

A recent Worcestershire record of *Helophorus rufipes* (Bosc d'Antic, 1791) (Coleoptera, Helophoridae) with notes on *Helophorus* subgenus *Empleurus* Hope, 1838 in the English Midlands.

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Introduction

On 26 October 2024 a single example of *Helophorus rufipes* (Bosc d'Antic, 1791) the 'Turnip Mud Beetle' (sensu Angus, 1987) was found in a humane pitfall trap monitored by the author in a rural somewhat modified traditional agricultural landscape at Little Comberton, Worcestershire. The trap has been monitored daily for the past 10 years. This is the first occasion during that time that *H. rufipes* has been encountered there. Hitherto unpublished records of the subgenus *Empleurus* are provided together with scaled illustrations of imagines.

Regional status

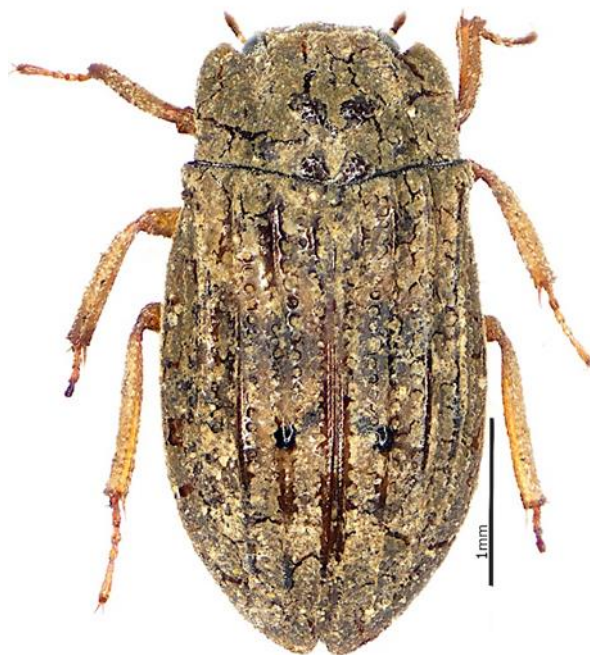
In Britain the subgenus *Empleurus* comprises three terrestrial species of *Helophorus* with carinate elytra namely *H. nubilus* Fabricius, 1777, *H. porculus* Bedel, 1881 and *H. rufipes*. In the English Midlands they can be regarded as highly localised with few published records.

Helophorus rufipes (01) was recently recognised in Gloucestershire at one farmed landscape only (Alexander, 2018). In Worcestershire the NBN Atlas (accessed 29 October 2024) indicates a single pre-1901 record and a therein unassigned 1988 record of *H. rufipes* which is certainly the author's own observation from Broadway on 2nd November 1988 (Table 1). No examples were cited by Fraser, Green, Lake & Neale (1998). Two records are cited for Warwickshire in 1943 and in 2000 in flood litter along the banks of the River Stour (Lane, Wright & Forsythe, 2002). Published English records since 2000 average two a year and unpublished regional records are here tabulated as Table 1.

Helophorus nubilus is widespread but evidently scarce regionally. NBN Atlas data indicate two Worcestershire records, the most recent being from Pershore during 1935. No examples were cited by Fraser, Green, Lake & Neale (1998). Eight Warwickshire records are cited on NBN Atlas between 1939 and 2012 which data at the time of writing indicate an average of less than one record per year between 1850 and 2019. In Gloucestershire *H. nubilus* had a recognised presence in the Stroud area of the Cotswold Hills during the first quarter of the twentieth century but with few records elsewhere since (Alexander, 2018). The few British specimens observed by the author suggest a distinct affinity for well-drained well-aerated sediments, often in the uplands, but further information on this affinity is required noting that Petherbridge & Thomas (1936) employed the vernacular name 'Wheat Shoot Beetle' due to its historical attraction to that crop. An imago (03) was found in a nest of the ant *Lasius flavus* (Fabricius, 1781) below the scarp crest of Bredon Hill at Beckford Hill, Grafton (VC33 SO983380 180 m a. s. l.) on 6th October 1988. A teneral example was extracted from sheep faeces on montane grassland of the Malvern Hills at Worcestershire Beacon (VC37 SO769452 338 m a. s. l.) on 11th July 1987. Other records known to the author include specimens from a saltmarsh and the uplands of North Wales.

Helophorus porculus (02) is largely absent from the English Midlands occurring especially in Scotland but also in south-east England particularly in the Dungeness area of Kent. There is a suggestion that *H. porculus* may tolerate more open exposure; the specimen illustrated here (02) was taken in flight over karst at 385m altitude on the island of Zakynthos in Greece (Whitehead, 1997). Lohse (1971) regarded this as a rare species in Europe with an Atlantic type of distribution. Members of this subgenus are generally hygrophilous, the beetles frequently encrusted with a film of dry silty sediment. Angus (1987) provides an informative

dichotomous key to British *Helophorus* which includes 24 figures of aedeagi and refers to *H. porculus* as a 'Turnip Root Beetle' occurring also in wheat fields. Angus (1973) also provides abundant details on the genus.



01. *Helophorus rufipes*, encrusted, Little Comberton, Worcestershire, 26 October 2024. Note the angular laterally extended basal corners of the elytra. P. F. Whitehead.



02. *Helophorus porculus*, Machairado, Zakynthos, Greece, in flight, 37°74'N 20°80'E, 385 m a. s. l. 9 May 1993. Note the subrounded basal corners of the elytra. P. F. Whitehead.



03. *Helophorus nubilus*, sedimentary encrustation partially removed, nest of *Lasius flavus*, Bredon Hill, Grafton, 6 October 1988. Note the relatively smaller size and arcuate sides of the pronotum.
P. F. Whitehead.

Additional regional records of *Helophorus rufipes*

Unpublished records of 27 *Helophorus rufipes* can be brought forward from the English Midlands (Table 1) covering the period 1988 to 2024 (*vide supra*).

Nomenclature and synecology

The notion implied by vernacular nomenclature that this group of species may be tied to crops by obligation is unfortunate.

Helophorus rufipes the ‘Turnip Mud Beetle’ although undoubtedly utilising turnips was certainly extant prior to turnip cultivation in Britain. Petherbridge (1928) provides detailed comments on the bionomics of *H. rufipes* on cultivated turnips *Brassica rapa* L. var. *rapa*, the adults and larvae utilising most parts of the plant close to the ground. Eggs were laid in late summer and larvae overwintered prior to pupation in the spring. Adult beetles were observed from May until March aligning with the observations made here.

Requiring moisture and low evaporation rates most usually associated with the winter months, larvae find cultivated turnips and winter wheat (Table 1; Petherbridge, 1928) acceptable as a clear illustration of agrosynanthropy. Records from the floodplains of the midland rivers Avon and Stour (*op. cit.*) suggest that riparian habitats are likely to be the ancestral ones with indications there that populations are small and localised possibly associated with other species of Brassicaceae.

Vice-county	Site	Map reference	Habitat	Dates	Notes
Warwickshire	Stratford-on Avon CP ADAS Drayton	SP149555	Farmland arable winter wheat	18.11.1993 – 23.12.1993	Unpublished but see Whitehead, 1999. 20 imagines in pitfall traps 40 m a.s.l.
Worcestershire	Broadway CP	SP095367	Farmland	2.11.1988	Flight record 91 m a.s.l. (one)
	Bredon CP	SO941338	Ancient woodland	16.3.1992	Damp leaf litter Bredon Hill 140 m a.s.l. (one)
	Bredon CP	SO909367	Floodplain	2.3.1992; 29.11.1992	Reed litter (two) and in weathered rafted <i>Salix</i> log 12 m a.s.l.
	Little Comberton CP	SO967432	Mixed agriculture	26.10.2024	Pitfall trap (one) 30 m a.s.l.
Gloucestershire	Bishop’s Cleeve CP	SO944273	Gravel pit	4.7.1989	Saturated clay bedrock 43 m a.s.l. (one)

Table 1. Unpublished records of *Helophorus rufipes* in the English Midlands 1988-2024, PFW leg.

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Images

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