

Simply *ridiculus*: New Species of the *Campsicnemus ridiculus* Group from Hawai‘i and the Marquesas (Diptera: Dolichopodidae)

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Introduction

The long-legged fly genus *Campsicnemus* Haliday is found throughout the Holarctic Region and a monophyletic clade separate from the Holarctic species are found in the Pacific (primarily the Hawaiian Islands and French Polynesia with undescribed outliers in Fiji and Tonga). Goodman *et al.* (2014) recently analyzed the relationships of the Pacific clade and during that study various species groups were proposed for clusters of species with similar leg modifications in males (male secondary sexual characters - MSSC). One such group was the *C. ridiculus* group, which is comprised of two described species from the Hawaiian Islands (*C. miritibialis* from O‘ahu; and *C. ridiculus* Parent from Maui and Moloka‘i). These species are water skaters on upland streams in the Hawaiian Islands. This paper describes and illustrates an additional two species that have similar leg modifications (one from the Big Island of Hawai‘i, *C. konahema*, **n. sp.** and the other from the Marquesan island of Nuku Hiva, *C. ridiculoides*, **n. sp.** and extends the *C. ridiculus* group into French Polynesia. A key to species in the *C. ridiculus* group is given.

Material and Methods

Specimens examined in this study derive from collections of the Bishop Museum (BPBM). French Polynesian specimen data contains database records in the format BPBMxxxxxx. These data are held in the Essig Museum, University of California, Berkeley. Morphological terminology, description format, and abbreviations used in the description follow Evenhuis (2012). Holotypes and paratypes of all new species are deposited in BPBM; where series are long enough duplicate paratypes are in USNM.

Taxonomy

Genus *Campsicnemus* Haliday

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

Leptopezina Macquart, 1835: 554. Type species *Diastata gracilis* Meigen, 1820, by monotypy. *Nomen oblitum* (see Evenhuis 2003).

Campsicnemus Haliday in Walker, 1851: 187. Type species: *Dolichopus scambus* Fallén, 1823, by validation of I.C.Z.N., 1958: 351. *Nomen protectum* (see Evenhuis, 2003: 3).

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Figs. 1–4. *Campsicnemus ridiculus* species group, apices of mid tibiae, showing subapical processes. 1. *C. konahema*, n. sp. 2. *C. miritibialis* Van Duzee. 3. *C. ridiculus* Parent. 4. *C. ridiculoides* Evenhuis, n. sp.

The *Campsicnemus ridiculus* group

(Figs. 1–5)

This species group is defined by the male mid leg having a relatively short basitarsus (length to width ratio = 1.0–2.0) with apical processes or a spine and the mid tibia having a prominent subapical process capped by thick thorn-like processes (Figs. 2–4) or short blunt peg-like spinules (Fig. 1). The two previously described species have been observed to be water skaters on streams in the Hawaiian Islands (see e.g., Williams 1940 for observations of *C. miritibialis*). One of the two new species described here has also been observed to be a water skater (*C. ridiculoides* from Nuku Hiva in the Marquesas); the other (*C. konahema* from the Big Island in Hawai‘i) has not been observed in nature but is presumed to also have this behavior. Water skating *Campsicnemus* in the Pacific are found only in the Hawaiian Islands and the Marquesas (both island groups of which coincidentally lack gerrid water skaters).

Included species:

- konahema*, n. sp. (Hawaiian Islands: Hawai‘i)
miritibialis Van Duzee (Hawaiian Islands: O‘ahu)
ridiculus Parent (Hawaiian Islands: Maui, Moloka‘i)
ridiculoides, n. sp. (Marquesas: Nuku Hiva)

KEY TO SPECIES IN THE *CAMPSICNEMUS RIDICULUS* GROUP BASED ON MALES

1. Subapical process of mid tibia long, narrow with thick thorn-like processes apically . 2
- . Subapical process of mid tibia broad, sub-hemispherical, with numerous short peg-like spinules (Fig. 1) ... (Hawai‘i Island) *C. konahema* Evenhuis, n. sp.
2. Mid basitarsus with single apical thickened black thorn-like process (Fig. 4) (Hawaiian Islands) 3
- . Mid basitarsus with two apical thorn-like processes (Marquesas)
 *C. ridiculoides* Evenhuis, n. sp.



Fig. 5. *Campsicnemus konahema* Evenhuis, n. sp. holotype male, habitus.

- 3. Subapical process of mid tibia with two long, narrow thickened thorn-like processes apically (Fig. 2); vestiture of mid tibia consisting of long dense fine hairs; body generally dark brown to black (O'ahu) *C. miritibialis* Van Duzee
- . Subapical process of mid tibia with 3 or 4 paired strong pointed processes apically (Fig. 3); vestiture of mid tibia consisting of sparse short setae with single long strong black seta distad of subapical process; body generally brown ... (Maui, Moloka'i) *C. ridiculus* Parent

Campsicnemus konahema Evenhuis, new species

(Figs. 1, 5)

Diagnosis. Similar to the Hawaiian species *C. miritibialis* and *C. ridiculus*, but can be distinguished by the presence of a patch of short spicules on the fore basitarsus (absent in *C. miritibialis* and *C. ridiculus*) and the large hemispherical bulge subapically on the male mid tibia (this process longer and narrower in *C. miritibialis* and *C. ridiculus*).

Description. Male (Fig. 5): Body length: 3.7 mm. Wing length: 3.4 mm. *Head:* Predominantly black; face and clypeus yellow, silvery gray tomentose; oc and vt black, about one-third length of antennal arista; occiput, and vertex black with blue-gray highlights; postgena with sparse white hairs; face constricted at middle, holoptic for a length of 4 ommatidia; palpus small, yellow; proboscis yellowish brown, extending below eye in lateral view; antenna with all segments yellow; scape subcylindrical, length subequal to width; pedicel obconical, with ring of short spiky black setae subapically; postpedicel subelliptical, length 2.5 times width, pointed but rounded apically; arista much longer than head height.

Thorax: Mesonotum brown, paler laterally and anteriorly; scutellum and pleura (except dark brown anepimeron) yellow; thoracic setae black: 4 dc; 2 np; 2 ph; 1 pa; 1 sc; 5 ac; halter yellow.

Legs: Yellowish brown; fore coxa with normal anteroapical setation; It_1 with small patch of minute spicules on widened apex (MSSC), otherwise foreleg unmodified; FII with row of 10–12 strong black hairs along mesoventral surface (MSSC); mid tibia (Fig. 1) slightly curved, gradually widening apically, with subapical process consisting of prominent subhemispherical bulge with numerous short, peg-like spinules (MSSC), single strong, thick black seta subapically, distad of subapical bulge; IIt_1 shorter than IIt_2 , with strong thick black apical spine (MSSC). Remaining leg segments unmodified and without MSSC.

Wing: Subhyaline, veins brown; posterior crossvein length about 1/4 apical segment of CuA_1 .

Abdomen: Brown, tergal vestiture black. Hypopygium brown with yellowish brown cerci, not dissected.

Female: Unknown:

Material Examined. HOLOTYPE ♂ (BPBM 16,824) (preserved in ETOH) from HAWAIIAN ISLANDS: **Hawai'i:** Kona Hema Nature Reserve, 19°11.809' N, 155°48.568' W, 11 Jan 2006, R. Peck, Malaise Trap #6. *Condition of type:* the left midleg IIt_{3-5} are broken off and missing, otherwise holotype in excellent condition.

Etymology. The specific epithet derives from the type locality, the Hawaii Nature Conservancy's Kona Hema Nature Reserve on the Big Island of Hawai'i.

Campsicnemus ridiculoides Evenhuis, new species

(Fig. 4)

Diagnosis. Similar to *C. miritibialis* but can be distinguished from it by the presence of paired thorn-like spines apically (with single strong spine in *C. miritibialis*), the rows of long thick curved setae on the posterior surface (vestiture in *C. miritibialis* consisting of dense, fine hairs not in rows), and the lack of fine vestiture on the hind basitarsus (vestiture of hind basitarsus in *C. miritibialis* short, dense, fine).

Description. Male: Body length: 2.8–3.2 mm. Wing length: 2.5–3.0 mm. *Head:* Black; oc and vt black, about one-half length of antennal arista; occiput, and vertex black with blue-gray highlights; postgena with sparse short white hairs; face constricted at middle, holoptic for a length of 4 ommatidia; palpus small, brown; proboscis dark brown, extending below eye in lateral view; antenna with scape and pedicel black; postpedicel, brown; scape subcylindrical, length subequal to width; pedicel obconical, with ring of short spiky black setae subapically; postpedicel subtriangular, length 1.25 times width, pointe apically; arista slightly longer than head height.

Thorax: Mesonotum and pleura (except black anepimeron) brown; disc of mesonotum darker brown than surrounding mesonotum; thoracic setae black: 4 dc; 2 np; 2 ph; 1 pa; 1 sc; 4 ac; anepisternum with brassy greenish highlights; halter white.

Legs: Fore coxa yellow, mid and hind coxae brown; fore femur yellow with brown border, mid femur yellow, hind femur yellow on basal half, black on apical half; fore femur with pair of long stiff black hairs subbasally on ventral surface (MSSC); fore tibiae and tarsi brown, without MSSC; mid femur swollen, with rows of strong, long thick black setae and shorter thick spicules ventrally along entire length (MSSC); mid tibia (Fig. 4) brown, small patch of yellow at extreme base, flared apically with long narrow subapical process armed with pair of thick black, spine-like processes apically, row of 18–20 long curved setae on apical two-thirds of posterior surface, row of short stiff hairs along anterior surface, with dense patch of medium-length hairs basomesally (all MSSC); IIt₁ brown, short, subcylindrical, length subequal to width, with pair of short, thorn-like processes apically (MSSC); remainder of tarsi brown, unmodified; hind femur with row of 8 long thick curved setae ventrally along entire length (MSSC), shorter, sparse hairs elsewhere; hind tibia 1.25 times length of hind femur; remainder of legs brown, unmodified, without MSSC.

Wing: Subhyaline, veins dark brown; posterior crossvein length less than 1/2 apical segment of CuA₁.

Abdomen: Brown, with brassy, greenish, and magenta highlights; tergal vestiture black. Hypopygium dark brown with brown cerci, not dissected.

Female: Similar to male except as follows: antennal postpedicel subhemispherical, length subequal to width, rounded apically; leg coloration similar to male but without setal or shape modifications; abdomen with predominantly magenta highlights.

Material Examined. Type. Holotype ♂ (BPBM 16,661) [BPBM101281] and 65♂ [BPBM101282], 39♀ [BPBM101283] *paratypes* from FRENCH POLYNESIA: MARQUESAS: **Nuku Hiva:** Toovi Plateau stream, 2800 ft [853 m], 23 Aug 2001, on falls and seep headwall, R. Englund. Other paratypes: FRENCH POLYNESIA: MARQUESAS: **Nuku Hiva:** 1♂ [BPBM101284], 7♀ [BPBM101285], stream on south side of Tekao Ridge, 2700 ft [823 m], 8°50'58"S, 140°09'14"W, 23 Aug 2001, skating on pools, D.A. Polhemus. Holotype in BPBM, paratypes in BPBM and USNM.

Etymology. The specific epithet derives from the similar appearance of this species to *C. ridiculus* (*ridiculus* + *-oides*).

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