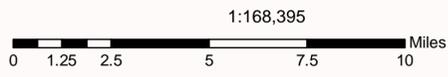


HUMBOLDT-TOIYABE NATIONAL FOREST

Ruby Mountains Ranger District

2011 Aerial Insect and Disease Detection Survey

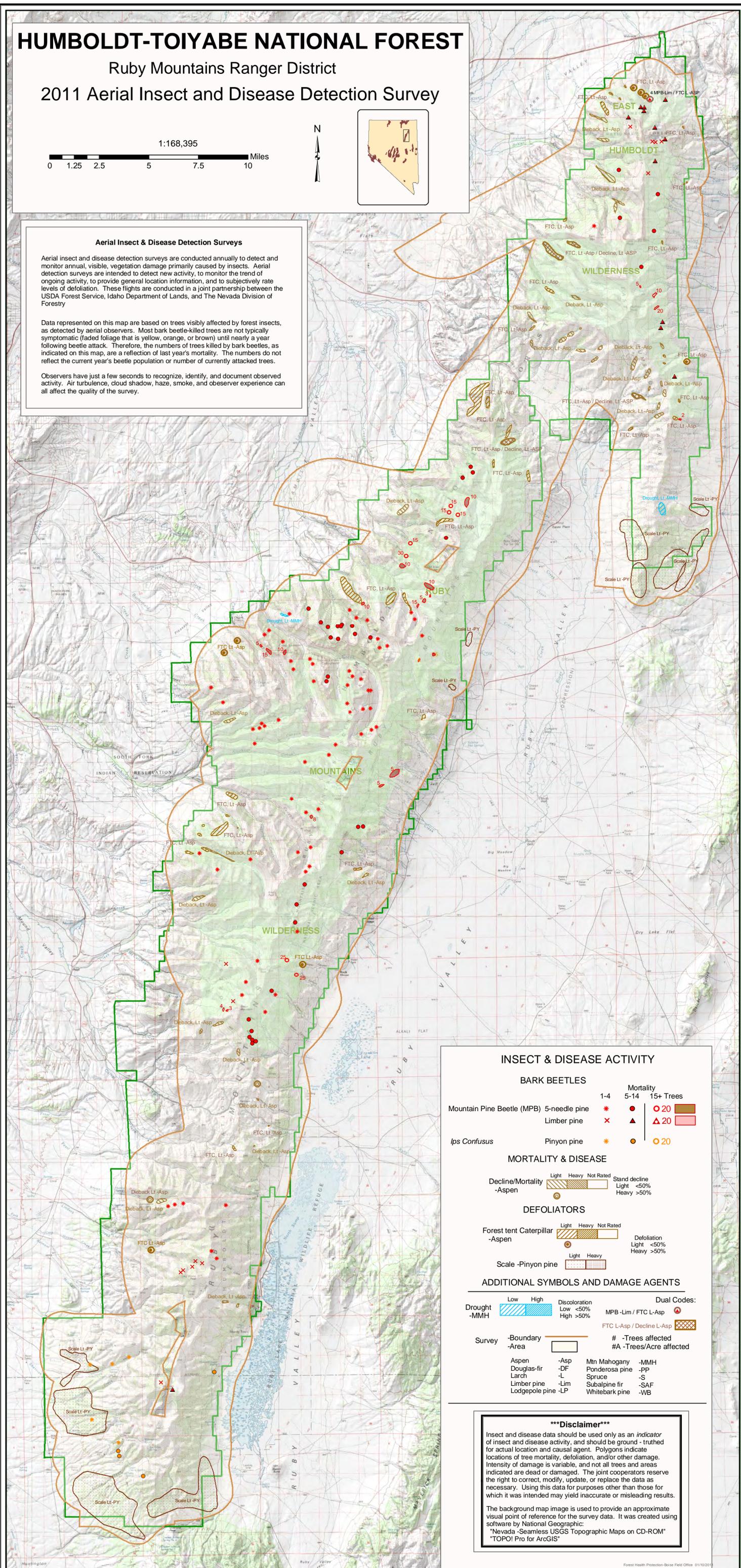


Aerial Insect & Disease Detection Surveys

Aerial insect and disease detection surveys are conducted annually to detect and monitor annual, visible, vegetation damage primarily caused by insects. Aerial detection surveys are intended to detect new activity, to monitor the trend of ongoing activity, to provide general location information, and to subjectively rate levels of defoliation. These flights are conducted in a joint partnership between the USDA Forest Service, Idaho Department of Lands, and The Nevada Division of Forestry.

Data represented on this map are based on trees visibly affected by forest insects, as detected by aerial observers. Most bark beetle-killed trees are not typically symptomatic (faded foliage that is yellow, orange, or brown) until nearly a year following beetle attack. Therefore, the numbers of trees killed by bark beetles, as indicated on this map, are a reflection of last year's mortality. The numbers do not reflect the current year's beetle population or number of currently attacked trees.

Observers have just a few seconds to recognize, identify, and document observed activity. Air turbulence, cloud shadow, haze, smoke, and observer experience can all affect the quality of the survey.



INSECT & DISEASE ACTIVITY

BARK BEETLES

| | Mortality 1-4 | Mortality 5-14 | Mortality 15+ Trees |
|--|---------------|----------------|---------------------|
| Mountain Pine Beetle (MPB) 5-needle pine | * | ● | ○ 20 |
| Limber pine | x | ▲ | △ 20 |
| <i>Ips Confusus</i> | | | ○ 20 |
| Pinyon pine | * | ● | ○ 20 |

MORTALITY & DISEASE

| Decline/Mortality -Aspen | Light | Heavy | Not Rated | Stand decline |
|--------------------------|-------|-------|-----------|---------------|
| ○ | ▨ | ▩ | ▧ | Light <50% |
| | | | | Heavy >50% |

DEFOLIATORS

| Forest tent Caterpillar -Aspen | Light | Heavy | Not Rated | Defoliation |
|--------------------------------|-------|-------|-----------|-------------|
| ○ | ▨ | ▩ | ▧ | Light <50% |
| | | | | Heavy >50% |

Scale -Pinyon pine

ADDITIONAL SYMBOLS AND DAMAGE AGENTS

| | | | | |
|----------------|-----------|----------------|-------------------|---------------------------|
| Drought -MMH | Low | High | Discoloration | Dual Codes: |
| | ▨ | ▩ | Low <50% | MPB -Lim / FTC L-Asp |
| | | | High >50% | FTC L-Asp / Decline L-Asp |
| Survey | -Boundary | -Area | # -Trees affected | #A -Trees/Acre affected |
| | — | ▭ | | |
| Aspen | -Asp | Mtn Mahogany | -MMH | |
| Douglas-fir | -DF | Ponderosa pine | -PP | |
| Larch | -L | Spruce | -S | |
| Limber pine | -Lim | Subalpine fir | -SAF | |
| Lodgepole pine | -LP | Whitebark pine | -WB | |

Disclaimer

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. Intensity of damage is variable, and not all trees and areas indicated are dead or damaged. The joint cooperators reserve the right to correct, modify, update, or replace the data as necessary. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results.

The background map image is used to provide an approximate visual point of reference for the survey data. It was created using software by National Geographic.
 "Nevada -Seamless USGS Topographic Maps on CD-ROM"
 "TOPO! Pro for ArcGIS"