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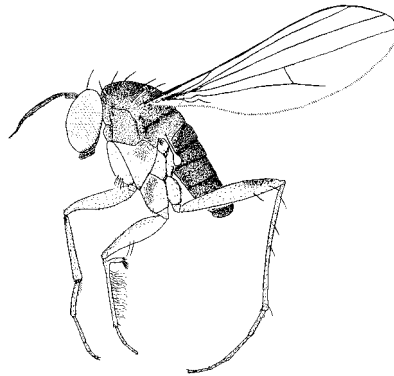
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REVIEW OF THE HAWAIIAN  
*CAMPSICNEMUS* SPECIES FROM KAUA'I  
(DIPTERA: DOLICHOPODIDAE), WITH  
KEY AND DESCRIPTIONS OF NEW SPECIES

*NEAL L. EVENHUIS*



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Cover: *Campsicnemus platystylatus* Hardy & Kohn, male habitus.

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## Review of the Hawaiian *Campsicnemus* Species from Kaua'i (Diptera: Dolichopodidae), with Key and Descriptions of New Species<sup>1</sup>

NEAL L. EVENHUIS (Hawaii Biological Survey, Bishop Museum, 1525 Bernice Street,  
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**Abstract.** The species of *Campsicnemus* Haliday occurring on the Hawaiian island of Kaua'i are reviewed. Previous to this study, eight species were known from the island, seven of which were endemic. Results of the current study remove one misidentified species, redescribe 7 previously described species and describe and illustrate 19 new species from Kaua'i (*C. amana*, n. sp., *C. asterisk*, n. sp., *C. keokeo*, n. sp., *C. kuku*, n. sp., *C. lawakua*, n. sp., *C. lipothrix*, n. sp., *C. longitarsus*, n. sp., *C. makua*, n. sp., *C. manaka*, n. sp., *C. neoplatystylatus*, n. sp., *C. panini*, n. sp., *C. pe*, n. sp., *C. penicillatoides*, n. sp., *C. polthemusi*, n. sp., *C. puali*, n. sp., *C. spuh*, n. sp., *C. uha*, n. sp., *C. unu*, n. sp., and *C. waialealeensis*, n. sp.), bringing the total number of *Campsicnemus* from Kaua'i to 26. A key to species occurring on Kaua'i is presented.

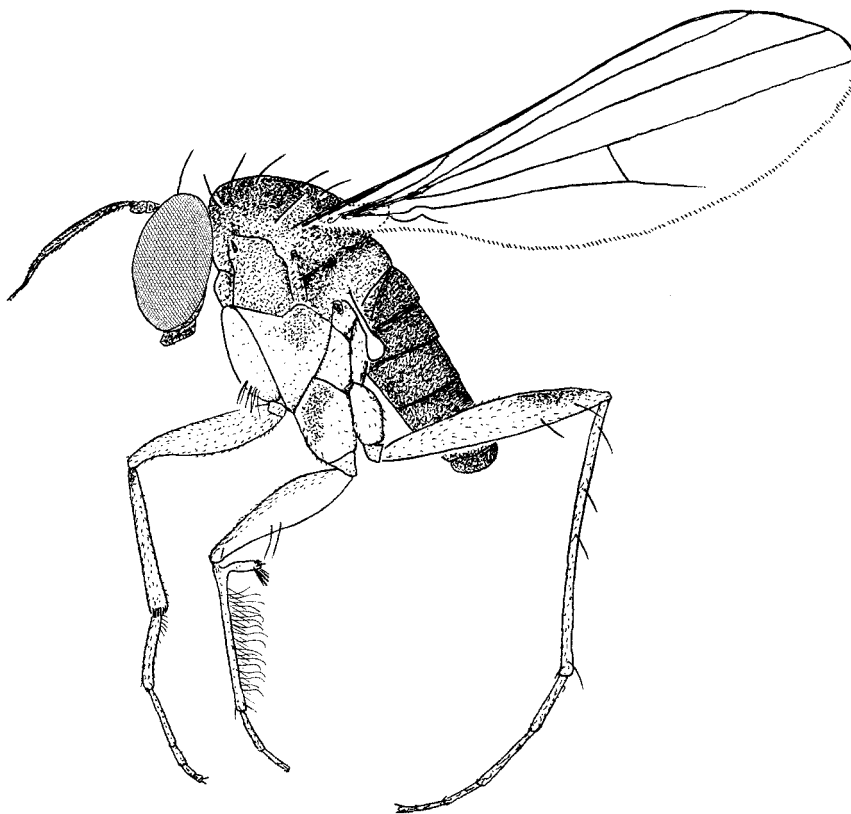
### Introduction

Since the monographic work of Hardy & Kohn (1964), little has been done to increase our knowledge of the dolichopodid fauna of Kaua'i, the oldest main island in the Hawaiian Island archipelago at 5.1 my (Carson & Clague, 1995). Hardy & Kohn (1964) recorded two previously described species (*C. nigricollis* Van Duzee and *C. plautinus* Adachi) and described 5 new species (*C. hispidipes*, *C. insuetus*, *C. norops*, *C. pherocteis*, and *C. platystylatus*). Tenorio's (1969) supplementary work to Hardy & Kohn (1964) described additional species from other Hawaiian Islands and added new distribution records for a few species. In that work only *C. penicillatus* Parent (previously known from Hawai'i Island and Moloka'i) was added to the Kaua'i faunal list. However, a re-examination of the Kaua'i *C. penicillatus* specimen shows that it was misidentified and is a separate new species (described herein as *C. penicillatoides*). More recently, Nishida (2002) added *C. ciliatus* as occurring on Kaua'i, but a check of the citation associated with this record in the database shows that an error was made in adding it to the Kaua'i list of species — *C. ciliatus* is known only from O'ahu. To date, all species of *Campsicnemus* that have been found on Kaua'i occur on no other Hawaiian Islands.

In this study all seven previously described species of *Campsicnemus* from Kaua'i were examined and, as a result of extensive collection efforts over the last 30 years, an additional 19 new species are described and illustrated. This brings the total number of species of *Campsicnemus* occurring on Kaua'i now to 26. No doubt many more undescribed species of this genus still occur on this island. A recent expedition to the top of Mt. Wai'ale'ale, the highest spot on the island and well-known as the "wettest spot on earth", yielded five new species in just a few days sampling by sweeping vegetation and yellow-pan trapping. More time in areas such as this could reveal many more species of this genus. Moreover, there are many parts of the island that are privately owned and/or into which access is often difficult or even impossible. If and when these areas are finally explored, it will no doubt add to the numbers of species of this genus from this island.

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1. Contribution No. 2003-012 to the Hawaii Biological Survey.



**Fig. 1.** *Campsicnemus platystylatus* male paratype, habitus.

Material from the following collections and institutions has been examined in the course of this study: Bishop Museum, Honolulu (BPBM), Canadian National Collection, Ottawa (CNC), Montana State University, Bozeman (MSUB), and the University of Hawaii at Mānoa, Honolulu (UHM).

Terminology for morphological characters generally follows Evenhuis (1997). Patterning of the mesonotum and pleura are important in many Hawaiian species and are illustrated here with thoracic sclerite terminology following McAlpine (1981).

## Systematics

### Genus *Campsicnemus* Haliday

*Medeterus* (*Camptosceles*) Haliday, 1832: 357. Suppressed by I.C.Z.N. (1958: 349) (Opinion 531).

*Leptopezina* Macquart, 1835: 554. Type species: *Diastata gracilis* Meigen, 1820, by monotypy.

*Nomen oblitum*. [I invoke Article 23.9.2 of the I.C.Z.N. Code (1999) in treating this name as a *nomen oblitum*, in that it has not been used as a valid taxon since 1899.]

*Campsicnemus* Haliday in Walker, 1851: 187. Type species: *Dolichopus scambus* Fallén, 1823, by validation of I.C.Z.N. (1958: 351) (Opinion 531). *Nomen protectum*. [I invoke Article 23.9.2 of the I.C.Z.N. Code (1999) in treating this name as a *nomen protectum* in that it has been used as a valid name by more than 25 works by at least 10 authors in the immediately preceding 50 years.]

*Camptoscelus* Kertész, 1909: 306 (unjustified emendation of *Camptosceles* Haliday). Type species: *Dolichopus scambus* Fallén, 1823, automatic.

The genus *Campsicnemus* in Hawai'i is extremely speciose. There are currently 138 described species (over half of the world's fauna of this genus) known from this small island group in the middle of the vast Pacific Ocean and many more undescribed species await description. All the species of *Campsicnemus* that occur in Hawai'i are found nowhere else.

Study of the genus is interesting for a variety of reasons. Not only is the speciose nature of the genus intriguing and beckons the systematist to discover how many species actually exist in the islands, but also ecological questions abound. For example, how can a "generalist" predator be so speciose in such a small area? What kind of partitioning is necessary to allow sympatry of up to 11 different species within a small 10-m<sup>2</sup> area? [Recently found coexisting in the Ola'a rainforest on the Big Island of Hawaii (N.L. Evenhuis, unpubl. observ.)] In addition, zoogeographical questions need answering: How did the genus get to Hawai'i? How long ago? From where? And how can one explain a distribution into Hawai'i and French Polynesia (Tahiti, Marquesas, and Austral Islands) of a genus that otherwise is found only north of the equator in the temperate northern latitudes of North America, Europe and Asia? It is hoped that some of these questions will be answered in the course of a long and continual study of the systematics of this genus in these islands.

In Hawai'i, there are three general types of *Campsicnemus* that can be roughly sorted based on general thoracic and abdominal coloration and correlated habitat characteristics:

black	=	water skaters
brown	=	leaf litter and low growing vegetation dwellers
yellow	=	higher vegetation and canopy dwellers

All three of these groups are represented in the Kaua'i fauna. Further separation into species groups and complexes can be done, using primarily male secondary sexual characters (MSSC). Details on these species groups are currently under study and will be published in a separate study.

Identification of Hawaiian *Campsicnemus* relies heavily upon males and especially the MSSC found primarily on various portions of the midleg; to a lesser extent on the fore and hindlegs. Male genitalia have not yet shown good characters for separation at the species level. Association of females is best done through contemporary correlation with males (i.e., females collected at the same time and place as the males) but is made diffi-

cult when two or more species are collected at the same time. Thoracic patterns have been shown to be a good character for associating females with males when such patterning is varied enough among different species. However, some females still may be left unassociated with males when thoracic coloration and patterning is similar among a number of different species.

Much work still needs to be done in analyzing the characters used in identification and phylogenetic analysis of species of this genus (as well as for dolichopodids throughout the Pacific). The species described and illustrated in this paper will be used in further phylogenetic studies of the genus including molecular analyses in hopes of obtaining more information as to the phylogenetics and genetic makeup of this unique group of flies in Hawai'i.

**Key to species of *Campsicnemus* occurring on Kaua'i (based on males)**

1. Mesonotum predominantly yellow with contrasting brown admedian vittae ..... 2
- Mesonotum predominantly black to yellowish brown, without contrasting admedian brown vittae; yellow color, if present, restricted to lateral margins ..... 4
2. Foreleg with some or all tarsomeres flattened, broad; TII with 4–5 strong black setae apically ..... 3
- Foreleg without flattened tarsomeres; TII with single strong black seta apically ..... **spuh** Evenhuis, **n. sp.**
3. Fore tarsomeres white; all fore tarsomeres broad, flattened (Fig. 17) ..... **pe** Evenhuis, **n. sp.**
- Fore tarsomeres yellow; only IIt2 and IIt3 broad, flattened (Fig. 22) ..... **plautinus** Adachi
4. Mesonotum and abdomen with metallic green to blue highlights when viewed in some angles ..... **norops** Hardy & Kohn
- Mesonotum without metallic sheen as above ..... 5
5. TII Y- or L-shaped due to long medial process (Figs. 2, 13, 21) ..... 6
- TII without such a medial process ..... 8
6. TII Y-shaped (Fig. 2); basal portion of tibia before medial process subequal in length to medial process; tibia with sparse, short setae; antennal arista not modified ..... **amana** Evenhuis, **n. sp.**
- TII L-shaped (Fig. 21); basal portion of tibia before medial process very short; tibia with long setae; antennal arista modified (Figs. 1, 43) ..... 7
7. Antennal arista flattened for most of its length (Fig. 1) ..... **platystylatus** Hardy & Kohn
- Antennal arista clubbed at apex, not flattened (Fig. 43) ..... **neoplatystylatus** Evenhuis, **n. sp.**
8. IIt2 small, at least one-half length of IIt3 ..... 9
- IIt2 subequal to or longer than IIt3 ..... 11
9. IIt2 with apical thorn-like spur (Fig. 19); TII with dense patches of short setae ..... **penicillatoides** Evenhuis, **n. sp.**
- IIt2 without such an apical spur; TII with setation patterned differently ..... 10

10. TII swollen subapically and subbasally; IIt2 with long, curly hairs (Fig. 27) ..... **unu** Evenhuis, **n. sp.**  
 -. TII not swollen as above; IIt2 and IIt3 with bare constriction at junction of two tarsomeres (Fig. 24); IIt2 without curly hairs ..... **puali** Evenhuis, **n. sp.**
11. TII with large swelling on basal third (Figs. 5, 6) ..... 12  
 -. TII without swelling as above ..... 13
12. TII with finger-like process extending from swollen area (Fig. 5); fore coxa and femur yellow ..... **insuetus** Hardy & Kohn  
 -. TII without such a process as above (Fig. 6); fore coxa and femur white ..... **keokeo** Evenhuis, **n. sp.**
13. Mesonotum yellow laterally, variously patterned brown medially ..... 14  
 -. Mesonotum uniformly yellowish brown to black when viewed dorsally, no contrasting yellow color present ..... 15
14. TII with basal process (Fig. 11); mid femur with sharp pointed process subapically, strong setae ventrally (Fig. 11a) ..... **makua** Evenhuis, **n. sp.**  
 -. TII without basal process; mid femur without ventral setae, without sharp pointed subapical process (Fig. 9) ..... **lipothrix** Evenhuis, **n. sp.**
15. Mesonotum uniformly yellowish brown (Fig. 35); pleura yellow with only mid and hind coxae yellowish brown ..... **polhemusi** Evenhuis, **n. sp.**  
 -. Mesonotum brown to black; pleura predominantly brown to black ..... 16
16. IIt1 subequal or shorter than IIt2 and possessing a spur ..... 17  
 -. IIt1 longer than IIt2, without a spur ..... 19
17. IIt1 with long hairs on apical half (Fig. 16); mid femur with long spiky setae along entire ventral surface ..... **panini** Evenhuis, **n. sp.**  
 -. IIt1 and mid femur not as above ..... 18
18. TII flattened and much wider subapically than at base (Fig. 8); IIt2 arising from middle of IIt1; TIII not wider apically than basally, without long hairs apically ..... **lawakua** Evenhuis, **n. sp.**  
 -. TII not as above, instead with erect truncate setae along mesal surface (Fig. 26); TIII wider apically than basally, with long dense hairs apically ..... **uha** Evenhuis, **n. sp.**
19. Pleura brown to black above, yellow below; TII with small barb-like process basomesally (Fig. 7b) ..... **kuku** Evenhuis, **n. sp.**  
 -. Pleura uniformly black to brown; TII without barb-like process ..... 20
20. TII with swelling at basal third, with dense patch of hairs (Fig. 20) ..... **pherocteis** Hardy & Kohn  
 -. TII without such a swelling on basal third ..... 21
21. TII with dense, long hairs along entire lateral surface (Figs. 3, 4) ..... 22  
 -. Long hairs on TII usually absent, if present, sparse and usually restricted to base and apex ..... 23

22. TII with long, erect hairs along basal three-fourths of mesal surface (Fig. 4); mid femur with 6–7 long setae ventrally ..... **hispidipes** Hardy & Kohn
- . TII with only small setae on basal half of mesal surface (Fig. 3); mid femur with small, stiff setae ventrally on subapical third ..... **asterisk** Evenhuis, **n. sp.**
23. TII long, bowed, with small patch of peg-like setae on basal curve (Fig. 28) ..... **waialealeensis** Evenhuis, **n. sp.**
- . TII without combination of above characters ..... 24
24. TII black, with 12–16 long erect truncate setae along basal two-thirds of mesal surface (Fig. 14); mid femur with erect truncate setae apicoventrally ..... **nigricollis** Van Duzee
- . TII brown, without long, truncate setae on mesal surface; mid femur without truncate setae apically ..... 25
25. IIt1 subequal in length to TII, with dense, long hairs along lateral surface (Fig. 10) ..... **longitarsus** Evenhuis, **n. sp.**
- . IIt1 one-fourth length of TII, without long hairs (Fig. 12) ..... **manaka** Evenhuis, **n. sp.**

**Campsicnemus amana** Evenhuis, **new species**

Fig. 2

**Diagnosis.** Using the key in Tenorio (1969), this species runs to *C. platystylatus* Hardy & Kohn. It can be distinguished from this species by the condition of the Y-shape of the male TII, where the basal portion of the tibia before the medial process is subequal in length to the medial process (in *C. platystylatus* TII is more L-shaped and this basal portion is about one-fifth to one-sixth the length of the medial process).

**Male. Head.** Face, front and clypeus brownish black, vertex shining dark brown; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, brown; proboscis brown, extending below eye in lateral view; antennal scape and pedicel yellowish, both flagellomeres and aristae broken off and missing.

**Thorax.** Brown throughout, darker brown on dorsum of mesoscutum and scutellum, brownish pollinose admedially; thoracic setae black: 3+1 dc; 2+1 np; 2 ph; 1 pa; 1 sc; ac absent.

**Legs.** Fore coxae yellowish, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 2) broad basally, slightly sinuous, tapering to thin apex, with pair of long black setae on ventral surface (MSSC); TII (Fig. 2) Y-shaped due to long protuberance basally near femur, protuberance with patch of long hairs apically, basal portion of “Y” that is attached to femur with minute setulae, long portion of “Y” with row of setae along lateral surface (MSSC); IIt and leg III unmodified, without MSSC.

**Wing** subhyaline; halter stem and knob brown.

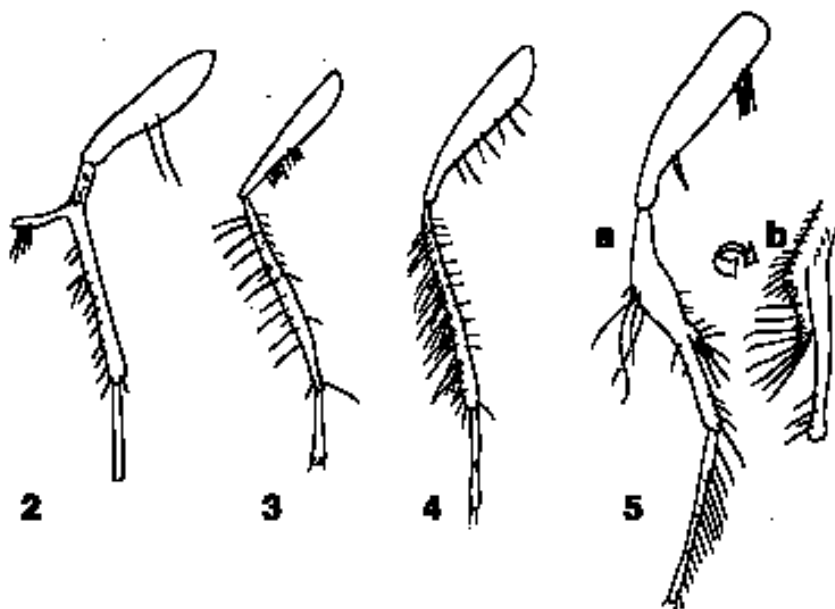
**Abdomen.** Dark brownish black with short black hairs dorsally on each tergite. Hypopygium brown, not dissected.

**Female.** Unknown.

**Types.** Holotype male (BPBM 15879), from **KAUA‘I:** Summit Camp, 23.ix.1922, O.H. Swezey. The holotype is glued on its right side to a pinned paper point; both antennal flagellomeres and aristae are broken off and missing; and the wings are matted together below the specimen; otherwise it is in fair condition.

**Discussion.** This species is known only from the unique holotype male collected in 1922. It is not clear if “Summit Camp” refers to Mt. Wai‘ale‘ale summit or some other place. The exact location could not be determined in this study.





**Figs. 2–5.** *Campsicnemus* midlegs (femur, tibia, and basitarsus). **2.** *C. amana*, n. sp. **3.** *C. asterisk*, n. sp. **4.** *C. hispidipes* Hardy & Kohn. **5.** *C. insuetus* Hardy & Kohn; **a**, midleg; **b**, tibia turned to show more of setation pattern and swelling near middle.

**Etymology:** The name derives from the Hawaiian ‘*āmana*, meaning “Y-shaped branch”. It refers to the bizarre modification of the mid tibia into a Y-shaped leg segment. The specific epithet is treated as a noun in apposition.

#### ***Campsicnemus asterisk* Evenhuis, new species**

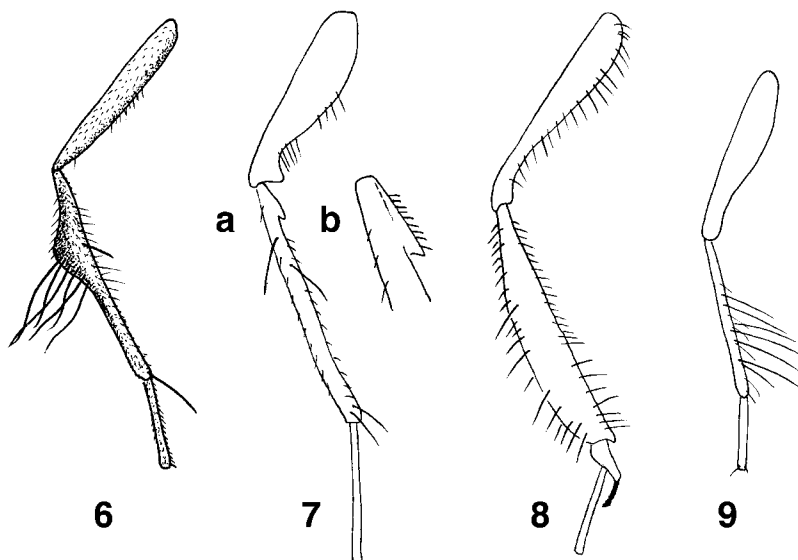
Figs. 3, 38

**Diagnosis.** This species is most similar to *C. crispatus* Tenorio but can be separated from it by the presence of short, stubby setae on the apicoventral surface of the male FII (these setae longer basally and present along the entire ventral surface of FII in *C. crispatus*) and the shorter and straight lateral setae on the male TII that are not curved apically (these setae are longer, finer and curved apically in *C. crispatus*).

**Male. Head.** Yellowish (cleared specimen); oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small; proboscis extending slightly below eye in lateral view; antenna (Fig. 38) yellow (cleared specimen); arista subequal to head height.

**Thorax.** Yellow (cleared specimen) except for brown laterotergite; thoracic setae: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 3–4 ac restricted to anterior half of mesonotum.

**Legs.** Legs yellow (cleared specimen). Leg I unmodified, without MSSC. FII (Fig. 3) broad basally, evenly tapering to apex, with 8–10 short, stubby setae on apical half of ventral surface



**Figs. 6–9.** *Campsicnemus* midlegs (femur, tibia, and basitarsus). **6.** *C. keokeo*, n. sp. **7.** *C. kuku*, n. sp.; a, midleg; b, detail of basal thorn-like projection of midtibia. **8.** *C. lawakua*, n. sp. **9.** *C. lipothrix*, n. sp.

(MSSC); TII (Fig. 3)  $1.33 \times$  length of FII, long, thin, with 10–12 long hairs laterally, short hairs basomesally, 2 longer hairs on apical 5/8 of mesal surface, single very long seta apicomeresally (MSSC); III and leg III unmodified, without MSSC.

**Wing** subhyaline; halter stem and knob white.

**Abdomen.** Yellow (cleared specimen). Hypopygium not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications.

**Types.** Holotype male (BPBM 15880) and paratype female from: **KAUA‘I:** Alaka‘i Trail to Kilohana, vii.1993, A. Asquith & T. Miramontes. Both deposited in BPBM. The type specimens are cleared from being in their original preservative (unknown chemical) before being transferred to ethanol when deposited in the BPBM.

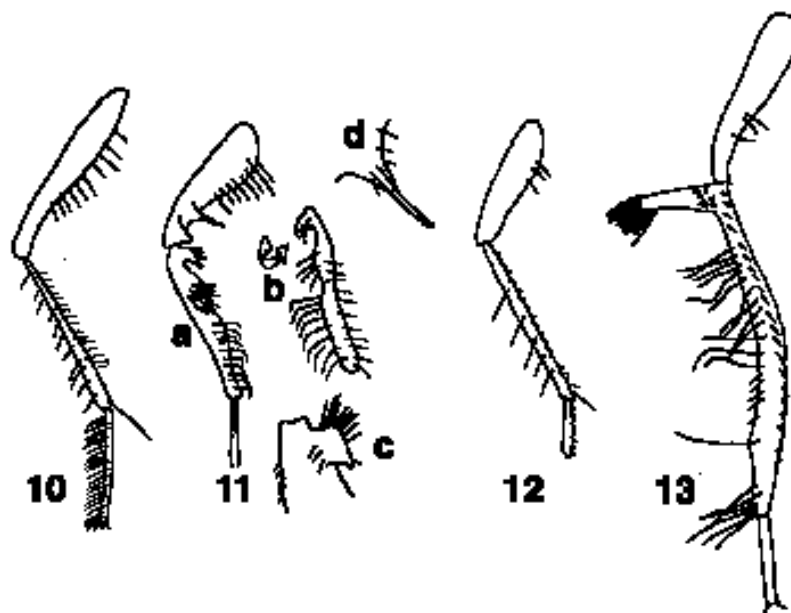
**Etymology:** The species epithet derives from the Greek *αστερισκος*, meaning “little star” and also refers to the fact that this species was no doubt just a footnote to the large number of empidids that were the primary target of the collectors at this locality.

### ***Campsicnemus hispidipes* Hardy & Kohn**

Figs. 4, 39

*Campsicnemus hispidipes* Hardy & Kohn, 1964: 100. Tenorio, 1969: 3, 23; Bickel & Dyte, 1989: 411; Nishida, 1992: 95; Nishida, 1994: 89; Nishida, 1997: 75. Nishida, 2002: 92.

**Redescription: Male. Head.** Face and clypeus brown, silvery pollinose, front and vertex brownish black, subshining, front gray pollinose; oc and vt black, about one-half length of antennal arista; eyes



**Figs. 10-13.** *Campsicnemus* midlegs (femur, tibia, and basitarsus). **10.** *C. longitarsus*, n. sp. **11.** *C. makua*, n. sp.; a, midleg; b, detail of tibia showing areas of MSSC and setation pattern; c, detail of basal flap-like process at base of tibia; d, detail of subapical process of femur with clear seta. **12.** *C. manaka*, n. sp. **13.** *C. neoplatystylatus*, n. sp.

holoptic below antennae; palp small, brown; proboscis brown, extending below eye in lateral view; antenna (Fig. 39) yellowish; arista subequal to head height.

**Thorax.** Brown throughout, darker brown on dorsum of mesoscutum, scutellum lighter brown, brownish pollinose admedially; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 2-3 pale ac.

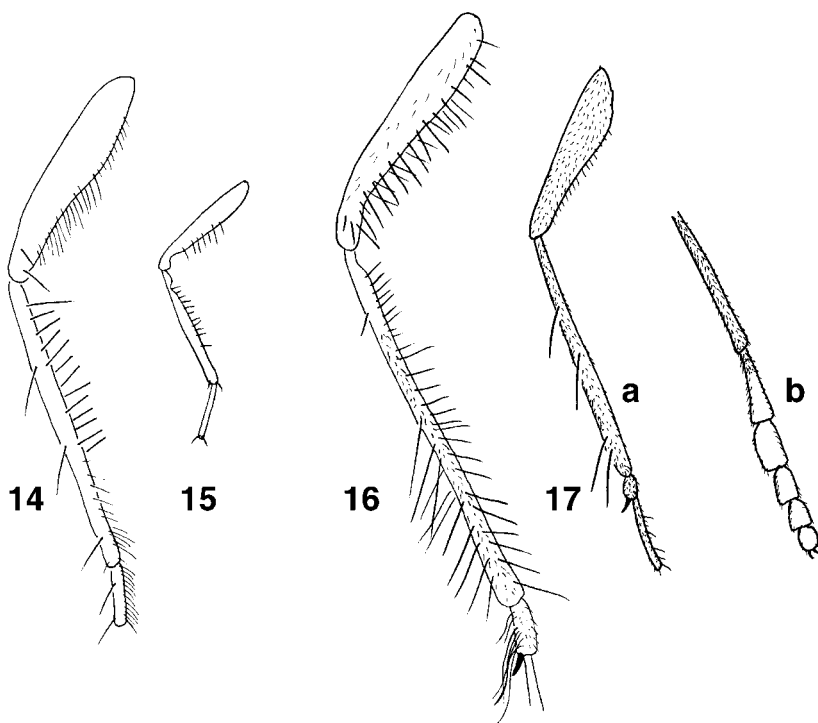
**Legs.** Mid coxae brown, remainder of legs yellowish to yellowish brown. Leg I unmodified, without MSSC. FII (Fig. 4) broad basally, tapering to thin apex, 6-8 long setae on ventral surface (MSSC); TII (Fig. 4) long, thin, slightly sinuous, with long hairs along entire lateral surface, shorter and more sparse stiff setae along basal one-third of mesal surface (MSSC); II<sub>t</sub>1 (Fig. 4) long, 2 × length of II<sub>t</sub>2, with slight constriction medially (MSSC); II<sub>t</sub>2-5 and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellow.

**Abdomen.** Brown with short black hairs dorsally on each tergite. Hypopygium brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications; antennal flagellomere slightly longer than in male.

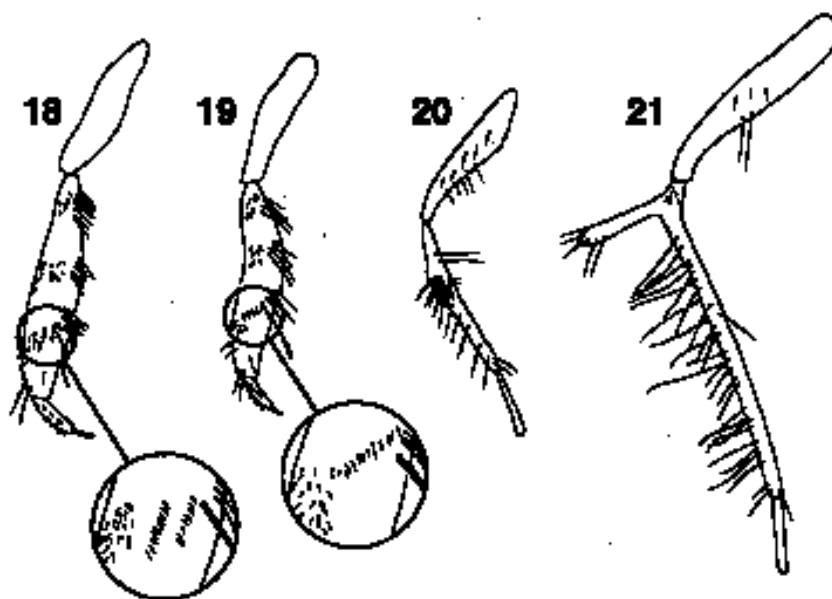
**Types.** Holotype male (BPBM 4118) and allotype female from: **KAUA'I:** Koke'e, 3600 ft., viii.1952, D.E. Hardy.



**Figs. 14-17.** *Campsicnemus* legs. **14.** *C. nigricollis* Van Duzee, midleg (femur, tibia, basitarsus). **15.** *C. norops* Hardy & Kohn, midleg (femur, tibia, basitarsus). **16.** *C. panini*, n. sp., midleg (femur, tibia, basitarsus). **17.** *C. pe*, n. sp.; **a**, midleg (femur, tibia, basitarsus); **b**, foreleg showing white tarsal segments.

**Other material examined:** 7, Wai'ala'e Cabin, 3600 ft., 19.v.1995, on vegetation, D.A. Polhemus (BPBM); 6, Wai'ala'e Cabin, 20.v.1995, D.A. Polhemus (BPBM); 1, Wai'ala'e Stream near Wai'ala'e Cabin, 18-20.v.1995, pan traps, D.A. Polhemus (BPBM); ?, Nualolo Valley, Lower Nualolo Stream, 0-200 m., 26.x.1992, yellow pans, D.A. Polhemus (BPBM); 1, Trail from Koke'e to Kalalau, 15.viii.1925, O.H. Swezey (BPBM); 2, Kaunuohua Ridge, 21.vii.1937, E.C. Zimmerman (BPBM); 1, Koke'e, 4-6.viii.1961, T.C. Maa, Miyatake, C.M. Yoshimoto (BPBM); 1, Koke'e, 11-17.ix.1965, C.M. Yoshimoto (BPBM); 1, Koke'e, 22.v.1979, D.E. Hardy (BPBM); 1, Alaka'i Swamp, 14.ix.1965, C.M. Yoshimoto (BPBM); 1, Miloli'i Valley, 2600 ft., 18.viii.1974, S.L. Montgomery (BPBM); 6, Berry Flat Trail, 2 mi. W. Koke'e Lodge, 3800 ft., 18.vi.1985, R. Hurley (MSUB); 1, Koke'e Camp, 3600 ft., 2.iv.1961, D.F. Hardwick (CNC); 10, Pihea-Kilohana Trail, Koke'e State Park, 1200 m, 25.iv.1979, wet forest pan trap, J.R. Vockeroth (CNC); 5, Koke'e State Park Headquarters, 1130 m, 24.iv.1979, J.R. Vockeroth (CNC).

**Etymology:** The name derives from the Latin *hispidus*, meaning "hairy"+ *pedis*, meaning "leg"; referring to the relatively hirsute condition of the male TIII.



**Figs. 18-21.** *Campsicnemus* midlegs (femur, tibia, and basitarsus). **18.** *C. penicillatus* Parent, with detail showing distinguishing setation pattern at apical third of midtibia. **19.** *C. penicillatoides*, n. sp., with detail showing distinguishing setation pattern at apical third of midtibia. **20.** *C. pherocteis* Hardy & Kohn. **21.** *C. platystylatus* Hardy & Kohn.

### ***Campsicnemus insuetus* Hardy & Kohn**

Figs. 5, 29, 40

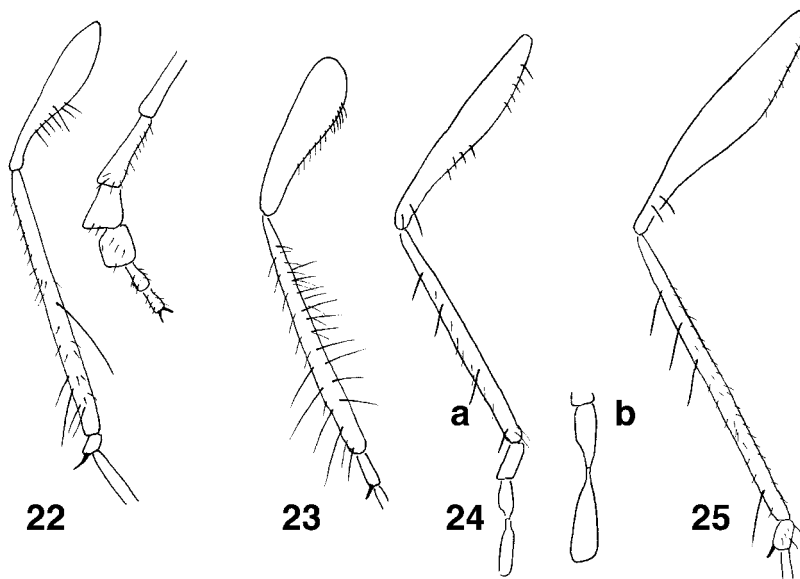
*Campsicnemus insuetus* Hardy & Kohn, 1964: 108. Tenorio, 1969: 3, 7; Bickel & Dyte, 1989: 411; Polhemus, 1992a: 2, 4; Nishida, 1992: 95; Nishida, 1994: 89; Nishida, 1997: 75.

**Redescription: Male. Head.** Face yellowish, clypeus brown, vertex shining dark brown with some blue-green highlights; oc and vt black, about one-half length of antennal arista; eyes holoptic for a small distance at middle below antennae; palp small, brown; proboscis yellowish-brown, extending below eye in lateral view; antenna (Fig. 40) brown; arista slightly longer than head height.

**Thorax** (Fig. 29). Mesonotum, scutellum and upper pleura brown to black, meron and metameron yellowish, latter with brown spot of color near hind coxa; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1+1 sc; 5-6 ac restricted to anterior one-fifth of mesonotum.

**Legs.** Fore coxae yellowish, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 5) brown basally, tapering to apex, slightly bent at apex, with two patches of setae on mesal surface, one at basal 1/5, the other at apical 2/3 (all MSSC); TII (Fig. 5) swollen at basal 1.3, swelling with 4-5 very long hairs laterally, with large darkly sclerotized process mediomesally, process with long hairs apically, shorter hairs basally (MSSC); IIt1 (Fig. 5) 2 × length of IIt2, with long hairs mesally, hairs becoming shorter apically (MSSC); IIt2-5 and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellow.



**Figs. 22–25.** *Campsicnemus* legs. **22.** *C. plautinus* Adachi; **a**, midleg (femur, tibia, basitarsus); **b**, foreleg showing flattened tarsomeres. **23.** *C. polhemusi*, n. sp., midleg (femur, tibia, basitarsus). **24.** *C. puali*, n. sp.; **a**, midleg (femur, tibia, basitarsus); **b**, detail of second and third tarsomeres showing constriction at junction of two segments. **25.** *C. spuh*, n. sp., midleg (femur, tibia, basitarsus).

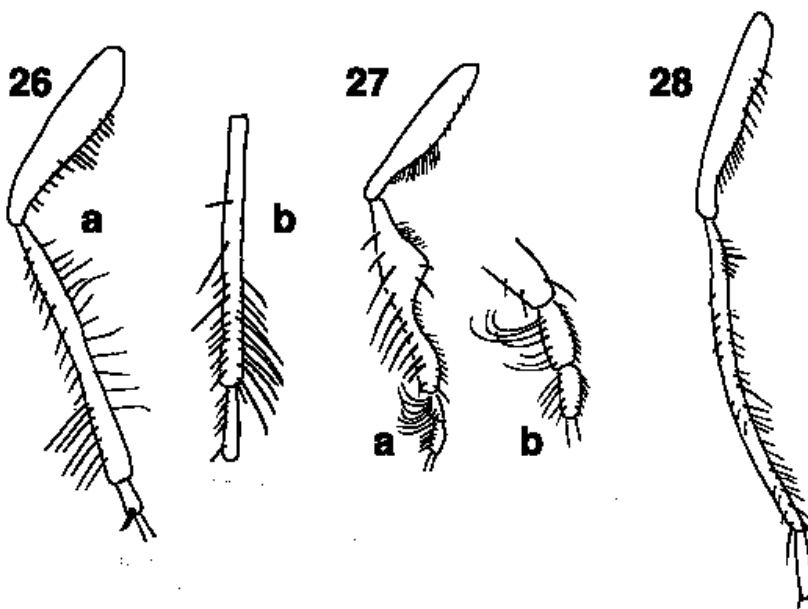
**Abdomen.** Dark brownish black with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications.

**Type.** Holotype male (BPBM 4123), from **KAUA'I**: Nualolo Valley, 3400 ft., vii.1952, D.E. Hardy.

**Other material examined.** 2, Wai'ala'e Stream near Wai'ala'e Cabin, 18-20.v.1995, pan traps, D.A. Polhemus (BPBM); 1, Head of Nualolo Valley, 3400 ft., vii.1952, D.E. Hardy (BPBM); 3, Mōhihi Stream, 27, 30.vii.1963, D.E. Hardy, J.A. Tenorio (BPBM); 2, Koke'e, behind cabin, 13.viii.1968, devac, J.A. Tenorio (BPBM); 1, Alaka'i Swamp at Pihea, 4000 ft., 30.vi.1985, R. Hurley (MSUB); 4, Koke'e, Mōhihi Trail, 13.viii.1968, devac, J.M. & J.A. Tenorio (UHM); 5, Koke'e, Mōhihi Stream, 30.vii.1963, D.E. Hardy (UHM); 1, Pihea-Kilohana Trail, Koke'e State Park, 1200 m, 25.iv.1979, wet forest pan trap, J.R. Vockeroth (CNC); 1, Kilohana Trail, Alaka'i Swamp, 1200 m, 22.iv.1979, J.R. Vockeroth (CNC); 1, Kū'ū Beach, Hanakāpī'ai Valley, 100–200 m, 21.iv.1979, J.R. Vockeroth (CNC).

**Etymology:** The name derives from the Latin *insuetus* = "strange, unusual"; referring to the bizarre modification of the male TII.



Figs. 26–28. *Campsicnemus* legs. 26, *C. uha*, n. sp.; a, midleg (femur, tibia, basitarsus); b, hind femur and basitarsus. 27, *C. unu*, n. sp. midleg (femur, tibia, basitarsus). 28, *C. waialealeensis*, n. sp.

#### ***Campsicnemus keokeo* Evenhuis, new species**

Figs. 6, 30, 41

**Diagnosis.** This species is most similar to *C. pherocteis* Hardy & Kohn but can be separated from it by the larger swelling of male TII with long wavy setae (these setae short, stiffer and more dense on a smaller swelling in *C. pherocteis*) and the absence of lateral surface setae on the apex of male TII (these lateral setae are present from the swelling to the apex in *C. pherocteis*).

**Male. Head.** Face yellowish white, clypeus brown, silvery pollinose, front and vertex brown, subshining black; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, brown; proboscis brown to yellowish-brown, extending below eye in lateral view; antenna (Fig. 41) with scape and pedicel yellowish brown, flagellomere brown, conical in shape; arista slightly longer than head height.

**Thorax** (Fig. 30). As in *C. insuetus* (Fig. 29) except coxae yellow with spot of black color medially on mid coxa near meron; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 5-6 pale ac.

**Legs.** Fore coxae yellowish, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 6) broad basally, evenly tapering to apex, with minute hairs mesomedially, single small hair apically (MSSC); TII (Fig. 6) swollen on basal one-third, with long dark thick hairs laterally on swelling, single strong seta mesally on swelling, otherwise mesal hairs short, fine, single long black seta apicomesally (MSSC); III and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem yellow, knob brown.

**Abdomen.** Brown with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications.

**Types.** Holotype male and two paratype males from **KAUA'I**: Pihea-Kilohana Trail, Koke'e State Park, 1200 m, 25.iv.1979, wet forest pan trap, J.R. Vockeroth. Holotype and one paratype male in CNC; one paratype male in BPBM.

**Etymology:** The name derives from the Hawaiian *ke'oke'o*, meaning "white", and refers to the characteristic white coxae and femora of the forelegs. The specific epithet is treated as a noun in apposition.

### **Campsicnemus kuku** Evenhuis, new species

Figs. 7, 32

*Campsicnemus* sp. undet. #2 (new). Polhemus, 1992a: 2.

**Diagnosis.** Keys to *C. ephydrus* Hardy & Kohn using the key to species in Tenorio (1969) but is distinguished from it by the sparser and generally weaker setation on the male TII (in *C. ephydrus* there are numerous strong, erect black setae on the anterior surface of TII; in *C. kuku* there are only strong subapical and subbasal setae, the remainder are weaker).

**Male. Head.** Face and clypeus gray, front and vertex brown pollinose, subshining in some portions; oc and vt black, about one-half length of antennal arista; clypeus slightly yellowish pollinose; face only slightly constricted at middle, eyes dichoptic below antennae; palp small, dark brown; proboscis brown to yellowish-brown, extending slightly below eye in lateral view; antennal scape and pedicel dark brown, flagellomere brown; arista slightly longer than head height.

**Thorax** (Fig. 32). Mesonotum and scutellum shining brown; pleura brown except katepisternum, meron, and metameron yellow; thoracic setae black: 4+1 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; ac absent.

**Legs.** Fore and hind coxae yellowish, mid coxa with brown coloration medially (Fig. 32), otherwise legs yellowish brown. Leg I unmodified, without MSSC. FII (Fig. 7) with swelling basally, tapering to broad apex, apex with blunt apicomeral projection, two patches of hair on mesal surface: one at basal swelling, one subapically (MSSC); TII (Fig. 7) two times length of basitarsus, with basal barb-like projection (Fig. 7b), single long lateral and single long mesal seta at basal 1/3, two long setae apically, otherwise, with minute setae along mesal and lateral surfaces (MSSC); II t1 (Fig. 7) three times length of II t2; II t and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellowish white.

**Abdomen.** Dark brown with short black hairs dorsally on each tergite, a few longer hairs laterally; venter paler brown. Hypopygium brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications.

**Types.** Holotype male (BPBM 15882) and two female paratypes from **KAUA'I**: small bog along Pihea Trail near Koke'e, 3900 ft., 26.iv.1992, D.A. Polhemus.

**Other paratypes:** 2, Upper Hanakoa Stream, Hono O Nā Pali NAR, 3800 ft., 26.iv.1992, D.A. Polhemus (BPBM); 4, Alaka'i Swamp at Pihea, 4000 ft., 30.vi.1985, R. Hurley (MSUB); 30, Pihea-Kilohana Trail, Koke'e State Park, 1200 m, 22.25.iv.1979, wet forest pan trap, J.R. Vockeroth (CNC); 11, Kilohana Trail, Alaka'i Swamp, 1200 m, 22.iv.1979, wet forest pan trap, J.R. Vockeroth (CNC).

**Etymology:** The name derives from the Hawaiian *kukū*, meaning "barb" or "thorn", referring to the small barb subbasally on the male TII. The specific epithet is treated as a noun in apposition.



***Campsicnemus lawakua* Evenhuis, new species**

Figs. 8, 42

*Campsicnemus* sp. Englund *et al.*, 2000: 102.*Campsicnemus* n. sp. Englund & Polhemus, 2001: 270.

**Diagnosis.** This species fits in the group of species of Hawaiian *Campsicnemus* that have a small Ilt1 with a long spur (e.g., *C. compressus*, *C. goniochaeta*, *C. hoplitipodus*, *C. pycnochaeta*) but is easily distinguished from species in that group by the characteristic shape of the TII and the presence of relatively long, erect setae on the apical one-third of the male TII (Fig. 8) (these setae absent or otherwise modified in other species in that group).

**Male. Head.** Brown; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp broad, brown; proboscis large, dark brown, extending well below eye in lateral view; antenna (Fig. 42) brown, flagellomere extremely long, pointed; arista slightly longer than head height.

**Thorax.** Brown throughout, darker brown on dorsum of mesoscutum and scutellum, brownish pollinose admedially; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 7–8 ac.

**Legs.** Fore coxae yellowish brown, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 8) thin, evenly tapering to apex, with hairs along entire ventral surface (MSSC); TII (Fig. 8) distinctly broader apically than basally, somewhat flattened, with long, stiff hairs on mesal and lateral surfaces (MSSC); Ilt1 (Fig. 8) slightly shorter than Ilt2, with black spatulate apical spur (MSSC); Ilt2–5 and leg III unmodified, without MSSC.

**Wing** translucent brownish; halter stem yellow, knob brown.

**Abdomen.** Brown with short black hairs dorsally on each tergite. Hypopygium brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications.

**Types.** Holotype male (BPBM 15883) and paratype female from: **KAUA'I:** Upper Hanakoa Stream, Hono O Nā Pali NAR, 3800 ft., 26.iv.1992, yellow pan trap, D.A. Polhemus.

**Other paratypes:** **KAUA'I:** 1, Upper Hanakoa Stream, Hono O Nā Pali NAR, 3800 ft., 26.iv.1992, margins of waterfall, D.A. Polhemus (BPBM); 2, Mt. Wai'ale'ale Stream, summit area, 4850–5100 ft., 17.v.1995, D.A. Polhemus (BPBM); many, Mt. Wai'ale'ale, summit area, 4850–5100 ft., 16–17.v.1995, D.A. Polhemus, A. Asquith, J.K. Lieberr (BPBM); 11, Koai'e Stream, 3300 ft., 7.viii.2000, water skaters on pool, R.A. Englund (BPBM); 4, Pihea-Kilohana Trail, Koke'e State Park, 1200 m, 25.iv.1979, wet forest pan trap, J.R. Vockerth (CNC).

**Discussion.** Because of the peculiar and distinctive shape of the male TII, it has been nicknamed the “Popeye Water Skater” dolichopodid.

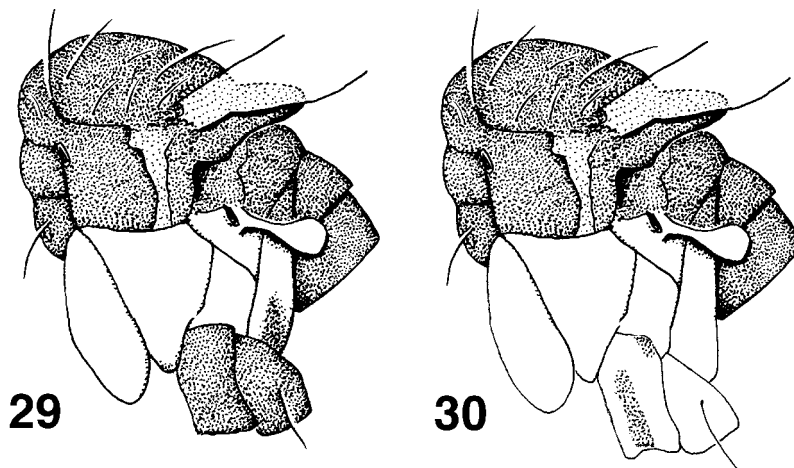
**Etymology.** The name derives from the Hawaiian *lawakua*, meaning “muscular”, “strong”; referring to the broad, flattened TII in the males. The specific epithet is treated as a noun in apposition.

***Campsicnemus lipothrix* Evenhuis, new species**

Figs. 9, 31

**Diagnosis.** This species similar to *C. crossotus* Hardy & Kohn but can be separated from it by the absence of strong setae on the ventral surface of the male mid femur (present in *C. crossotus*) and the shorter male TII with very long setae that are slightly longer than the segment itself (in *C. crossotus* the tibia is longer and the setae very much shorter).

**Male. Head.** Dark brown to black, face gray pollinose; oc and vt black, about one-half length of antennal arista; clypeus gray pollinose; face slightly constricted at middle, eyes dichoptic below antennae; palp small, brown; proboscis yellowish-brown, extending well below eye in lateral view; antenna as in *C. asterisk* (cf. Fig. 38) with scape and pedicel dark brown, flagellomere brown, very



**Figs. 29–30.** *Campsicnemus* thoraces, lateral view, diagrammatic showing patterning. (not all setation shown). **29**, *C. insuetus* Hardy & Kohn. **30**, *C. keokeo*, n. sp.

long; arista slightly longer than head height.

**Thorax** (Fig. 31). Yellowish with brown pattern on dorsum as in Fig. 31b; scutellum brownish; pleura yellowish except for proepimeron, anteprepronotum, anepimeron, laterotergite, and mediotergite; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 1 ac.

**Legs.** Fore coxae yellowish, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 9) with swelling basally, tapering to apex, without setae ventrally; TII (Fig. 9) long, thin, 2.5 × length of IIt1, with very long hairs on apicomesal half (MSSC); IIt1 subequal in length to IIt2; IIt2–5 and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem yellow, knob white.

**Abdomen.** Yellowish brown to tan, with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium yellowish, not dissected.

**Female.** Unknown.

**Types.** Holotype male (BPBM 15884), from **KAUA‘I:** Mt. Wai‘ale‘ale, summit area, 4850–5100 ft., 16–17.v.1995, pan trap, D.A. Polhemus, A. Asquith, J.K. Liebherr (BPBM).

**Discussion.** This species is only known from the unique holotype male, which was collected on top of Mt. Wai‘ale‘ale in yellow pan traps along with four other new species of *Campsicnemus*.

**Etymology:** The name derives from the Greek λιποθριξ, meaning bare, hairless; referring to the hairless condition of the mid femur of the male.

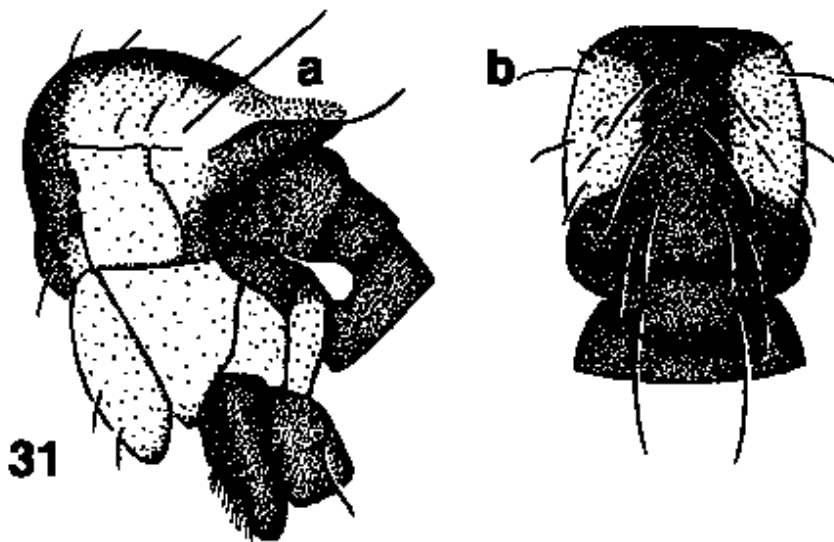


Fig. 31. *Campsicnemus lipothrix*, n. sp., thorax, diagrammatic, showing patterning.(not all setation shown); a, lateral view; b, dorsal view.

### ***Campsicnemus longitarsus* Evenhuis, new species**

Fig. 10

**Diagnosis.** This species is most similar to *C. brevitibia* Hardy & Kohn but is easily separated from it by the shape of the male TII (widest subapically in *C. brevitibia*; only slightly wider apically than basally in *C. longitarsus*, n. sp.) and the different setation pattern on the male TII.

**Male. Head.** Brown; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, brown; proboscis brown, not extending much below eye in lateral view; antenna as in *C. hispidipes* (cf. Fig. 39) yellowish brown; aristae of both antennae broken off and missing.

**Thorax.** Brown dorsally; pleura brown except for yellow katepisternum; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 5-6 pale ac.

**Legs.** Fore and hind coxae yellowish, mid coxa brown, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 10) broad basally, tapering to apex, with stiff hairs along mesal surface from basal 1/4 to apical 1/4 (MSSC); TII (Fig. 10) very slightly wider apically than basally, with hairs along lateral and mesal surfaces, strong black setae at apex (MSSC); IIt1 (Fig. 10) 2.5 × length of IIt2, with dense, long thin hairs along lateral surface (MSSC); IIt2-5 and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellowish.

**Abdomen.** Dark brownish black with short brown hairs dorsally on each tergite. Hypopygium brown, not dissected.

**Female.** Unknown.

**Types.** Holotype male (BPBM 15885), from **KAUA'I:** Koke'e, 11-17.ix.1965, C.M. Yoshimoto.

**Discussion.** This species is only known from the unique male holotype.

**Etymology:** The name derives from the Latin *longus*, meaning "long" + *tarsus*; referring to the relatively long second tarsomere of the male midleg.

**Campsicnemus makua** Evenhuis, **new species**

Figs. 12, 34

*Campsicnemus* sp. undet. (new). Polhemus, 1992b: 8, 12.

**Diagnosis.** Most similar to *C. philohydratus*, *C. sinuatus* and *C. crinitibia* due to the presence of a truncate basal process of the male TII. *Campsicnemus makua*, n. sp. can be separated from these species by the presence of a sharply pointed subapical process on the mesal surface of the mid femur that possess a long, clear barb (Fig. 12a, d) (this femoral process absent in the other three species).

**Male. Head.** Brown; oc and vt black, about one-half length of antennal arista; eyes holoptic for short distance below antennae; palp small, brown; proboscis brown to yellowish-brown, extending slightly below eye in lateral view; antenna yellowish, shape as in *C. asterisk* (cf. Fig. 38); arista subequal to head height.

**Thorax** (Fig. 34). Yellowish brown with brown patten medially on dorsum as in Fig 34b; pleura yellowish white except for anepimeron and laterotergite brown, mediotergite brown medially as continuation of dorsal brown pattern; thoracic setae black: 4+1 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; ac absent.

**Legs.** Fore and hind coxae yellowish, mid coxa with brown and dark brown pattern as in Fig. 34a, remainder of legs yellowish brown. Leg I unmodified, without MSSC. FII (Fig. 11) with swelling ventrally and triangular flap-like process apically, sharp process subapically with clear barb (Fig. 11d) (all MSSC); TII (Fig. 11a–c) with basal projection and two admedial swellings, basalmost swelling with dense patch of setae, apicalmost swelling with long hairs bent at 90° angle apically (Fig. 11b), basal projection (Fig. 11c) with mesal and lateral patches of hairs (MSSC); III and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob white.

**Abdomen.** Yellowish brown with short hairs dorsally on each tergite. Hypopygium yellowish brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications; antennal flagellomere much shorter, stubby (cf. Fig. 39).

**Types.** Holotype male (BPBM 15886) and paratype female from: **KAUA'I:** Nualolo Valley, lower Nualolo Stream, 0–200 m, 26.x.1992, D.A. Polhemus.

**Discussion.** This species is a water skater found only on the lower Nualolo Stream. Polhemus (1992a: 12) stated that "was taken from the surface of cut-off side pools, which it shared with the introduced ephydrid *Clasiopella uncinata*." It is unusual for a native insect to be found at such a low elevation in Hawai'i; most *Campsicnemus* species are found at elevations well over 600 m.

**Etymology:** The name derives from the Hawaiian *makua*, meaning "progenitor", referring to the species being found on Kaua'i, the oldest of the main emergent Hawaiian Islands. The specific epithet is treated as a noun in apposition.

**Campsicnemus manaka** Evenhuis, new species

Fig. 12

**Diagnosis.** This species is most similar to *C. setiger* Hardy & Kohn but can be separated from it by the lack of a dense clump of basal setae on the male TII (present in *C. setiger*) and the only 3 ventral setae on the male FII (7–8 in *C. setiger*). It is also similar to *C. norops* Hardy & Kohn by having slight metallic highlights on the scutellum and posterior mesonotum but is easily separated from *C. norops* by the leg and antennal features (cf. Figs. 12, 15 and 41, 42, respectively).

**Male. Head.** Dull dark brownish black; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, brown; proboscis brown, extending below eye in lateral view; antenna brown, as in *C. lawakua*, n. sp. (fig. 42); arista subequal to head height.

**Thorax.** Uniformly brown throughout; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; ac absent.

**Legs.** Coxae brown. Leg I unmodified, without MSSC. FII (Fig. 12) broad basally, slightly tapering to broad apex, with 3 small hairs on mesal surface at basal 1/3 (MSSC); TII (Fig. 12) long, thin, with 5 long hairs on apical 1/2 of lateral surface (MSSC); IIt1 subequal in length to IIt2; IIt and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem yellow, knob dark yellowish brown.

**Abdomen.** Brown with short black hairs dorsally on each tergite. Hypopygium brown, not dissected.

**Female.** Unknown.

**Types.** Holotype male (BPBM 15887) from **KAUA'I:** Koke'e, 11–17.ix.1965, C.M. Yoshimoto.

**Discussion.** This species is only known from the unique male holotype.

**Etymology:** The name derives from the Hawaiian *manakā*, meaning “boring”, “nothing”; referring to the lack of any modifications to the male TII. The specific epithet is treated as a noun in apposition.

**Campsicnemus neoplatystylatus** Evenhuis, new species

Figs. 13, 43

**Diagnosis:** This species is closest to *C. platystylatus* but is easily separated from it by the male with a terminally clubbed arista (Fig. 43) and the different setation of TII.

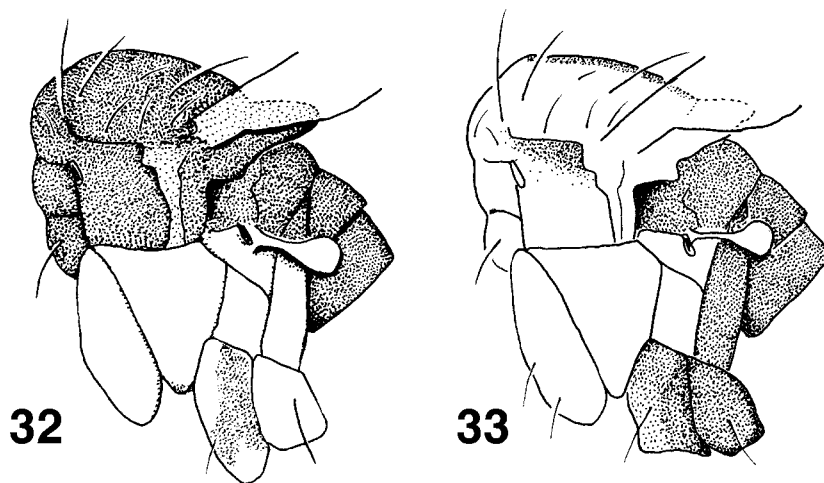
**Description: Male. Head.** Dark brown; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, brown; proboscis brown to yellowish-brown, extending below eye in lateral view; antenna (Fig. 43) yellowish brown; arista longer than head height, with conspicuous terminal club as in *C. patellifer* Grimshaw.

**Thorax.** Brown on dorsum of mesoscutum and scutellum, yellow laterally on mesonotum; pleura brown except katapisternum and meron yellow; thoracic setae black: 3+1 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 1 ac.

**Legs.** Fore and hind coxae yellowish, mid coxa brown; femora white, brownish apically. Leg I unmodified, without MSSC. FII (Fig. 13) broad basally, tapering to thin apex, with 3 (2 + 1) setae on ventral surface (MSSC); TII (Fig. 13) L-shaped due to long process basally, basal process with dense patch of long hairs apically and minute setulae basally, basal portion of “L” that is attached to femur with longer setulae, long portion of “L” with patches of wavy setae along lateral surface; swollen area at apical 3/4 with long black setae, dense patch of wavy setae apically (all MSSC); IIt1 (Fig. 14) subequal in length to IIt2, with minute black spatulate apical spur (MSSC); IIt and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellowish white.

**Abdomen.** Brown with darker brown transverse stripes on posterior margins of tergites, with short black hairs dorsally on each. Hypopygium yellowish brown, not dissected.



**Figs. 32–33.** *Campsicnemus* thoraxes, lateral view, diagrammatic showing patterning. (not all setation shown). **32.** *C. kuku*, n. sp. **33.** *C. plautinus* Adachi.

**Female.** Unknown.

**Types.** Holotype male (BPBM 16504) and one paratype male from **KAUA‘I**: [valley on Nā Pali coast of Kaua‘i], 16–18.vii.1999, leaf litter under *Melicope peniculata*, D. Hopper [exact locality on file; withheld by request of landowner].

**Other paratypes:** **KAUA‘I**: 1, topotypic, same data as that of types except “sweeps through *Psychotria*”. Types and paratypes in BPBM.

**Etymology:** The name derives from the Greek νεο- = new + *platystylatus*, referring to the closeness in appearance to *C. platystylatus*.

### ***Campsicnemus nigricollis* Van Duzee**

Fig. 14

*Campsicnemus nigricollis* Van Duzee, 1933: 320. Bryan, 1934: 448; Williams, 1940: 293; Hardy & Kohn, 1964: 126; Tenorio, 1969: 4, 11; Bickel & Dyte, 1989: 411; Nishida, 1992: 95; Nishida, 1994: 89; Nishida, 1997: 75; Polhemus, 1995: 95, 96, 98, 99, 102, 104, 105, 111, 114. Englund *et al.*, 2000: 102. Englund & Polhemus, 2001: 270. Nishida, 2002: 93

**Redescription. Male. Head.** Dull black; oc and vt black, about one-half length of antennal arista; eyes slightly dichoptic below antennae; palp small, dark brown; proboscis brown, extending below eye in lateral view; antenna dark brown, shape as in *C. hispidipes* (cf. Fig. 39); arista subequal to head height.

**Thorax.** Dark brown throughout; thoracic setae black: 4+1 dc; 2+1 np; 1+1 ph; 1 pa; 1+1 sc; 8–10 ac.

**Legs.** Legs brown, fore and mid coxae hirsute along fore margin, leg I otherwise unmodified. FII (Fig. 14) broad basally, slightly tapering to fairly broad apex, with fine hairs along entire mesal surface, 2 strong black setae apically (all MSSC); TII (Fig. 14) long, 5 × length of IIt1, with about



**Figs. 34.** *Campsicnemus makua*, n. sp., thorax, showing patterning (not all setation shown); **a**, lateral view; **b**, dorsal view.

a dozen or so stiff setae (comb-like in appearance) on basal half of mesal surface, fine hairs apicomeresally, 3 long setae laterally (MSSC); II1 (Fig. 14) short, subequal in length to II2, with fine hairs on mesal surface, 2 strong setae on lateral surface (MSSC); II2-5 and leg III unmodified, without MSSC.

**Wing** smoky brown; halter stem and knob brown.

**Abdomen.** Dark brown with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium shiny dark brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications.

**Types.** Holotype male (BPBM 4047) from **KAUA'I:** Koke'e, 3500± ft., 13.xi.1931, active water skater, F.X. Williams.

**Other material examined.** 21, Waiahuakua Stream at Kalalau Trail, 120 m, 30.iii.1993, D.A. Polhemus (BPBM); 11, Waiahuakua Stream at Kalalau Trail, 140 m, 20.iii.1993, D.A. Polhemus (BPBM); 3, Pu'u Kilohana Trail, stream, 3700 ft., 6.x.1991, water strider, W.D. Perreira (BPBM); 1, Koke'e, Mōhihi Trail, 13.vii.1968, devac, J.M. & J.A. Tenorio (BPBM); 1, Alaka'i Swamp, 3.i.1936, R.L. Usinger (BPBM); Lumaha'i River, Station 2, 1400 ft., 9.xi.1994, on water surface, D.A. Polhemus (BPBM); many, Upper Hanakoa Stream, Hono O Nā Pali NAR, 3880 ft., 26.iv.1992, D.A. Polhemus (BPBM); 6, Wainiha River at hydro diversion weir, 215 m., 1.iv.1993, D.A. Polhemus (BPBM); 7, Upper Awa'awapuhi Stream, near Koke'e, 3950 ft., 28.iv.1992, D.A. Polhemus (BPBM); Upper midreach of Hanalei River and tributary, Station 3, 600 ft., 4.xi.1994, D.A. Polhemus (BPBM); 4, west branch of upper Lumaha'i River below falls, 1400 ft., 9.xi.1994, side pools, D.A. Polhemus (BPBM); 7, Kawaikōi Stream, 3450 ft., 5.i.2002, pool skating (R.A. Englund, P. Scott) (BPBM).

**Discussion.** This species is a water skater found throughout the island of Kaua'i. It is one of the most common species collected on the island and shows virtually no varia-

tion in the salient characters that distinguish the species.

**Etymology:** The name derives from the Latin *nigri*, meaning “black” + *collis*, meaning “hill”. The significance of the name is unknown but may refer to the general blackness of this species as it skates upon the water.

**Campsicnemus norops** Hardy & Kohn

Fig. 15

*Campsicnemus norops* Hardy & Kohn, 1964: 128. Tenorio, 1969: 4, 16; Bickel & Dyte, 1989: 411; Polhemus, 1992a: 2; Nishida, 1992: 95; Nishida, 1994: 89; Nishida, 1997: 75. Nishida, 2002: 93.

**Redescription: Male. Head.** Face and clypeus black, gray pollinose; front and vertex shining black with magenta or blue to blue-green highlights; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, brown; proboscis brown to yellowish-brown, not extending much below eye in lateral view; antenna yellow, shape as in *C. keokeo*, n. sp. (cf. Fig. 41); arista subequal to head height.

**Thorax.** Uniformly brown throughout, with characteristic blue-green, blue, and/or magenta highlights when viewed from various angles; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; ac absent.

**Legs.** Fore coxae yellowish, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 15) broad basally, tapering to apex, with subapical notch, mesal surface with 7–8 hairs on medial one-third (MSSC); TII (Fig. 15) slightly wider apically than basally, with subbasal notch mesally, with about a dozen stiff setae (comb-like) along mesal surface (MSSC); IIt1 (Fig. 15) subequal in length to IIt2, with minute black spatulate apical spur (MSSC); IIt and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellowish.

**Abdomen.** Brown, with blue-green, blue, and/or magenta highlights, with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications.

**Types.** Holotype male (BPBM 4134), from **KAUA‘I:** Alaka‘i Swamp, viii.1952, 3800 ft., D.E. Hardy.

**Other material examined. KAU‘I:** 5, Koke‘e, 4-6.viii.1961, T.C. Maa, Miyatake, C.M. Yoshimoto (BPBM); 1, Koke‘e, 26.viii.1958, light trap, J.W. Beardsley (BPBM); 1, Kahōluamanu, 9.vii.1928, A.M. Adamson (BPBM); 4, Kumuweia Trail, Koke‘e, 30.vii.1963, D.E. Hardy (BPBM, UHM); 1, Berry Flat Trail, 2 mi. W. Koke‘e Lodge, 3800 ft., 18.vi.1985, R. Hurley (MSUB); 2, Koke‘e, Mōhihi Stream, 29.vii.1963, D.E. Hardy (UHM); 3, Koke‘e, 13.ix.1965, J.W. Beardsley (UHM); 2, Pihea-Kilohana Trail, Koke‘e State Park, 1200 m, 25.iv.1979, wet forest pan trap, J.R. Vockeroth (CNC); 6, Koke‘e State Park Headquarters, 1130 m, 24.iv.1979, J.R. Vockeroth (CNC); 1, Nāpali-Kona Forest Reserve, 29.ix.1997, fogging *Metrosideros*, #1231-001 (D. Gruner) (BPBM).

**Discussion.** The illustration of the midleg in Hardy & Kohn (1964) is inaccurate. The setation on TII is actually similar to that of *C. nigricollis* in possessing a row of short, stiff setae along the basoventral surface. Aside from the 1928 collection at Kahōluamanu, this species appears to be restricted to the Koke‘e area of north central Kuaa‘i at elevations above 3000 ft.

**Etymology.** The name derives from the Greek *voropos*, meaning “bright, flashing, gleaming”; referring to the characteristic metallic greenish hue of the mesonotum and abdomen of this species.



**Campsicnemus panini** Evenhuis, new species

Fig. 16

**Diagnosis.** This species is easily distinguished from all Hawaiian congeners by the long, stiff, spiky setation of the male FII and the corresponding spiky setation on the apical half of the male TII (Fig. 16).

**Male. Head.** Face and clypeus blackish, gray pollinose, front brown pollinose, vertex dull black, gray pollinose; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, brown; proboscis brown, only slightly extending below eye in lateral view; antenna shaped as in *C. asterisk*, n. sp. (cf. Fig. 38) with scape yellow, pedicel and flagellomere brown; arista subequal to head height.

**Thorax.** Dull light brown throughout except dark brown metamerone; thoracic setae (except ac) black: 4+1 dc; 2+1 np; 1+1 ph; 1 pa; 1+2 sc; 7–8 brown ac.

**Legs.** Fore coxae yellowish, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 16) broad basally, slightly tapering to slightly bent apex, with stiff spiky setae along ventral surface in two close associated rows, two small setae apically (all MSSC); TII (Fig. 16) slightly wider apically than basally, with notch subbasally, long spiky setae along mesal surface (longest apically) and apicolaterally, single small setae basolaterally (MSSC); IIt1 (Fig. 16) subequal in length to IIt2, with minute black thorn-like apical spur and long way hair on apical half (MSSC); IIt2–5 and leg III unmodified, without MSSC.

**Wing** hazy brown with pale brownish infuscation along wing veins, infuscation darkest along medial veins; halter stem and knob yellowish brown.

**Abdomen.** Dull light brown with pale lateral areas on tergites II–V, short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium pale grayish brown, not dissected.

**Female.** As in male except for lack of MSSC; mesonotum with only 4 ac; legs normal, without modifications; antennal flagellomere short, stubby (cf. Fig. 39).

**Types.** Holotype male (BPBM (15888) from **KAUA'I:** Kāhili, 2700 ft., 2.ix.1970, reared ex *Clermontia* stems, S.L. Montgomery (BPBM).

**Other paratypes:** **KAUA'I:** 1 female, topotypic, collected at same locality except reared ex *Cheirodendron* bark (BPBM); 1, Koke'e, Mōhihi Stream, 26.viii.1970, reared ex *Tetraplasandra* bark, S.L. Montgomery (BPBM).

**Etymology.** The name derives from the Hawaiian *pānini*, meaning “cactus”; referring to the characteristic spiny, prickly, long setation of the male TII. The specific epithet is treated as a noun in apposition.

**Campsicnemus pe** Evenhuis, new species

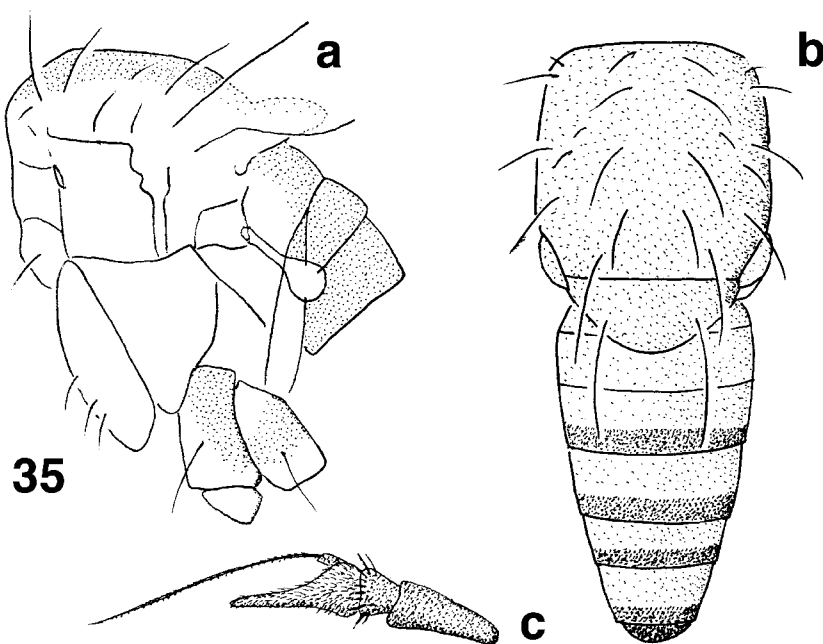
Fig. 17

**Diagnosis.** This species is most similar to *C. plautinus* Adachi by virtue of the flattened fore tarsomeres. It can be separated from *C. plautinus* by the flattened condition of all the fore tarsomeres (only flattened in It2 and It3 in *C. plautinus*) and the striking white color of all the fore tarsomeres (all yellow in *C. plautinus*).

**Male. Head.** Face and clypeus yellowish brown, front and vertex black, subshining in some portions; oc and vt black, about 3/4 length of antennal arista; eyes holoptic only for short distance below antennae; palp small, yellow; proboscis yellowish-brown, not extending much below eye in lateral view; antennal scape yellow, pedicel and flagellomere brown, shape as in *C. asterisk*, n. sp. (cf. Fig. 38); arista subequal to head height.

**Thorax.** Similar to *C. plautinus* (cf. Fig. 33). Yellowish with admedian black longitudinal vitae ending just before scutellum; pleura yellow except black below wing and scutellum; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1+1 sc<sup>2</sup>; ac absent.

2. The scutellar setae are malformed in the holotype of *Campsicnemus pe*, n. sp., with two strong setae on the left side and two tiny fine setae on the right side (the two strong setae are lateral and the two fine setae are medial in a normal symmetrical placement in other species of the genus in Hawai'i).



**Figs. 35.** *Campsicnemus polhemusi*, n. sp., **a**, thorax, lateral view, diagrammatic, showing patterning (not all setation shown); **b**, thorax and abdomen, dorsal view, diagrammatic, showing patterning (not all setation shown); **c**, antenna.

**Legs.** Fore and hind coxae yellowish, mid coxa brown, remainder of leg yellowish to yellowish brown. Leg I (Fig. 17b) with It1-5 broadened and flattened and contrasting white in color (MSSC). FII (Fig. 17a) broadened basally, evenly tapering to thin apex, with minute hairs on ventral surface (all MSSC); TII (Fig. 17a) long, slightly wider apically than basally, with two strong black setae mediolaterally and two strong black setae apicolaterally (MSSC); IIt1 (Fig. 17a) small, rounded, length about 1/3 that of IIt2, with minute black thorn-like apical spur (MSSC); IIt2-5 slightly bowed; IIt3-5 and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellow.

**Abdomen.** Tergite I yellow, with triangular spot of brown color medially, remainder uniformly brown with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** Unknown.

**Types.** Holotype male and paratype male from: **KAUA'I:** Pihea-Kilohana Trail, Koke'e State Park, 1200 m, wet forest pan trap, J.R. Vockeroth. Holotype male in CNC; one paratype male in BPBM.

**Etymology.** The name derives from the Hawaiian *pē*, meaning "flattened", and refers to the characteristic flattened and broad white tarsomeres of the foreleg of the male. The specific epithet is treated as a noun in apposition.



**Figs. 36.** *Campsicnemus puali*, n. sp., thorax, showing patterning.(not all setation shown); **a**, lateral view; **b**, dorsal view.

***Campsicnemus penicillatoides* Evenhuis, new species**

Figs. 19, 44

*Campsicnemus penicillatus* Parent: Tenorio, 1969: 66 (misidentification); Nishida, 1992: 96 (misidentification); Nishida, 1994: 90 (misidentification); Nishida, 1997: 76 (misidentification). Nishida, 2002: 93 (misidentification).

**Diagnosis.** This species is most similar to *C. penicillatus* but can be separated from it by the longer antennal first flagellomere (Fig. 44) (short in *C. penicillatus* (cf. Fig. 41) and the different microsetation of the MSSC on the mid tibia (cf. Figs. 18, 19).

**Male. Head.** Face and clypeus brown, front and vertex brown pollinose, subshining in some portions; oc and vt black, about one-half length of antennal arista; clypeus slightly yellowish pollinose; eyes holoptic below antennae; palp small, brown; proboscis brown, not extending much below eye in lateral view; antenna (Fig. 44) with scape and pedicel yellowish brown, flagellomere yellow basally, brown apically; arista subequal to head height.

**Thorax.** Brown throughout, pleura brown above, yellow below; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1+2 sc; 5-6 ac.

**Legs.** Fore and hind coxae yellowish, mid coxa brown, remainder of legs yellow. FI with a dense patch of strong black setae basoventrally (MSSC), otherwise leg I without MSSC. FII (Fig. 19) broad medially, tapering to thin apex; TII (Fig. 19) broader apically than basally, with patches of stiff black setae as in Fig. 19 (MSSC); IIt1 (Fig. 19) one-half length of IIt2, with black thorn-like apical spur apically (MSSC); IIt2-5 and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellow.

**Abdomen.** Dark brown with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium dissected in an examination previous to this study (placed in a microvial below the type) but not illustrated here.

**Female.** Unknown.

**Types.** Holotype male (BPBM 16503), from **KAUA'I:** Kawai'oi Stream, 3700 ft., 27.vii.1963, D.E. Hardy (BPBM).

**Discussion.** This species is only known from the unique holotype specimen, although subsequent collections have been made in the area and *Campsicnemus* species collected (see Englund & Polhemus, 2001), no further material of this species has been found during this study.

**Etymology.** The name derives from its similar appearance to *C. penicillatus* Hardy & Kohn by adding the suffix *-oides*, from the Greek εἶδος, meaning “like” or “similar to”.

### ***Campsicnemus pherocteis* Hardy & Kohn**

Fig. 20

*Campsicnemus pherocteis* Hardy & Kohn, 1964: 138. Tenorio, 1969: 4, 23; Bickel & Dyte, 1989: 411; Nishida, 1992: 96; Nishida, 1994: 90; Nishida, 1997: 76. Nishida, 2002: 93

**Redescription: Male. Head.** Face and clypeus brown, front and vertex brown pollinose, subshining in some portions; oc and vt black, about one-half length of antennal arista; clypeus silvery pollinose; eyes holoptic below antennae; palp small, brown; proboscis brown, not extending much below eye in lateral view; antennal scape and pedicel brown; both flagellomeres and aristae broken off and missing.

**Thorax.** Brown throughout; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 4–5 ac.

**Legs.** Fore coxae yellowish, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 20) broad basally, tapering to thin apex, with 4–5 hairs medioventrally (MSSC); TII (Fig. 20) with medial swelling, swelling with numerous spiky hairs laterally, 2 long hairs basomesally, 6–7 long hairs apicolaterally, 2 hairs apicomesally (MSSC); IIt1 subequal in length to IIt2; IIt and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellow.

**Abdomen.** Uniformly brown, concolorous with thoracic color, with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** Unknown.

**Types.** Holotype male (BPBM 4138) from **KAUA'I:** Mt. Wai'ale'ale Trail, 4500 ft., viii.1953, D.E. Hardy.

**Discussion.** The species is only known from the unique male holotype.

**Etymology.** The name derives from the Greek φέρω, meaning “to bear”, “carry” + κτεῖσ = “comb”; referring the modification of TII of the male.

### ***Campsicnemus platystylatus* Hardy & Kohn**

Figs. 1, 21

*Campsicnemus platystylatus* Hardy & Kohn, 1964: 141. Tenorio, 4, 6; Bickel & Dyte, 1989: 411; Nishida, 1992: 96; Nishida, 1994: 90; Nishida, 1997: 76. Nishida, 2002: 93

**Redescription: Male. Head.** Black; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, dark brown; proboscis brown, small, not extending much below eye in lateral view; antenna (Fig. 1) brown, with characteristic flattened arista; arista slightly longer than head height.

**Thorax** (Fig. 1). Dorsum brown; pleura brown on upper sclerites, yellow on lower sclerites, katepisternum with brown color on upper medial portion; thoracic setae black: 4 dc; 2 + 1 np; 1 + 1 ph; 1 pa; 1+2 sc; ac absent.

**Legs.** Fore and hind coxae yellowish, mid coxa yellow, brown on upper half, remainder of legs yellowish brown. Leg I unmodified, without MSSC. FII (Figs. 1, 21) broad basally, tapering to slightly bent apex, with two long hairs ventrally at midpoint of femur (MSSC); TII (Fig. 21) L-shaped with

basal portion short, with minute setulae, basal process long, with hairs at apex, rest of TII with long wavy hairs along lateral surface, single strong seta medially on mesal surface (MSSC); IIt and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellowish.

**Abdomen.** Uniformly brown with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** Unknown.

**Types.** Holotype male (BPBM 4140) from **KAUA'I:** Alaka'i Swamp, 4000 ft., viii.1953, D.E. Hardy. The holotype has apparently fallen off of its point mount since its original description and is lost. All that remains is the right wing glued to the point (remains examined during this study).

**Other material examined.** Male paratype from Alaka'i Swamp, 9.viii.1925, O.H. Swezey (BPBM). The specimen is slightly greasy.

**Discussion.** This species is known only from the original type material. Subsequent collecting in the Alaka'i Swamp area has not produced additional specimens.

**Etymology.** The name derives from the Greek πλατψσ = "broad, flat" + στωλοσ = "pillar"; referring the striking flat antennal style of the male.

### **Campsicnemus plautinus** Adachi

Fig. 22

*Campsicnemus plautina* Adachi, 1953: 122.

*Campsicnemus plautus*: Adachi, 1953: 119, fig. 5 (incorrect original spelling).

*Campsicnemus plautinus* Adachi. Hardy & Kohn, 1964: 142; Tenorio, 1969: 4, 12; Bickel & Dyte, 1989: 411; Nishida, 1992: 96; Nishida, 1994: 90; Nishida, 1997: 76. Nishida, 2002: 93

**Redescription: Male. Head.** Face and clypeus brown, front and vertex shiny black; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, brown; proboscis brown, extending below eye in lateral view; antenna as in *C. asterisk*, n. sp (cf. Fig. 38), with scape and pedicel yellowish brown, flagellomere yellow basally, brown apically; arista subequal to head height.

**Thorax** (Fig. 33). Similar to *C. pe*, n. sp., but anepisternum with brown dorsally near notopleural suture, laterotergite and mediotergite all black; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; ac absent.

**Legs.** Fore coxae yellowish, remainder of legs brown. Leg I (Fig. 22b) with It3-5 broadened and flattened (MSSC). FII (Fig. 22a) swollen basally, tapering sharply to thin apex, with 7-8 hairs medially on ventral surface (MSSC); TII (Fig. 22a) long, single strong black seta mesally at midpoint, 3-4 long black setae apicolaterally (MSSC); IIt1 (Fig. 22a) short, rounded, 1/4 length of IIt2, with minute black thorn-like apical spur (MSSC); IIt2-5 unmodified; leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellow.

**Abdomen.** Dark brown with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** Unknown.

**Types.** Holotype male (USNM 40603), from **KAUA'I:** Nualolo Valley, 3400 ft., vii.1952, D.E. Hardy (not examined during this study).

**Material examined.** **KAUA'I:** 1 [paratype male], Halemanu Valley, viii.1953, D.E. Hardy (BPBM); 1, Nualoa [sic = Nualolo] Trail, 3600 ft., 3.xii.1976, D.E. Hardy (BPBM).

**Discussion.** In the original description, two spellings were used for this species (*plautina* and *plautus*). I here select *plautus* as an incorrect original spelling.

**Etymology.** The name derives from the Greek πλατυσ = broad, flat, flat-footed; referring to the characteristic flattened tarsomeres of the foreleg of the male.

**Campsicnemus polhemusi** Evenhuis, **new species**

Figs. 23, 35

**Diagnosis.** This species is most similar in male midleg setation to *C. nigricollis* but can be separated from *C. nigricollis* by the shorter and sparser femoral setation (longer and more dense in *C. nigricollis*), the longer and stronger bristles anteriorly on the apex of the male TII (these bristles shorter and normally limited to just two in *C. nigricollis*), and the different setation on the ventral surface of male TII.

**Male. Head.** Face and clypeus brown, front and vertex dark brown, subshining in some portions; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp large, foliate; proboscis yellowish-brown, extending well below eye in lateral view; antenna (Fig. 35c) brown, shape similar to that in *C. lipothrix*, n. sp.; arista slightly longer than head height.

**Thorax** (Fig. 35a, b). Yellowish brown dorsally, yellow laterally; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 3–4 pale ac.

**Legs.** Fore coxae white, remainder of legs yellowish (concolorous with pleura). Leg I unmodified, without MSSC. FII (Fig. 23) very broad basally, tapering evenly to apex, with numerous short setae on basal half of ventral surface (MSSC); TII (Fig. 23) slightly wider apically than basally, with long hairs apicolaterally and mesally, shorter fine hairs basally on lateral and mesal surfaces (MSSC); IIt1 (Fig. 23) one-half length of IIt2, with black thorn-like apical spur (MSSC); IIt2–5 and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob white.

**Abdomen** (Fig. 35b). Yellowish brown with black transverse stripes on posterior portions of tergites I–V, with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications; antennal flagellomere short, stubby (cf. Fig. 38).

**Types.** Holotype male (BPBM 15889), from **KAUA'I**: Wahiawa, Kana'ele Bay, 600 m, 8.xi.1990, D.A. Polhemus.

**Etymology:** This species is named for Dan A. Polhemus, in recognition of his extensive fieldwork and stream surveys throughout the Hawaiian Islands, which have brought to light many new species of aquatic and riparian dolichopodids.

**Campsicnemus puali** Evenhuis, **new species**

Figs. 24, 36, 45

**Diagnosis.** This species is similar to *C. unu*, n. sp., by virtue of the reduced size of the male IIt1 and IIt2 but can be distinguished from it and all other species of Hawaiian *Campsicnemus* by the characteristic bare basal constriction at the junction of IIt2 and IIt3.

**Male. Head.** Face and clypeus brown, golden pollinose; front and vertex shining black; oc and vt black, about one-half length of antennal arista; eyes holoptic below antennae; palp small, dark brown; proboscis dark brown, not extending much below eye in lateral view; antenna (Fig. 45) brown; arista subequal to head height.

**Thorax** (Fig. 36). Yellowish with brown pattern as in Fig. 36b; pleura yellowish with brown coloration on lower proepimeron, lower anepisternum, and all of anepimeron, laterotergite, and mediotergite; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1+1 sc; ac absent.

**Legs.** Fore coxae yellowish, mid and hind coxa brown, remainder of legs yellowish brown. Leg I unmodified, without MSSC. FII (Fig. 24a) long, thin, swollen slightly subbasally, with two patches of hairs on ventral surface: one basally, one just past midpoint (all MSSC); TII (Fig. 24a) slightly wider apically than basally, with three long hairs on lateral surface, single strong seta apicolaterally (MSSC); IIt1 (Fig. 14) short, subequal in length to IIt2; IIt2–3 (Fig. 24b) bare, with constriction at junction of the two tarsomeres; remainder of IIt and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellowish.

**Abdomen.** Dark brown, tergites II-V with pale yellow areas dorsolaterally, with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** Unknown.

**Types.** Holotype male (BPBM 15890) from **KAUA'I:** Kāhili, 2400 ft., 2.ix.1970, reared ex *Clermontia* fruit P60, S.L. Montgomery.

**Other paratype:** 1, Hawaiian Islands: **KAUA'I:** Pihea-Kilohana Trail, Koke'e State Park, 1200 m, 25.iv.1979, wet forest pan trap, J.R. Vockeroth (CNC).

**Etymology:** The name derives from the Hawaiian *pū'ali*, meaning "constricted in the middle"; referring to the unusual constriction and bare portion of the connection of tarsomeres 2 and 3 of the midleg of the male. The specific epithet is treated as a noun in apposition.

### **Campsicnemus spuh** Evenhuis, new species

Figs. 25, 37

**Diagnosis.** This species is most similar to *C. mucronatus* Hardy & Kohn but can be distinguished from *C. mucronatus* by the 3 strong setae on the anterior surface of the male TII (absent in *C. mucronatus*) and the lack of a comb of setae on the basal half of the male TII (present in *C. mucronatus*).

**Male. Head.** Face and clypeus densely silvery pollinose, front and vertex shining black; oc and vt black, about one-half length of antennal arista; face only slightly constricted at middle, eyes widely dichoptic below antennae; palp small, dark brown; proboscis dark brown, extending slightly below eye in lateral view; antenna as in *C. asterisk*, n. sp. (cf. Fig. 38), with scape yellow, pedicel and flagellomere brown; arista subequal to head height.

**Thorax** (Fig. 37). Yellowish, mesonotum with black admedian vittae ending just before scutellum (Fig. 37b); pleura yellow except for black color below wing and scutellum; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1+2 sc; 8–10 pale ac.

**Legs.** Fore coxae yellowish, mid and hind coxa brown, remainder of legs yellowish. Leg I unmodified, without MSSC. FII (Fig. 25) broad, swollen medially, tapering to thin apex, with minute setulae basoventrally, 2 hairs subapically on mesal surface (MSSC); TII (Fig. 25) long, with 3 strong setae laterally on basal half, single strong seta apicolaterally (MSSC); IIt1 (Fig. 25) short, subrectangular, length about 1/3 length of IIt2, with small, black thorn-like apical spur (MSSC); IIt2–5 and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellowish brown.

**Abdomen.** Dark brown with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium brown, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications.

**Types.** Holotype male (BPBM 15891), from **KAUA'I:** Powerline Trail, 2400 ft., 4.ix.1970, reared ex *Cheirodendron* bark, S.L. Montgomery.

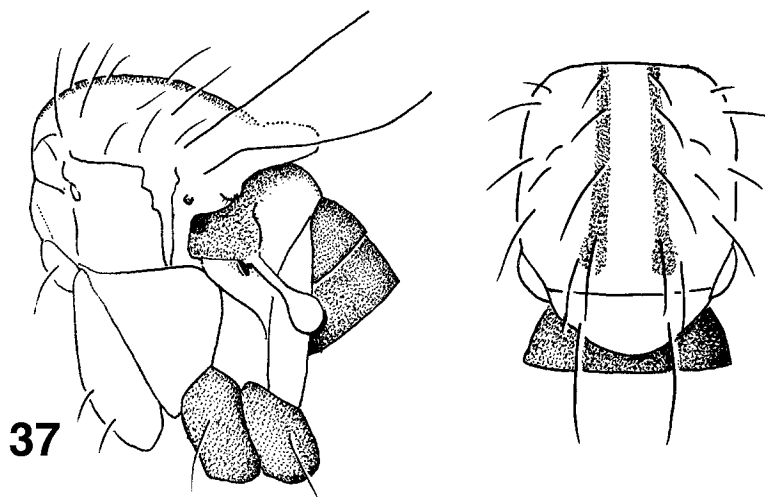
**Other paratype:** **KAUA'I:** 1, Kāhili, 2700 ft., 2.ix.1970, reared ex *Cheirodendron* bark P60 27d, S.L. Montgomery (BPBM).

**Etymology.** The specific epithet is an arbitrary combination of letters and is treated as a noun in apposition.

### **Campsicnemus uha** Evenhuis, new species

Figs. 26, 46

**Diagnosis.** This species runs to *C. nigricollis* Van Duzee when using the key to species in Tenorio (1969). It can be separated from *C. nigricollis* by the denser and longer lateral bristles on the apical half of the male TII (these bristles often limited to just two in *C.*



**Figs. 37.** *Campsicnemus spuh*, n. sp., thorax, showing patterning. (not all setation shown); **a**, lateral view; **b**, dorsal view.

*nigricollis*) and the sense hairs on TIII (these hairs absent in *C. nigricollis*). It can also be separated from another species with similar looking male TII (*C. polhemusi*, n. sp.) by the dense setation apically on TII (these hairs not present in *C. polhemusi*, n. sp.).

**Male. Head.** Dark brown, face and silvery pollinose; oc and vt black, about one-half length of antennal arista; eyes widely dichoptic below antennae; palp broad, dark brown; proboscis dark brown, extending well below eye in lateral view; antenna (Fig. 46) dark brown; arista ca. one-third longer than head height.

**Thorax.** Dark brown throughout; thoracic setae brown: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; 5-6 pale ac.

**Legs.** Fore coxae and femur yellowish, remainder of legs brown. Leg I unmodified, without MSSC. FII (Fig. 26a) broad basally, tapering to slightly bent apex, with short, stiff hairs along ventral surface (MSSC); TII (Fig. 26a) with long hairs (some wavy) on mesal surface, long hairs on apical half laterally, shorter hairs laterally on basal half (MSSC); IIt1 (Fig. 26a) short, one-half length of IIt2, with black thorn-like apical spur (MSSC); IIt2-5 unmodified. TIII (Fig. 26b) with dense patch of hairs apicoventrally, long hairs present on apical half of lateral surface (MSSC), remainder of leg III unmodified, without MSSC.

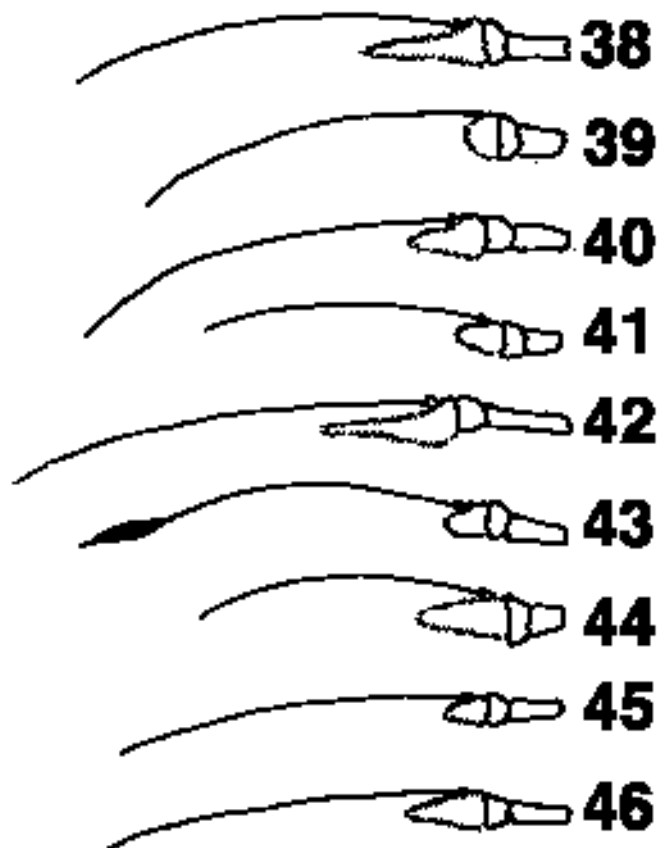
**Wing.** Smoky brown; halter stem white, knob brown.

**Abdomen.** Dark brown to subshining black, with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium subshining black, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications; antennal flagellomere short, stubby (cf. Fig. 38).

**Types.** Holotype male (BPBM 15892) and two female paratypes from **KAUA'I**: Mt. Wai'ale'ale stream, summit, 17.v.1995, D.A. Polhemus. Holotype and paratypes in BPBM.





**Figs. 38–46.** *Campsicnemus* antennae, diagrammatic to show shapes of scape, pedicel, flagellomere, and arista. **38**, *C. asterisk*, n. sp.. **39**, *C. hispidipes* Hardy & Kohn. **40**, *C. insuetus* Hardy & Kohn. **41**, *C. keokeo*, n. sp. **42**, *C. lawakua*, n. sp. **43**, *C. neoplatystylatus*, n. sp. **44**, *C. penicillatoides*, n. sp. **45**, *C. puali*, n. sp. **46**, *C. uha*, n. sp.

**Other paratypes.** KAUA'I: 1, Mt. Wai'ale'ale summit, 16.v.1995, D.A. Polhemus (BPBM).

**Etymology.** The name derives from the Hawaiian 'uhā, meaning "hindquarters" and refers to the modified TIII of the male. The specific epithet is treated as a noun in apposition.

**Campsicnemus unu** Evenhuis, **new species**

Fig. 27

**Diagnosis.** *Campsicnemus unu*, n. sp. is separated from all known previously described species of Hawaiian *Campsicnemus* by the reduced size of both IIt1 and IIt2. The only other species with these two segments reduced, *C. puali*, n. sp., is easily distinguished from *C. unu*, n. sp. by its characteristic bare constriction at the junction of the two small tarsomeres (no such constriction is present in *C. unu*, n. sp.).

**Male. Head.** Black; oc and vt black, about one-half length of antennal arista; eyes slightly dichoptic below antennae; palp small, brown; proboscis brown, extending below eye in lateral view; antennal scape and pedicel yellowish brown, flagellomere brown; arista subequal to head height.

**Thorax.** Brown throughout; thoracic setae black: 4+1 dc; 2+1 np; 1+1 ph; 1 pa; 1 sc; ac absent.

**Legs.** Fore coxae yellowish, remainder of legs yellowish brown. Leg I unmodified, without MSSC. FII (Fig. 27) broad basally, tapering to apex, apex with slight subapical constriction, with dense row of hairs on apicoventral surface, sparse, minute setulae ventrobasally (MSSC); TII (Fig. 27a,b) with two swollen areas: at at basal one-third, one subbasally, basal swelling large, with patch of minute hairs on mesal surface, subapical swelling smaller, with row of minute hairs, with strong black setae along lateral surface (MSSC); IIt1 (Fig. 14) short, subequal in length to IIt2, with long, curved hairs laterally (MSSC); IIt2 short, with long, fine hairs laterally; remainder of IIt and leg III unmodified, without MSSC.

**Wing.** Smoky brown; halter stem whitish, knob brown and white.

**Abdomen.** Brown with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium paler brown, not dissected.

**Female.** Unknown.

**Types.** Holotype male (BPBM 15893) and 6 male paratypes from **KAUA'I:** Wai'alaie Cabin, 20.v.1995, D.A. Polhemus. All types in BPBM.

**Etymology:** The name derives from the Hawaiian *unu*, meaning "small pebble" and refers to the small tarsomeres 2 and 3 of the male midleg. The specific epithet is treated as a noun in apposition.

**Campsicnemus waialealeensis** Evenhuis, **new species**

Fig. 28

**Diagnosis.** This species is similar to *C. mucronatus* Hardy & Kohn in the form of TII but is distinguished from it by the small setal patch subapically (this patch is found along the apical third in *C. mucronatus*) and the unmodified IIt1 (IIt1 possesses a spur in *C. mucronatus*).

**Male. Head.** Black; oc and vt black, about one-half length of antennal arista; eyes dichoptic below antennae; palp small, brown; proboscis brown, extending below eye in lateral view; antenna brown, shape as in *C. asterisk*, n. sp. (cf. Fig. 38); arista subequal to head height.

**Thorax.** Yellow to yellowish brown throughout, except for brown vittae admedially on mesonotum; thoracic setae black: 4 dc; 2+1 np; 1+1 ph; 1 pa; 1+1 sc; 4-5 pale ac.

**Legs.** Fore and hind coxae yellowish, mid coxa brown, remainder of legs yellowish. Leg I unmodified, without MSSC. FII (Fig. 28) broad basally, tapering to slightly bent apex, with row of short hairs along ventral surface (MSSC); TII (Fig. 28) long, thin, slightly sinuous, with patch of small hairs on mesal surface, longer hairs along apical half of mesal surface, lateral surface with sparse, short, minute setulae (MSSC); IIt1 (Fig. 14) subequal in length to IIt2; IIt and leg III unmodified, without MSSC.

**Wing.** Subhyaline; halter stem and knob yellowish.

**Abdomen.** Yellowish brown throughout with brown transverse stripes on posterior margins of tergites II-VI, with short black hairs dorsally on each tergite, a few longer hairs laterally. Hypopygium yellowish, not dissected.

**Female.** As in male except for lack of MSSC; legs normal, without modifications; antennal flagellomere short, stubby (cf. Fig. 38).

**Types.** Holotype male (BPBM 15894) and 6 male paratypes from **KAUA'I**: Mt. Wai'ale'ale, 7.v.1995, pan traps, D.A. Polhemus,

**Other paratypes:** **KAUA'I**: 1 male, 2 females, Mt. Wai'ale'ale summit, 16–19.v.1995, pan traps, D.A. Polhemus, A. Asquith, J.K. Liebherr (BPBM).

**Etymology.** The name refers to the type locality, Mt. Wai'ale'ale, the wettest spot on earth.

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