

NOTA / NOTE

Carnus hemapterus Nitzsch, 1818 (Diptera, Carnidae),
new genus and species for PortugalJosé Manuel Grosso-Silva¹ & Vanessa Soeiro²

¹ Museu de História Natural e da Ciência da Universidade do Porto (MHNC-UP) / PRISC, Praça Gomes Teixeira, 4099-002 Porto, Portugal. e-mail: jmgrossosilva@mhnc.up.pt

² Centro de Recuperação de Fauna do Parque Biológico de Gaia, Município de Vila Nova de Gaia, Rua da Cunha, 4430 - 812 Avintes, Portugal. e-mail: vanessasoeiro@cm-gaia.pt

Abstract: *Carnus hemapterus* Nitzsch, 1818 (Diptera, Carnidae) is recorded from mainland Portugal for the first time, species collected on barn owl chicks, *Tyto alba* (Scopoli, 1769).

Key words: Diptera, Carnidae, *Carnus hemapterus*, Portugal, first record.

Resumen: *Carnus hemapterus* Nitzsch, 1818 (Diptera, Carnidae), género y especie nuevos para Portugal. Se cita *Carnus hemapterus* Nitzsch, 1818 (Diptera, Carnidae) por primera vez de Portugal, especie cogida sobre polluelos de lechuga común, *Tyto alba* (Scopoli, 1769).

Palabras clave: Diptera, Carnidae, *Carnus hemapterus*, Portugal, primera cita.

Recibido: 16 de marzo de 2021

Aceptado: 24 de marzo de 2021

Publicado on-line: 5 de abril de 2021

Carnus hemapterus Nitzsch, 1818 (Diptera, Carnidae) is a tiny (about 2 mm long) fly species that lives predominantly in birds' nests (LUCIENTES *et al.*, 1996; GRIMALDI, 1997).

The range of bird species which *C. hemapterus* associates with is wide, comprising at least 52 species (BRAKE, 2011). The larvae feed on the organic debris in the nests (LUCIENTES *et al.*, 1996; AMAT-VALERO *et al.*, 2012) while the adults are ectoparasites of the nestlings, feeding on blood, epidermal cells and skin secretions (VALERA *et al.*, 2018). Following pupation, emerging adults can remain in the nest or disperse in search for hosts, losing the wings once they find a suitable host (VALERA *et al.*, 2018). Dispersing adults are quite short-lived (two days according to CALERO-TORRALBO & VALERA, 2008) and copulation takes place on the hosts (VALERA *et al.*, 2006a). Female *C. hemapterus* exhibit physogastry, a morphological modification of the abdomens which become greatly distended to accommodate the blood or oil ingested (GRIMALDI, 1997).

The known distribution of *C. hemapterus* includes Europe and North America (GRIMALDI, 1997; VALERA *et al.*, 2006a). In Spain, *C. hemapterus* was recorded from the provinces of (ordered chronologically according to the earliest record): Zaragoza (MUÑOZ LOPEZ *et al.*, 1991; CARLES-TOLRÁ, 1993), Huesca (LUCIENTES *et al.*, 1996), Teruel (CARLES-TOLRÁ, 2001), Almería (VALERA *et al.*, 2003, VALERA *et al.*, 2006a; VALERA *et al.*, 2018), Segovia (CARLES-TOLRÁ & GÓMEZ, 2004), Cáceres (VALERA *et al.*, 2006a), Granada (VALERA *et al.*, 2006a), Madrid (VALERA *et al.*, 2006a; VALERA *et al.*, 2006b), and Huelva (CALERO-TORRALBO & VALERA, 2008).

Here we record *C. hemapterus* from Portugal for the first time, based on 33 adult specimens collected on 24 April 2020 from three nestlings of barn owl, *Tyto alba* (Scopoli, 1769). The barn owls had been found in Beire (district: Porto; municipality: Paredes) (MGRS 1x1 km: 29TNF5666) and were being treated at the Wildlife Rehabilitation Centre of Parque Biológico de Gaia, where collecting took

place. The specimens are deposited in the collection of Museu de História Natural e da Ciência da Universidade do Porto (27 specimens: MHNCUP/ART/37676 to MHNCUP/ART/37702) and in the senior author's collection (6 specimens).

Acknowledgements

The authors wish to thank Miguel Carles-Tolrá for the careful revision of the manuscript and the suggestions presented.

References

- AMAT-VALERO, M.; VÁCLAV, R.; MARTÍNEZ, T. & VALERA, F. 2012. Mixed life-history strategies in a local population of the ectoparasitic fly *Carnus hemapterus*. *Parasitology*, **139**(8): 1045-1053.
- BRAKE, I. 2011. World catalog of the family Carnidae (Diptera, Schizophora). *Myia*, **12**(113): e169.
- CALERO-TORRALBO, M.A. & VALERA, F. 2008. Synchronization of host-parasite cycles by means of diapause: host influence and parasite response to involuntary host shifting. *Parasitology*, **135**(11): 1343-1352.
- CARLES-TOLRÁ, M. 1993. A new species of *Geomyza*, with new acalyptrate records to the Iberian Peninsula (Diptera, Acalyptrata). *Historia Animalium*, **2**: 49-55.
- CARLES-TOLRÁ, M. 2001. Nuevos datos sobre dípteros iberobaleares (Diptera: Orthorrhapha y Cyclorrhapha). *Boletín de la Asociación española de Entomología*, **25**(1-2): 53-95.
- CARLES-TOLRÁ, M. & GÓMEZ, J.F. 2004. Algunos dípteros capturados en la provincia de Segovia (España) (Insecta, Diptera). *Boletín de la Asociación española de Entomología*, **28**(3-4): 25-32.
- GRIMALDI, D. 1997. The Bird Flies, Genus *Carnus*: Species Revision, Generic Relationships and a Fossil *Meoneura* in Amber (Diptera: Carnidae). *American Museum Novitates*, **3190**: 1-30.
- LUCIENTES, J.; FERRER-DUFOL, M.; PERIBAÑEZ, M.A.; GRACIA-SALINAS, M.J.; GUARGA-PENELLA, J.L.; BENITO DE MARTÍN, M.I. & CASTILLO, J.A. 1996. New record of *Carnus hemapterus* Nitzsch, 1818 (Cyclorrhapha: Carnidae) in Spain. *Research and Reviews in Parasitology*, **56**(1): 63.
- MUÑOZ LOPEZ, E.; CASTELLO ESPUNY, J.; POMAROL i CLOTET, M. & GUTIERREZ GALINDO, J.F. 1991. Observations on some Dipteran parasites found on chicks of *Falco naumanni* and *Falco tinnunculus* in Monegros (North-east of Spain), p. 30. In: NICHOLLS, M.K. & CLARKE, R. (eds.). *Biology and Conservation of Small Falcons*. The Hawk and Owl Trust, London. 255 pp.
- VALERA, F.; CASAS-CRIVILLÉ, A. & CALERO-TORRALBO, M.A. 2006a. Prolonged diapause in the ectoparasite *Carnus hemapterus* (Diptera: Cyclorrhapha, Acalyptratae) - how frequent is it in parasites? *Parasitology*, **133**(2): 179-186.
- VALERA, F.; CASAS-CRIVILLÉ, A. & HOI, H. 2003. Interspecific parasite exchange in a mixed colony of birds. *Journal of Parasitology*, **89**(2): 245-250.
- VALERA, F.; MARTÍN-VIVALDI, M. & CARLES-TOLRÁ, M. 2006b. Life-history variation in three coexisting species of carnid flies (Diptera: Carnidae), *Carnus hemapterus*, *Hemeromyia anthracina* and *Hemeromyia longirostris*. *European Journal of Entomology*, **103**: 347-353.
- VALERA, F.; VEIGA, J.; SANDOVAL, A. & MORENO, E. 2018. Coexistence, habitat associations and puparia description of three dipteran species of the Family Carnidae. *Parasitology Open*, **4**: e1, 1-9.