GROUND TRUTH ASSESSMENTS OF RED OAK BORER INFESTATION IN THE INTERIOR HIGHLANDS OF ARKANSAS, OKLAHOMA AND MISSOURI

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ABSTRACT.—Forests of the Interior Highlands of Arkansas, Oklahoma and Missouri are being affected by an outbreak of a beetle named the red oak borer, *Enaphalodes rufulus* (Coleoptera: Cerambycidae). Roughly 33 percent of the area in the Interior Highlands, in stands dominated by oaks (*Quercus* spp.) that are 70 years old or older, are at risk; the dollar value at risk exceeds $1 billion. A qualitative expert systems approach was used to define four risk strata for sampling—high, moderate, low, and no risk. From that, a stratified random sample of plots across the region was generated using a risk-based polygon approach. We sampled 191 plots over the two field seasons; of these, 108 were in Arkansas, 15 in Oklahoma, and 68 in Missouri. Tree condition varied from more than 90 percent healthy in conifers to les than 40 percent healthy in the red oak group. More than 30 percent of red oaks were in major decline or at the point of mortality. The data also suggest that white oaks are in relatively good condition across the study area relative to the red oak group; nearly 70 percent of white oaks were evaluated as healthy, and fewer than 10 percent were in major decline or at the point of mortality. Poor red oak health was observed in all three states; the percentage of healthy red oaks in the sample ranged between 35-40% in each state. However, with greater than 40 percent of sampled red oaks in the poorer two condition classes, Oklahoma may be in slightly greater risk of immediate likelihood decline in the red oak group than either Arkansas or Missouri.

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