BIRD STUDY
2019, VOL. 66, NO. 3, 425–429
https://doi.org/10.1080/00063657.2019.1660304

SHORT REPORT

Exploitation of the invasive Asian Hornet *Vespa velutina* by the European Honey Buzzard *Pernis apivorus*

F. X. Macià[a], M. Menchetti [b,c], C. Corbella[b], J. Grajera[d] and R. Vila [b]

[a]Independent Researcher, Sta. Perpètua de Mogoda, Spain; [b]Institut de Biologia Evolutiva (CSIC-UPF), Barcelona, Spain; [c]Dipartimento di Biologia, Università degli Studi di Firenze Sesto Fiorentino (Florence), Italy; [d]Independent Researcher, Mataró, Spain

ABSTRACT

This paper reports the first case of predation on the nests of Asian Hornet *Vespa velutina* by the European Honey Buzzard *Pernis apivorus*, as well as the use of this resource by a breeding pair to provision their nestlings. The Asian Hornet is listed among the 100 most invasive alien species and is expanding in Western Europe. Our finding opens the door to a number of questions, including the effects of this additional allochthonous resource on the European Honey Buzzard populations, as well as the potential of this raptor as a biocontrol agent.

ARTICLE HISTORY
Received 13 June 2019
Accepted 22 August 2019

Invasive alien species represent a major factor of the current biodiversity crisis, the sixth global extinction, second only to habitat loss and fragmentation (Mack *et al.* 2000). Understanding predation dynamics between native and alien species is crucial (Carlsson *et al.* 2009). The Asian Hornet *Vespa velutina* is a highly invasive alien wasp that was introduced to France in 2004 (Haxaire *et al.* 2006) and has since expanded across Western Europe (Smit *et al.* 2018 and references therein). The presence of this wasp creates an important social alarm because it is a threat to native biodiversity, to economic activities in the first sector (especially due to predation on Western Honey Bee *Apis mellifera*) and to human health (Monceau *et al.* 2014).

A number of birds are known to predate on the Asian Hornet in its native range, notably the Crested Honey Buzzard *Pernis ptilorhynchus* (Becking 1989) but, to date, the few species reported as predators in Europe have only involved birds taking individual adult wasps (e.g. European Bee-eater *Merops apiaster*) or attacking abandoned nests (Eurasian Magpie *Pica pica*, Great Tit *Parus major* and Eurasian Nuthatch *Sitta europaea*; Villemant *et al.* 2010). In this paper, we report the first case of Asian Hornet nest predation by the European Honey Buzzard *Pernis apivorus*, as well as the use of this resource by a breeding pair to provision their nestlings. This migratory raptor breeds in Europe during the summer and overwinters in Africa. The adults have specific adaptations in order to prey on wasps, which form the bulk of their diet (76.4%; Gamauf 1999).

During 2011–2018 we surveyed a breeding population of European Honey Buzzards in Catalonia, Spain. The area covered 177 km^2 (Figure 1), including the protected area Serres del Litoral Septentrional (Zona Especial de Conservació ES5110011). The breeding density of the species was relatively low (0.6-2.8 pairs/100 km^2 during 2010–2015, Macià *et al.* 2017). Remains of preys were collected in one or two nests per year, except for 2017, when no breeding pairs were detected. In parallel, camera-traps were installed at five of these nests. For the first time, three fragments of a wasp nest with unusually large larval cells were observed and collected, on 2nd August 2018, from a nest with nestlings (Figure 2). These fragments were not present on the 20th July, when samples were previously taken. Only a few fragments of wasps were found inside the cells, and morphological identification of the insect species was not possible. However, based on the nest morphology, they could only belong to either the native European Hornet *Vespa crabro*, which is uncommon in the area, or the alien Asian Hornet. Molecular analysis of the wasp remains through DNA barcoding, using a 658 bp fragment of the mitochondrial cytochrome c oxidase I (COI) gene sequence, following the protocol by Dincă *et al.* (2013): DNA was extracted using Chelex resin and amplified with the primers LepF1 and LepR1. The sequences obtained from the nest fragments were uploaded to the BOLD Identification Engine (www.uni.boldsystems.org/index.php/IDS_OpenIdEngine) and an unambiguous 100% match to Asian Hornet was obtained.

CONTACT R. Vila roger.vila@csic.es Institut de Biologia Evolutiva (CSIC-UPF), Passeig Marítim de la Barceloneta 37, 08440, Barcelona, Spain