



## Forest Health Protection Southern California Shared Service Area



May 29, 2008

### Bark Beetles in Southern California National Forests: Forecast for 2008

#### Talking points

- Drought conditions experienced during 2007 are predicted to increase bark beetle-caused mortality in the four National Forests of southern California.
- Prevention thinning of dense pine stands, which promotes tree health, enhances tree defenses and disrupts communication of bark beetles, is the best method to limit bark beetle disturbance.
- The Western Bark Beetle Initiative aids National Forests. The Forest Health Protection staff in southern California can assist the four National Forests in obtaining funding for thinning to reduce stand susceptibility to bark beetles.

#### Current and predicted forecast

Following widespread pine mortality (~375,000 acres) from bark beetles during 2003-2004, the four National Forests (Angeles, Cleveland, Los Padres, and San Bernardino) in southern California have experienced low levels of bark beetle-caused tree mortality (< 20 trees killed / acre, Figure 1). Low levels of tree mortality caused by bark beetles occurred in the Angeles and Cleveland National Forests during 2006-2007, less than one tree killed per acre across 200 acres on both forests each year. Bark beetle activity, as evidenced by tree levels of tree mortality has increased over the past couple of years on the Los Padres National Forest,

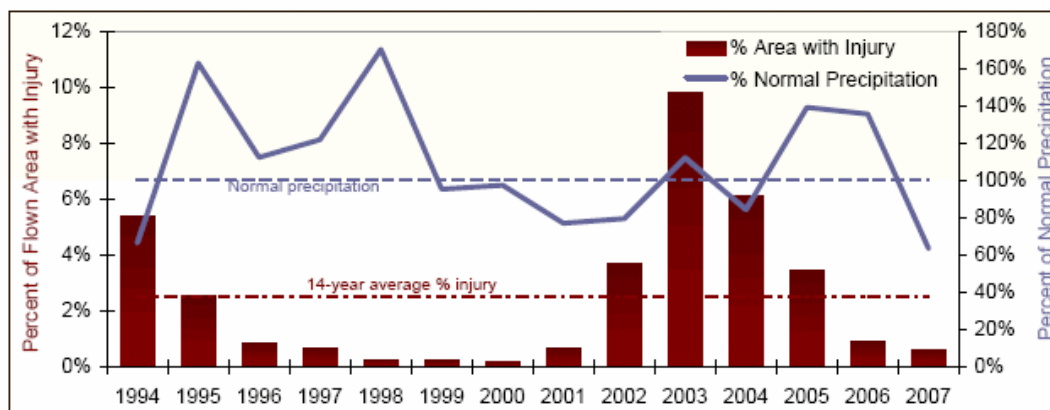


Figure 1. Aerial survey results from 1994-2007 depicting the percent area flown with insect injury and percent of average precipitation throughout California. Source: USDA FS-Forest Health Monitoring

whereas tree mortality declined on the San Bernardino National Forest.

Despite the general decline in tree mortality in 2007, increased mortality from bark beetles is predicted this year. Reduced precipitation during 2007 (< 80% normal precipitation, Figure 2) can impact tree health, thereby reducing individual tree defenses and increasing the

susceptibility to bark beetle attack. Bark beetle activity commonly increases one year following drought, and can increase each year as drought conditions intensify. The Los Padres National Forest may experience a continued increase in tree mortality as seen over the past two years. Winter precipitation received in the region may provide some relief to stressed trees.

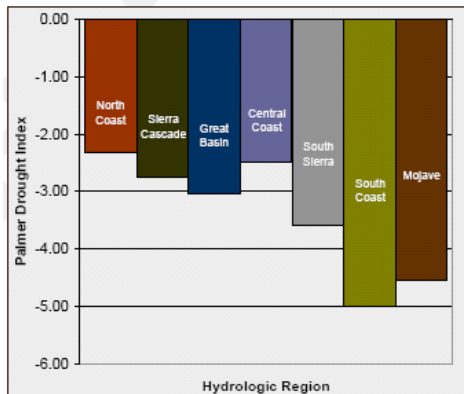


Figure 2. Palmer Drought Index for the seven regions of California. Southern California experienced the most severe drought conditions in 2007 (< 80% normal precipitation). A greater negative number signifies a more severe drought. Source: USDA FS-Forest Health Monitoring

## Preventing bark beetle disturbance

To prevent widespread tree mortality caused by bark beetles, the best landscape-level solution is to actively manage pine stands. Prevention thinning can reduce tree stress, enhance tree defenses and disrupt chemical communication among bark beetles. Thinning a stand to 50% of the maximum stand density index (SDI) significantly reduces the threat of bark beetle-caused mortality for approximately 20 years. The cost of preventive management is minimal compared to implementing short term fixes, or removing dead, hazardous trees and fuels. Prevention is a better way to improving and maintaining tree health than attempting to restore forest health and deal with safety concerns following widespread mortality.

## Support from State and Private Forestry

Forest Health Protection in California continues to aid the National Forests by supporting prevention thinning. Forest prevention thinning activities are funded through the Western Bark Beetle Initiative (WBBI). In 2008, the WBBI is funding thinning activities in Los Padres N.F. A total of \$205,000 will treat 200 acres of dense Jeffrey pine stands. This thinning project will also decrease high risk stands identified on the National Insect and Disease Risk map. The Forest Health Protection staff in southern California can assist each National Forest in receiving future prevention thinning funding. Emergency funding for unforeseen, immediate pest concerns is also available as needed.

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