THE 2003 SPECIAL PINYON PINE AERIAL SURVEY

A COOPERATIVE EFFORT IN SIX STATES

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DATE: JANUARY 15, 2004

LEGEND

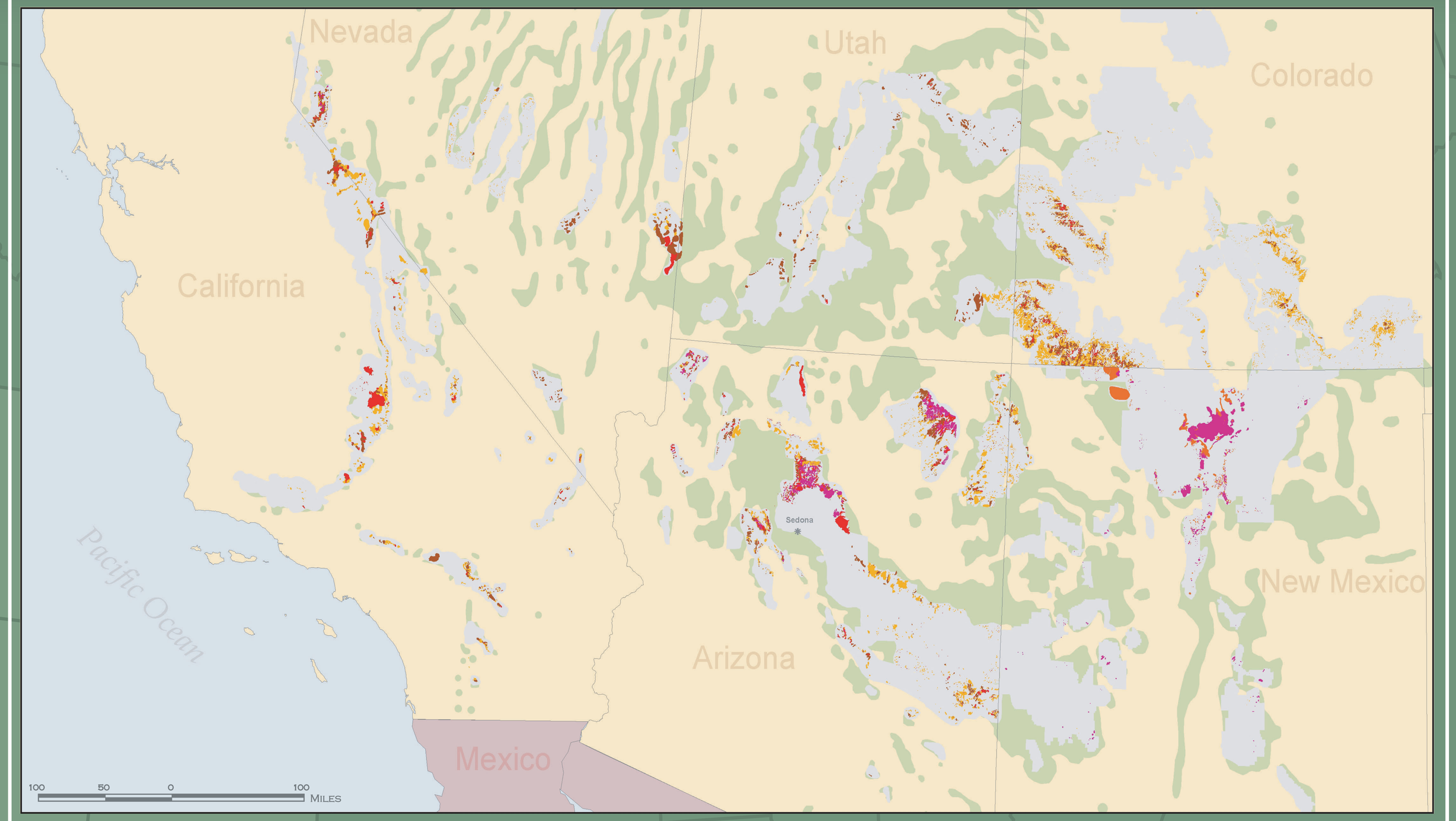
- Areas aerially surveyed
- *Singleleaf, Mexican, Border and Common Pinyon Not Surveyed
- .01 - 4.5 Dead Pinyon Trees Per Acre 1,390,000 Acres affected
- 4.51 - 15.5 Dead Pinyon Trees Per Acre 950,000 Acres affected
- 15.51 - 30.5 Dead Pinyon Trees Per Acre 850,000 Acres affected
- > 30.51 Dead Pinyon Trees Per Acre 660,000 Acres affected

TOTAL APPROX. ACRES AFFECTED: 3,850,000

*Source: USGS/Little Pinyon range data; FIA plots and MODIS imagery. Compiled by John Shaw, FIA-Rocky Mountain Research Station.

Disclaimer: The USDA Forest Service cannot assure the reliability or suitability of this information for a particular purpose. Original data was compiled from various sources and is the most current data available. Spatial information may not meet National Map Accuracy Standards. This information may be updated, corrected, or otherwise modified without notification.

VICINITY MAP



PRESENT CONDITIONS

The southwestern United States has experienced decreased precipitation over the past several years, with some locations like southern California recording the lowest rainfall over the past 150 years of instrumental record in 2001 - 2002. These conditions have stressed many species of trees, but especially pinyon pine trees, which have become extremely susceptible to attack by pinyon Ips beetles. With favorable conditions, beetle populations have been building the past few years and causing dramatic pinyon pine mortality across Arizona, southern California, southern Colorado, southern Nevada, southern Utah (*Ips spp*.) and New Mexico (*Ips confusus*).

THE SURVEY

Much of the pinyon range is outside areas normally flown during the annual insect and disease overview surveys. From July to October 2003, 17 Forest Health Protection, National Forest and State cooperator aerial survey sketchmappers flew both their annual overview surveys and additional aerial surveys to document the affects of drought and pinyon Ips over a large portion of the pinyon range in the southwestern United States. Data from this concerted effort across the six states was combined to provide a representation of the recent pinyon pine mortality.

Flights were flown from 500 to 2500 feet above the ground at speeds between 90 and 120 mph. Surveyors recorded areas with recently fading trees (those showing red/brown needle discoloration). These observations, therefore, represent mortality that has occurred within the past 1-2 years. Mortality intensities for the mapped polygons were attributed using one of the following methods:

1.) Counting the number of trees,
2.) Estimating the number of trees,
3.) Estimating the number of trees per acre, or
4.) Assigning a category of light, moderate and heavy trees per acre to the polygon. These numbers provide a rough estimate of the number of trees killed.

Both paper 1:100,000 scale topographic maps and digital sketchmap systems were used for the survey. The data was processed and compiled at the Forest Health Technology Enterprise Team GIS lab in Fort Collins. Jeanine Paschke, INTECS International Inc. and Julie Johnson, Forest Health Protection, USDA Forest Service, Pacific Northwest Region created the final map.

OBSERVATIONS/RESULTS

The 2003 aerial surveys detected approximately 3.85 million affected acres over the six state area. Although a large portion of pinyon pine type was not surveyed in 2003, the results of the surveys underscore the dramatic ecological shift in pinyon-juniper woodlands that is occurring as a result of this drought period in the Southwest.

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