

PST14 - Does hydroperiod influence bat activity and species richness? A comparison between mediterranean temporary and permanent ponds

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Bats have very high daily energy demands and they often forage on freshwater habitats, such as ponds, to fulfil their needs. Ponds are highly profitable feeding areas but may provide different foraging opportunities for bats according to the type of ponds and landscape in the vicinity of these habitats.

Here, we aim to test the influence of pond hydroperiod length on bats by comparing their activity and species richness in both mediterranean temporary ponds and permanent ponds. Although we focused mainly on the hydroperiod length of ponds we also assessed the influence on bats of other variables such as water quality parameters, insect-availability and landscape features.

We sampled 32 ponds – 16 mediterranean temporary and 16 permanent - along the southwestern coast of Portugal during two seasons, from April to May 2015 and in May 2016. On each pond we assessed bat activity, species richness and number of feeding attempts using automatic recording stations. We also recorded information on water quality and insect-prey availability. Representative land uses in the surrounding landscape (1000m radius buffer) were assessed using a GIS.

Overall, we recorded 12 070 bat-passes, most of them in temporary mediterranean ponds (n = 8270 passes). Thus, average bat activity on temporary ponds was more than twice the value detected on permanent ponds (temporary ponds = 516.9 bat-passes, permanent ponds = 237.6 bat-passes). We detected eight species of bats and the most common were the Pipistrelle bats, *Pipistrellus kuhlii*, *P. pipistrellus* and *P. pygmaeus*. The less recorded species included *B. barbastellus*, *Tadarida teniotis*, *Plecotus spp.* and *R. ferrumequinum*, a species of high conservation concern. In contrast with bat activity, species richness was higher in permanent ponds (average bat species: temporary = 2.38; permanent = 4.06).

We used GLMs to assess the influence of water parameters, insect-prey availability and landscape variables on bat activity and species richness on ponds. The best model for species richness included three variables: the type of pond, total biomass of insects and the proportion of urban area near the ponds. The high importance of the variables urban area and availability of dipteran insects concurs with the very high contribution of the pipistrelle species to our sample. The higher species richness found on permanent ponds is probably related to the predictability of water availability in these habitats.