Revision of the Neotropical Neurigoninae (Diptera: Dolichopodidae) III: *Bickelomyia* gen. nov., with the definition of a new tribe Neurigonini

[Revision der neotropischen Neurigoninae (Diptera: Dolichopodidae) III: *Bickelomyia* gen. nov., mit der Definition einer neuen Tribus Neurigonini]

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Abstract The Neotropical species of the new genus ***Bickelomyia* gen. nov.** (Diptera: Dolichopodidae) from Central America are revised. A **new tribe Neurigonini** is defined. Diagnoses and keys to genera and species are given. *Bickelomyia* contains the following species: ***B. canescens* spec. nov.**, ***B. flaviseta* spec. nov.**, ***B. setipyga* spec. nov.**, and ***B. subcanescens* spec. nov.** from Mexico and ***B. nigriseta* spec. nov.** from Costa Rica. A phylogenetic analysis of the genus is presented.

Key words Dolichopodidae, Neurigoninae, Neurigonini, *Bickelomyia*, revision, new tribe, new genus, new species, Neotropical Region

Zusammenfassung Die neotropischen Arten der neuen Gattung ***Bickelomyia* gen. nov.** (Diptera: Dolichopodidae) von Mittel-Amerika werden revidiert. Eine **neue Tribus Neurigonini** wird definiert. Diagnosen und Schlüssel für die Gattungen und Arten werden gegeben. *Bickelomyia* beinhaltet die folgenden Arten: ***B. canescens* spec. nov.**, ***B. flaviseta* spec. nov.**, ***B. setipyga* spec. nov.**, und ***B. subcanescens* spec. nov**. von Mexiko und ***B. nigriseta* spec. nov.** von Costa Rica. Eine phylogenetische Analyse der Gattung wird vorgelegt.

Stichwörter Dolichopodidae, Neurigoninae, Neurigonini, *Bickelomyia*, Revision, neue Tribus, neue Gattung, neue Arten, neotropische Region

Introduction

This is the third part of a revision of the Neotropical Neurigoninae and deals with the new genus *Bickelomyia* gen. nov. from Mexico and Costa Rica which is assigned to a new tribe Neurigonini. The large genus *Neurigona* RONDANI s. l. will be treated in the next parts, now in preparation. The preceding parts of this revision dealt with the tribe Coeloglutini (NAGLIS 2001a), comprising the genera *Coeloglutus* ALDRICH, *Neotonnoiria* ROBINSON and *Paracoeloglutus* NAGLIS, and the tribe Dactylomyiini (NAGLIS 2001b), containing the genera *Argentinia* PARENT, *Dactylomyia* ALDRICH, *Macrodactylomyia* NAGLIS, and *Systenoides* NAGLIS. For a general introduction see NAGLIS (2001a). The tribe Neurigonini which is newly defined here includes the remaining Neotropical genera of the Neurigoninae. All these genera are endemic in the Neotropics so far as known, except for *Dactylomyia* which is also known from the Nearctic region and from the Australasian and Oceanian region (Hawaii), and *Neurigona* which is worldwide in distribution. In general the genus *Neurigona* consists of a heterogeneous assemblage of species with neurigonine-like characters. The genera and species outside the Neotropics, especially the Nearctic species of *Neurigona*, could not be taken into account within this revision.

Material and methods

The revision is based on material and types belonging to the following institutions:

AMNH – The American Museum of Natural History, New York
BMNH – The Natural History Museum, London
CAS – California Academy of Sciences, San Francisco
CNC – Biosystematics Research Institute, Agriculture Canada, Ottawa
DEI – Deutsches Entomologisches Institut, Eberswalde
EMEC – Essig Museum of Entomology, University of California, Berkeley
INBio – Instituto Nacional de Biodiversidad, Costa Rica
INPA – Instituto Nacional de Pesquisas da Amazonia, Manaus
MCZ – Museum of Comparative Zoology, Harvard University, Massachusetts
MLUH – Zoologisches Institut der Martin-Luther-Universität, Halle (S.)
MZHF – Zoological Museum, University of Helsinki, Helsinki
MZLU – Museum of Zoology, Lund University, Lund
MZSP – Museu de Zoologia, Universidade de São Paulo, São Paulo
NMW – Naturhistorisches Museum, Vienna
SMTD – Staatliches Museum für Tierkunde, Dresden
TAMU – Texas A&M University, College Station, Texas
USNM – National Museum of Natural History, Smithsonian Institution, Washington D.C.
WSU – The James Entomological Collection, Washington State University, Pullman
ZMHB – Museum für Naturkunde der Humboldt-Universität, Berlin

The original label text of all the specimens examined is given, and multiple labels are separated by a slash (/).

The following measurements are used and are in millimetres: body length is measured from the base of the antennae to the tip of the sixth or seventh abdominal segment; thorax length from the prothorax to the posterior border of the postnotum; abdomen length from the base of segment 1 to the tip of segment 7; wing length from the wing base to the wing apex. The following ratios are used: ratio of length of ocellar setae to vertical setae; ratio of narrowest distance between the eyes on face to distance between ocellar setae; ratio of length of arista to length of first flagellomere; ratio of narrowest/widest distance between eyes on frons (measured below ocellar tubercle and above base of antennae); ratio of narrowest/widest distance between eyes on face; ratio of narrowest/widest distance between eyes on clypeus; ratio of length of posterior ac to distance between ac rows; ratio of length of lateral scutellar setae to median setae; ratio of podomeres of femur, tibia, tarsomeres 1/2/3/4/5; ratio of length of crossvein (dm-cu) to distance between R_{4+5} and M at wing apex; ratio of length of crossvein (dm-cu) to distal section of CuA (= CuAx ratio according to BICKEL 1998). The morphological terminology follows MCALPINE (1981) and the hypopygial terminology BICKEL (1998), which refers to the position prior to deflection and rotation of the hypopygium: this means that dorsal is below and ventral above in the illustrations. Common features are listed in the generic diagnosis and are not usually repeated in the species descriptions. The following abbreviations are used: MSSC = male secondary sexual character; I = prothoracic leg; II = mesothoracic leg; III = metathoracic leg; ac = acrostichal setae; ad = anterodorsal; av = anteroventral; C = coxa; dc = dorsocentral setae; DSur = dorsal surstylar lobe; dv = dorsoventral; F = femur; hm = postpronotal setae; LEp = lateral epandrial lobe; MEp = median epandrial lobe; np = notopleural setae; pa = postalar setae; pd = posterodorsal; pm = presutural supra-alar setae; ppl = proepisternal setae; pv = posteroventral; sa = postsutural supra-alar setae; sr = presutural intra-alar setae; T = tibia; t = tarsus; t_1-t_5 = tarsomeres 1 to 5; VSur = ventral surstylar lobe.

Systematic account

Neurigonini new tribe

Type genus: *Neurigona* RONDANI, 1856 – Dipt. Ital. Prodr. **I**: 142.

Definition. The tribe is defined by the following characters: arista dorsal; thorax metallic green or mainly ochreous-yellow; ac present, reduced, or lost; dc consisting of 5–7 strong setae, sometimes reduced anteriorly; legs with strong setae on IIT and/or IIIT; male fore tarsomeres sometimes modified with special setation and/or expansions (MSSC); wing vein M straight or gently bent and usually joining costa at apex or posteriad of apex; male abdominal segment 5 sometimes with ventral cuticular projection; male hypopygium pedunculate and exposed; female oviscapt with terga 9+10 prolonged and tapering, and with cercus fused to terga 9+10 and digitiform (see BICKEL 1998, Fig. 2c).

Included Neotropical genera:

Bickelomyia **gen. nov.**
Neurigona RONDANI, 1856

Systematic position. The large tribe Neurigonini includes all the genera which are not included in the monophyletic groups Coeloglutini and Dactylomyiini. Although this may be a paraphyletic rest-group for the remaining genera of the Neurigoninae, I am proposing to establish a new tribe Neurigonini for these genera, with the type genus *Neurigona*. Further work is required to determine its monophyly.

Remarks. The large cosmopolitan genus *Neurigona* is weakly defined and contains a large number of mostly undescribed Neotropical species. It appears not to be a monophyletic group, but can be subdivided into several distinct groups. This generic complex will be treated in the next parts of this revision (NAGLIS in prep.).

Key to genera of Neotropical Neurigonini

The key includes all Neotropical genera of the tribe Neurigonini. Keys to genera of the tribes Coeloglutini and Dactylomyiini are provided in NAGLIS (2001a, 2001b).

1. Thorax strongly elongated; abdomen about as long as thorax and dorsoventrally flattened; vertex excavated dorsally between vertical seta and ocellar tubercle; male It_5 with a ventral comb of short blunt spines; arista subapical; hypopygium partially hidden under segment 5 or 6, surstylus fused into a single lobe ..... **Coeloglutini**

– Thorax not elongated; abdomen usually longer than thorax and cylindrical; vertex not excavated; male fore tarsomeres not or differently modified; arista usually dorsal; hypopygium external, surstylus divided into dorsal and ventral lobes **2**

2. Thorax entirely metallic green; wing vein M s-shaped, joining costa distinctly anteriad of apex close to vein R_{4+5}, with the distance between both veins at wing margin at most half length of crossvein dm-cu; legs devoid of major setae; male hypopygium usually yellow; female oviscapt with terga 9+10 blunt and rounded and with cercus free from terga 9+10 and rounded ..... **Dactylomyiini**

– Thorax metallic green or yellow; wing vein M straight or bent, usually joining costa at apex or posteriad of apex, with the distance between R_{4+5} and M at costa usually more than half length of crossvein m-cu; legs usually with major setae on IIT and/or IIIT;

male hypopygium varying in colour; female oviscapt with terga 9+10 prolonged and tapering and with cercus fused with terga 9+10 and digitiform ..... **Neurigonini** ... **3**

3. Male abdominal segment 5 with a long sickle-shaped ventral projection covering the whole ventral border of the hypopygium (Fig. 3a); hypopygium large and at base remarkably projecting above dorsum of abdomen; male IIC with a ventral lobe bearing long sinuate or flattened setae (Fig. 3b); male It_{4+5} broadened and pennate bilaterally (Fig. 5a); aedeagus divided into two arms with a multi-furcate tip; ventral postcranium bearing long setae in both sexes which are several times as long as postocular setae ..... ***Bickelomyia* gen. nov.**

– Male abdominal segment 5 with or without ventral projection, if present then only partially covering the ventral border of the hypopygium; hypopygium at base not projecting above dorsum of abdomen; male IIC with normal setation; male It_{4+5} usually not pennate; aedeagus usually present as a single arm with a pointed tip; ventral postcranium usually with setae which are not several times as long as postocular setae ..... ***Neurigona* s. l.**

Genus *Bickelomyia* gen. nov.

Type species: *Bickelomyia nigriseta* spec. nov. (by present designation).

Diagnosis. Male habitus Fig. 3a.

Head: Eyes in males closely approximated or almost contiguous, in females distinctly separated; face and clypeus covered with dense pruinosity; frontoclypeal suture not evident; antennal scape short and bare; pedicel short and truncate against first flagellomere; first flagellomere short and triangular, wider than long; arista dorsal, with microscopic pubescence; dorsal postcranium flat or slightly concave; postocular setae uniseriate; pairs of long strong ocellar, shorter vertical, and long postvertical setae present; ventral postcranium with long setae; proboscis with long basolateral setae and a pair of long basoventral setae.

Thorax: Varying from yellow to dark metallic bronze green, with more or less dense pruinosity; posterior slope of mesonotum flattened; ac in 2 rows ending at mesonotal depression; dc consisting of 6 strong setae, decreasing in length anteriad, posterior 2 pairs bordering mesonotal depression, dc rows extending anteriad of mesonotal suture; some irregular setulae present anteriad of dc and anterolaterad of mesonotum; 1 pa, 2 sa, 2 sr, 2 np, 1 hm, and 1 pm present; median scutellar setae long, laterals present as short setae or absent. Proepisternum below with 1 strong and above with 1 smaller pale setae. **Legs**: All legs yellow and elongate; IC with 2 strong anterolateral setae; male It_1 sometimes with a ventral row of long setae (Fig. 5a) (MSSC); male It_{4+5} flattened and bilaterally pennate with spatulate setae (MSSC); IIC with a ventral lobe bearing long sinuate or flattened setae (Fig. 3b) (MSSC); IIT with strong ad and pd setae; IIIC with a strong lateral seta; IIIF in males sometimes with a strong basoventral seta (Fig. 1a) (MSSC); IIIT with some dorsal setae. **Wing**: Hyaline, with a brownish tinge; vein R_{4+5} curved posteriad distally and joining wing margin anteriad of apex; vein M gently bent with a flexion, becoming subparallel with R_{4+5} distally near wing margin, and joining wing margin at apex or anteriad of apex (*B. setipyga*); crossvein dm-cu about 1.5 times as long as distance between R_{4+5} and M at wing apex, and about 0.4 times as long as distal section of CuA; A distinct and reaching wing margin.

Male abdomen: Yellow with dark abdominal bands or entirely dark metallic bronze-green, elongated and distinctly longer than thorax; tergum 1 with a ring of long apical setae; seg-

ments 3 and 4 with dense long hairs ventrally; segment 5 with a long sickle-shaped ventral cuticular projection which covers the whole ventral border of the hypopygium, and sometimes with a pair of long sinuate apicodorsal setae; postabdomen semi-pedunculate (segment 7 forming a short peduncle attached to sternum 8); sternum 8 large; hypopygium greatly enlarged, at base remarkably projecting above dorsum of abdomen. Hypopygium: epandrium large and globular, hypandrium elongate and narrow, basally fused to epandrium with distal 1/2 free; aedeagus divided into two arms with multi-furcate tip; MEp short, LEp strongly prolonged distally; VSur arched distad of DSur; cercus short and rounded or elongated with long setae; hypopygial foramen positioned laterally and occupying a large area of epandrium.

Etymology. *Bickelomyia* is named after Daniel J. BICKEL, the prominent worker on Dolichopodidae who gave me valuable suggestions for this revision. The gender is feminine.

Remarks. *Bickelomyia* is defined by the following characters: male It_{4+5} broadened and pennate bilaterally (apomorphy); male IIC with a ventral lobe bearing sinuate or flattened setae (apomorphy); wing vein M more or less curved anteriad and subparallel with R_{4+5} near wing margin; vein M joining costa at apex or anteriad of apex; male abdominal segments 3 and 4 with long dense hairs ventrally; male segment 5 with a long sickle-shaped cuticular ventral projection covering the whole ventral border of the hypopygium (apomorphy); hypopygium greatly enlarged and at base strongly projecting above dorsal border of abdomen (apomorphy); aedeagus divided into two separate arms with multi-furcate tip (apomorphy); ventral postcranium with long setae in both sexes. Although the genus is mainly defined by male characters, some of these characters are so distinct and unique that the erection of a new genus is justified. At present *Bickelomyia* is restricted to Central America (Mexico, Costa Rica).

Species list of *Bickelomyia*

canescens **spec. nov.** (Mexico)
flaviseta **spec. nov.** (Mexico)
nigriseta **spec. nov.** (Costa Rica)
setipyga **spec. nov.** (Mexico)
subcanescens **spec. nov.** (Mexico)

Key to Neotropical species of *Bickelomyia* (males)

1. Basoventral slope of epandrium strongly flattened laterally, with a flattened lobe on each side and with conspicuous setae on this area (Fig. 5b); It_1 with a row of long ventral setae, their length about 5 times the diameter of tarsus (Fig. 5a); wing vein M joining costa anteriad of apex; distance between eyes on face more than distance between ocellar setae ..... ***setipyga* spec. nov.**

– Basoventral slope of epandrium rounded and without setae; It_1 without a row of long setae or if setae present then their length at most twice as long as diameter of tarsus; wing vein M joining costa at apex; distance between eyes on face narrower than distance between ocellar setae **2**

2. IIIF with a strong basoventral seta (Fig. 1a); abdominal segment 5 with a pair of long sinuous dorsoapical setae; IIF with a row of 3–5 short basoventral setae; mesonotum mainly yellow with metallic green or blue colour on area of mesonotal depression and on scutellum **3**

– IIIF without basoventral seta; abdominal segment 5 lacking a pair of long sinuous dorsoapical setae; IIF without basoventral setae; mesonotum entirely, or at least on dorsum, metallic bronze-green and covered with dense greyish pruinosity **4**

3. Cercus about 3 times as long as basal width, with long setae (Fig. 1b); IT and It_1 with an ad serration of short setulae; It_1 with an anterior row of fine erect hairs, twice as long as diameter of tarsus; It_{2+3} flattened dorsoventrally; basoventral seta on IIIF black; surstyli white on distal half; first flagellomere entirely yellow ..... ***nigriseta* spec. nov.**

– Cercus about as long as wide, with short setae (Fig. 2); IT and It_1 without setulose serration; It_1 without row of erect hairs; It_{2+3} not flattened; basoventral seta on IIIF yellow; surstyli entirely dark brown; first flagellomere dark brown in apical half .... ***flaviseta* spec. nov.**

4. It_1 3 times as long as It_2; It_{2+3} flattened; thorax and abdomen entirely dark metallic bronze-green; eyes distinctly separated on face; IIC and IIIC dark brown; IIT with 4 strong ad setae; hypopygium (Fig. 4) ..... ***canescens* spec. nov.**

– It_1 5 times as long as It_2; It_{2+3} not flattened; thorax mainly yellow but dorsum of mesonotum dark metallic bronze green, abdomen yellow with dark brown bands; eyes almost contiguous on face; IIC and IIIC yellow; IIT with 3 strong ad setae; hypopygium (Fig. 3c) ..... ***subcanescens* spec. nov.**

Bickelomyia nigriseta spec. nov.

(Fig. 1a, b)

Material: Holotype male: COSTA RICA: Costa Rica, Monteverde, 15.II-15.III.1986, A. Forsyth / [red label] Holotype Bickelomyia n. gen. nigriseta n. sp., St. Naglis det. 2001. [CNC]. **Paratype** COSTA RICA: 1 male: CR: Puntarenas, Monteverde, 26.II.1991, B. J. Sinclair, ex. dry forest / Gen. Prep. No. SN2001-5, St. Naglis 2001 / [red label] Paratype Bickelomyia n. gen. nigriseta n. sp., St. Naglis det. 2001. [CNC].

Description

Male. Length: holotype: body length 4.6 mm, wing length 4.8 mm; thorax 1.44 mm, abdomen (segment 1–6) 2.55 mm; paratype body length: 4.2 mm.

Head: Frons and occiput metallic green with ochreous pruinosity. A pair of black short vertical setae; a pair of long black diverging ocellar setae, 1.5 times as long as verticals; a pair of black postvertical setae, 0.8 times as long as verticals; and a pair of tiny postocellar setae present. Postocular setae pale yellow, uppermost 1–2 setae black. Eyes very close on face and practically touching. Face and clypeus with dense ochreous pruinosity. Palp pale yellow, with 2–3 short pale apical setae; proboscis yellow, with a pair of long sinuate yellow basoventral setae. Antenna: scape and pedicel yellow, pedicel with a circlet of short black setae; first flagellomere entirely yellow, about as long as wide; arista about 6 times as long as first flagellomere. Ratio narrowest/widest distance between eyes on frons: 31/38; ratio narrowest/widest distance between eyes on face: 0.5/20; ratio narrowest/widest distance between eyes on clypeus: 5/14.

Thorax: Mesonotum yellow; mesonotal depression and dorsum of scutellum metallic blue-green with violet reflections and with weak ochreous pruinosity, this colour extending anteriad between ac rows for 2/3; postnotum with a narrow longitudinal brown stripe. Pleura pale yellow; anepimeron with a black spot below wing base, metepimeron basally pale yellow and infuscated in distal half. All thoracic setae black except as noted: ac with 2 rows of 10–12 short setulae, length of posterior setae about equal to distance between rows; dc consisting of 6 strong setae. Additional strong setae include: 1 pa, 2 sa (anterior smaller), 2 sr, 2 np,

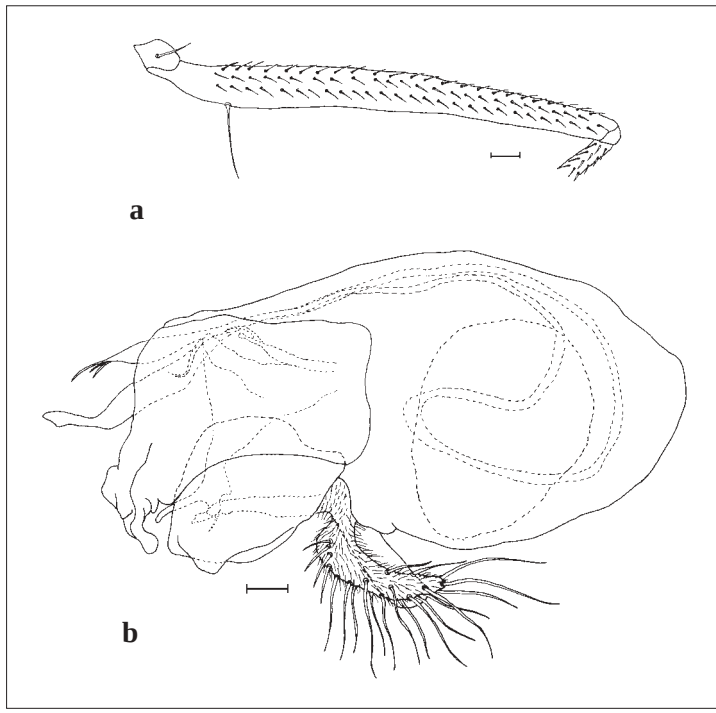


Fig. 1a, b: *Bickelomyia nigriseta* spec. nov. – **a**: Male left hind femur, anterior; – **b**: Male hypopygium, left lateral. Scale bar = 0.1 mm.

1 hm, and 1 pm. Lateral scutellar setae 1/5 as long as median setae. **Legs**: All legs yellow, IIC and IIIC infuscated anteriorly, It_{4+5} dark brown; all setae on legs black, except as noted. **I**: IC with some yellow apical anterior setae, and with 2 strong yellow anterolateral setae; IT with an ad serration of short setulae; It_1 with an anterior row of long erect hairs, twice as long as diameter of tarsus; It_{2+3} slightly flattened dorsoventrally; It_{4+5} broadened and pennate with a bilateral row of flattened setae (all MSSC). **II**: IIC with a ventral lobate process bearing a tuft of long sinuous setae (MSSC); IIF with a basoventral row of 3–5 strong setae (MSSC); IIT with strong ad setae at 1/5 and 2/3, with short pd setae at 1/6 and 1/2, and with 3 apical setae; IIt_1 with a pair of short basal setae posteriorly. **III**: IIIC with a strong black lateral seta; IIIF with a strong black basoventral seta (Fig. 1a) (MSSC); IIIT with a short dorsal seta at 1/8 and a strong curved dorsal seta at 1/3 in addition to several short dorsal setulae, and with 3 apical setae. Relative podomere ratios: I: 49, 60, 37/15/9/5/3; II: 48, 81, 66/18/13/6/4; III: 58, 96, 34/29/14/10/3. **Wing**: R_{2+3} slightly curved posteriad before wing margin; R_{4+5} curved posteriad towards M in distal 4/5; M slightly curved anteriad at 1/2 between crossvein dm-cu and apex, and becoming subparallel with R_{4+5} before wing margin; R_{4+5} joining costa anteriad of apex and M at apex; posterior crossvein dm-cu about 1.4 times as long as distance between R_{4+5} and M at wing margin, and 0.4 times as long as distal section of CuA. Lower calypter pale whitish with a fan of pale yellow setae; haltere pale whitish, club with a dorsal brownish spot.

Abdomen: Terga 1–7 pale yellow in ground-colour; terga 2–4 with a dark brown posterodorsal band; sternum 8 dark brown. Tergum 3 with a tuft of long dense yellow setae ventrally; terga 4 and 5 with long yellow setae ventrally; tergum 5 with a pair of long sinuous dorsoapical setae; sternum 8 with long dorsal and ventral setae. Segment 5 with a long sickle-shaped ventral projection covering the whole ventral border of the hypopygium. Epandrium and

surstyli dark brown, apical half of DSur white; cercus brown but distal half white, with long brown setae. Hypopygium (Fig. 1b): Epandrium large and globular, basally greatly expanded; MEp short and narrow with a long apical seta; LEp broad and strongly prolonged distally, basally with a narrow curved projection, apically with a furcated tip; VSur rectangular, arching distad of DSur, apically tapering; DSur ovate and short; cerci about 3 times as long as basal width, with long setae; median cercal appendage (hypoproct) present.

Female: Unknown.

Distribution. Costa Rica.

Etymology. The name refers to the black basoventral seta on hind femur in male.

Remarks. *B. nigriseta* is closely related to *B. flaviseta* and both species are probably sister-species. They can be separated by the characters given in the key.

Bickelomyia flaviseta spec. nov.

(Fig. 2)

Material: Holotype male: MEXICO: Mexico Chis. San. Christobal de las Casas, 7087' 27.V.1969, B. V. Peterson / Gen. Prep. No. SN2001-6, St. Naglis 2001 / [red label] Holotype Bickelomyia n. gen. flaviseta n. sp., St. Naglis det. 2001. [CNC]. **Paratypes**: MEXICO: 2 females: same locality, but 29.V. and 18-19.V.1969 / Gen. Prep. No. SN2001-7, St. Naglis 2001. [CNC]. All paratypes have an additional red label: Paratype Bickelomyia n. gen. flaviseta n. sp., St. Naglis det. 2001.

Description

Male. Length: holotype: body length 3.8 mm, wing length 5.0 mm; thorax 1.35 mm, abdomen (segment 1–6) 2.4 mm; paratype body length: 4.0–4.8 mm.

Head: Frons and occiput metallic green with ochreous pruinosity. A pair of short black vertical setae; a pair of long black diverging ocellar setae, 1.8 times as long as verticals; a pair of black postvertical setae, 1.3 times as long as verticals; a pair of tiny postocellar setae present. Postocular setae pale yellow, uppermost 3–4 setae black and not longer than other setae. Eyes very close on face and practically touching. Face and clypeus with dense ochreous pruinosity. Palp pale yellow, with 2–3 short pale apical setae; proboscis yellow, with a pair of long sinuate yellow basoventral setae. Antenna: scape and pedicel yellow, pedicel with a circlet of short black setae; first flagellomere yellow, apical half dark brown, about as long as wide; arista about 7 times as long as first flagellomere. Ratio narrowest/widest distance between eyes on frons: 32/37; ratio narrowest/widest distance between eyes on face: 0.5/17; ratio narrowest/widest distance between eyes on clypeus: 3/8.

Thorax: Mesonotum yellow; mesonotal depression and dorsum of scutellum metallic blue-green with weak greyish pruinosity, this colour extending anteriad between ac rows for 2/3; postnotum with a narrow longitudinal median and lateral brown stripe. Pleura pale yellow; anepimeron with a black spot below wing base, notopleuron and anepisternum with an area of weak metallic green reflections; katepisternum and katepimeron largely dark brown; metepimeron entirely pale yellow. All thoracic setae black except as noted: ac with 2 rows of 12–14 short setulae, length of posterior setae about equal to distance between rows; dc consisting of 6 strong setae. Additional strong setae include: 1 pa, 2 sa (anterior smaller), 2 sr, 2 np, 1 hm, and 1 pm. Lateral scutellar setae 1/4 as long as median setae. **Legs**: All legs yellow, IIC and IIIC infuscated anteriorly, It_{4+5} dark brown; all setae on legs and coxae black, except as noted. **I**: IC with dense pale hairs anteriorly, with some yellow apical anterior setae, and with 2 strong yellow anterolateral setae; It_{4+5} broadened and pennate with a bilateral row of spatulate setae (MSSC). **II**: IIC with a ventral lobate process bearing a tuft of long

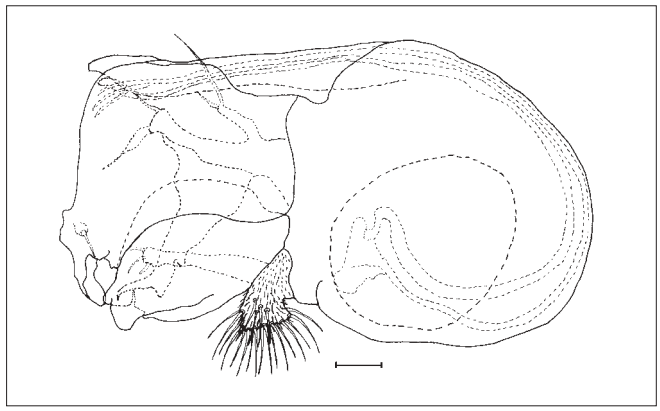


Fig. 2: *Bickelomyia flaviseta* spec. nov., male hypopygium, left lateral. Scale bar = 0.1 mm.

sinuous setae (MSSC); IIF with a basoventral row of 3–5 strong setae (MSSC); IIT slightly flattened dorsoventrally (MSSC), with strong ad setae at 1/5, 1/2 and 3/4, and with 3 apical setae; IIt_1 with a pair of short basal setae posteriorly. **III**: IIIC with a strong black lateral seta at 1/4; IIIF with a strong yellow basoventral seta (MSSC); IIIT with a pair of short ad/pd setae at 1/8, and a strong dorsal seta at about middle in addition to several short dorsal setulae, and with 3 apical setae. Relative podomere ratios: I: 44, 56, 45/19/9/6/3; II: 46, 78, 68/18/11/7/4; III: 58, 99, 40/28/14/8/4. **Wing**: Hyaline, with an ochreous tinge; R_{2+3} slightly curved posteriad before wing margin; R_{4+5} curved posteriad in distal 4/5 towards M; M slightly curved anteriad at 1/2 between crossvein dm-cu and apex, and becoming subparallel with R_{4+5} before wing margin; R_{4+5} joining costa anteriad of apex and M at apex; posterior crossvein m-cu about 1.5 times as long as distance between R_{4+5} and M at wing margin, and 0.3 times as long as distal section of CuA. Lower calypter pale whitish with a fan of pale yellow setae; haltere club ochreous, stalk pale whitish.

Abdomen: Terga 1–7 pale yellow in ground-colour; terga 2–4 with a dark brown posterodorsal band; sternum 8 dark brown. Segments 3 and 4 with long yellow setae ventrally; tergum 5 with a pair of long sinuous dorsoapical setae (MSSC); sternum 8 with some long setae. Segment 5 with a long sickle-shaped ventral dark brown projection covering the whole ventral border of the hypopygium. Epandrium and surstyli dark brown; cercus brown with brown setae. Hypopygium (Fig. 2): Epandrium large and globular, basally greatly expanded; aedeagus divided into two arms with multi-furcate tip; MEp short and narrow with a long apical seta; LEp broad and strongly prolonged distally, basally with a narrow curved projection, apically with a furcate tip; VSur rectangular, arching distad of DSur, apically tapering; DSur ovate and short; cerci about as long as wide, with long setae; a pair of short median cercal appendages (hypoproct) present.

Female: Similar to male but without MSSC and as noted: Face distinctly separated, distance between eyes equal to distance between ocellar setae; IIT with 3 ad setae, 2 pd setae, and several av and pv setae; IIIT with 2 ad setae and several dorsal setae. Abdomen yellow, tergum 1 with a dark brown dorsal spot; terga 2–5 with a broad dark brown posterior band. The female of *B. flaviseta* will probably be separated from the unknown female of *B. nigriseta* by the following characters: apical half of first flagellomere dark; notopleuron and anepisternum with an area of weak metallic green reflections; katepisternum and katepimeron largely dark brown; IIT with 3 strong ad setae.

Distribution. Mexico.

Etymology. The name refers to the yellow basoventral seta on hind femur in male.

Remarks. *B. flaviseta* and *B. nigriseta* are very closely related in several characters and are probably sister-species. They can be separated by the characters given in the key.

Bickelomyia subcanescens spec. nov.

(Fig. 3a–c)

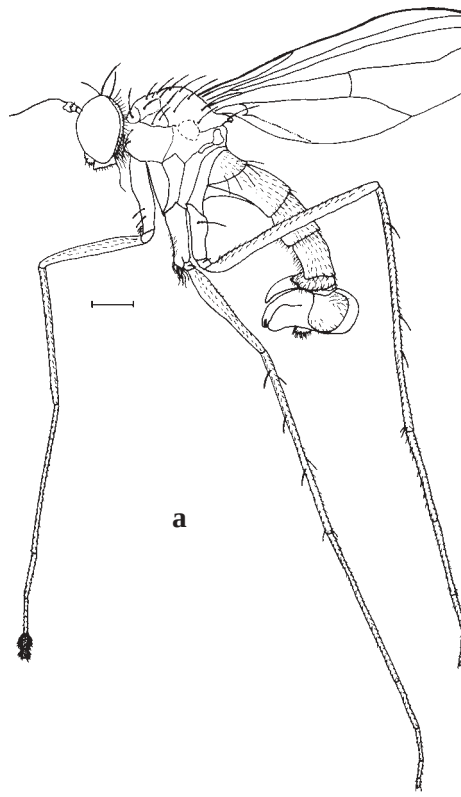
Material: Holotype male: MEXICO: Mex. Dgo. 9000' El Salto, 10 mi. W., 30 June 1964, W. R. M. Mason / Gen. Prep. No. SN2001-8, St. Naglis 2001 / [red label] Holotype Bickelomyia n. gen. subcanescens n. sp., St. Naglis det. 2001. [CNC]. **Paratype:** MEXICO: 1 male: same data / [red label] Paratype Bickelomyia n. gen. subcanescens n. sp., St. Naglis det. 2001. [CNC].

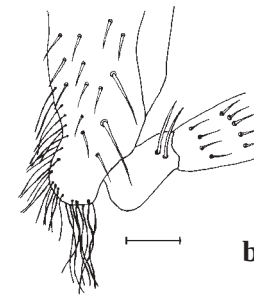
Description

Male. Length: holotype: body length 4.8 mm, wing length 5.4 mm; thorax 1.5 mm, abdomen (segment 1–6) 2.55 mm; paratype body length: 4.6 mm. Male habitus (Fig. 3a).

Head: Frons and occiput metallic bronze-green with dense greyish pruinosity. A pair of black short vertical setae; a pair of long black diverging ocellar setae, 1.6 times as long as verticals; a pair of black postvertical setae present, 1.3 times as long as verticals; postocellar setae absent. Postocular setae pale yellow, uppermost 2–3 setae black and not longer than other setae. Eyes very close on face and practically touching. Face and clypeus with dense greyish pruinosity. Palp pale yellow, with 2–3 short pale apical setae; proboscis brown, with a pair of long sinuate yellow basoventral setae. Antenna: scape and pedicel yellow, with a circlet of short black setae; first flagellomere yellow, apical half dark brown, wider than long; arista about 8 times as long as first flagellomere. Ratio narrowest/widest distance between eyes on frons: 28/40; ratio narrowest/widest distance between eyes on face: 0.5/11; ratio narrowest/widest distance between eyes on clypeus: 4/12.

Thorax: Thorax mainly yellow; whole dorsum of mesonotum and scutellum metallic bronze-green with greyish pruinosity; an ochreous stripe between ac and dc rows present; postnotum dark brown with greyish pruinosity. Pleura pale yellow; anepimeron with a blurred dark spot below wing base, notopleuron and anepisternum with an area of weak metallic green reflections; katepisternum and katepimeron infuscated; metepimeron basally infuscated. All thoracic setae black except as noted: ac with 2 rows of 10–12 short setulae, length of posterior setae longer than distance between rows; dc consisting of 6 strong setae. Additional strong setae include: 1 pa, 2 sa (anterior smaller), 2 sr, 2 np, 1 hm, and 1 pm. Lateral scutellar setae 1/6 as long as median setae. **Legs**: All legs yellow, IIC and IIIC slightly infuscated, It_{4+5} dark brown; all setae on legs and coxae black except as noted. **I**: IC with some yellow apical anterior setae, and with 2 strong yellow anterolateral setae; It_{4+5} broadened and pennate with a bilateral row of spatulate setae (MSSC). **II**: IIC with a ventral lobe bearing long white sinuous setae (Fig. 3b) (MSSC); IIT with strong ad setae at 1/8, 1/3 and 2/3, with strong pd setae at 1/8 and 1/2, and with 3 apical setae; IIt_1 with a short basal seta posteriorly. **III**: IIIC with a strong black lateral seta at 1/4; IIIT with strong ad setae at 1/8 and 2/3, with pd setae at 1/8 and 1/5, and with 3 apical setae. Relative podomere ratios: I: 42, 55, 61/13/11/7/3; II: 47, 80, 70/19/12/7/4; III: 65, 103, 34/32/15/9/4. **Wing**: Hyaline, with a yellowish tinge; R_{2+3} slightly curved posteriad before wing margin; R_{4+5} curved posteriad in distal 4/5 towards M; M slightly curved anteriad at 1/2 between crossvein dm-cu and apex, and becoming subparallel with R_{4+5} before wing margin; R_{4+5} joining costa anteriad of apex and M at apex; posterior crossvein dm-cu about 1.8 times as long as distance between R_{4+5} and M at wing apex, and 0.3 times as long as distal section of CuA. Lower calypter pale whitish with a fan of pale whitish setae; haltere club pale ochreous, stalk pale yellow.





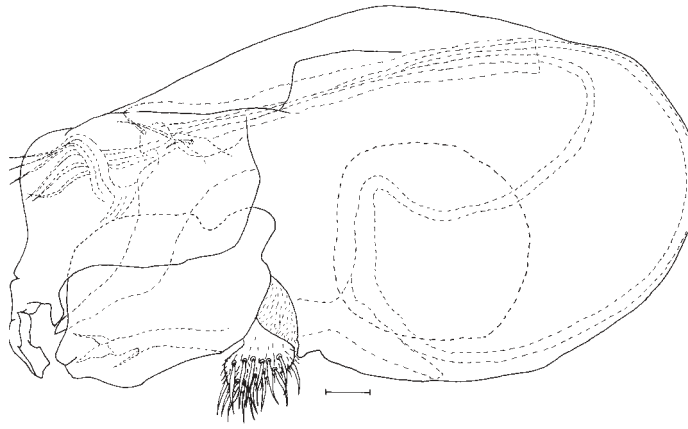


Fig. 3a–c: *Bickelomyia subcanescens* spec. nov. – **a**: Male habitus, left lateral (left wing removed); – **b**: Left mid coxa, anterior; – **c**: Male hypopygium, left lateral. Scale bars: a = 0.5 mm; b, c = 0.1 mm.

Abdomen: Terga 1–7 pale yellow in ground-colour; tergum 1 with a dark brown dorsal patch, terga 2–5 with a dark brown posterodorsal band; sternum 8 wholly dark brown. Terga 3 and 4 with long yellow setae ventrally; sternum 8 with some long setae. Segment 5 with a long sickle-shaped ventral dark brown projection covering the whole ventral border of the hypopygium. Epandrium and surstyli dark brown; cercus brown with brown setae. Hypopygium (Fig. 3c): epandrium large and globular, basally greatly expanded and laterally

compressed; aedeagus divided into two arms with multi-furcate tip; MEp short with two apical setae; LEp with a broad and long prolongation, basally with a narrow curved tip; VSur rectangular, arching distad of DSur, apically tapering; DSur ovate and short; cercus short and rounded, with long flattened setae.

Female: Unknown.

Distribution. Mexico.

Etymology. The name refers to the close relationship to *B. canescens*.

Remarks. *B. subcanescens* is closely related to *B. canescens* but it can be distinguished by the characters given in the key. Both species are probably sister-species.

Bickelomyia canescens spec. nov.

(Fig. 4)

Material: Holotype male: MEXICO: 10 mi. W. El Salto, Dgo. Mex., 9000', June 10 1964, J. F. McAlpine / Gen. Prep. No. SN2001-9, St. Naglis 2001 / [red label] Holotype Bickelomyia n. gen. canescens n. sp., St. Naglis det. 2001. [CNC].

Description

Male. Length: holotype: body length 4.2 mm, wing length 5.6 mm; thorax 1.4 mm, abdomen (segment 1–6) 2.3 mm.

Head: Frons and occiput metallic bronze-green with dense greyish and ochreous pruinosity. A pair of short black vertical setae; a pair of long black diverging ocellar setae, 2.0 times as long as verticals; a pair of black postvertical setae, 1.3 times as long as verticals; a pair of tiny postocellar setae present. Postocular setae pale yellow, uppermost 2–3 setae black and not longer than other setae. Eyes separated, distance across face about 2/3 the distance between ocellar setae. Face and clypeus with dense greyish-white pruinosity. Palp pale yellow, with 2–3 short pale apical setae; proboscis brownish-yellow, with a pair of long sinuate yellow basoventral setae. Antenna: scape and pedicel yellow, pedicel with a circlet of short black setae; first flagellomere yellow, apical half dark brown, about as long as wide; arista about 7 times as long as first flagellomere. Ratio narrowest/widest distance between eyes on frons: 35/50; ratio narrowest/widest distance between eyes on face: 8/20; ratio narrowest/widest distance between eyes on clypeus: 10/21.

Thorax: Entire thorax wholly metallic bronze-green with dense greyish pruinosity; an ochreous stripe present between ac and dc rows, and laterad of dc rows. Pleura concolorous with mesonotum, with dense greyish pruinosity. All thoracic setae black except as noted: ac with 2 rows of 10–12 short setulae, length of posterior setae longer than distance between rows; dc consisting of 6 strong setae. Additional strong setae include: 1 pa, 2 sa (anterior smaller), 1 sr, 2 np, 1 hm, and 1 pm. Lateral scutellars absent. **Legs**: All legs yellow, IIC and IIIC dark brown, It_{4+5} dark brown; all setae on legs and coxae black except as noted. **I**: IC some yellow apical anterior setae, and with 2 strong yellow anterolateral setae; It_1 in apical half and It_{2+3} wholly flattened laterally; It_{4+5} broadened and pennate with a bilateral row of spatulate setae (all MSSC). **II**: IIC with a small black anterolateral seta, and with a ventral lobe bearing long white sinuous setae (MSSC); IIT with strong ad setae at 1/8, 1/3, 1/2 and 2/3, with strong pd setae at 1/8 and 1/2, and with 3 apical setae; IIt_1 with a short basal seta posteriorly. **III**: IIIC with a strong black lateral seta at 1/4; IIIT with an ad seta at 1/8, with strong dorsal setae at 1/4 and 1/2, with some short ventral setae, apically with a short flattened posterior seta in addition to 3 apical setae. Relative podomere ratios: I: 42, 54, 44/15/16/9/3; II: 46, 74, 64/20/14/7/4; III: 60, 91, 34/32/17/8/4. **Wing**: Hyaline, with a greyish tinge; R_{2+3} practi-

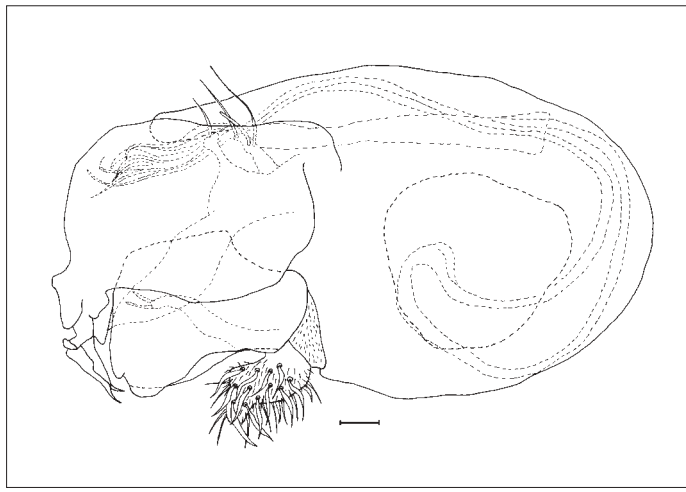


Fig. 4: *Bickelomyia canescens* spec. nov., male hypopygium, left lateral. Scale bar = 0.1 mm.

cally straight; R_{4+5} curved posteriad in distal 4/5 towards M; M curved anteriad at 1/2 between crossvein dm-cu and apex, and becoming subparallel with R_{4+5} before wing margin; R_{4+5} joining costa anteriad of apex and M at apex; posterior crossvein dm-cu about 1.5 times as long as distance between R_{4+5} and M at wing apex, and 0.3 times as long as distal section of CuA. Lower calypter pale whitish with a fan of pale whitish setae; haltere club pale whitish, stalk pale yellow and basally infuscated.

Abdomen: Entire abdomen wholly dark metallic bronze-green with greyish pruinosity, terga 2–4 with a dark posterior band with purple reflections; segment 7 brown; sternum 8 black shining. Terga 3 and 4 with long pale setae ventrally; sternum 8 with long white setae dorsally and ventrally. Segment 5 with a long black sickle-shaped ventral projection with purple reflections covering the whole ventral border of the hypopygium. Epandrium and surstyli black; cercus black with black setae. Hypopygium (Fig. 4): Epandrium large and globular, basally greatly expanded; aedeagus divided into two arms with multi-furcate tip; MEp short with two long fine setae; LEp with a long prolongation, basally with a narrow curved tip; VSur rectangular, arching distad of DSur, apically tapering; DSur ovate and short; cercus short and triangular, with long flattened setae.

Female: Unknown.

Distribution. Mexico.

Etymology. The name is derived from the Latin word '*caneo*' meaning 'greyish' and refers to the greyish appearance of thorax and abdomen.

Remarks. *B. canescens* and *B. subcanescens* are closely related and are probably sister-species.

***Bickelomyia setipyga* spec. nov.**

(Fig. 5a–b)

Material: Holotype male: MEXICO: 10 mi. W. El Salto, Dgo. Mex., 9000', June 12 1964, J. F. McAlpine / Gen. Prep. No. SN2001-10, St. Naglis 2001 / [red label] Holotype Bickelomyia n. gen. setipyga n. sp., St. Naglis det. 2001. [CNC]. **Paratypes:** MEXICO: 2 females: same data. [CNC]. All paratypes have an additional red label: Paratype Bickelomyia n. gen. setipyga n. sp., St. Naglis det. 2001.

Description

Male. Length: holotype: body length 5.4 mm, wing length 6.1 mm; thorax 1.83 mm, abdomen (segment 1–6) 2.73 mm; paratypes body length: 5.6 and 5.9 mm.

Head: Frons and occiput metallic bronze-green with dense ochreous pruinosity. A pair of black vertical setae; a pair of long black diverging ocellar setae, 1.8 times as long as verticals; a pair of black postvertical setae, as long as verticals; 2 pairs of tiny postocellar setae present. Postocular setae pale yellow, uppermost 2–3 setae black and not longer than other setae. Eyes distinctly separated, distance across face about 1.3 times the distance between ocellar setae. Face and clypeus with dense silvery-white pruinosity. Palp pale yellow, with 2–3 short pale apical setae; proboscis brownish, with a pair of long black basal setae and a pair of sinuate yellow basoventral setae. Antenna: scape and pedicel yellow, pedicel with a circlet of short black setae; first flagellomere yellow, apical half dark brown, about as long as wide; arista about 6 times as long as first flagellomere. Ratio narrowest/widest distance between eyes on frons: 38/49; ratio narrowest/widest distance between eyes on face: 15/23; ratio narrowest/widest distance between eyes on clypeus: 15/34.

Thorax: Entire thorax wholly metallic bronze-green with dense silvery pruinosity; rim and underside of scutellum ochreous; a brown stripe with purplish reflections present between ac and dc rows, and laterad of dc rows. Pleura concolorous with mesonotum, with dense silvery pruinosity. All thoracic setae black except as noted: ac with 2 rows of 15–18 short setulae, length of posterior setae about equal to distance between rows; dc consisting of 6–7 strong setae (one female has 7). Additional strong setae include: 1 pa, 2 sa (anterior smaller), 2–3 sr, 2 np, 1 hm, and 1 pm. Lateral scutellar setae about 1/6 as long as median setae.

Legs: All legs yellow, IIC and IIIC infuscated, It_{4+5} dark brown; all setae on legs and coxae black except as noted. **I**: IC with apical anterior setae, with 2–3 anterolateral setae, and with a cluster of 6–8 black and yellow setae basally; It_1 with a row of long ventral setae, about 5 times as long as diameter of tarsus (Fig. 5a); It_{2+3} slightly flattened; It_{4+5} broadened and pennate with a bilateral row of spatulate setae (all MSSC). **II**: IIC with 2 small black anterolateral setae, and with a short ventral lobe bearing long white sinuous setae (MSSC); IIF with a row of 4–6 strong basoventral setae (MSSC); IIT with strong ad setae at 1/8, 1/3, and 2/3, with 2 short pd setae, and with 2 apical setae. **III**: IIIC with a strong black lateral seta at 1/4; IIIF with a basoventral row of 4–5 strong setae; IIIT with a strong curved dorsal seta at 1/2 and some additional short dorsal setae, with some short av setulae, and with 4 apical setae. Relative podomere ratios: I: 45, 60, 46/16/10/6/3; II: 43, 76, 67/17/11/5/3; III: 58, 94, 38/27/14/7/4. **Wing**: Hyaline, with a greyish tinge; R_{2+3} curved posteriad before wing margin; R_{4+5} curved posteriad in distal 4/5 towards M; M curved anteriad at 1/2 between crossvein dm-cu and apex, and converging towards R_{4+5}; R_{4+5} and M joining costa anteriad of apex; posterior crossvein dm-cu about 2.0 times as long as distance between R_{4+5} and M at wing apex, and 0.5 times as long as distal section of CuA. Lower calypter pale yellow with a fan of pale setae; haltere club yellow, stalk yellow and basally infuscated.

Abdomen: Abdomen mostly black with metallic green reflections and silvery pruinosity; terga 2–5 with a more or less broad yellowish-brown posterior band; segment 7 yellowish-brown; sternum 8 black shining. Terga 3 and 4 with long pale setae ventrally. Segment 5 with a long and narrow sickle-shaped dark brown ventral projection covering the whole ventral border of the hypopygium. Epandrium and surstyli black; cercus white with black setae. Hypopygium (Fig. 5b): Epandrium large and globular, basoventrally strongly flattened, with a flattened triangular lobe on each side, with a field of dense partially furcated setae on this

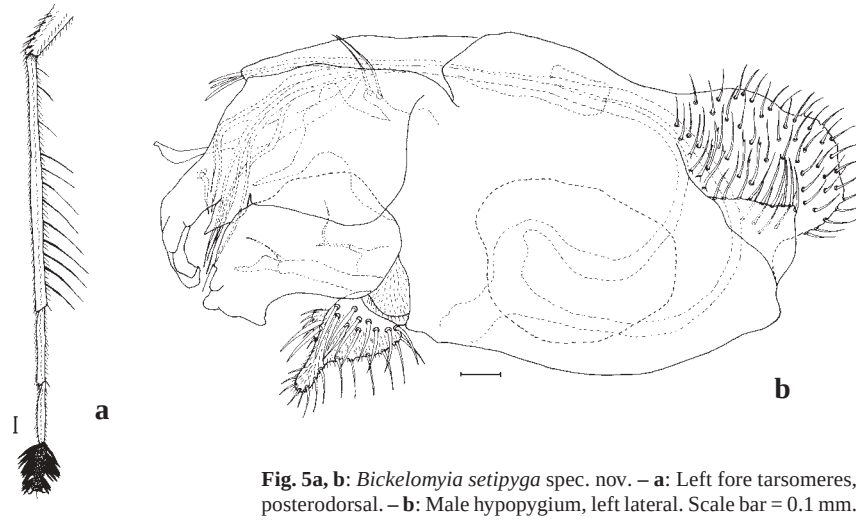


Fig. 5a, b: *Bickelomyia setipyga* spec. nov. **– a**: Left fore tarsomeres, posterodorsal. **– b**: Male hypopygium, left lateral. Scale bar = 0.1 mm.

area; aedeagus divided into two arms with multi-furcate tip; MEp short with two long setae; LEp broad and prolonged distally, with a pointed tip; VSur rectangular and apically tapering, arching distad of DSur; DSur ovate and short; cercus triangular, with flattened setae.

Female: Similar to male but without MSSC and as noted: Face distinctly separated, distance between eyes 2.5 times the distance between ocellar setae; setae on ventral postcranium distinctly longer; IIT with some ventral setae; metepimeron partially yellow. Abdomen dark brown; terga 2–5 with a yellow posterior band. The female of *B. setipyga* will probably be separated from the similar but so far unknown female of *B. canescens* by the following characters: wing vein M joining costa anteriad of apex; eyes more widely separated on face, 2.5 times the distance between ocellar setae; IIT with only 3 ad setae.

Distribution. Mexico.

Etymology. The name refers to the striking hypopygial setation.

Remarks. *B. setipyga* is somewhat similar to *B. canescens* in its overall habitus but can be easily separated from all its congeners by the characters given in the key. The setation on the basoventral slope of the epandrium is a remarkable feature which I have not seen in any other Neurigoninae species, but all other characters are typical for *Bickelomyia*.

Phylogenetic analysis of the genus

The following list enumerates the apomorphic character states and their polarities that are being used for the phylogenetic analysis of the genus *Bickelomyia*. The plesiomorphic character states are used to define a hypothetical ancestral ground-plan of the Neurigoninae. A comprehensive analysis of the phylogenetic relationship of all the genera of the Neotropical Neurigoninae will be proposed in the final part of this revision.

The phylogenetic characters are defined in the following format:
n) *character*: plesiomorphic (ancestral) state / **apomorphic (derived) state**

Autapomorphies of *Bickelomyia*

1) *male IIC*: with short apical setae / **with a ventral lobe bearing long sinuate or flattened setae (MSSC)**
2) *male* It_{4+5}: unmodified / **broadened and pennate with bilateral spatulate setae (MSSC)**
3) *abdominal segment 5*: of normal shape / **with a long sickle-shaped ventral cuticular prolongation covering the whole ventral border of the hypopygium**
4) *shape of epandrium*: of normal size / **enlarged and basally strongly projecting above dorsal border of abdomen**
5) *aedeagus*: forming a single arm with pointed tip / **divided into two separate arms with multi-furcate tip**

Discussion

The genus *Bickelomyia* is defined by the apomorphies 1) to 5), of which 1), 3) and 5) are strong apomorphies and unique within the Neurigoninae. Character state 2), the pennate It_{4+5}, represents a general feature or tendency to modification of the fore tarsomeres within male Neurigoninae. Although bilaterally pennate male fore tarsomeres is a constant character in *Bickelomyia*, it is rare in Neotropical Neurigonini and only known to me in *Neurigona melini* FREY from Peru and an undescribed *Neurigona* species from Costa Rica. But I found other modifications of male fore tarsomeres in New World *Neurigona* species such as white colouration, special arrays of setulae or hairs, or prolonged tarsomeres. Autapomorphy 3), the long sickle-shaped cuticular ventral prolongation of abdominal segment 5, is also a general feature that can be found in several Neurigonini species, but it never attains the length that it does in *Bickelomyia* where it covers the whole ventral hypopygial border.

Summary of new taxa

Neurigonini new tribe
Bickelomyia gen. nov.
Bickelomyia canescens spec. nov.
Bickelomyia flaviseta spec. nov.
Bickelomyia nigriseta spec. nov.
Bickelomyia setipyga spec. nov.
Bickelomyia subcanescens spec. nov.

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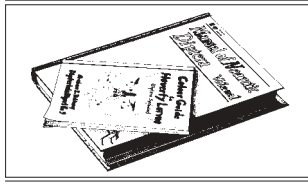


Neue Bücher - New Books

Leif Lyneborg (2001): The Australian stiletto-flies of the *Anabarhynchus* genus-group (Diptera: Therevidae). – Entomonograph volume **13**, Apollo Books, Stenstrup, Dänemark. 256 Seiten. 17 × 24 cm, 420,00 DKK; ISBN 87-88757-58-7; ISSN 0106-2808

In den letzten Jahren ergaben intensive Aufsammlungen, dass die Stilettfliegen-Fauna Australiens überaus artenreich ist und zahlreiche noch zu beschreibene Spezies enthält. Insofern hat Australien im interkontinentalen Vergleich eine herausragende Bedeutung.

Ein neuer Band der hochwertigen Reihe „Entomonograph" widmet sich den vornehmlich australischen Angehörigen der „*Anabarhynchus*-Gruppe". Mit Arten dieser Verwandtschaft beschäftigte sich neben anderen bereits der Hamburger Dipterologe Otto Kröber (1882–1969). Der Autor der Neuerscheinung ist einer der zurzeit weltweit besten Thereviden-Kenner: Leif Lyneborg.

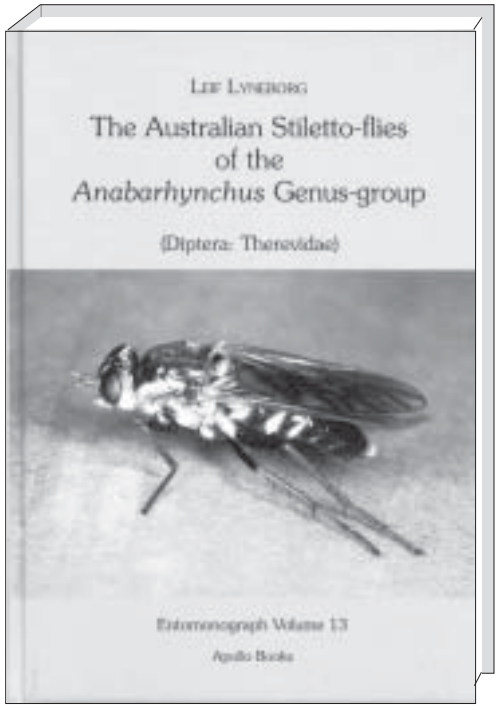
Der Verfasser war lange Zeit als Wissenschaftler am renommierten Zoologischen Museum der Kopenhagener Universität beschäftigt und ist ein erfahrener Buch-Autor und -Herausgeber.

Die australischen *Anabarhynchus*-Arten bilden zusammen mit den neuseeländischen Spezies sowie den ebenfalls in Neuseeland vorkommenden Arten der Gattung *Megathereva* Lyneborg, 1992, ein gondwanisches Faunenelement, dem Lyneborg zufolge auch südamerikanische Taxa angehören. Dabei stellt *Anabarhynchus* nach Ansicht des Autors eine

paraphyletische Gruppe dar. Die vorläufig ihr zugerechneten Arten fasst er daher zu 25 monophyletischen Einheiten zusammen und beschreibt 70 Arten neu.

Der beeindruckenden Veröffentlichung gingen langjährige, gründliche Studien voraus. Als Untersuchungsgrundlage dienten etwa 3.500 Imagines in verschiedenen Sammlungen. Das Typenmaterial früherer Dipterologen wie WALKER und MACQUART wurde vom Verfasser untersucht.

Auch die vorliegende Arbeit profitiert von der bewährten Zusammenarbeit von LYNEBORG und einem anderen hervorragenden Thereviden-Kenner, Michael E. IRWIN. Auf Untersuchungen IRWINS basiert eine Reihe der über 672, sich im Übrigen auf das Wesentliche beschränkenden Strichzeichnungen von Jill D. MULLETT.



Die Revision enthält einen kurzen Abriss der Erforschungsgeschichte, eine Übersicht der verwendeten morphologischen Bezeichnungen, eine Diskussion diagnostischer und weiterer Merkmale, eine Checkliste, einen Bestimmungsschlüssel sowie die alles Notwendige enthaltenen Beschreibungen der 93 berücksichtigten Arten und der Artengruppen. Ein Schriften- sowie ein Stichwortverzeichnis runden das Werk ab.

Zur Biologie der Arten kann LYNEBORG nur wenige Aussagen machen. Immerhin lassen die vorliegenden Daten für einige Spezies Aufschlüsse über ihre Flugzeit und den Lebensraum zu. Doch sind über 50 % der *Anabarhynchus*-Arten von weniger als fünf Lokalitäten bekannt.

Die Buch-Gestaltung folgt jener der anderen Bände der Reihe. Die Anordnung von Text und Abbildung ist übersichtlich, der Text gut lesbar, die Druckqualität tadellos, Einband und Bindung sind strapazierfähig. Den vorderen Buchdeckel ziert ein Farbfoto von *Anabarhynchus maritimus* HARDY.

Insgesamt ist ein Werk von hoher fachlicher und handwerklicher Qualität zu einem angemessenen Verkaufspreis entstanden. Wer sich mit australischen Thereviden beschäftigt, wird zu diesem im Wortsinne grundlegenden Buch greifen müssen, und zwar gerne. Es erleichtert die notwendige weitere Erforschung der „*Anabarhynchus*-Gruppe“ erheblich.

Die rundum empfehlenswerte Publikation bietet dem – überschaubaren – Kreis der Thereviden-Bearbeiter im Speziellen und darüber hinaus vielen weiteren, taxonomisch-systematisch arbeitenden Entomologen im Allgemeinen zahlreiche Informationen sowie methodologische Anregungen und Anschauung für eigene Untersuchungen.

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