and detail. Some features may be misplaced.

The insect and disease data should be used only as an indicator of insect and disease activity, and should be ground – truthed for actual location and causal agent. Polygons indicate locations of tree mortality, defoliation, and/or other damage. Polygons do not indicate the entire area where damage may occur in the future. The Forest Health Protection reserve the right to correct, modify, update, or replace the data as necessary. Using the data for purposes other than those for which it was intended may yield inaccurate or misleading results.

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