

A fly in the ointment: the re-discovered holotype of ‘*Trypeta*’ *cylindrica* Walker, 1853 belongs to the genus *Coelopacidia* Enderlein (Diptera: Tephritidae), not *Chyliza* Fallén (Psilidae)

ANDREW J. ROSS^{1,2,*}, DAVID L. HANCOCK³, ERICA MCALISTER⁴ & JIALE ZHOU^{5,6}

¹Department of Natural Sciences, National Museum of Scotland, Chambers Street, Edinburgh, Scotland, EH1 1JF, UK

 a.ross@nms.ac.uk;  <https://orcid.org/0000-0003-2751-9091>

²Department of Earth Sciences, Natural History Museum, Cromwell Road, South Kensington, London, SW7 5BD, UK

³9 Yew Tree Court, Carlisle, Cumbria, CA2 5QA, UK.

 dlhancock20@gmail.com;  <https://orcid.org/0000-0002-8478-7976>

⁴Department of Life Sciences, Natural History Museum, Cromwell Road, South Kensington, London, SW7 5BD, UK

 e.mcalister@nhm.ac.uk;  <https://orcid.org/0000-0002-8558-3510>

⁵Department of Entomology, College of Plant Protection, China Agricultural University, Yuanmingyuan West Road, Beijing 100193, China

 zhou_jl1994@163.com;  <https://orcid.org/0000-0002-8901-3187>

⁶Key Laboratory of Zoological Systematics and Evolution, Institute of Zoology, Chinese Academy of Sciences, Beijing 100101, China

*Corresponding author

Abstract

The ‘type’ of the fly species ‘*Trypeta*’ *cylindrica* Walker, 1853, from the William Saunders Collection, was misidentified and subsequently placed in the genus *Chyliza* Fallén (Psilidae). A specimen from the same collection with identical label data but belonging to *Coelopacidia* Enderlein (Tephritidae) is hereby identified as the correct holotype and the species should therefore be referred to as *Coelopacidia cylindrica* (Walker, 1853). *Chyliza pallidipes* Lamb, 1917 **stat. rev.** is taken out of synonymy and regarded as the valid name for the species previously treated as ‘*Chyliza cylindrica*’.

Key words: Schizophora, Acalyptratae, rust fly, picture-winged fly, misidentification

Introduction

A recent study to describe the first fossil chylizine fly (Psilidae: Chylizinae) (Ross *et al.*, 2024 in press) required comparison of the fossil with Recent species. From this comparison it became apparent that there was a problem with the ‘type’ specimen of *Chyliza cylindrica* (Walker, 1853).

The species was originally named *Trypeta cylindrica* by Francis Walker in the Diptera volume of *Insecta Saundersiana*. The work, including plates by John O. Westwood, was issued in five parts and Part IV, which includes the description and figures of *T. cylindrica*, was published in 1853 (Walker 1853; see Thompson 1977, Evenhuis 1997). The species name also appeared in the index with the final part, published in 1856 (Walker 1856).

Westwood’s detailed figures of *T. cylindrica* on plate 8 consist of a dorsal view of the complete fly and a close-up of the right side of the head (Fig. 1). Subsequently, Walker (1858) mentioned the presence of *Chyliza* in the Saunders collection, although no species were named.

There are two acalyptrate fly specimens in the Saunders collection at the Natural History Museum, London labelled ‘*cylindrica*,’ which have led to confusion. One belongs to the genus *Coelopacidia* Enderlein (Tephritidae) (Fig. 2A, B), whereas the other belongs to *Chyliza* Fallén (Psilidae) (Fig. 3).

Bezzi (1913) referred to *Trypeta cylindrica* and mentioned the ‘Type in London.’ Hardy (1959) provided a brief description of *T. cylindrica* based on the “type” which he considered belonged to the Otitidae. Later, in *A catalogue of the Diptera of the Oriental Region*, in the chapter on Tephritidae, Hardy (1977) listed *Coelopacidia cylindrica* as a new combination. In the same catalogue, ‘*cylindrica*’ was also listed as an unplaced species of Platystomatidae by Steyskal (1977). It was also listed in Tephritidae as *Coelopacidia cylindrica* by Kapoor (1993).

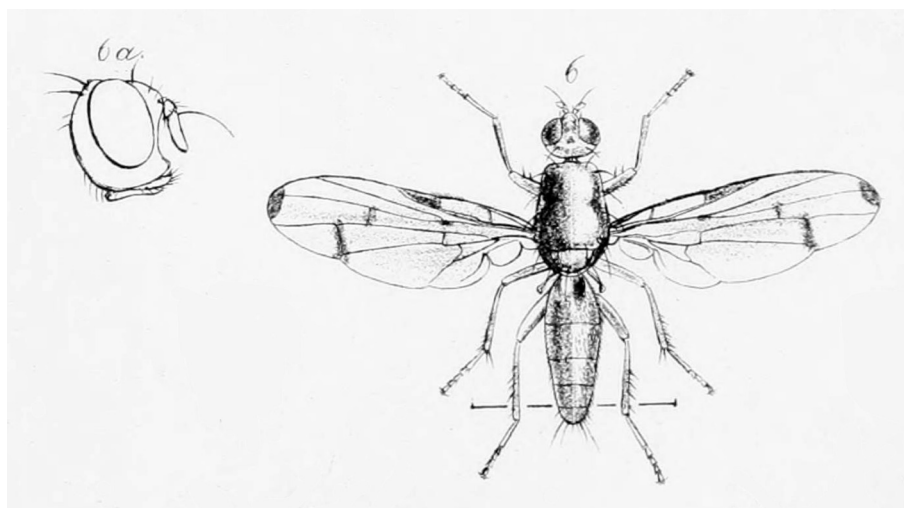


FIGURE 1. Westwood's original figures of *Trypeta cylindrica* Walker, 1853. Right side of the head and dorsal view, from Walker (1853, plate 8).

Subsequently identified as belonging to the Psilidae, *Chyliza cylindrica* was redescribed by Shatalkin (1998), who included *C. pallidipes* Lamb, 1917 as a junior synonym. *Chyliza cylindrica* was also mentioned in a revised key to Eurasian species of *Chyliza* by Shatalkin (2014).

Hancock & Drew (2005) commented on the *Coelopacidia* 'sp.' specimen. They considered 'previous reports of '*Coelopacidia cylindrica*' from India (Hardy 1977, Kapoor 1993), based on the lectotype of *Trypeta cylindrica* Walker (in BMNH), actually refer to *Chyliza cylindrica* (Walker) (= *pallidipes* Lamb) [family Psilidae].' However, a lectotype had not been designated. Hancock & Drew (2005) referred to the label of '*cylindrica*' in Walker's handwriting but considered this was a manuscript name. David *et al.* (2013) figured the *Coelopacidia* 'sp.' specimen and also noted that the '*cylindrica*' label was 'an apparent manuscript name previously confused with *Chyliza cylindrica* (Walker).' Hancock (2019) reiterated that the earlier records of *Coelopacidia cylindrica* were misidentifications.

However, a comparison of Walker's original description and Westwood's original figures with both '*cylindrica*' specimens indicates that the *Coelopacidia* specimen is a much better match for '*Trypeta*' *cylindrica* than the *Chyliza* specimen, which differs considerably, including size.

Material and methods

The two specimens, in the Entomology collections of the Natural History Museum, London (NHMUK), are both labelled '*cylindrica*' [handwritten], '68-4' [typed] and 'India. W.W. Saunders B.M. 1868-4' [handwritten]. The '*cylindrica*' labels were added by Francis Walker himself; the '68-4' notation refers to the date of accession by the NHMUK as the 4th collection received in 1868, and the 'India' labels were added by an assistant in the Diptera section during the 1920s–1930s. The *Chyliza* specimen was recently numbered NHMUK 013444153 and the *Coelopacidia* specimen NHMUK 013448450. The *Chyliza* specimen is also labelled as a 'Type' and a 'Holotype' in round NHMUK labels (green and red-bordered respectively), and has an additional, presumably original, label which appears to indicate 'Ind', possibly an abbreviation of 'India'. The holotype of *Chyliza pallidipes* Lamb, 1917, NHMUK 013444154, was also studied.

The Francis Walker collection at Museums Victoria, Melbourne was checked by Ken Walker (pers. comm.) and although there are seven specimens of '*Trypeta*' and one specimen of *Chyliza* present, all identified to species, none of them is labelled *cylindrica* and they are different from Westwood's figure, so can be ruled out.

The photos of the two '*cylindrica*' specimens and holotype of *C. pallidipes* at NHMUK were taken by E.M. using a Canon EOS RS camera with a MP-E 65mm lens, using Helicon Remote (ver. 4.4.1 W) and Helicon Focus 8 software. Westwood's original figures of *Trypeta cylindrica* were taken from a pdf download of plate 8 from the

Smithsonian Institution copy of the bound Diptera volume of *Insecta Saundersiana*, available from the Biodiversity Heritage Library website. The contrast was improved and peripheral parts of other insects were erased using Photoshop.

Taxonomy

Family Tephritidae Macquart, 1835

Subfamily Trypetinae Loew, 1861

Tribe Adramini Hendel, 1914

Genus *Coelopacidia* Enderlein, 1911

Coelopacidia cylindrica (Walker, 1853)

Figs 1, 2

Trypeta cylindrica Walker, 1853: 380, pl. 8, figs 6, 6a; 'East Indies'.

Trypeta cylindrica Walker: Walker, 1856: 474.

Trypeta cylindrica Walker: Bezzi, 1913: 70; East India.

Coelopacidia cylindrica (Walker): Hardy, 1977: 79, 'N. comb.'; India.

Coelopacidia cylindrica (Walker): Kapoor, 1993: 29, 90; East India; *Pars.*

Coelopacidia sp.: Hancock & Drew, 2005: 5; India.

Coelopacidia sp.: David *et al.*, 2013: 456, figs 57–59; India.

Coelopacidia 'undescribed species': Hancock, 2019: 221; India.

Holotype. NHMUK 013448450, male, William Saunders Collection.

Type locality. India, precise location not known.

Redescription

Male. Length from tip of head (excluding antennae) to tip of abdomen 10.2mm, wing length 9.4mm; head length 1.6mm (excluding antennae). Head with 2 pairs of frontal and 1 pair of orbital setae, all weak; ocellar setae very weak and hair-like; antennae about as long as face, first flagellomere fulvous, third flagellomere pale yellow, elongate and apically rounded; arista long, black and bare. Thorax largely reddish brown with postpronotal lobes and narrow postsutural lateral vittae yellow; anepisternal stripe broadly yellow and extending as a narrow dorsal stripe to postpronotal lobe; chaetotaxy with well developed postpronotal, anterior and posterior notopleural, supra-alar and postalar setae and moderately developed dorsocentral setae placed behind line of supra-alar setae; I anepisternal seta; scutellum red-brown with 2 pairs of setae, basal and apical. Wing largely hyaline with a very faint yellowish tinge; pterostigma yellow; r-m crossvein at apical third of cell dm; dm-cu crossvein with a narrow infuscation, broadest posteriorly; apical brown spot across vein R4+5 as broad as long in apical portion of cell r2+3. Legs yellow; fore femora with 2 short, black anterior spines in distal half; mid tibiae with 2 distinct apical spines. Abdomen elongate, reddish brown with darker staining.

Remarks

The *Coelopacidia* specimen, NHMUK 013448450, is very similar to Walker's (1853) original description and Westwood's figures of '*Trypeta*' *cylindrica* in general habitus and particularly in that it possesses brown wing-tips. The specimen also has distinct pterostigmata on the wings, long, black setae on the thorax and head, and a long, curved arista on the antenna, which are clearly seen in Westwood's figures. From this it is clear that this specimen is the correct holotype.

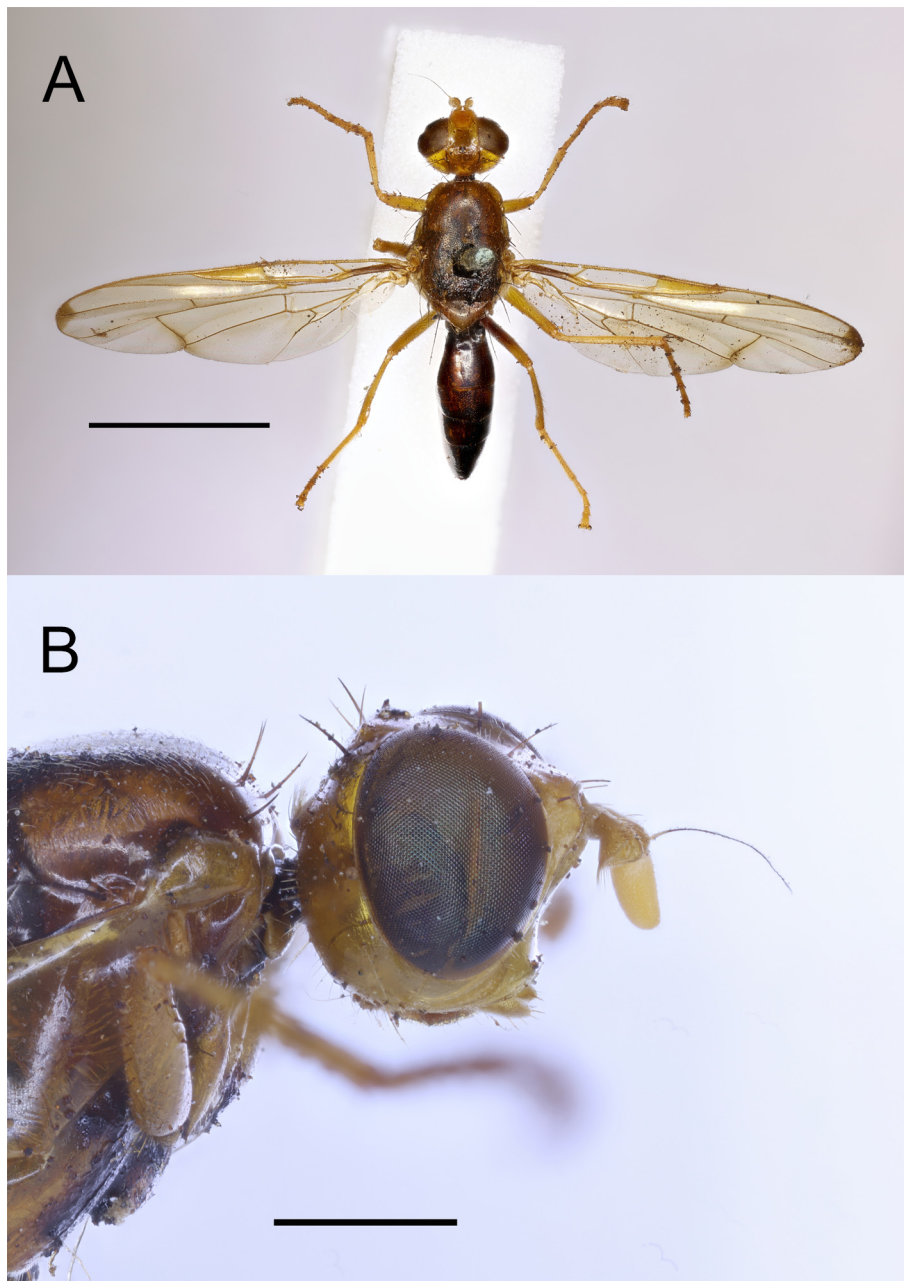


FIGURE 2. The re-discovered holotype of *Coelopacidia cylindrica* (Walker, 1853), NHMUK 013448450. **A**, dorsal view; note the wings are not flat in this image. **B**, right side of the head. Scale bars 5mm for **A** and 1mm for **B**.

Although the number of specimens was not expressly stated, the precise nature of Walker's original description and subsequent illustrations implied only a single specimen was available, here accepted as the 'Holotype by monotypy' under Article 73.1.2 of the International Code of Zoological Nomenclature (ICZN 1999). This specimen, a male, also bears a handwritten [original?] label that is largely indecipherable but appears to indicate 'Cape Camp'.

Bezzi (1913) suggested a relationship with *Adrama* Walker and his statement of 'Type in London' therefore indicates a reference to this specimen. Hardy's (1959) redescription does not match the original description and illustrations, so he had misidentified the "type" (see below). Later, Hardy (1977) listed *Coelopacidia cylindrica* (Walker) as a new combination in the Tephritidae, so he had subsequently correctly identified the holotype but did not refer to it as such. Kapoor (1993) also listed *Coelopacidia cylindrica* in the Tephritidae, however he referred to both Hardy (1959) and Hardy (1977), effectively referring to both specimens. Hancock & Drew (2005), David *et al.* (2013, with figures) and Hancock (2019) referred to this specimen but they did not consider it was the holotype of a previously named species.



FIGURE 3. The misidentified 'type' of '*Chyliza cylindrica*' (Walker, 1853), NHMUK 013444153, dorsal view. Scale bar 5mm.

This species is very similar to *C. vivax* (Munro, 1932) from South Africa, differing only in the broader apical spot on the wing. The locality 'Cape Camp' is ambiguous and the possibility remains that the type locality of 'East Indies [India]' is erroneous and the specimen is actually from the Cape Province of South Africa, with *C. vivax* a potential synonym.

Family Psilidae Walker, 1853

Subfamily Chylizinae Rondani, 1876

Genus *Chyliza* Fallén, 1820

Chyliza pallidipes Lamb, 1917, stat. rev.

Figs 3, 4

Chyliza sp.: Walker, 1858: 231.

Chyliza pallidipes Lamb, 1917: 271; Peradeniya, Sri Lanka.

Trypeta cylindrica Walker: Hardy, 1959: 213; India; misidentification.

'Unplaced' *cylindrica* Walker: Steyskal, 1977: 164; misidentification.

Coelopacidia cylindrica (Walker): Kapoor, 1993: 29, 90; East India; *Pars*, misidentification.

Chyliza cylindrica (Walker): Shatalkin, 1998: 101–102, figs 15, 31; India, Sri Lanka, Thailand; misidentification.

Chyliza cylindrica (Walker) (= *pallidipes* Lamb): Hancock & Drew, 2005: 5; misidentification.

Chyliza cylindrica (Walker): David *et al.*, 2013: 456; misidentification.

Chyliza cylindrica (Walker): Shatalkin, 2014, p. 152; misidentification.

Holotype. NHMUK 013444154, female.

Type locality. Peradeniya, Sri Lanka.

Other material. Specimens listed by Shatalkin (1998) under '*Chyliza cylindrica*', including the misidentified 'type' (NHMUK 013444153).

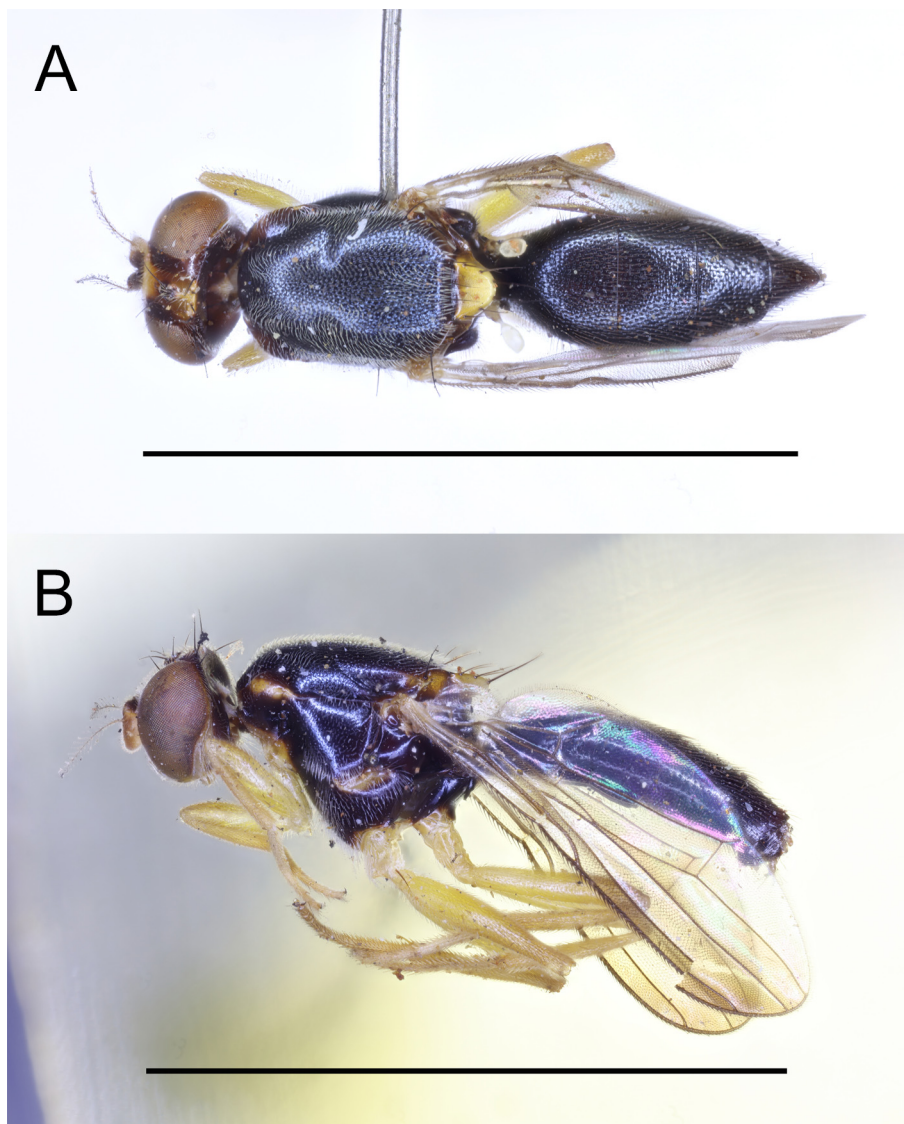


FIGURE 4. The holotype of *Chyliza pallidipes* Lamb, 1917, NHMUK 013444154. **A**, dorsal view. **B**, lateral view (left side). Scale bars 5mm.

Description

See Shatalkin (1998) under '*Chyliza cylindrica*'. Holotype, length from tip of head (excluding antennae) to tip of abdomen 5.2mm, wing-length 3.8mm.

Remarks

Specimen 013444153 matches Hardy's (1959) description of the "type" of *Trypeta cylindrica* Walker, particularly in that it is in 'very poor condition' with 'completely hyaline wings' and the 'thorax is densely covered with recumbent white pile,' but does not match the original description by Walker (1853) and figures by Westwood, so was misidentified. When Steyskal (1977) listed '*cylindrica*' under 'unplaced species of Platystomatidae' he referred to Hardy (1959), so was therefore referring to this specimen. This specimen was subsequently referred to as the 'type' of *Chyliza cylindrica* (Walker) and the species was re-described by Shatalkin (1998), who included *Chyliza pallidipes* Lamb, 1917 as a junior synonym. Shatalkin's description was based on a total of 12 specimens from Sri Lanka, India and Thailand, including the holotype of *C. pallidipes*.

Given that the ‘type’ had been misidentified and the name combination ‘*Chyliza cylindrica* (Walker)’ was not formally described as a valid species then the ‘Type’ and ‘Holotype’ labels were therefore incorrectly attributed. The green-circled ‘Type’ label was added in 1940 when the collection was moved to safety at the beginning of World War II and the red-bordered ‘Holotype’ label very recently (A. Pont, pers. comm.). However, the green-circled ‘Type’ labels were added arbitrarily and were often placed on specimens that were not types.

The holotype of *C. pallidipes* (NHMUK 013444154, Fig. 4A, B), and the misidentified ‘type’ are clearly conspecific and are very similar in length, from tip of head (excluding antennae) to tip of abdomen, being 5.2mm for 013444154 and 5.4mm for 013444153. *Chyliza pallidipes* Lamb **stat. rev.** is thus taken out of synonymy and is the valid name for this species.

Discussion

We can rule out that the two NHMUK ‘*cylindrica*’ specimens are syntypes. The original description of ‘*Trypeta cylindrica* Walker, 1853 does not indicate that it was based on more than one specimen; neither specimen bears a label identifying the generic placement and there is no indication Walker considered then to be conspecific or even congeneric. Given that Walker (1858) subsequently mentioned the presence of unidentified *Chyliza* in the Saunders collection, he was clearly able to distinguish between the two genera, so Walker’s ‘*cylindrica*’ label on the *Chyliza* specimen is more likely to be an unpublished manuscript name than that on the *Coelopacidia* specimen. Likewise, Hardy (1959) only referred to ‘the specimen marked “Type”’ and the subsequent assumption of a lectotype [by inference of holotype] by Hancock and Drew (2005) is invalid [published after 1999 without an ‘Express statement of purpose’, contrary to Article 74.7.3 of the Code (ICZN 1999)]. Hardy’s (1959) description is consistent with the *Chyliza* specimen and indicates that he had misidentified the ‘type’. However, the later placement of ‘*cylindrica*’ in both *Coelopacidia* (as a new combination) by Hardy (1977) and as an unplaced species of Platystomatidae by Steyskal (1977) in a volume that Hardy co-edited, suggests he was aware of both specimens. The name combination ‘*Chyliza cylindrica* (Walker)’ is therefore based on a misidentified specimen that was not part of Walker’s (1853) type series and is thus an unavailable name. Subsequent references to ‘*Coelopacidia* sp.’ from India (Hancock and Drew 2005, David *et al.* 2013, Hancock 2019) thus refer to the true *Coelopacidia cylindrica* (Walker, 1853).

Given that ‘*Trypeta cylindrica*’ now belongs to *Coelopacidia*, and the name combination ‘*Chyliza cylindrica* (Walker)’ is not valid then *Chyliza pallidipes* Lamb, **stat. rev.** is hereby brought out of synonymy and the misidentified ‘type’ of ‘*Chyliza cylindrica*’ thus becomes a non-type specimen of *Chyliza pallidipes*. This is fortuitous as the holotype of *Chyliza pallidipes* is a nice specimen, whereas the misidentified ‘type’ is in very poor condition.

Acknowledgements

We thank Adrian Pont (Oxford University Museum of Natural History) for information on the accompanying labels, to Ken Walker (Museums Victoria, Melbourne) for checking the Francis Walker collection there, to Valery Korneyev (Schmalhausen Institute of Zoology, Kyiv) and Vladimir Blagoderov (National Museums Scotland, Edinburgh) for providing literature, and to Neal Evenhuis (Bishop Museum, Honolulu) for providing constructive comments on the manuscript.

References

- Bezzi, M. (1913) Indian trypanoids (fruit-flies) in the collection of the Indian Museum, Calcutta. *Memoirs of the Indian Museum*, 3, 53–168.
- David, K.J., Hancock, D.L., Freidberg, A. & Goodger, K.F.M. (2013) New species and records of *Euphranta* Loew and other Adramini (Diptera: Tephritidae: Trypetinae) from south and southeast Asia. *Zootaxa*, 3635 (4), 439–458.
<https://doi.org/10.11646/zootaxa.3635.4.6>
- Evenhuis, N.L. (1997) *Litteratura taxonomica dipterorum (1758–1930)*. 2 Vols. Backhuys Publishers, Leiden, 872 pp.
- Hancock, D.L. & Drew, R.A.I. (2005) New genera, species and records of Adramini (Diptera: Tephritidae: Trypetinae) from the South Pacific and southern Asia. *Australian Entomologist*, 32 (1), 5–16.
- Hancock, D.L. (2019) Comments on the genus *Coelopacidia* Enderlein (Diptera: Tephritidae: Trypetinae: Adramini), with a key

- to known species. *Israel Journal of Entomology*, 49 (2), 215–222.
- Hardy, D.E. (1959) The Walker types of fruit flies (Tephritidae-Diptera) in the British Museum collection. *Bulletin of the British Museum (Natural History)*, *Entomology*, 8 (5), 159–242.
- Hardy, D.E. (1977) Family Tephritidae (Trypetidae, Trupaneidae). In: Delfinado, M.D. & Hardy, D.E. (Eds.), *A catalog of the Diptera of the Oriental Region*. Vol. 3. University Press of Hawaii, Honolulu, pp. 44–134.
- ICZN (International Commission on Zoological Nomenclature) (1999) *International Code of Zoological Nomenclature*. Fourth Edition. International Trust for Zoological Nomenclature, London, xxix + 306 pp.
- Kapoor, V.C. (1993) *Indian fruit flies (Insecta: Diptera: Tephritidae)*. Oxford and IBH Publishing Company, New Delhi, 228 pp.
- Lamb, C.G. (1917) Notes on exotic Helomyzidae, Sciomyzidae, and Psilidae. *Annals and Magazine of Natural History*, Series 8, 19, 266–273.
<https://doi.org/10.1080/00222931709486933>
- Ross, A.J., Zhou, J., Hoffeins, C. & Crighton, B. (2024) The first fossil chylizine fly (Diptera: Psilidae: Chylizinae) with a discussion on the ages of related fossil Acalyptratae. *Insect Systematics and Diversity*. [in press]
- Shatalkin A.I. (1998 [for 1997]) Review of the Asian species of *Chyliza* Fallén (Diptera, Psilidae). *Russian Entomological Journal*, 6 (1–2), 89–111.
- Shatalkin, A.I. (2014) *Chyliza gavryushini* sp.n. (Psilidae) and *Cypselosoma tibialis* sp.n. (Cypselosomatidae)—two new dipterous species from Vietnam. *Russian Entomological Journal*, 23 (2), 151–154.
<https://doi.org/10.15298/rusentj.23.2.08>
- Steyskal, G.C. (1977) Family Platystomatidae. In: Delfinado, M.D. & Hardy, D.E. (Eds.), *A catalog of the Diptera of the Oriental Region*. Vol. 3. University Press of Hawaii, Honolulu, pp. 135–164.
- Thompson, F.C. (1977) The dates of Walker, *Insecta Saundersiana* ... Diptera. *Proceedings of the Entomological Society of Washington*, 79, 608.
- Walker, F. (1853) Diptera (Part IV). In: *Insecta Saundersiana or characters of undescribed insects in the collection of William Wilson Saunders, Esq., F.R.S., F.L.S. Vol. 1*. John van Voorst, London, pp. 253–414.
<https://doi.org/10.5962/bhl.title.9150>
- Walker, F. (1856) Diptera (Part V). In: *Insecta Saundersiana or characters of undescribed insects in the collection of William Wilson Saunders, Esq., F.R.S., F.L.S. Vol. 1*. John van Voorst, London, pp. 415–474.
<https://doi.org/10.5962/bhl.title.9150>
- Walker, F. (1858) Characters of undescribed Diptera in the collection of W. W. Saunders, Esq., F.R.S. *Transactions of the Entomological Society of London*, Series 2, 4, 190–235.
<https://doi.org/10.1111/j.1365-2311.1858.tb01822.x>