

## BORER DAMAGE TO OAKS IN THE SOUTHEAST MISSOURI OZARKS

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Oak mortality has increased recently following several years of drought conditions in much of the Ozarks. Among the sources of mortality has been an unusually large infestation of the native red oak borer. We studied the incidence and severity of red oak borers and other large wood-boring insects on even-aged, uneven-aged, and no-harvest study sites in the Missouri Ozark Forest Ecosystem Project. Half-acre vegetation plots (648) were randomly allocated within the sites proportional to the acreage of ecological land types present. Data on oak borer damage and crown decline were collected on live trees in the red oak group (3,385) and white oak group (3,528) from a pool of 45,900 permanently tagged trees in the winter of 2002-2003.

Overall, 77 percent of the trees in the red oak group and 33 percent of trees in the white oak group had evidence of borer sign (exit holes, bark scars, or sap stains) on the 8-foot butt log. Almost all of the trees damaged in the white oak group were in the least severe class of 1 to 10 borer signs; whereas, 28 percent of the trees in the red oak group had more severe damage. This severe damage was more frequent on trees of the red oak group on SW slopes (32 percent) and ridges (24 percent) than on NE slopes and upland waterways (20 percent each). Within the red oak group, borer damage on non-harvested stands was not different from damage on even-age stands that were thinned or uneven-age stands that were harvested by selection methods in 1996. Borers severely damaged 28 percent of the red oak group trees on overstocked stands compared to 26 percent of the trees on stands with 60 to 80 percent stocking and 23 percent of the trees on stands with 81 to 100 percent stocking. In the red oak group, the number of damaged trees and the severity of damage increased with decreasing diameter and crown class. More than 10 borer signs were present in 11 percent of the sawtimber and 9 percent of the trees with dominant crowns, but were present in 50 percent of the saplings and small pole timber and 54 percent of the trees with intermediate or suppressed crowns. Further study is needed to determine whether this high rate of infestation in small trees will adversely affect stand dynamics, or whether cultural treatments might reduce the scope of the problem.

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