



A new species of *Philetus* Melander (Diptera: Empididae) from the Yukon Territory, Canada

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The Nearctic genus *Philetus* Melander, 1928 is a rarely collected group of empidid flies that contains two western species, namely *P. memorandum* Melander and *P. schizophorus* Melander. The genus was fully diagnosed by Cumming *et al.* (2016) with both known species redescribed and their distributions mapped. Here we describe a third species of *Philetus* from a single male collected recently in the Richardson Mountains of the Yukon Territory in Canada and provide a key to species based on male morphology. Terms used for adult structures follow those of Cumming & Wood (2017) and methods follow those outlined in Cumming *et al.* (2016).

Philetus kitsi sp. nov. (Figs 1–5)

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Type material. HOLOTYPE, ♂ labelled: “CANADA: YT: Richardson/ Mtns., 67°46'43.22"N/ 136°41'55.86"W, 850m/ 29.vii.2019, Malaise trap/ shrub tundra, JK19-075./ J.H. Kits, CNC1614247”; “HOLOTYPE/ *Philetus kitsi*/ Cumming & Brooks [red label]” [dissected terminalia in microvial]. Type deposited in the Canadian National Collection of Insects, Ottawa, Canada (CNC).

Diagnosis. *Philetus kitsi* sp. nov. is characterized by male terminalia with elongate simple cercus connected to lengthened ventral subepandrial lobe with digitiform apex (Fig. 3) and thumb-like preapical medially-directed process (Fig. 5), large epandrial lobe with posteriorly hooked dorsal process, and hypandrium with dorsally prolonged narrow median apical process (Figs 3, 4). In addition, the longer more narrowly produced apex of the antennal postpedicel (similar to *P. memorandum*) separates this species from most specimens of *P. schizophorus*.

Description. Male. Body length 3.5 mm, dark brownish grey, covered with silvery grey tomentum (Fig. 1). Antenna dark brown to black; postpedicel pyriform with apex narrowly produced towards stylus. Legs brown to greyish brown. Wing hyaline with brownish veins. Halter brownish white. Terminalia: hypandrium with long hook-shaped apical rods arising above base of long, dorsally directed, narrow median apical process (Fig. 3); postgonite projected dorsally as wide rounded lobe; phallus tubular, apex partially desclerotized and slightly expanded in dorsal view (Fig. 4); anterodorsal margin of hypandrium partially fused with anteroventral margin of epandrium; epandrial lobe large with series of short setae on outer and inner margins and posteriorly hooked dorsal process; ventral subepandrial lobe lengthened, shiny, with digitiform apex (Fig. 3) and thumb-like preapical medially-directed process (Fig. 5); ventral subepandrial lobe connected basally to cercus; medial subepandrial lobe absent; cercus elongate, simple, without bifid apex, rounded apically.

Female. Unknown.

Distribution and seasonal occurrence. Known from shrub tundra in the Richardson Mountains of the Yukon Territory, Canada (Fig. 2). The single known male was collected at the end of July.

Etymology. This species is named in honour of our colleague, Dr. Joel H. Kits (CNC), who collected the only known specimen of this new species.

Remarks. Based on the form of the male terminalia and the shape of the postpedicel (see key couplet 1 below), *P. kitsi* sp. nov. appears more similar to *P. memorandum* than to *P. schizophorus*. However, it differs from both these species in the habitat occupied, *i.e.*, shrub tundra rather than montane and coastal forests. Cumming *et al.* (2016, Appendix) listed several undetermined female specimens of *Philetus*, including three in particular from the Yukon Territory (two from the Dempster Highway taken on tundra and one from Whitehorse). Some of these Yukon specimens possibly represent

females of the new species described here. Unfortunately because of their older age and method of capture (from pan and flight intercept traps) they are unlikely to yield mitochondrial DNA barcode (COI) sequences, which could help confirm their species identities.

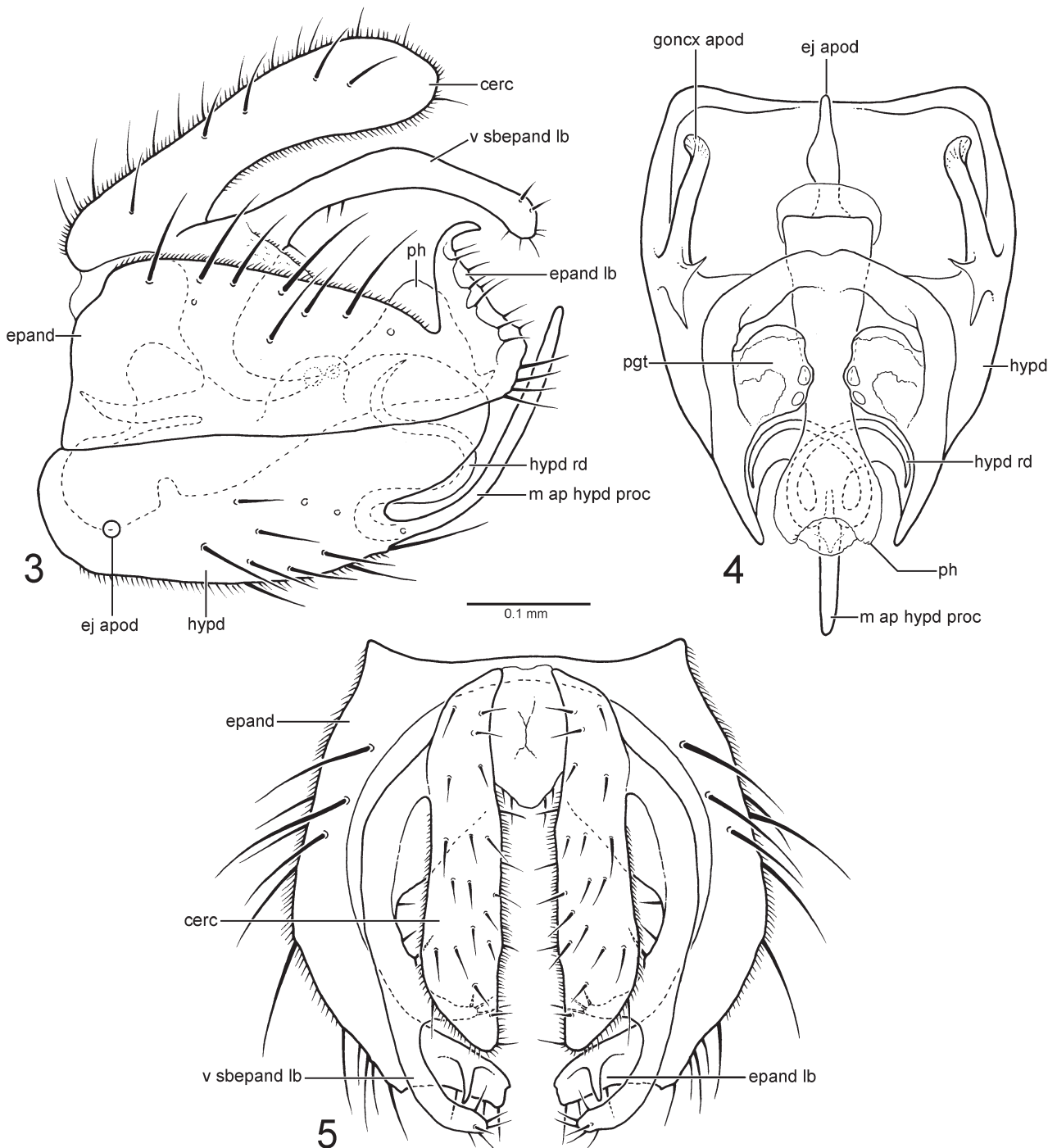
Key to species of *Philetus* (males)

- 1 Terminalia with cercus bifid apically; hypandrium without apical rods; postgonite projected dorsally as broad U-shaped lobe (Cumming *et al.* 2016, figs 17–20). Antenna with postpedicel broadly produced apically (Cumming *et al.* 2016, fig. 8). *P. schizophorus* Melander
- Terminalia with cercus simple, elongate, not bifid apically (Figs 3, 5); hypandrium with hooked-shaped apical rods (Fig. 4); postgonite projected dorsally as wide rounded lobe (Fig. 4). Antenna with postpedicel narrowly produced apically (Cumming *et al.* 2016, fig. 7) 2



FIGURES 1–2. Habitus photograph and collection locality. **1.** *Philetus kitsi* sp. nov. habitus photograph, male holotype. **2.** Shrub tundra locality in the Richardson Mountains, Yukon Territory, Canada, where the holotype was collected using a Malaise trap (photograph: J.H. Kits).

- 2 Terminalia with cercus rounded apically, without pronounced apical ventral hook (Fig. 3); ventral subepandrial lobe with digitiform apex and thumb-like preapical medially-directed process (Fig. 5); medial subepandrial lobe absent; epandrial lobe with posteriorly hooked dorsal process (Figs 3, 5); hypandrium with narrow median apical process (Figs 3, 4). . . . *P. kitsi* sp. nov.
- Terminalia with cercus bearing pronounced apical ventral hook; ventral subepandrial lobe with broadly deflexed apex, lacking preapical medially-directed process; medial subepandrial lobe present; epandrial lobe with bifid dorsal process; hypandrium with thick median apical process (Cumming *et al.* 2016, figs 13–16). . . . *P. memorandum* Melander



FIGURES 3–5. *Philetus kitsi* sp. nov. male terminalia. 3. Lateral view. 4. Hypandrium and phallus, dorsal view. 5. Epandrium and proctiger, dorsal view. Abbreviations: cerc—cercus; ej apod—ejaculatory apodeme; epand—epandrium; epand lb—epandrial lobe; goncx apod—gonocoxal apodeme; hypd—hypandrium; hypd rd—hypandrial rod; m ap hypd proc—median apical hypandrial process; pgt—postgonite; ph—phallus; v sbepand lb—ventral subepandrial lobe.

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