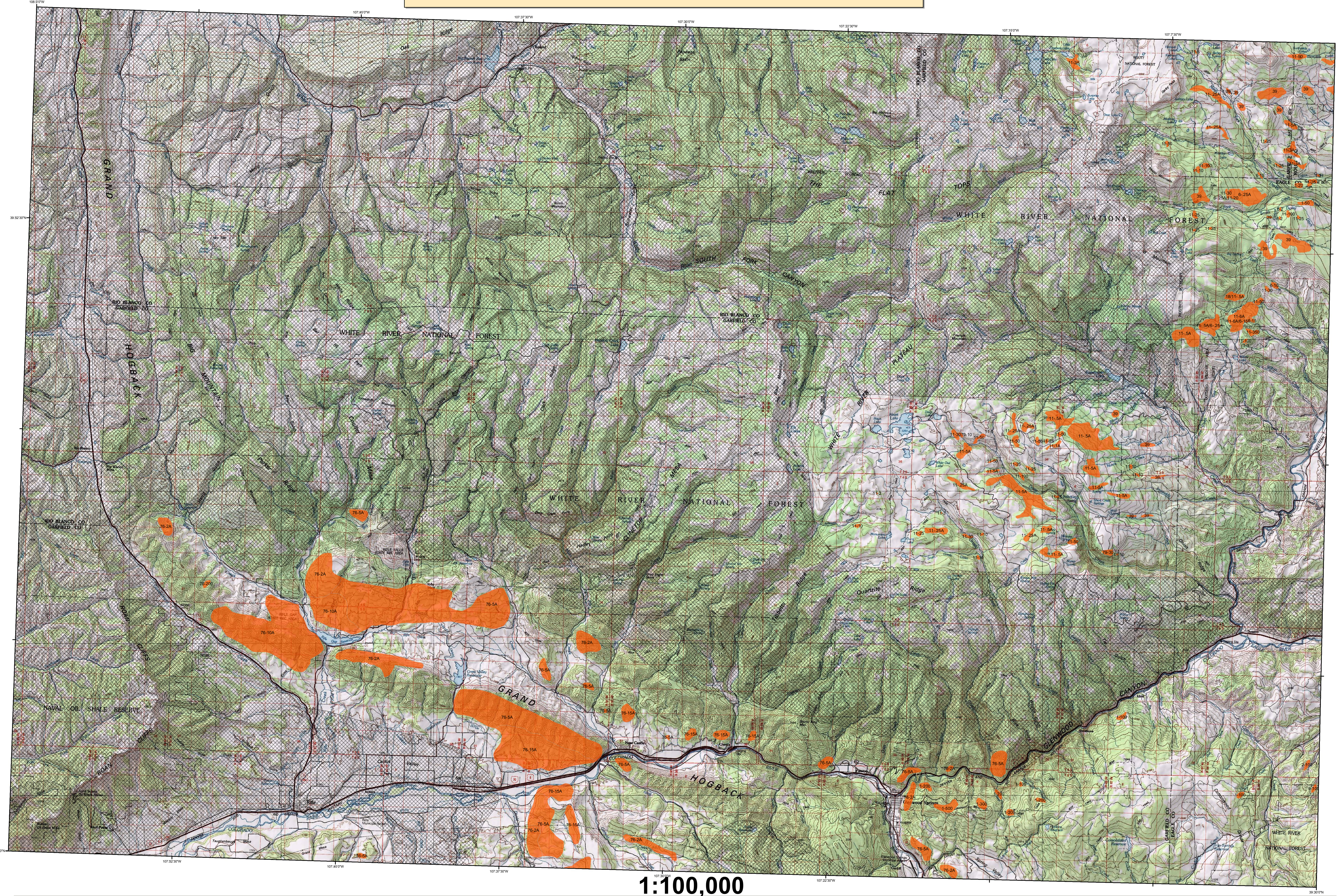
# 2004 Aerial Insect and Disease Survey
# Glenwood Springs, Colorado
# USGS 100K TOPO!: 39107-E1




# 1:100,000

## Legend

Causal Agent(s)     Not Flown in 2004

| Code, Causal Agent, | Primary Host(s) |
|---|---|
| 1, Douglas-fir beetle, | Douglas-fir |
| 2, Engelmann spruce beetle, | Engelmann Spruce |
| 6, Mountain pine beetle, | Lodgepole pine |
| 11, Subalpine fir decline, | Subalpine fir |
| 18, Spruce budworm (light defol.), | Abies species or Spruce or Douglas-fir |
| 39, Aspen defoliator, | Aspen |
| 76, Pinyon Pine Mortality | Pinyon Pine |
| 79, Five needle pine damage & mortality - multiple agent(s), | Five needle pines |

**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: 5-1/2A = 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.**

Area surveyed by Al Dymerski, Robert W Schroeter and Erik Johnson 8/16 - 10/15 2004.
Projection: UTM NAD27 Zone 13
Author: J.Ross, USDA Forest Service
Date Created: 04-29-05.

## 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.**

**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/**

## DIRECT ALL INQUIRIES TO: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**Colorado State University**
**Fort Collins, Colorado 80523**

**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 casual 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.