

Revision of the Nearctic Species of *Nepalomyia* Hollis (= *Neurigonella* Robinson) (Diptera: Dolichopodidae: Peloropecinae) with a World Catalog

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ABSTRACT *Nepalomyia* Hollis and *Neurigonella* Robinson are synonymized. The genus *Nepalomyia* is more fully characterized and the Nearctic species are revised. *Nepalomyia nigricornis* (Van Duzee) and *N. sombrea* (Harmston & Knowlton) are reassigned and redescribed. Two new species, *N. dilaticosta* Runyon & Hurley and *N. hesperia* Runyon & Hurley, are described. New combinations are created for the following non-Nearctic species: *Nepalomyia bidentata* (Yang & Saigusa), *N. brevifurcata* (Yang & Saigusa), *N. crassata* (Yang & Saigusa), *N. daliensis* (Yang & Saigusa), *N. daweishana* (Yang & Saigusa), *N. dentata* (Yang & Saigusa), *N. flava* (Yang & Saigusa), *N. furcata* (Yang & Saigusa), *N. henanensis* (Yang, Yang, & Li), *N. longa* (Yang & Saigusa), *N. longiseta* (Yang & Saigusa), *N. luteipleurata* (Yang & Saigusa), *N. pallipes* (Yang & Saigusa), *N. pallipilosa* (Yang & Saigusa), *N. pilifera* (Yang & Saigusa), *N. pingbiana* (Yang & Saigusa), *N. tatjanae* (Negrobov), *N. trifurcata* (Yang & Saigusa), *N. tuberculosa* (Yang & Saigusa), *N. yunnanensis* (Yang & Saigusa), and *N. zhouzhiensis* (Yang & Saigusa). A key to Nearctic males and females and a catalog of the world *Nepalomyia* are provided.

KEY WORDS Dolichopodidae, *Nepalomyia*, *Neurigonella*, taxonomic revision, catalog, key

ROBINSON (1964) ERECTED *Neurigonella* for species of *Neurigona* Rondani that have a preapical seta on femur II & III, and a spur at the base of tarsus III(1) in males. Negrobov (1984), in describing the first Palearctic *Neurigonella*, indicated that *Neurigonella* Robinson and *Nepalomyia* Hollis appear similar, and that the two might be synonyms. To resolve this question, we sent a male paratype of *Nepalomyia hesperia* Runyon & Hurley to the British Museum (Natural History), where Mr. John Chainey compared it with the holotype of *Nepalomyia dytei* Hollis (the type species of *Nepalomyia*). We provided our description of the genus with significant characters highlighted, along with Figs. 4 and 7, illustrating characters we believe to be diagnostic. The *Nepalomyia* holotype exhibited all these characters. Both names were published in 1964, *Nepalomyia* in an issue dated "21 July," *Neurigonella* on "15 October," so *Nepalomyia* has priority.

In addition to the four Nearctic species, *Nepalomyia* is also known from Nepal (two spp., Hollis 1964), eastern Russia (one sp., Negrobov 1984), and China (20 spp., Yang et al. 1998; Yang and Saigusa 2000, 2001a, 2001b). Here we more completely characterize and revise *Nepalomyia* in the Nearctic.

Materials and Methods

Specimen Handling. Almost exclusively, dry mounted material was studied. For examination and illustration, genitalia, abdomens, and heads were

cleared using KOH, temporarily mounted in glycerin, and later transferred to polymere microtubes and attached to the corresponding specimens.

Discussion of Characters. Density of pollen is characterized as follows: very sparse, if surface not uniformly covered and apparently lacking pollen except when viewed obliquely; sparse, if pollen evidently present, but not noticeably modifying integument color; moderately dense, if pollen lending its own color generally to the surface, but not completely obscuring integument beneath; dense, if integument completely hidden by pollen.

In descriptions of male genitalia, "dorsal" and "ventral" refer to the true morphological position (as seen in illustrations). Because of similarities in the hypopygial structures of *Nepalomyia* to those of *Achalcus* Loew, we have followed Pollet and Cumming's (1998) interpretation and terminology.

Abbreviations. The following abbreviations are used: *a*, anterior(ly); *ad*, anterodorsal(ly); *av*, anteroventral(ly); *p*, posterior(ly); *pd*, posterodorsal(ly); *pv*, posteroventral(ly); *ac*, acrostichal seta(e); *dc*, dorso-central seta(e); T1, T2, etc., abdominal tergum one, abdominal tergum two, etc.; S1, S2, etc., abdominal sternum one, abdominal sternum two, etc. Legs are designated by roman numerals, tarsomeres by bracketed arabic numerals (e.g., Tarsus III(4) = fourth tarsomere of metathoracic leg). The following acronyms for museums are used: AMNH, American Museum of Natural History, New York; BMNH, The Nat-

ural History Museum (formerly the British Museum (Natural History)), London; CAS, California Academy of Sciences, San Francisco, CA; CAU, China Agricultural University, Beijing, China; CNC, Canadian National Collection, Ottawa, Canada; FSCA, Florida State Collection of Arthropods, Gainesville, FL; KIZ, Kunming Institute of Zoology, Kunming, China; MTEC, Montana Entomology Collection, Bozeman, MT; USNM, United States National Museum of Natural History, Smithsonian Institution, Washington, D.C.; ZIN, Russian Academy of Sciences, Zoological Institute, St. Petersburg, Russia.

Nepalomyia Hollis 1964

Nepalomyia Hollis 1964: 110 (new species; key, Nepal); Dyte 1975: 254 (catalog, Oriental); Negrobov 1984: 1113 (possible synonymy with *Neurigonella*). Type species: *Nepalomyia dytei* by original designation. *Neurigonella* Robinson 1964: 119 (key, Nearctic); Robinson 1970: 56 (subfamily placement); Robinson & Vockeroth 1981: 634 (key to genera, Nearctic); Negrobov 1984: 1113 (new species); 1991: 31 (catalog, Palearctic); Poole & Gentili 1996: 146 (species list, Nearctic); Yang et al. 1998: 81 (new species); Yang 1998: 344 (new species); Yang & Saigusa 2000: 237 (new species); 2001a: 375 (new species; key to males, China); 2001b: 237 (new species). Type species: *Neurigona nigricornis* Van Duzee by original designation. New synonym.

Diagnosis. Vertex not excavate. Scape without distinct setae on *d* surface. First flagellomere without setae. Arista long, pubescent, tapering to fine point, inserted in notch immediately lateral to apex of first flagellomere. Costa continuous to tip of M. M unbranched, nearly parallel to R_{4+5} . Scutum with ac in two distinct rows. Notopleuron with two setae. Upper proepisternum with at most, a few fine hairs. Male: Tarsus III(1) with small dark *p* spur at base that interlocks with apex of tibia. Apex of T7 usually clearly evident as dark, inverted "V" in membrane of *p* edge of T6. Hypopygium bulbous, forming loose, broadened cap to abdomen.

Length 2–3.5 mm. Yellow to brown in color, lacking metallic reflections (some non-Nearctic species metallic green). Vertex not excavate. Lower face short, ending at three-fifths distance antenna to lower margin of eye. Ocellar tubercle with two very strong ocellars, with two short hairs *p* to vertex. Vertical very long (subequal to ocellars). Paraverticlar shorter than uppermost postocular seta, originating midway between ocellar and uppermost postocular seta. Postocular setae black; beard absent. Scape without dorsal setae; pedicel short, encircled by ring of setulae (longest on dorsal edge); first flagellomere broadly triangular, a little wider than long (distinctly elongate in some Chinese species), with long hairs; arista long, pubescent, tapering to a fine point, inserted in notch immediately lateral to apex of first flagellomere (Fig. 1). Palpus broadly rounded distally, with stout seta near apex. Labellum with hyaline area anteromedially, and medially to tips of pseudotracheae; with bigemi-

nate pseudotracheae (Fig. 5). Apical epipharyngeal sclerite with three teeth distally, with cross-banding proximally (Fig. 6).

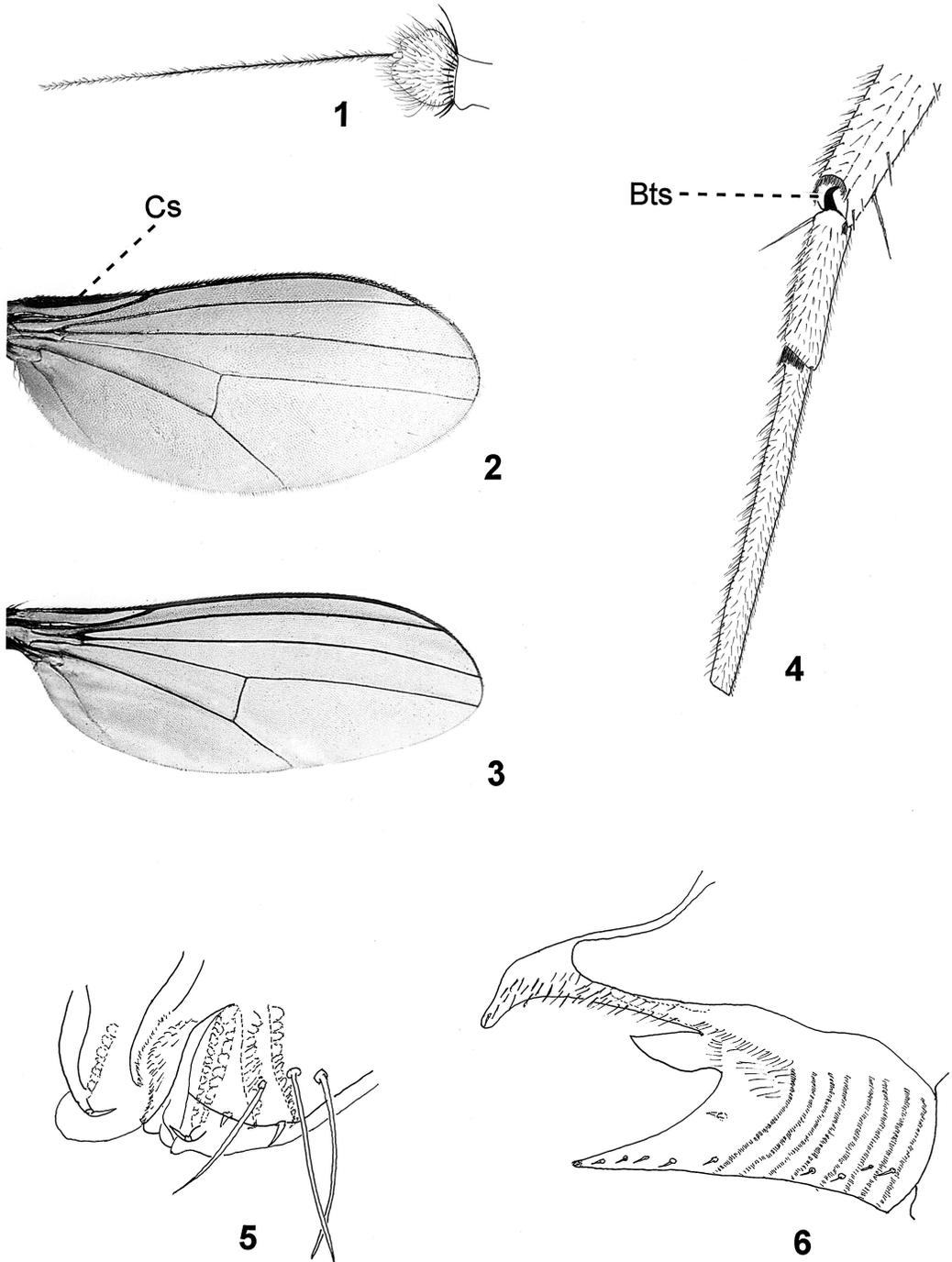
Scutum with six pairs of long *dc* (four or five *dc* in some non-Nearctic species); with ac in two distinct rows extending to *a* margin of prescutellar flattening. Posterior third of scutum distinctly flattened. Scutellum with one strong median seta and one lateral seta (\approx one-third length of median)/side. Notopleuron with two setae. Humerus with one strong seta and one smaller seta (=one-third to one-half strong seta). Lower proepisternum with one strong seta and usually a few short, fine hairs; upper proepisternum usually with one or more very fine hairs. Proepimeron bare.

Coxae and legs yellow (brown in some non-Nearctic species) with black hairs and setae. Coxa I with short dark hairs full length *a*, with row of larger setae at apex. Coxa II similarly haired, with larger *ad* seta at one-half. Coxa III bare except large *ad* seta at one-half and short, slender appressed *ad* hair near apex. Trochanter II with two long, slender *ad* setae. Femora without setae other than preapical *a* on II and III, and slender *p* preapical on femur II. Tibia I lacking obvious setae except weak apical. Tibia II with *ad* seta at one-fourth and just beyond one-half; with *pd* seta at one-fifth and one-half; with small *pv* seta just beyond one-half. Tibia III with 1–2 *ad* setae and large *ad* subapical; with *pd* seta at one-fifth, one-half, and smaller *pd* seta at four-fifths; usually with small *p* seta near one-half. Tarsus I and II plain. Tarsus III(1) short (\leq one-half tarsus III(2)), thicker than III(2–5) (greatly thickened in some non-Nearctic species), with short *pv* seta (=width of tibia) at base (Fig. 4).

Abdominal terga dark brown with black hairs and setae; T1 with row of long *p* setae (=three-fourths T2). S1 unsclerotized, bare.

Wing with R_{2+3} and R_{4+5} slightly diverging toward apex; R_{4+5} and M_1 nearly parallel beyond crossvein dm-cu; M not forked; A_1 fading near posterior wing margin; anal angle poorly developed. Crossvein dm-cu slightly before middle of wing, distinctly shorter than last section of CuA_1 (Figs. 2 and 3). Calypter yellow to brown, with apex darkened; calypter setae long, brown, appearing pale in certain lights. Stem of halter yellow, knob yellow to infuscated.

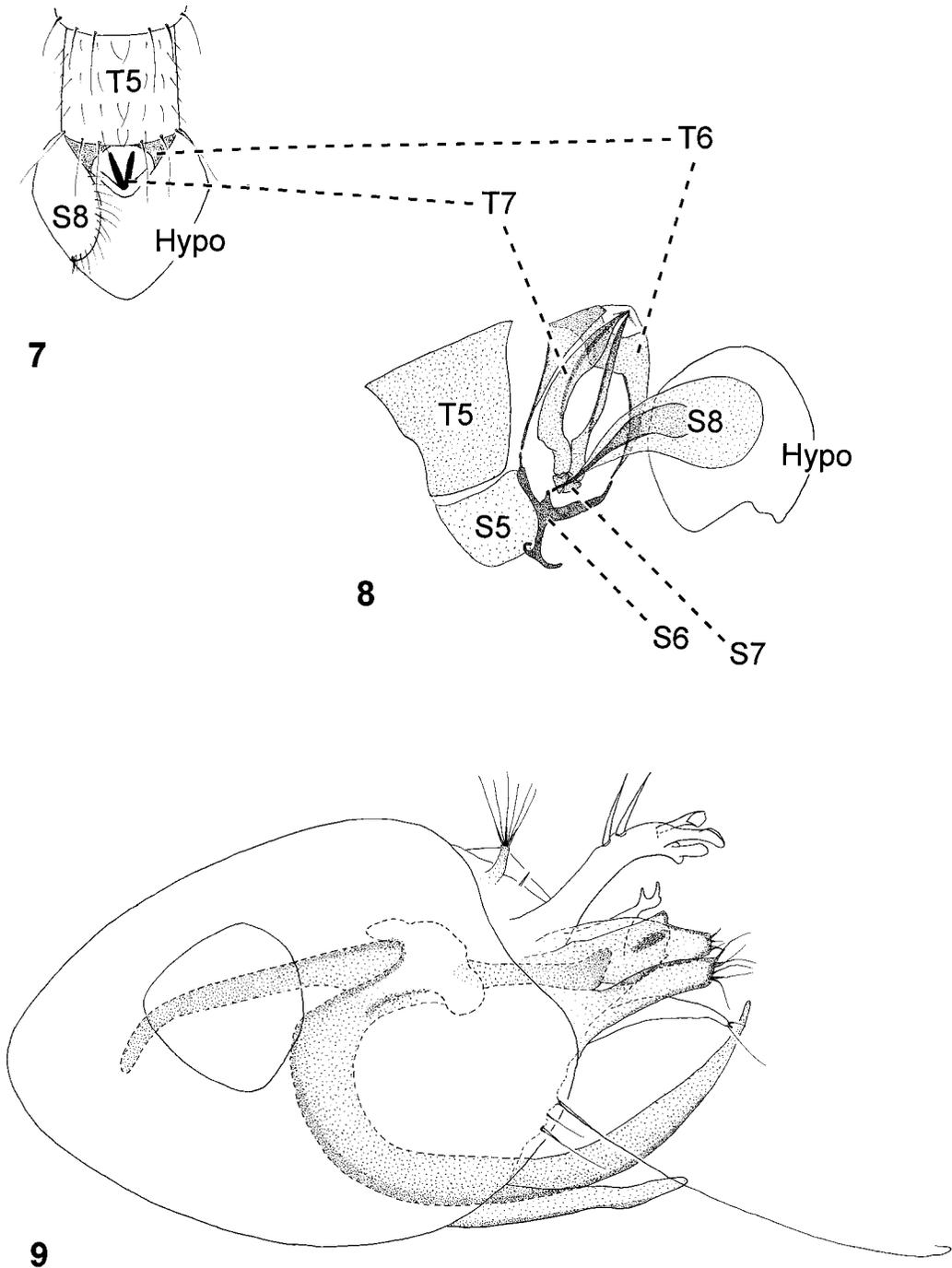
Male. Face narrow (=one-half to three-fourths distance between lateral ocelli), narrowed below. Tarsus III(1) with small dark *p* spur at base that interlocks with apex of tibia (Fig. 4). Costa with slight (*hesperia*, *nigricornis*, *sombrea*) (Fig. 3) to distinct (*dilatocosta*) (Fig. 2) enlargement between humeral vein and R_1 . T6 bare, more heavily sclerotized than T1–T5, especially along *a* edge which fuses with *p* edge of very heavily sclerotized S6 (heavy sclerotization and dorsoventral orientation of S6 provide rigid pocket to house hypopygium); T6 broadly membranous *p* in posterior mid-dorsal area (membranous area apparently allows the hypopygium greater vertical mobility). Apex of T7 usually clearly evident in dried specimens as dark, inverted "V" in membrane of *p* edge of T6; S7 greatly reduced; S8 large, broadly oval, haired, with long drawn-out, narrow tail associated with S7



Figs. 1-6. (1) *N. sombrea*, antenna. (2) *N. dilaticosta*, wing. (3) *N. hesperia*, wing. (4) *N. nigricornis*, tarsus III(1-2). (5) *N. hesperia*, anterior apex of labella. (6) *N. nigricornis*, apical epipharyngeal sclerite. Bts, Tarsus III(1) spur; Cs, costal swelling.

(Figs. 7 and 8). Hypopygium bulbous, forming loose broadened cap to abdomen (Fig. 7). Epandrium with three setae (one Chinese species with long finger-like lobe bearing thick apical seta), the longest slender, pale, very long (subequal to hypopygium) (Figs. 10-14). Ventral process of epandrium with 0 (*nigricornis*)

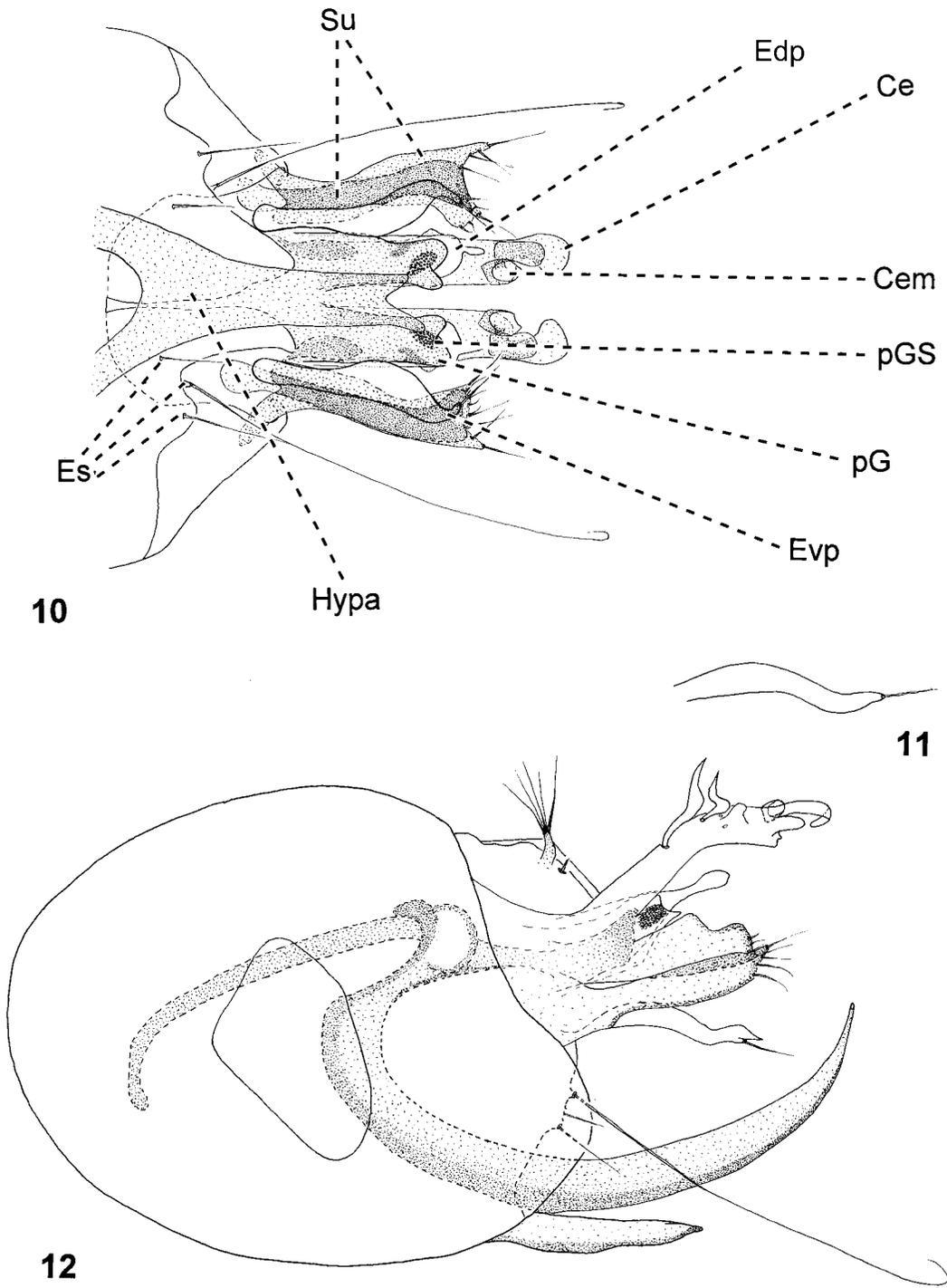
(Fig. 14), one (*dilaticosta, sombrea*) (Figs. 12 and 13), or two (*hesperia*) (Fig. 9) setae at or near apex. Surstylus deeply divided into two lobes, each with setae at apex (Figs. 10 and 14). Postgonite short, broad, usually with what appears to be a dense patch of "setal sockets" (or similar sensory structures) in mid-dorsal



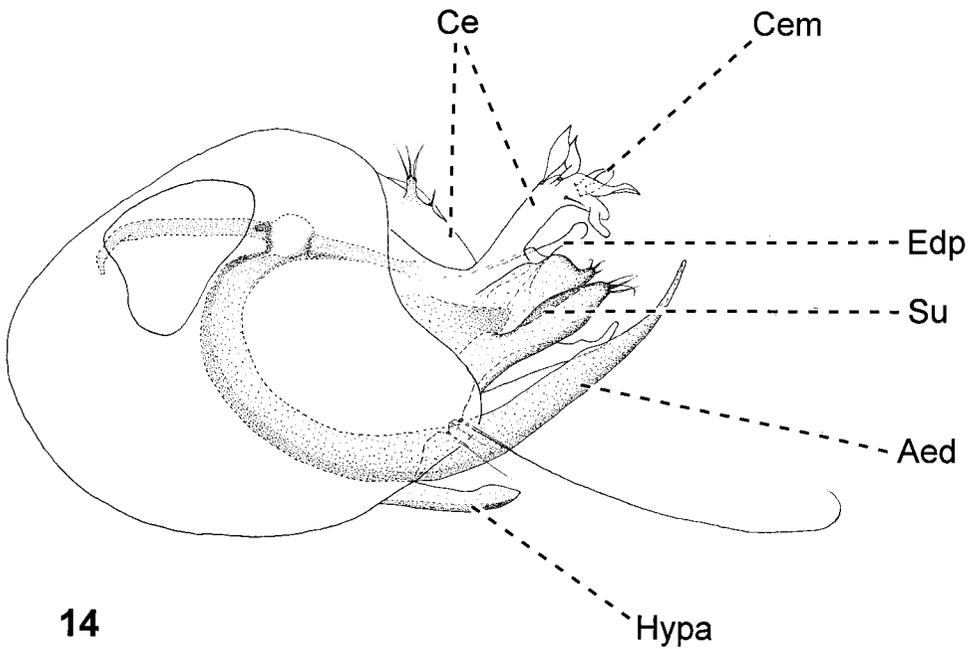
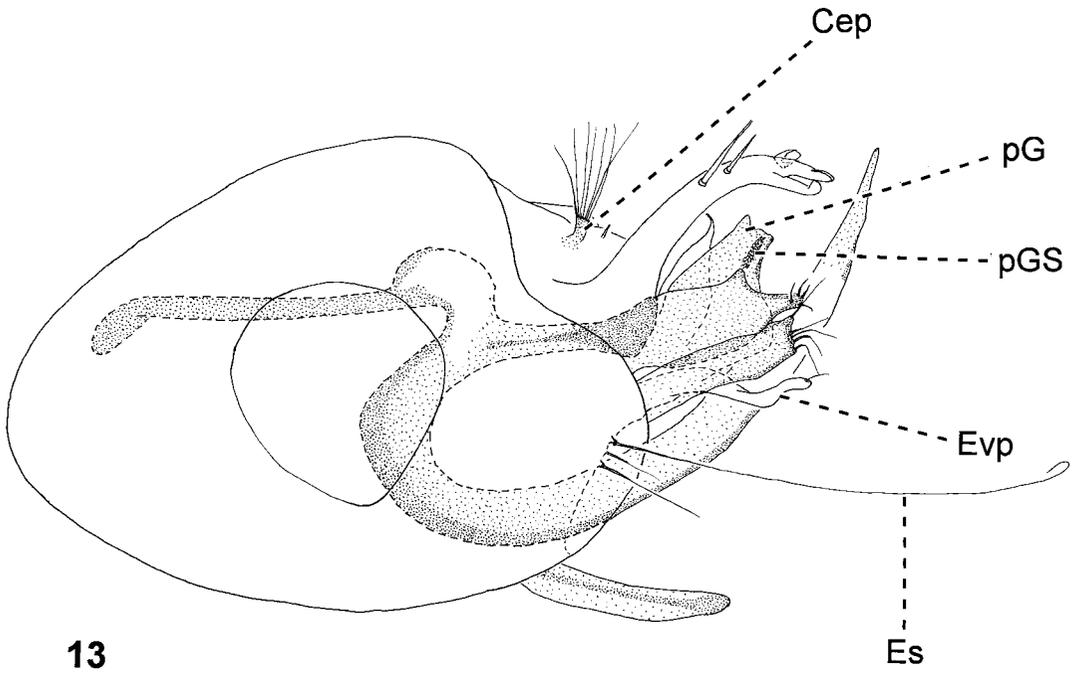
Figs. 7-9. (7) *N. hesperia*, distal male abdomen (dorsal view). (8) *N. sombrea*, male genital complex (left posterolateral view). (9) *N. hesperia*, hypopygium (lateral view). Hypo, hypopygium; S5, S6, S7, S8, abdominal sternum 5, 6, 7, 8; T5, T6, T7, abdominal tergum 5, 6, 7.

area near apex (Figs. 10 and 13). Dorsal process of epandrium hyaline; very broad, narrowed at apex (best seen when viewed ventrally) (Figs. 10 and 14). Cercus not lamellate; with two large setae dorsally near one-half; trilobed apically (Figs. 10 and 14), the

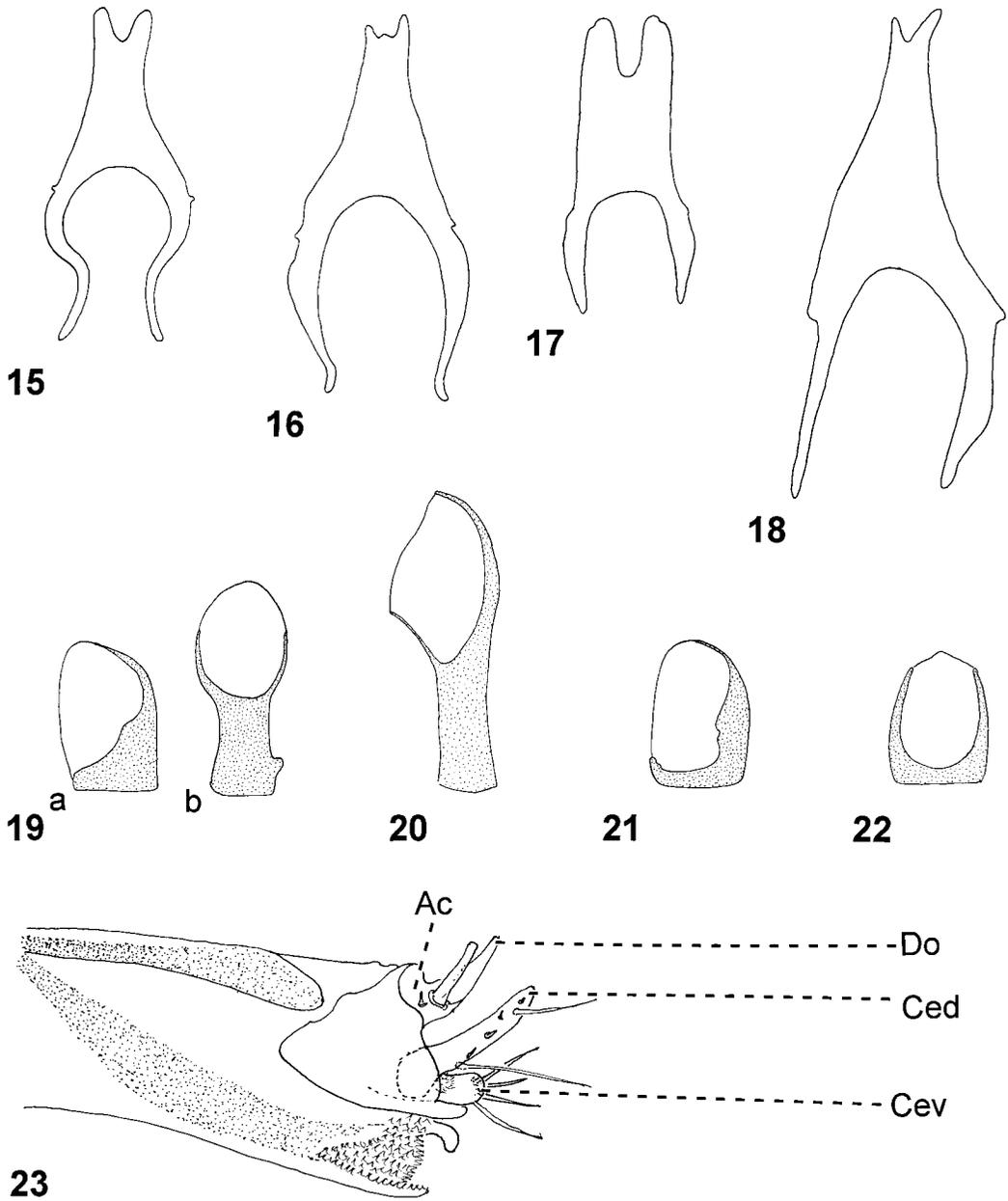
most medial lobe with variously sclerotized border and broad hyaline area medially (see Figs. 19-22). Extreme base of cercus with cercal papilla bearing three (*nigricornis*) (Fig. 14), five (*sombrea*) (Fig. 12), six (*hesperia*) (Fig. 9), or seven (*dilatocosta*) (Fig. 13)



Figs. 10-12. (10) *N. sombrea*, apex of hypopygium (aedeagus not shown) (ventral view). (11) *N. sombrea* (New Mexico), ventral process of epandrium (lateral view). (12) *N. sombrea*, hypopygium (lateral view). Ce, cercus; Cem, medial lobe of cercus; Es, epandrial seta; Edp, dorsal process of epandrium; Evp, ventral process of epandrium; Hypa, hypandrium; pG, postgonite; pGS, postgonite "setal sockets"; Su, surstylus.



Figs. 13-14. (13) *N. nigricornis*, hypopygium (lateral view). (14) *N. dilaticosta*, hypopygium (lateral view). Aed, aedeagus; Ce, cercus; Cem, medial lobe of cercus; Cep, cercal papilla; Edp, dorsal process of epandrium; Es, epandrial seta; Evp, ventral process of epandrium; Hypa, hypandrium; pG, postgonite; pGS, postgonite "setal sockets."



Figs. 15–23. (15) *N. dilaticosta*, hypandrium (ventral view). (16) *N. hesperia*, hypandrium (ventral view). (17) *N. nigricornis*, hypandrium (ventral view). (18) *N. sombrea*, hypandrium (ventral view). (19) *N. dilaticosta* (a) medial lobe of left cercus (dorsomedial view); (b) medial lobe of right cercus (dorsomedial view). (20) *N. hesperia*, medial lobe of cercus (dorsomedial view). (21) *N. nigricornis*, medial lobe of cercus (dorsomedial view). (22) *N. sombrea*, medial lobe of cercus (dorsomedial view). (23) *N. hesperia*, female genitalia (lateral view). Ac, acanthoprophorite; Ced, dorsal lobe of cercus; Cev, ventral lobe of cercus; Do, dorn(en). Orientation of Figs. 15–22: Top of page is distal.

setae at apex; with short, stout postpapillary seta just distal to papilla. Aedeagus very thick, broadened in distal quarter with lateral edges slightly serrate; apex narrowed, with broad “U”-shaped cleft (apex trifurcate in one Chinese species). Hypandrium symmet-

rical (Figs. 15 and 17) to distinctly asymmetrical (Fig. 18).

Female. Face wider than in male (=distance between lateral ocelli). T8 with heavily sclerotized lateral band. S8 with less sclerotized band which con-

nects with T8 band at *a* edge. S9 with dense, short triangular projections over most of *d* infolded surface. Acanthoporphites narrowly separated, each bearing four broad dornen and one short stout lateral seta. Cerci bilobed; *d* lobe long, acuminate, sclerotized, bearing series of setae ventrolaterally: one long at one-sixth, one medium length at five-sixth, remainder short; *v* lobe short, poorly sclerotized, bearing three long medially directed setae (Fig. 23).

Remarks. The presence of three teeth on the apical epipharyngeal sclerite places *Nepalomyia* in "group II5" (containing only *Liancalus* Loew), according to Satô 1991 (Satô examined only *L. zhenzhuristi* Negrobov). However, examination of *L. genualis* Loew indicates only two teeth are present in this species (the middle tooth is lacking). The cross-banding evident on the proximal portion suggests "group I2", and except for the middle tooth, bears a close resemblance to *Hercostomus* Loew (and other Dolichopodinae). Using Cregan's (1941) classification, *Nepalomyia* belongs to "group X", characterized by "labrum plate-like, with four prongs of epipharynx connected, and six panels geminately sclerotized in the labella" ("group X" also contains *Argyra* Macquart, *Campsicnemus* Haliday, *Hydrophorus* Fallén, *Liancalus* Loew, *Peloroopodes* Wheeler, and *Teuchophorus* Loew).

Little sexual dimorphism is displayed in this genus. In addition to the complex genitalia and associated abdominal modifications, males differ from females only in the width of the face, the spur at the base of tarsus III(1), and the enlargement of the costa (*dilatocosta*).

The overall morphological homogeneity in the male genitalia and other structures (body color, leg color, shape of first flagellomere, dc number) of Nearctic *Nepalomyia* compared with that evident in the Chinese species, suggests a single origin for the Nearctic fauna.

Biogeographically, *Nepalomyia* resembles *Diostracus* Loew (Dolichopodidae: Hydrophorinae) (Saigusa 1995) in global distribution and centers of diversity. In each genus, the Nearctic has a small number of relatively similar species found in restricted areas of middle latitudes while the Oriental region has a large number of morphologically diverse species.

Our interpretation of the "cercus" follows that of Yang and Saigusa (2001) in descriptions of the Chinese species. One reviewer suggested that our "cercal papilla" is all that remains of the cercus and the remainder of our "cercus" is actually part of the surstylus complex. At this point, we agree that our interpretation is open to question.

Nepalomyia seems to be restricted to shaded habitats in which a thin film of water is running over moss-covered rocks.

Nepalomyia dilatocosta Runyon & Hurley, new species

(Figs. 2, 14–15, 19a–b)

Type Material. HOLOTYPE: ♂ labeled "Ottawa, ONT., 8.VII.1990, J. R. Vockeroth, Damp second-

growth Acer-Betula wood", deposited: CNC. PARATYPE: ♂ labeled "ADIRONDACKS, Connery Pond, 15 Jul. 38 NY, ALMelander", deposited: USNM (with most of abdomen and metathoracic leg in microvial on pin).

Male. Length 3.2–3.5 mm. Face dark blue-green, with moderately dense blue-gray pollen. Front dark, with moderately dense yellow-gray pollen. Palpus and proboscis yellow-brown. Scape brown, yellow on dorsal edge; pedicel and first flagellomere brown. Scutum red-brown; prescutellar depression and scutellum darker; ac ≈ 8, slender, medium-length (=one-third dc), in two distinct rows. Pleura dark brown, with moderately dense blue-gray pollen, paler along sutures. Lower two-thirds of metepimeron yellow. Humerus paler than surrounding sclerites. Ratio of tibia: tarsomeres = for leg I: 37–22–16–12–8–7; for leg II: 45–28–16–13–9–5; for leg III: 56–12–21–15–12–5. Tibia III with *ad* seta at one-fourth and just beyond one-half, with dense hair *p* and *pv* on apical one-half. Tarsus III (1–3) with longer (=width of tarsus III(3)) *p* setae. Abdomen dark brown with sparse gray pollen. Wing slightly broadened; costa with distinct sausage-shaped thickening between humeral crossvein and R₁ (Fig. 2). CuA₁ straight through last section. Halter yellow. Ventral process of epandrium with one small seta near apex. Ventral lobe of surstylus with short, broad lobe at two-thirds medially. Postgonite with patch of dense "setal sockets" in mid-dorsal area near apex. Dorsal process of epandrium with apex acuminate. Cercus with *d* setae at one-half large, tapering gradually to apex (Fig. 13). Medial lobe of left cercus asymmetrical, sessile (Fig. 19a); medial lobe of right cercus symmetrical, pedunculate (Fig. 19b). Cercal papilla with seven setae at apex (Fig. 13). Hypandrium symmetrical (Fig. 15).

Female. Unknown.

Remarks. The differing medial lobes of the right and left cerci is surprising. This description is based on a single specimen; we have examined genitalia of at least two specimens for each of the other three Nearctic species, and have found no right-left asymmetry in genitalic characters.

The female of *N. dilatocosta* is unknown. However, it probably has dark pleura, which will separate it from all other eastern species.

Distribution. New York, Adirondack Mountains; Ontario, Ottawa.

Etymology. The epithet, a noun in apposition, is derived from the Latin "dilatatus" (=spread, expanded) + "costa" (f., = rib), and refers to the sausage-shaped enlargement of the costa.

Nepalomyia hesperia Runyon & Hurley, new species

(Figs. 3, 5, 7, 16, 20)

Type Material. HOLOTYPE: ♂ labeled "McKinleyville, Humboldt Co CA, 18-VII-90, R. Hurley," deposited: CAS. ALLOTYPE: ♀ labeled "McKinleyville, Humboldt Co CA, 18-VII-90, R. Hurley", deposited:

CAS. PARATYPES: Same data as above, 1 ♂ deposited: MTEC. Same data as above, collected 16-VII-90, 1 ♂ deposited: MTEC. "20 miles N Somes Bar, Siskiyou Co CA, 2-VII-83, R. Hurley", 3 ♂, 3 ♀ deposited: MTEC. "Arcata, Humboldt Co. Ca., 7-VII-80 R. Hurley", 1 ♂, 1 ♀ deposited: CNC, 2 ♂, 2 ♀ deposited: MTEC. Same data as above, collected 10-VII-80, 1 ♂, 1 ♀ deposited: AMNH, 4 ♂, 9 ♀ deposited: MTEC. "HSU Arcata, Humboldt Co. CA, 16-VII-86, R. Hurley", 2 ♂, 7 ♀ deposited: MTEC, 1 ♂ deposited: BMNH. Same data as above, collected 10-V-87, 1 ♂ deposited: MTEC. Same data as above, collected 23-V-87, 1 ♂, 1 ♀ deposited: USNM, 1 ♀ deposited: MTEC, 1 ♀ deposited: BMNH. "ORE., No. Plains, Washington County, June 18, 1968, Kenneth Goeden; side of bee hive late afternoon", 2 ♂ deposited: CAS. "Latroule Falls, Ore. 8/2/62, R.A. McHugh, F.C. Harmston", 2 ♂, 1 ♀ deposited: FSCA.

Length 3.2–3.5 mm. Upper face dark brown, lower face yellow-brown; pollen moderately dense blue-gray, appearing yellow along orbits and on lower face in certain lights. Front black, with sparse yellow-gray pollen which is more conspicuous around base of antenna. Proboscis and palpus brownish-yellow. Scape and pedicel reddish-yellow; first flagellomere dark brown. Scutum dark brown with moderately dense gray pollen; ac ≈10/row, slender, medium length (=one-half dc), in two distinct rows. Pleura including metepimeron dark brown, paler along sutures, with moderately dense blue-gray pollen. Humerus paler than surrounding sclerites. Tibia III with *ad* seta at one-fourth and just beyond one-half. Abdomen dark brown, with sparse gray pollen; with black hairs and setae. Halter yellow. CuA₁ straight through last section.

Male. Ratio of tibia:tarsomeres = for leg I: 44–25–16–13–8–7; for leg II: 56–32–20–16–10–5; for leg III: 72–16–32–20–12–4. Ventral process of epandrium with one small and one large seta near apex. Postgonite with patch of dense "setal sockets" in mid-dorsal area near apex. Dorsal process of epandrium with apex forked. Cercus with *d* setae at one-half large, gradually tapering to apex (Fig. 9). Medial lobe of cercus asymmetrical, pedunculate (Fig. 20). Cercal papilla with six setae at apex (Fig. 9). Hypandrium slightly asymmetrical (Fig. 16).

Female. Ratio of tibia:tarsomeres = for leg I: 44–24–16–12–8–6; for leg II: 60–32–20–16–8–5; for leg III: 76–16–30–18–12–5. Genitalia (Fig. 23).

Remarks. The majority of the *N. hesperia* specimens were taken from a thin sheet of water flowing over a concrete wall at Jolly Giant Creek and Fern Lake overflow on the campus of Humboldt State University, Arcata, CA.

Distribution. Lower elevations of Coast Ranges in Oregon and northern California, and the Columbia River Gorge of Oregon.

Etymology. The epithet is an adjective, derived from the Latin "hesperius" (western), and refers to its distribution.

Nepalomyia nigricornis (Van Duzee), new combination
(Figs. 4, 6, 13, 17, 21)

Neurigona nigricornis Van Duzee 1914: 433, Holotype male in CAS labeled "Colden, N. Y., 8–3–19, M. C. V. Coll. *Neurigona nigricornis*, Holotype. Van Duzee. California Academy of Sciences, Type No. 3383", [examined]; Harmston & Knowlton 1945: 78 (compared with *sombrea*); Foote et al. 1965: 518 (catalog, Nearctic).

Neurigonella nigricornis, Robinson 1964: 119 (key, Nearctic); Poole & Gentili 1996: 146 (species list, Nearctic).

Length 2–3.5 mm. Face dark blue-green, with moderately dense blue-gray pollen. Front black, with sparse to moderately dense, dark brown pollen, with paler pollen at base of antenna. Palpus and proboscis yellow-brown. Scape and pedicel yellow to brown; first flagellomere dark brown. Scutum red-brown; ac ≈6, short (=one-third dc), in two distinct rows. Pleura including metepimeron yellow, with sparse blue-gray pollen. Dorsal anepimeron and laterotergite dark. Humerus paler than surrounding sclerites. Tibia III with *ad* seta at one-fourth, with dense hair *p* and *pv* on apical one-half. Tarsi III(1–3) with longer (=width tarsomere III(2)) *p* setae. Halter with stem yellow, knob infuscated. CuA₁ straight through last section. Abdomen dark brown with sparse gray pollen; abdominal sterna usually paler than terga.

Male. Ratio of tibia:tarsomeres = for leg I: 24–17–12–9–8–6; for leg II: 44–24–12–12–8–5; for leg III: 56–10–22–14–9–4. Ventral process of epandrium bare. Postgonite without patch of dense "setal sockets" in mid-dorsal area near apex. Dorsal process of epandrium with apex slightly clubbed. Cercus with *d* setae at one-half large, very broad (Fig. 14). Medial lobe of cercus asymmetrical, sessile (Fig. 21). Cercal papilla with three setae at apex (Fig. 14). Hypandrium symmetrical (Fig. 17).

Female. Ratio of tibia:tarsomeres = for leg I: 28–16–10–8–6–5; for leg II: 40–24–12–10–7–4; for leg III: 48–10–17–12–8–5.

Remarks. Van Duzee (1914) described *N. nigricornis* from three males. The face is often collapsed in dry specimens, hiding Ant I and II. Inspection of additional material reveals that the color of the scape and pedicel varies from yellow to brown.

Nepalomyia nigricornis has often been collected with *N. sombrea* (Harmston & Knowlton), and other dolichopodids - *Calyxochaetus frontalis* (Loew), *Gymnopternus frequens* Loew, and *G. subdilutatus* Loew.

Distribution. Nearctic east of 85° W, from southern Quebec to northern Florida, including Quebec, New York, Massachusetts, Connecticut, Pennsylvania, Ohio, West Virginia, Virginia, Tennessee, North Carolina, South Carolina, Georgia, Florida.

Nepalomyia sombrea (Harmston & Knowlton),
new combination
(Figs. 1, 8, 10, 11, 18, 22)

Neurigona sombrea Harmston & Knowlton 1945: 77, Holotype male in USNM labeled "Midland Co., Mich 6-6-41, R. R. Dreisbach. HOLOTYPE, *Neurigona sombrea*, F. C. H. and G. F. K. *Neurigona sombrea* H. & K. Type No, 57906, USNM", [examined]; Foote et al. 1965: 518 (catalog, Nearctic).

Neurigonella sombrea, Robinson 1964: 119 (key, Nearctic); Poole & Gentili 1996: 146 (species list, Nearctic).

Length 2-3.5 mm. Face dark metallic green-black, with moderately dense blue-gray pollen. Front dark brown, pale at base of antenna, with sparse brown pollen. Palpus and proboscis yellow-brown. Antenna (Fig. 1) yellow, first flagellomere darkened apically. Scutum orange-yellow, with very sparse blue-gray pollen, often darker medially; prescutellar depression darker medially; ac \approx 7/row, short (=one-third to one-half dc), in two distinct rows. Pleura including metepimeron yellow, with very sparse, pale pollen. Dorsal anepimeron and laterotergite dark brown. Humerus yellow. Halter yellow. CuA₁ slightly curved anteriorly on distal one-third of last section. Tibia III with long *ad* seta at one-fourth, sometimes with additional *ad* seta near one-half. Abdomen dark brown with sparse gray pollen; abdominal sterna pale yellow.

Male. Ratio of tibia:tarsomeres = for leg I: 44-23-20-16-12-6; for leg II: 64-36-20-17-12-6; for leg III: 76-16-32-20-13-5. Ventral process of epandrium with large seta at (Fig. 11, New Mexico) or near (Fig. 12, eastern United States) apex. Postgonite with patch of dense "setal sockets" in mid-dorsal area near apex. Dorsal process of epandrium with apex slightly clubbed. Cercus with *d* setae at one-half large, curved, broadened at one-half (Fig. 12). Medial lobe of cercus symmetrical, sessile (Fig. 22). Cercal papilla with five setae at apex (Fig. 12). Hypandrium strongly asymmetrical (Fig. 18).

Female. Ratio of tibia:tarsomeres = for leg I: 30-20-12-10-8-5; for leg II: 48-26-15-12-6-3; for leg III: 56-12-25-16-10-5.

Remarks. A disjunct population of *N. sombrea* occurs in southeastern New Mexico, and resembles the eastern populations except for the location of the seta on the ventral process of the epandrium. The New Mexico (River Cave, Carlsbad) and Georgia (Upper Valley Cave, Dade County) specimens were collected in caves.

Nepalomyia sombrea has commonly been collected by the authors with *N. nigricornis* (Harmston & Knowlton), and other dolichopodids - *Calyxochaetus frontalis* (Loew), *Gymnopternus frequens* Loew, and *G. subdilatatus* Loew.

Distribution. U.S. east of 90° W, from Michigan to Georgia, including Indiana, Pennsylvania, Virginia, Tennessee, North Carolina with disjunct population in southeast New Mexico.

Key to the Nearctic Species of *Nepalomyia*

Males and Females

1. Ventral one-half of pleura pale yellow, similar to coxa II 2
- 1'. Ventral one-half of pleura brown, similar to dorsal one-half of pleura 3
2. First flagellomere yellow in anterior view *sombrea* (Harmston & Knowlton)
- 2'. First flagellomere uniformly brown in anterior view *nigricornis* (Van Duzee)
3. Costa with distinct sausage-shaped thickening between humeral crossvein and R₁ (Fig. 2) (eastern) *dilatocosta* Runyon & Hurley
- 3'. Costa only slightly thickened (Fig. 3) (western) *hesperia* Runyon & Hurley

Catalog of the World *Nepalomyia*

bidentata (Yang & Saigusa), 2001b: 251, Figs. 42-43 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Guizhou: Tongzi: Yunwushanzhuang, 1600-1700 m, 5 August 1995, (T. Saigusa). Distribution: China: Guizhou. New combination.

brevifurcata (Yang & Saigusa), 2001a: 377, Figs. 1-3 (*Neurigonella*). Holotype ♂ deposited CAU. Type-locality: China: Shaanxi: Zouhui: Yingpan-linchang, 1850 m, 10 July 1997, (T. Saigusa). Distribution: China: Shaanxi. New combination.

confusa Hollis, 1964: 114, Fig. 47 (*Nepalomyia*). Holotype ♂ deposited BMNH. Type-locality: Nepal: Taplejung District: Sangu, c. 1900 m, September-October 1961, (R. L. Coe). Distribution: Nepal: Taplejung District.

crassata (Yang & Saigusa), 2001a: 378, Figs. 4-6 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Pingbian: Daweishan, 1600-1700 m, 23 May 1996, (T. Saigusa). Distribution: China: Yunnan. New combination.

daliensis (Yang & Saigusa), 2001a: 379, Figs. 7-9 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Dali: Dabaoqing: seven km W of Xiaguan, 1900-2100 m, 16 June 1996, (T. Saigusa). Distribution: China: Yunnan. New combination.

daweishana (Yang & Saigusa), 2001a: 380, Figs. 10-12 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Pingbian: Daweishan, 1800-2000 m, 22 May 1996, (T. Saigusa). Distribution: China: Yunnan. New combination.

dentata (Yang & Saigusa), 2001a: 381, Figs. 13-15 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Pingbian: Daweishan, 1800-2000 m, 22 May 1996, (T. Saigusa). Distribution: China: Yunnan. New combination.

dilatocosta Runyon & Hurley. Holotype ♂ deposited CNC. Type-locality: Canada: Ontario: Ottawa, 8 July 1990, (J. R. Vockeroth). Distribution: Canada: Ontario; United States: New York. New species.

dytei Hollis, 1964: 112, Figs. 45-46 (*Nepalomyia*). Holotype ♂ deposited BMNH. Type-locality: Nepal: Taplejung District: between Sangu and Tamrang,

c. 1600 m, 6–28 November 1961, (R. L. Coe). Distribution: Nepal: Taplejung District.

flava (Yang & Saigusa), 2001a: 382, Figs. 16–17 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Luchun: 11.5 km SW of Yanjia, 1750–1800 m, 30 May 1996, (T. Saigusa). Distribution: China: Yunnan. New combination.

furcata (Yang & Saigusa), 2001a: 383, Figs. 18–22 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Luchun: 7–8 km E of Luchun, 1900–2000 m, 31 May 1996, (T. Saigusa). Distribution: China: Yunnan. New combination.

henanensis (Yang, Yang, & Li), 1998: 83 (*Neurigonella*). Holotype ♂ deposited CAU. Type-locality: China: Henan: Songxian, 18 July 1996, (Y. Chikun & C. Wanzhi). Distribution: China: Henan. New combination.

hesperia Runyon & Hurley. Holotype ♂ deposited CAS. Type-locality: United States: California: Humboldt County: McKinleyville, 18 July 1990, (R. Hurley). Distribution: United States: California, Oregon. *New species*

longa (Yang & Saigusa), 2001a: 385, Figs. 23–25 (*Neurigonella*). Holotype ♂ deposited CAU. Type-locality: China: Shaanxi: Fuping; Daping-Huamuqiao: WNW of Donghetai, 1550–1600 m, 28 June 1997, (T. Saigusa). Distribution: China: Shaanxi. New combination.

longiseta (Yang & Saigusa), 2000: 237, Fig. 44 (*Neurigonella*). Holotype ♂ deposited CAU. Type-locality: China: Sichuan: Emei Mountain: Linggongli, 1300–1400 m, 17 August 1998, (T. Saigusa). Distribution: China: Shaanxi, Sichuan. New combination.

luteipleurata (Yang & Saigusa), 2001a: 386, Figs. 26–28 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Pingbian: Daweishan, 1600–1700 m, 23 May 1996, (T. Saigusa). Distribution: China: Yunnan. New combination.

nigricornis (Van Duzee), 1914: 433, Figs. 1–4 (*Neurigona*). Holotype ♂ deposited CAS. Type-locality: United States: New York: Colden, 3 August 19 [last two digits of year not written], (M. C. Van Duzee). Distribution: Canada: Quebec; United States: New York, Massachusetts, Connecticut, Pennsylvania, Ohio, West Virginia, Virginia, Tennessee, North Carolina, South Carolina, Georgia, Florida. New combination.

pallipes (Yang & Saigusa), 2000: 237, Fig. 45 (*Neurigonella*). Holotype ♂ deposited CAU. Type-locality: China: Sichuan: Emei Mountain: Linggongli, 1300–1400 m, 17 August 1998, (T. Saigusa). Distribution: China: Sichuan. New combination.

pallipilosa (Yang & Saigusa), 2001b: 252, Figs. 44–46 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Nanxi-Quiatou: 37 km from Hekou, 200 m, 26 February 1995, (T. Saigusa). Distribution: China: Yunnan. New combination.

pilifera (Yang & Saigusa), 2001b: 253, Figs. 50–52 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Lushui: Gaolikungshan, 2550–2700 m, 13 August 1995, (T. Saigusa). Distribution: China: Yunnan. New combination.

pingbiana (Yang & Saigusa), 2001b: 253, Figs. 47–49 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Pingbian: Daweishan, 1800–2000 m, 24 May 1996, (T. Saigusa). Distribution: China: Yunnan. New combination.

sombrea (Harmston & Knowlton), 1945: 77 (*Neurigona*). Holotype ♂ deposited USNM. Type-locality: United States: Michigan: Midland County, 6 June 1941, (R. R. Dreisbach). Distribution: United States: Michigan, Indiana, Pennsylvania, Virginia, Tennessee, North Carolina, Georgia, New Mexico. New combination.

tatjanae (Negrobov), 1984: 1113, Figs. 4–6 (*Neurigonella*). Holotype ♂ deposited ZIN. Type-locality: USSR: Maritime Territory (far east): Kedrovaya pad, reserve, 22–26 June 1981, (Negrobov & Golubtsova). Distribution: Russia: far east. New combination.

trifurcata (Yang & Saigusa), 2000: 239, Figs. 46–48 (*Neurigonella*). Holotype ♂ deposited CAU. Type-locality: China: Sichuan: Emei: Jingshui, 650 m, 10 August 1998, (D. Yang). Distribution: China: Sichuan, Yunnan. New combination.

tuberculosa (Yang & Saigusa), 2001a: 387, Figs. 29–31 (*Neurigonella*). Holotype ♂ deposited CAU. Type-locality: China: Shaanxi: Zhouzhi: Shuimoping; SSW of Banfangzi, 1500–1650 m, 5 July 1997, (T. Saigusa). Distribution: China: Shaanxi. New combination.

yunnanensis (Yang & Saigusa), 2001a: 389, Figs. 32–34 (*Neurigonella*). Holotype ♂ deposited KIZ. Type-locality: China: Yunnan: Lijiang: Heishuihe: Yulongxueshan, 2800–2900 m, 15 June 1996, (T. Saigusa). Distribution: China: Yunnan. New combination.

zhouzhiensis (Yang & Saigusa), 2001a: 390, Figs. 35–37 (*Neurigonella*). Holotype ♂ deposited CAU. Type-locality: China: Shaanxi: Zhouzhi: Shuimoping; SSW of Banfangzi, 1500–1650 m, 5 July 1997, (T. Saigusa). Distribution: China: Shaanxi, Yunnan. New combination.

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