Artificial habitats for saproxylic oak invertebrates: effects from composition of substrate and distance from dispersal source

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Introduction
Old oaks (Quercus spp) are exceptionally species-rich in Europe, but the habitat has declined substantially and several species are threatened. Many sites are small and sometimes younger trees are missing. Some invertebrates living inside trunk hollows of old oaks are suggested to have a limited dispersal and to be vulnerable to habitat fragmentation. We asked whether it is possible to use artificial substrate in boxes and attract a reasonable proportion of specialists insects. We also evaluated appropriate distances of boxes from dispersal sources for different groups of saproxylic beetles.

Methods: Wooden boxes (n=47) were mounted at different distances (0-1800 m) from sites with large amounts of old hollow oaks known to harbour a species-rich saproxylic fauna.

Result 1: Artificial substrate works
The boxes were colonised by 44% (51 of 116) of the known oak-living saproxylic beetle species at the sites (dispersal sources) and 42% (18 of 43) of the CPSI-species (Conservation priority species index).

Result 2: The substrate composition was not important
But the number of obligate saproxylic beetle species and the number of specimens were slightly higher in the boxes with a dead hen as special ingredient (substrate component).

Result 3: The distance did matter
Saproxylic beetle specialist preferring hollow oaks were more sensitive to increasing distance (0-1800m) from dispersal source (oak stands with hollow oaks) than obligate saproxylic beetle species (generalists).

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