

## ***Rhaphium pectinatum* (Loew) (Diptera, Dolichopodidae) re-found in Britain**

**ROBERT J. WOLTON<sup>1</sup> and C. MARTIN DRAKE<sup>2</sup>**

<sup>1</sup>Locks Park Farm, Hatherleigh, Okehampton, Devon EX20 3LZ; robertwolton@yahoo.co.uk

<sup>2</sup>Orchid House, Burridge, Axminster, Devon, EX13 7DF, UK; martindrake2@gmail.com

### **Summary**

The rediscovery in 2015 of *Rhaphium pectinatum* (Loew) in Britain, nearly 150 years since it was last found, is reported. The only other verified British records were made in 1868: these are discussed, together with complexities around nomenclature, the species' distribution in continental Europe and possible habitat preferences.

### **Introduction**

On 25 June 2015 one of us (RJW) swept a single male *Rhaphium pectinatum* (Loew, 1859) at the Devon Wildlife Trust's Old Sludge Beds reserve (national grid reference SX950889), at the head of the Exe Estuary on the outskirts of Exeter, a city in Devon, south-west England. The species not having been seen in Britain for 147 years, it had previously been presumed extinct (Falk and Crossley 2005).

The specimen is shown in Fig. 1. It was readily identified using the key in d'Assis-Fonseca (1978). The specimen will be deposited in the Natural History Museum (London).



**Fig.1. *Rhaphium pectinatum*, male, caught at the Old Sludge Beds reserve, Exeter, Devon, England, on 25 June 2015.**

## Previous British records

The only previous verified records for the species in Britain are reported in d'Assis-Fonseca (1978), who refers to one male and one female being caught by G.H. Verrall on 19 July 1868 at Richmond (Surrey), now part of Greater London. Verrall himself records catching a male and female *Porphyrops pectinata* Loew, as the species was then known, near Kew in 1869 (Verrall 1875), while in a later publication he refers to catching the species near Richmond on 19 July 1868 (Verrall 1905). Kew is within the current Borough of Richmond upon Thames, part of Greater London, so there is no real discrepancy there: it would seem that the difference in dates reflects the specimens being caught in 1868 but not identified until 1869, as explained below. Verrall's specimens, actually three in number, now lie within the Hope Entomological Collections, held by the Oxford University Museum of Natural History. The data labels show a male and a female were caught "near Richmond" on 19 July 1868, and a female "near Kew" on 4 August 1868. The first two specimens have a second label bearing, in the same handwriting as the locality labels, the species name and authority (*Porphyrops pectinata* Lw.) and the date of 16 April 1869 – this was presumably the date on which they were identified by Verrall. The reference in Falk and Crossley (2005) to the specimens having been taken at Tunbridge Wells in Kent is erroneous.

Colonel J.W. Yerbury noted that a dolichopodid caught at Porthcawl, on the south coast of Wales, on the 17 June 1906 appeared to be allied to *Porphyrops pectinata* Lw. (Yerbury 1918). The paper says the specimen was by then headless and indicates it was deposited in the 'BM', referring to what is now the Natural History Museum (London). That museum currently has four each of *Rhaphium* (*Porphyrops*) *consobrinum* Zetterstedt, 1843 and *R. (Porphyrops) riparium* (Meigen, 1824) collected by Yerbury at Porthcawl in 1906. One of the *R. riparia* is missing its head, but as with all other seven specimens keys out correctly (Duncan Sivell *pers. comm.*). Colonel Yerbury's diary states that the morning of 17 June 1906 was wet, but the day was fine and bright later; he does not mention anything of particular relevance to the matter in hand (Peter Chandler *pers. comm.*). It seems probable that the specimen tentatively ascribed by Yerbury as *Porphyrops pectinata* was in fact another species. In Verrall's key to male *Porphyrops*, *P. consobrina* Zett. and *P. pectinata* Lw. come out in the same couplet (Verrall 1905), so perhaps the confusion arose at this point. Alternatively it may have been a female for which keys are much less certain.

## Nomenclature

The name of this species has been a cause of confusion. In 1908 Becker described *Xiphandrium pectinatum* (Becker, 1908). He was aware (Becker 1918) that the species was very similar to that described by Curtis as *X. brevicorne* (Curtis, 1835): later they were indeed synonymised, with *X. brevicorne* taking precedence. However, Becker's choice of the specific name for *X. pectinatum* was unfortunate since the same epithet had already been used by Loew for *Porphyrops pectinata*. Apparently in the mid-1920s *Porphyrops* and *Xiphandrium* were brought within *Rhaphium* by Curran (1926, 1927) in the USA, as reported by Negrobov (1979). However, over ten years later Parent (1938), based in France, continued to recognise *Xiphandrium* as a separate genus. This led to the concurrent use of *Rhaphium pectinatum*, *Xiphandrium pectinatum* and *Porphyrops pectinata*. It is probable that early British dipterists would have followed Verrall's (1905) keys and avoided the confusion within continental Europe caused by the keys of Becker (1918) and Parent (1938). In any event, care should be taken to check the genus name referring to *pectinata* or *pectinatum* used in publications before Negrobov's 1979 clarifying keys.

## European distribution and habitat information

*Rhaphium pectinatum* has been recorded from Austria, France, Hungary, Italy, Poland, Romania, Russia and Sweden (Pollet 2011, Soós and Papp 1991). However, it would appear to be a rare species throughout its European range (Oleg Negrobov, Marc Pollet *pers. comm.*).

The Old Sludge Beds is the site of former sediment settlement lagoons linked to a sewage works which lies sandwiched between the Exeter Ship Canal and the head of the Exe estuary. The reserve is just some 400m long and 100m wide. It is now covered with a range of tall-herb fen communities (Rodwell 1995), primarily *Phragmites australis* reedbed, with willow (*Salix* spp.) patches. The precise area where the fly was caught is uncertain because samples from different parts of the site were not kept separate, but is thought to have been an area subject to saline inundation at spring high tides due to a recent breach in the seawall. The adjacent part of the Exe estuary, in addition to having tidal mud flats, also has extensive areas of tidal *Phragmites* reedbed. On the other side of the canal lies an extensive grazing marsh system, claimed from former saltmarsh, with a network of drains and ditches separating pasture fields that are floristically moderately species-rich and subject to winter flooding. As a consequence of this variation, the possible habitat origins of the single individual caught at the Old Sludge Beds are many.

Both Richmond, where the 1868 individuals were taken, and the Old Sludge Beds are besides the upper tidal reaches of a river, so it might be assumed that the species is associated with brackish habitats in Britain. However, evidence from Europe suggests otherwise: most obviously, it is found in landlocked countries such as Austria and Hungary. Bańkowska (1989) documents the first records of *R. pectinatum* in Poland. She caught five individuals from moist grasslands in the Mazovian Lowland near Warsaw, far from the sea. Four of these were caught in an intensively mown and heavily fertilized meadow with the plant community *Arrhenatheretum medioeuropaeum*, the fifth was swept from a wet grassland with *Molinietalia* vegetation within a forest. In Romania, Parvu (2001) records finding the fly at Negurini in the middle of the country, the second record for the country, the first being from the banks of the Olt River which feeds the Danube. Igor Negrobov (*pers. comm.*) has found it in habitats near freshwater in the Voronezh region and in the North Caucasus, both in western Russia.

In 2016, the authors plan to search the vicinity of the Old Sludge Beds in the hope of finding further specimens and clarifying the species' habitat requirements. Searches on 29 June and 30 July 2015 were unsuccessful.

## Acknowledgements

We are grateful to Peter Chandler and Igor Grichanov for helping to source references, to Zoë Simmons for photographing *R. pectinatum* specimens in the Hope Entomological Collections, to Duncan Sivell and Malcolm Aldridge for researching *Rhaphium* specimens in the Natural History Museum collected by Colonel Yerbury from Porthcawl, to Oleg Negrobov for information on the species in Russia, to Marc Pollet for information on the fly in Europe and comments on the manuscript, and to the Devon Wildlife Trust for permission to collect on their reserve.

## References

- d'Assis-Fonseca, E.C.M. 1968. Diptera Cyclorrhapha Calypttrata. Section (b) Muscidae. *Handbooks for the Identification of British Insects* 10(4b), 1-119. Royal Entomology Society, London.

- Bañkowska, R. 1989. Dolichopodidae (Diptera) of moist meadows on the Mazovian Lowland. *Memorabilia Zoologica* **43**, 315-327.
- Becker, T. 1908. Dipteren der Kanarischen Inseln. *Mitteilungen aus dem Zoologischen Museum in Berlin* **49**, 1-181.
- Becker, T. 1918. Dipterologische Studien, Dolichopodidae, Palaarktische Region, Nova Acta Part 2 Abhandlungen der Kaiserl. Leopoldinisch-Carolinischen Deutschen Akademie der Naturforscher **CIII**(103), 203-315.
- Curran, C.H. 1926. The Nearctic species of the genus *Rhaphium* Meigen (Dolichopodidae, Dipt.) [cont.]. *Transactions of the Royal Canadian Institute* **15**, 249-260.
- Curran, C.H. 1927. The Nearctic species of the genus *Rhaphium* Meigen (Dolichopodidae, Dipt.) [concl.]. *Transactions of the Royal Canadian Institute* **16**, 99-179, 4 pls.
- Curtis, J. 1935. *British Entomology: being illustrations and descriptions of the genera of insects found in Great Britain and Ireland. Vol. 8 Diptera. Omaloptera*. London: printed for the author.
- Falk, S.J. and Crossley, R. 2005. A review of the scarce and threatened flies of Great Britain. Part 3: Empidoidea. *Species Status* **3**, 1-134. Joint Nature Conservation Committee, Peterborough.
- Pollet, M., 2013. Fauna Europaea: Dolichopodidae. In: Pape, T. & Beuk, P. (Eds.), Fauna Europaea: Diptera, Brachycera. *Fauna Europaea version 2.6.2*, <http://www.faunaeur.org>.
- Negrobov O.P. 1979. Dolichopodidae. In Lindner, E. (Ed.) 1979. *Die Fliegen der palaearktischen Region* **29**, 475-530. Schweizerbart, Stuttgart.
- Parent, O. 1938. Diptères Dolichopodidae. *Faune de France* **35**. Lechevalier, Paris.
- Parvu, C. 2001. Dolichopodidae (Diptera) from Romania (XIX). Additional data from the Maramures depression, Romania. *Travaux du Museum National d'Histoire Naturelle "Grigore Antipa"* **43**, 249-262.
- Rodwell, J.S. (ed.) 1995. *British plant communities. Volume 4. Aquatic communities, swamps and tall-herb fens*. Cambridge University Press.
- Soós, A. and Papp, L. (Eds). 1991. Catalogue of Palaearctic Diptera. *Dolichopodidae-Platypezidae* **7**, 11-139.
- Verrall, G.H. 1875. Notes on some British Dolichopodidae, with descriptions of new species. *Entomologist's monthly Magazine* **12**, 142-148.
- Verrall, G.H. 1905. List of British Dolichopodidae, with tables and notes. *Entomologist's monthly Magazine* **41**, 108-112.
- Yerbury, J.W. 1918. The Diptera of Glamorgan. *Transactions of the Cardiff Naturalists' Society* **51**, 48-79.