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A new species of *Pseudatrichia* Osten Sacken (Diptera: Scenopinidae) from North America

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Abstract

A new species of the North American genus *Pseudatrichia* Osten Sacken is described. *Pseudatrichia bezarki* **sp. nov.** is described based on a male and female reared from wood-boring beetle galleries in *Pinus* sp. from Arizona (United States).

Key words: *Pseudatrichia*, Asiloidea, Therevoid clade, Scenopinidae

Introduction

Window flies (Diptera: Scenopinidae) are a small family (*ca.* 420 species) of cosmopolitan asiloid flies with an adult body size rarely greater than 5.0 mm. Scenopinids are distributed throughout all major biogeographical regions, but with significant continental endemism at the genus level with very few genera found in more than one biogeographical region (Kelsey 1973).

Pseudatrichia contains 39 species endemic to the New World although the greatest number of species are found in North America where it appears restricted to west of the Rocky Mountain Range (Kelsey 1969, 1973, 1974). The genus is characterised by a head longer than high, wing cell R_5 closed and elongate glossy body. *Pseudatrichia* is closely related to *Neopseudatrichia* Kelsey (Australia), *Prepseudatrichia* Kelsey (Afrotropical, Oriental) and *Belosta* Hardy (Nearctic), although it appears mostly closely related to the latter based on the shared presence of a pair of large setal brushes on the venter of the male genitalia. As larvae, scenopinids are fossorial predators in friable soils, but larvae of these four genera live as predators in the feeding galleries of larvae of wood boring beetles. The greatly elongate, shiny bodies largely lacking setae are presumed to aid adults in exiting these galleries. Species of *Pseudatrichia* have also been reared from the nests of birds and of communal burrows of wood rats (Muridae: *Neotoma* spp.) (Kelsey 1969).

A new species of *Pseudatrichia*, *P. bezarki* **sp. nov.**, is described herein from a male and female collected in northern Arizona, bringing the total number of species to 40. Previous keys to species of *Pseudatrichia* have been published by Kelsey (1969) with supplements by Kelsey (1971, 1974). *Pseudatrichia bezarki* **sp. nov.** is diagnosed and a key supplement provided.

Materials and methods

Genitalia were macerated in 10% KOH at room temperature for one day to remove soft tissue, then rinsed in distilled water and dilute acetic acid, and dissected in 80% ethanol. Preparations were then placed into

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glycerine, with images made with the aid of a digital camera mounted on a stereomicroscope. Genitalia preparations were placed in glycerine in a genitalia vial mounted on the pin beneath the specimen. Types are deposited in the California Academy of Sciences Collection (CASC) San Francisco, USA.

Taxonomy

***Pseudatrichia bezarki* sp. nov.**
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(Figures 1–4)

Type Material. Holotype male, UNITED STATES: Arizona: Coconino County: Oak Creek Canyon, [14.5 km] S Flagstaff, on highway, [2010m], L. Bezark, J. Cope, C. Kitayama & R. Morrison, [35.067º, -111.684º]; emerged March 1975; reared from *Pinus* sp. (CASC). Paratype: female, same data as holotype (CASC).

Diagnosis. Wing hyaline in both sexes; haltere stem dark, knob white except for brown base; distiphallus apically broad and spatulate with posteroventral lobes; gonostylar setal brushes not extending beyond posterior margin of gonocoxites; female sternite 8 medially emarginate posteriorly.

FIGURE 1. *Pseudatrichia bezarki* **sp. nov.**: Holotype male, lateral. Body length= 4.8 mm.

Description. Body length, male: 4.8 mm; female 4.4 mm. *Head*. Glossy black (Figures 1–3); frons profile not protruding anteriorly beyond eye, males with eyes almost contiguous at narrowest point, frons much wider in female; face black, parafacia narrow, glabrous; mouthparts relatively small, but apparently functional, brown; antenna tan-brown, overlain with silvery pubescence, admixed with short dark setae on scape and pedicel; ocellar tubercle flat, overlain with silvery pubescence; postocular ridge very narrow, with minute

setae laterally but lacking macrosetae; occiput relatively flat to concave dorso-medially, slightly verrucous; gena sparsely covered with fine brown setae. *Thorax*. Glossy black, scutum finely verrucous, sparsely overlain with short pale setae; postpronotal and pteropleural ridges with small pale tan areas; pleuron smooth and glabrous, except for a few sparse fine setae; coxae and legs pale yellow except for dark brown apical ¼ of hind femur and base of hind tibia; coxae overlain with silver-white pubescence; pale setae on legs; haltere stem and base of knob dark brown, rest of knob bright white; wing hyaline, venation dark yellow. *Abdomen*. Glossy black, cylindrical; pitted verrucous over entire surface, overlain with sparsely distributed short pale setae; intersegmental membranes of segments 2-3 white with matt black region medially. *Male genitalia* (Figure 4A-B). Epandrium shape 'tulip'-like in dorsal view, with posterior margins flared laterally, halves not completely enclosing gonocoxites; cerci narrow and apicies bent medially; gonocoxite with triangular processes along dorsal surface; gonocoxal apodeme relatively broad; hypandrium apparently fused to gonocoxites posteriorly; gonostyli as rounded sclerites covered with densely arranged posteroventrally directed brushes of large setae; distiphallus spatulate apically with medial recurved processes and lateral lobes, posterior surface of distiphallus covered with minute spines; ventral apodeme forked, arms rounded; ejaculatory apodeme small, narrow. *Female genitalia* (Figure 4C). Sternite 8 red brown, posterior margin hemispherically emarginate, acutely rounded medial process within this margination; cercus directed medially towards apex, sheathed basally.

FIGURE 2. *Pseudatrichia bezarki* **sp. nov.**: Paratype female, lateral. Body length= 4.4 mm.

FIGURE 3. *Pseudatrichia bezarki* **sp. nov.**: Holotype male, head lateral.

Comments. *Pseudatrichia bezarki* **sp. nov.** is closely related to *P. punctulata* Hardy and *P. rufitruncula* Kelsey sharing characters such as lateral processes on the apex of the distiphallus, 'tulip'-shaped epandrium, emarginate sternite 8 in female and medially directed cerci in both sexes. This species can be easily diagnosed by the distinctively shaped distiphallus and the shape of female sternite 8. Unfortunately the number of unassociated males and females described in this genus makes it likely that at least some species may represent the male and female of a single species. The conservative external morphology of adult *Pseudatrichia* makes it difficult to assess the status of these species based on singular unassociated sexes and will require use of differing characters such as DNA sequence data to test this further. The association of the different sexes in *P. bezarki* **sp. nov.** is based on rearing data from a single collecting event, and it is most likely they represent the same species.

Etymology. The specific epithet is named after Larry Bezark, one of the collectors of this species.

To key out *P. bezarki* **sp. nov.** the following couplets should be included in the dichotomous key by Kelsey (1969), with reference to subsequent modifications by Kelsey (1971, 1974):

Males:

10 Antennae orange-brown..... 10a
- Antennae back-brown..... 10b

10a Seventh abdominal segment elongate, red-brown; 9th segment black-brown; gonostylar setal brushes extending to apex of distiphallus; distiphallus with paired, spiral-shaped, distal processes relatively long ...*P. rufitruncula* Kelsey
- Seventh abdominal segment short, glossy black; 9th segment black; gonostylar setal brushes extending to middle of distiphallus; distiphallus with paired, spiral-shaped, distal processes relatively long.....*P. gracilipennis* Kelsey

- Seventh abdominal segment elongate, glossy black; 9th segment black; gonostylar setal brushes not extending posteriorly beyond end of gonocoxites; distiphallus with paired, distal processes curved and relatively short .... *P. bezarki* **sp. nov.**

10b Vein R_4 arising from middle of cell r5 ..... *P. unicolor* Coquillett

- Vein R_4 arising from distal third of cell r5 ..... *P. macalpeni* Kelsey

Female:

15 Vein R_4 branching from just beyond the middle of cell r5 ..... 15a

- Vein R_4 branching from near the distal fourth of cell r5 ..... *P. cajoni* Kelsey

15a Posterior margin of sternite 8 medially emarginate as in Figure 4C; cerci directed medially..... *P. bezarki* **sp. nov.**

- Posterior margin of sternite 8 not emarginate; cerci parallel along entire length, not directed medially .... *P. atombomba* Kelsey

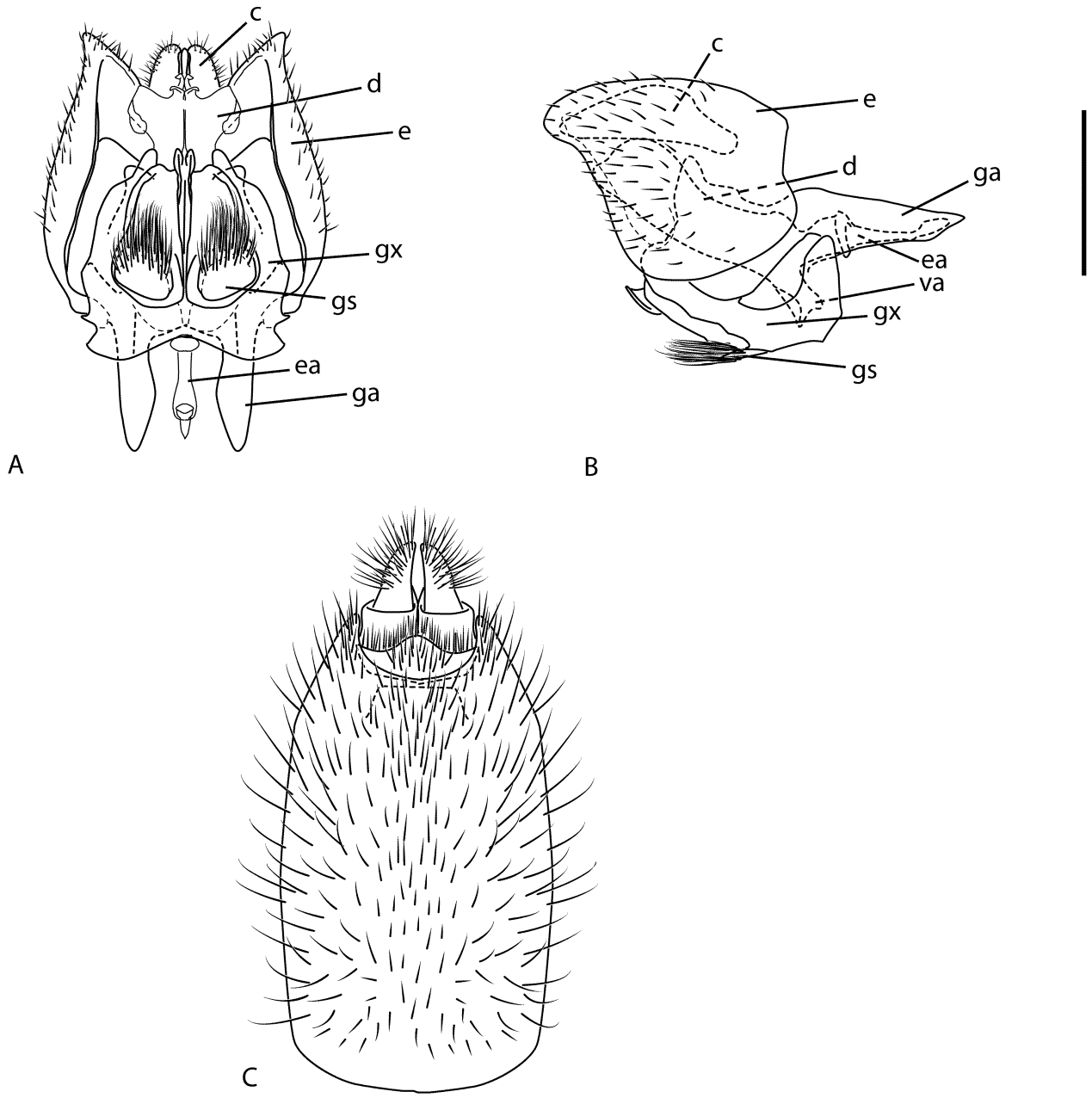

FIGURE 4. *Pseudatrichia bezarki* **sp. nov.**: A, male terminalia, (physically) dorsal view; B, same, lateral view; C, female terminalia, ventral view. Abbreviations: *c*, cercus; *d*, distiphallus; *e*, epandrium; *ea*, ejaculatory apodeme; *ga*, gonocoxal apodeme; *gs*, gonostylus; *gx*, gonocoxite; *va*, ventral apodeme. Scale line: 0.2 mm.

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