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BARK AND WOOD BORER INSECTS IN CORK OAK FORESTS AFTER WILDFIRE

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Abstract: Cork oak *Quercus suber* silvopastoral ecosystems have been increasingly affected by fire events, especially in very hot and drier summers, as often observed in Mediterranean climates. This type of stressful event may trigger dramatic consequences which are much extended beyond the burned trees. In particular, burned trees may be colonized by bark and wood boring insects giving rise to insect outbreaks. Dispersing massive offspring can then attack remaining live trees as well as trees in the surrounding areas and become an additional concern for forest managers. After a wildfire that occurred in July 2013 in a cork oak forest in central Portugal, we installed and monitored different types of insect traps, to assess the presence and relative abundance of potentially problematic insect species. We monitored 12 flight interception traps installed in burned and nearby unburned cork oaks (April - November 2014), 6 emergence traps in burned oaks (April 2014 - February 2015), and 30 aggregation pheromone traps for *Platypus cylindrus* (April - November 2014). Ambrosia beetles (Coleoptera: Curculionidae) from the subfamilies Platypodinae and Scolytinae (namely *Platypus cylindrus*, *Xyleborus* sp. and *Xyleborinus saxeseni*) were dominant in flight interception and emergence traps. The average number of individuals captured in flight interception traps was much higher in burned oaks (256±54 SE) than in the neighboring unburned oaks (20±6 SE). Similar differences were found for the Cerambycidae and Buprestidae families, showing significant higher number of catches in burned trees, which were dominated by *Arhopalus ferus* (Cerambycidae). Among ambrosia beetles (Platypodinae and Scolytinae), the subfamily Platypodinae was more frequently captured in flight interception traps (76% of 2360 individuals), while the subfamily Scolytinae was more frequently captured in emergence traps (59% of 854 individuals). Scolytinae emerged mostly in the first spring after the fire (April-June), while most Platypodinae emerged during summer (June-September). In the pheromone traps we captured more than 113,000 *P. cylindrus* (average of 628 individuals/trap/month; range 186-1013), with an overall maximum number of catches in early October. Based on a stratified sample (n=1800) we observed an overall female-biased sex ratio (ca. 2/3 females), thought this proportion was reversed during part of the summer. During the first month, the pheromone traps located closer to the unburned area captured significantly more beetles. The presence of these ambrosia beetles in recently burned forests should be carefully assessed since they are some of the few species that are able to colonize and kill adult trees.

Keywords: Cork oak, Ambrosia beetles, Wood borer, *Platypus cilindrus*, Fire

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