Anoxia arenbergeri is a new species of pest insects in Taurus cedar forests. The insect damage has been monitored in a Taurus cedar plantation forest approximately 4 km away south from Isparta city center in West Mediterranean Region of Turkey since 1997. Its larvae feed on roots, while adults are harmful to needles. The damage on roots can cause death of many young cedars in plantation areas. The insect has a life cycle of four years. Outbreaks have been determined every one-in-four-year period between 1997 and 2009. Years of outbreaks are characterized with dramatic increase in adult population size. Flight period starts at the end of June and continues until July. Damage increases at the edge of stands, in sparse stands, and on single trees. As a result of adult feeding, trees completely lose their leaves and this causes negative effects on increment and growth of the trees.

In this study, reconstruction of insect infestation and its impact on tree growth were examined using tree-ring analysis. Cores were sampled from 50 trees growing at heavily damaged stands. Differences in annual ring widths in different years during the defoliation period (1997-2011) were tested using ANOVA. Duncan’s multiple range test was applied to determine whether or not there were significant differences in annual tree-ring width between defoliation and non-defoliation years.

As a result, there was a significant difference in annual tree-ring width between defoliation and non-defoliation years. Multiple comparisons indicated that difference between defoliation years and the first non-defoliation years were not statistically significant, whereas these two years and last two years (third and fourth non-defoliation years) were significantly different. Negative impact on increment increased slightly in the first non-defoliation years and then decreased in following non-defoliation years. The mean annual tree-ring width in defoliation and following non-defoliation years were 3.95, 3.51, 4.57, and 4.69 mm respectively.