Studies in Hawaiian Diptera III: New Distributional Records for Canacidae and a New Endemic Species of *Procanace*

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Abstract

The distributions of Hawaiian Canacidae, comprising nearly 800 individual collection events, are reviewed and a total of four new island records are reported. These include *Canaceoides angulatus* from Kahoolawae and *Procanace bifurcata* from Molokai and Maui, and *Procanace constricta* from Oahu. A new species from Kauai, *Procanace hardyi* O'Grady and Pak, is described. This species is closely related to *P. constricta* from Oahu, Maui, Molokai and Hawaii and shares a similar constriction of the abdomen between tergites four and five but differs in the configuration of the seventh abdominal tergite. Detailed distribution maps for all species are included.

Keywords

Hawaii, Diptera, Canacidae, *Procanace*
Introduction

Canacidae, or the beach flies, surf flies and surge flies, is a relatively small family of acalyptate Diptera primarily found throughout coastal regions of the world. A number of catalogs and revisions have been published in the past 20 years. Traditionally, this group contained only members of the family Canacidae, *sensu stricto*. The Mathis (1992) catalog of this family consisted of 113 species in 12 genera and recognized three subfamilies (Canacinae, Nocticanacinae, Zaleinae). Mathis and Munari (1996) transferred Zaleinae to Tethinidae when they published their tethinid catalog because this subfamily was considered intermediate between the two families. According to their definition, Tethinidae included 126 species in 14 genera arranged into five subfamilies (Apetaeniinae, Horaismopterinae, Pelomyiinae, Tethininae, Zaleinae). McAlpine (2007) significantly altered the concept of this family when he included the family Tethinidae as part of a broader Canacidae *sensu lato*. Finally, Munari and Mathis (2010) updated the previous catalogs and now recognize six subfamilies comprising a total of 307 species in 27 genera within the Canacidae.

Five canacid genera are present in Hawaii (Nishida 2002), most of which are represented by only one or two species and were introduced by human activities in the past 100 years. Two genera within the subfamily Tethininae are present in Hawaii, *Dasyrhicnoessa* and *Tethina*. These were recently reviewed and updated by Munari and Evenhuis (2011) and the distributional records will not be repeated here. The genus *Dasyrhicnoessa* contains a total of 28 species, 22 of which are found in the Pacific and four of which are present in Hawaii (Evenhuis 2012, Hardy and Delfinado 1980, Munari and Mathis 2010, Munari and Evenhuis 2011). *Dasyrhicnoessa insularis* was first collected in Hawaii in 1923 and is widespread in Polynesia, Micronesia, Papua New Guinea, Central and South America and the Afrotropics (Evenhuis 2012, Hardy and Delfinado 1980). Hardy and Delfinado (1980) were unable to place the second species, *D. vockerothi*, in the literature and described it as a new species from Hawaii. Subsequent collections have found this species on islands throughout the Pacific and Indian Oceans, as well as in Japan and Australia (Evenhuis 2012). Finally, Munari and Evenhuis (2011) reported two additional species from Hawaii, *D. clandestina* and *D. fulva*. The genus *Tethina* is large, with 78 so far described species worldwide (Munari and Mathis 2010). Ten species are known from the Pacific, including three species from Hawaii. Hardy and Delfinado (1980) listed *T. variseta* from the Hawaiian Islands, a species that has since been synonymized with *T. willistoni* (Munari and Mathis 2010). Two other species, *T. albula* (Evenhuis 2012, Munari and Mathis 2010) and *T. pallipes* (Munari and Evenhuis 2011) have also been reported in Hawaii.

A single genus of the subfamily Pelomyiinae, *Pelomyia*, is found in Hawaii. *Pelomyia* contains a total of 29 species, mostly found in the Nearctic and Neotropical regions. Hardy and Delfinado (1980) described *P. steyskali* from material collected in Hawaii and the west Coast of North America. This species has since been synonymized with *P. occidentalis*, a widespread taxon that is known from Nearctic, Neotropical and Palearctic regions (Evenhuis 2012, Hardy and Delfinado 1980, Munari and Mathis 2010).
The remaining two canacid genera present in Hawaii, *Canaceoides* Cresson and *Procanace* Hendel, are both in the subfamily Canacinae. These two genera can be found in a range of habitats, from the coastal aquatic environments to high elevation freshwater streams. They are most likely the result of at least two separate colonization events (Wirth 1969). The genus *Canaceoides* was last revised by Wirth (1969) and contains 9 species, all of which are either found on Pacific Islands or are distributed along the west coast of North and South America. Two species are recorded from Hawaii, *C. angulatus* and *C. hawaiiensis* (Table 1). Wirth (1969) suggested that the widespread distribution of *C. angulatus*, which is found throughout the Hawaiian Archipelago and Peru, Mexico and the Galapagos Islands (Evenhuis 2012), is evidence for this taxon arriving in Hawaii prior to human contact. He proposed, however, that this was more recently than *C. hawaiiensis*, a species found exclusively in the younger Hawaiian Islands. The biogeographic history and evolutionary relationship of these two species is unclear. The male genitalia of *C. angulatus* is quite distinct for the genus and its sister relationships are not known. Likewise, Wirth (1969) states that *C. hawaiiensis* “has no exact counterpart on the American coasts.” It is possible that these two taxa represent two distinct colonizations of Hawaii. Alternatively, these two species could represent a single colonization of Hawaii, with *C. hawaiiensis* being a recently divergent sibling species of *C. angulatus*. Phylogenetic analyses will need to be undertaken to differentiate between these two hypotheses. Aside from the early collections made by D.E. Hardy, W.W. Wirth and others, there are a number of surveys conducted by D. Polhemus and R. Englund for the Bernice P. Bishop Museum in the early 1990s (e.g., Polhemus 1992, Polhemus 1993).

### Table 1.

**Distribution of *Canaceoides* and *Procanace* species in Hawaii.** Status indicates whether the species are endemic (E) or adventive (A). Islands sampled are: Kauai (K), Oahu (O), Molokai (Mo), Lanai (L), Kahoolawae (Ka) Maui (Ma), Hawaii (H), and the Northwest Hawaiian Islands (NWHI). Presence of a species on a given island is designated by an X. An asterisk denotes a new island record for the species.

| Species          | Status | K | O | Mo | L | Ka | Ma | H | NWHI               |
|------------------|--------|---|---|----|---|----|----|---|--------------------|
| *C. angulatus*   | A      | X | X | X  |   | X* | X  | X | Laysan, Lisianski, Midway, Nihoa |
| *C. hawaiiensis*| E      | X | X | X  |   | X  | X  |   | Nihoa              |
| *P. acuminata*  | E      |   | X | X  |   |    | X  |   |                    |
| *P. bifurcata*  | E      | X | X | X* |   | X* |    |   |                    |
| *P. confusa*    | E      |   |   |   |   | X  | X  |   |                    |
| *P. constricta* | E      | X*| X | X  |   |    | X  | X |                    |
| *P. hardyi*     | E      |   | X |    |   |    |    |   |                    |
| *P. nigroviridis*| E     |   | X |    |   |    |    |   |                    |
| *P. quadrirsetosa* | E   |   | X |    |   |    |    |   |                    |
The genus *Procanace* contains 30 species, found in the Palearctic, Nearctic, Australasian/Oceanian and Afrotropical regions. The Oceanian taxa include a small radiation of eight described species present in Hawaii (Table 1). Of these taxa, seven are endemic and one, *P. williamsi*, is known from Oahu and Japan (Evenhuis 2012). It is possible that *P. williamsi* was introduced to Hawaii in the 1940s and has since failed to establish in Hawaii, a common phenomenon among adventive species (Kolar and Lodge 2001). Two individuals are reported by Wirth, one taken at a light on Oahu and another taken in a plane. Additional collections will be required in order to determine the status of *P. williamsi*.

The endemic *Procanace* species are found on all the high Hawaiian Islands. There is one widespread species, *P. bifurcata*, found across the islands. The remainder of the species are found either on the "old" islands of Oahu and Kauai in the northwest and the "young" islands of the Maui Nui complex (Maui, Molokai, Lanai, Kahoolawe) and Hawaii in the southeast (Table 1). For example, *P. hardyi*, *P. nigroviridis*, *P. quadrisetosa*, and *P. wirthi* are present on the older islands in the archipelago. These are mostly single island endemics, although *P. wirthi* is found on both Oahu and Kauai. In contrast, *P. acuminata*, *P. confusa*, and *P. constricta* are found on Maui Nui and Hawaii. These species are not single island endemics and can be found on multiple islands of the Maui Nui group and/or on Hawaii. This difference in distribution pattern may be because of the recent connections between Maui, Molokai, Lanai and Kahoolawe (Price and Elliott-Fisk 2004). Alternately, it might be because the Big Island of Hawaii is less than 500,000 years old and speciation has yet to take place between founder populations on Maui Nui and descendant populations on Hawaii.

The endemic Hawaiian *Procanace* are notable within the genus and the family for their adaptation to freshwater, rather than saltwater, habitats. Hardy and Delfinado (1980) listed seven described endemics (*P. acuminata*, *P. bifurcata*, *P. confusa*, *P. constricta*, *P. nigroviridis*, *P. quadrisetosa*, *P. wirthi*) and one additional species from the island of Hawaii that they did not describe. Here we describe a new species from Kauai, *Procanace hardyi* O’Grady and Pak, bringing the total Hawaiian *Procanace* to nine (eight endemic and one adventive) described and one underscribed species.

| Species                     | Oahu | Kauai |
|-----------------------------|------|-------|
| *P. williamsi*              | A    | X     |
| *P. wirthi*                 | E    | X     |
| P. unnamed sp. DEH          | E    | X     |

| P. williamsi | P. wirthi | P. unnamed sp. DEH |
|--------------|-----------|-------------------|
| A            | E         | E                 |
| X            | X         |                   |
Materials and methods

Literature Review

We have reviewed the literature for the endemic, indigenous, and adventive Canacidae species present in the Hawaiian islands. We have attempted to include information on both the taxonomic history of the species and all occurrences of these taxa present in the literature, including the original descriptions, subsequent revisions, additional descriptive notes, range expansions and new island records and catalogs. We list the primary type, paratypes and other material examined, whether they were physically examined by us or taken from a database. We include all records from the EMEC and the BPBM. Additional material deposited in the National Museum of Natural History, Smithsonian Institution (USNM) and the UHM are also presented here. All museum abbreviations conform to Evenhuis (2014).

Collection Methods

All recently collected material was obtained from general sweeping of streams and sea shores. Samples were preserved in 95% ethanol (ETOH) and transported to UC Berkeley for identification and subsequent molecular work. The key and descriptions in (Hardy and Delfinado 1980) were used to identify taxa to species. Vouchers for all species were preserved in 95% ETOH and are deposited in the EMEC.

Taxon treatment

Procanace hardyi O'Grady and Pak, sp. n.

- ZooBank urn:lsid:zoobank.org:act:8FF8BBA3-45A9-465A-962B-8AC994B7652F

Materials

Holotype:

- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; county: Kauai; verbatimLocality: Kokee Stream near Canyon Trail; verbatimLatitude: 22° 6'18.56"N; verbatimLongitude: 159° 39'41.12"W; samplingProtocol: sweeping over running water; eventDate: 10.i.2010; individualCount: 1; sex: female; recordedBy: PM O'Grady, RT Lapoint, GM Bennett, B Ort, NA Pantoja; identifiedBy: PM O'Grady; dateIdentified: 7 Oct 2014; collectionID: 588.7; institutionCode: EMEC

Paratypes:

- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Waiahuakua Stream at Kalalau Trail, on wet rocks; verbatimElevation: 400 ft.; eventDate: 30.iii.1993;
individualCount: 1; sex: 1 male; lifeStage: adult; recordedBy: DA Polhemus; identifiedBy: PM O’Grady; dateIdentified: 1.2016; collectionID: CL8133; institutionCode: BPBM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Kaapoko Stream, tributary to Hanalei River, on wet rocks.; verbatimElevation: 1200 ft.; eventDate: 3.i.1993; individualCount: 3; sex: females; lifeStage: adult; recordedBy: DA Polhemus; identifiedBy: PM O’Grady; dateIdentified: 2.2016; collectionID: CL8233; institutionCode: BPBM
c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Kaapoko Stream, trib. to Hanalei River; verbatimElevation: 1200 ft.; samplingProtocol: in malaise trap; eventDate: 3.xi.1994; individualCount: 2; sex: 1 male, 1 female; lifeStage: adult; recordedBy: DA Polhemus; identifiedBy: PM O’Grady; dateIdentified: 1.2016; collectionID: CL8233; institutionCode: BPBM
d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Koia Stream, 150m down from dam; verbatimElevation: 3500 ft; samplingProtocol: 20 net swings; eventDate: 1.viii.1997; individualCount: 6; sex: 5 females, 1 male; lifeStage: adult; recordedBy: RA England; identifiedBy: PM O’Grady; dateIdentified: i.2016; institutionCode: BPBM
e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Kauai, Koia Stream, cascade riffles; verbatimElevation: 3680 ft.; samplingProtocol: 10 net swings; eventDate: 3.viii.1997; individualCount: 14; sex: 2 males, 12 females; lifeStage: adult; recordedBy: RA England; identifiedBy: PM O’Grady; dateIdentified: i.2016; institutionCode: BPBM
f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Kauai, Koia Stream, rocks in stream; verbatimElevation: 3400 ft.; eventDate: 5-6.i.1999; individualCount: 27; sex: 9 females, 18 males; lifeStage: adult; recordedBy: RA England; identifiedBy: PM O’Grady; dateIdentified: i.2016; institutionCode: BPBM
g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Kokee, Waialae Stream, rocks in stream; verbatimElevation: 3400 ft.; samplingProtocol: 20 net swings; eventDate: 5-6.i.1999; individualCount: 52; sex: 29 females, 23 males; lifeStage: adult; recordedBy: D Preston; identifiedBy: PM O’Grady; dateIdentified: i.2016; institutionCode: BPBM
h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Kokee, Waialae Stream, rocks in stream; verbatimElevation: 3400 ft.; samplingProtocol: 30 net swings; eventDate: 5-6.1.1999; individualCount: 44; sex: 24 females, 20 males; lifeStage: adult; recordedBy: D Preston; identifiedBy: PM O’Grady; dateIdentified: i.2016; institutionCode: BPBM
i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Kokee, Waialae Stream, first fall below Waialae cabin; samplingProtocol: 25 net swings (#1); eventDate:
5-6.I.1999; individualCount: 101; sex: 49 females, 52 males; lifeStage: adult; recordedBy: D Polhemus; identifiedBy: PM O’Grady; dateIdentified: 1.2016; institutionCode: BPBM

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Kohee, Waialae Stream, first fall below Waialae cabin; verbatimElevation: 3500 ft.; samplingProtocol: 25 net swings (#2); eventDate: 5-6.I.1999; individualCount: 41; sex: 23 females, 18 males; lifeStage: adult; recordedBy: D Polhemus; identifiedBy: PM O’Grady; dateIdentified: 1.2016; institutionCode: BPBM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Kohee, Waialae Stream, rocks in stream; verbatimElevation: 3400 ft.; samplingProtocol: 25 net swings (#3); eventDate: 5-6.I.1999; individualCount: 101; sex: 46 females, 55 males; lifeStage: adult; recordedBy: D Preston; identifiedBy: PM O’Grady; dateIdentified: 1.2016; institutionCode: BPBM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; verbatimLocality: Hanakapai Stream, 200m from ocean; verbatimElevation: 5m; eventDate: 2.I.2002; individualCount: 5; sex: 4 females, 1 male; lifeStage: adult; recordedBy: RA Englund; identifiedBy: PM O’Grady; dateIdentified: 1.2016; institutionCode: BPBM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; county: Kauai; verbatimLocality: Kokee Stream near Canyon Trail; verbatimLatitude: 22° 6'18.56"N; verbatimLongitude: 159° 39'41.12"W; samplingProtocol: sweeping over running water; eventDate: 10.I.2010; individualCount: 3; sex: female; recordedBy: PM O’Grady, RT Lapoint, GM Bennett, B Ort, NA Pantoja; identifiedBy: PM O’Grady; dateIdentified: 7 Oct 2014; collectionID: 588.7; institutionCode: EMEC

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; county: Kauai; verbatimLocality: Kawaiokoi Stream at Sugi Grove; verbatimLatitude: 22° 7’53.12"N; verbatimLongitude: 159° 37’18.12"W; eventDate: 19.IX.2011; individualCount: 1; sex: female; recordedBy: PM O’Grady, KR Goodman, H Machado; identifiedBy: PM O’Grady; dateIdentified: 7 Oct 2014; collectionID: 705.7; institutionCode: EMEC

Other materials:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; county: Kauai; verbatimLocality: Kalalau Valley; eventDate: viii.1953; individualCount: 4; sex: 4 females; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: PM O’Grady; dateIdentified: 22 Jan 2016; institutionCode: USNM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: hardyi; islandGroup: Hawaiian Islands; island: Kauai; country: United States; stateProvince: Hawaii; county: Kauai; verbatimLocality: Awaawapuhi; eventDate: viii.1953; sex: 1 male; lifeStage: adult; recordedBy: EH Bryan, Jr.; identifiedBy: PM O’Grady; dateIdentified: 22 Jan 2016; institutionCode: USNM
MALE, FEMALE. Head. Ground color dull black (Figs 1, 2, 3). Frons and fronto-orbital plates covered with indistinct golden pollen. Frons lacking setae. Three subequal lateroclinate fronto-orbital setae present. Ocellar triangle subshining black; ocelli whitish gray; two strong proclinate ocellar setae. Postocellar setae absent. Inner and outer vertical setae subequal, subshining, gray pollinose. Arista pubescent, inserted at base of third segment. Gena wide, about 3/4 width of eye, with three setae inserted along anterior margin of eye. Anterior genal seta weak, about 1/3 length of two strong, upward-directed posterior genal setae. Eye dark red, ovoid in shape, about two times longer than high. Thorax. Mesonotum dull black, indistinctly golden pollinose. Four pairs of dorsocentral setae present; anterior pair inserted well forward of suture; posteriormost are inserted slightly laterally relative to the others. One strong humeral seta. Scutellum subshining black, with two convergent anterior and two convergent posterior scutellar setae. Legs. Entirely black. Wings. Smoky dark gray, with even dark infuscation on entire surface of blade. Halteres brown. Abdomen. Subshining dark brown to black, with slightly lighter areas on posterior margins of each segment. Epandrium and surstyli of males very similar to *P. constricta*. Apices of surstyli narrowed, not straight-sided (Figs 1, 4). Surstyli and central region of epandrium lightened. Females with a strong constriction between tergites four and five (Figs 2, 3, 5). Seventh tergite greatly expanded along ventrolateral margins, extending beyond the apices of the cerci. Eighth tergite with two strong dorsal setae along midline of seventh tergite and two subequal but finer setae on lateral margins of segment. Ovipositor strongly bifurcate in a distinct V shape. Ovipositor about two times longer than wide, with each half bearing three strong leaf-like spines at apex and numerous finer setae subapically.
Figure 1.
Habitus of a paratype male of *P. hardyi* in lateral view.

Figure 2.
Habitus of the holotype female of *P. hardyi* in lateral view.

Figure 3.
Habitus of the holotype female of *P. hardyi* in dorsal view.
Figure 4.
External male genitalia of *P. hardyi*. The narrowed, lightened tips of the surstyli suggest that this species is most closely related to *P. constricta*. Refer to figure 162e from Hardy and Deffinado (1980).

Figure 5.
Abdomen of *P. hardyi* female, showing constriction between tergites 4 and 5, the telescoping form of tergite 8 and the ovipositor and associated structures.
Diagnosis

This species is most closely related to *Procanace constricta* from Maui, Molokai and Hawaii. It is differentiated most readily by the shape of tergite seven. In *P. constricta* tergite seven is greatly expanded on the lateroventral margins and extends to the apices of the cerci (Fig. 6). The seventh tergite of *P. hardyi* (Fig. 5) is not expanded on the lateroventral margins and has a telescoping form typical of the other members of this genus. The ovipositor of *P. hardyi* is long and narrow, about two times longer than wide, with distinct setae at the apices. The width and length of the cerci in *P. constricta* is roughly equal and the setae at the apices of the cerci are short and inconspicuous.

![Abdomen of *P. constricta* female](image)

**Figure 6.**
Abdomen of *P. constricta* female, showing constriction between tergites 4 and 5, the lateral extension of tergite 8 beyond the apex of the ovipositor, and the ovipositor and associated structures. The specimen imaged is from collection 205268.

**Etymology**

It is a pleasure to dedicate this species to the memory of Dr. D. Elmo Hardy.

**Distribution**

This species is endemic to Kauai (Fig. 7).
Distributional Analyses of Hawaiian Canacinae (Diptera: Canacidae)

*Canaceoides angulatus* Wirth, 1969

**Materials**

**Holotype:**  
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;  
- genus: *Canaceoides*; specificEpithet: *angulatus*; scientificNameAuthorship: Wirth, 1969;  
- islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waimea, on intertidal rocks; verbatimEventDate: 31.I.1946; individualCount: 1; sex: male; lifeStage: adult;  
- recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980;  
- institutionCode: USNM

**Paratypes:**

- a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;  
  - genus: *Canaceoides*; specificEpithet: *angulatus*; scientificNameAuthorship: Wirth, 1969;  
  - waterBody: Gulf of California; island: Isla San Esteban; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 20.IV.1920; individualCount: 1; sex: male; lifeStage: adult;  
  - recordedBy: EP VanDuzee; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980;  
  - institutionCode: CAS, ANSP

- b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;  
  - genus: *Canaceoides*; specificEpithet: *angulatus*; scientificNameAuthorship: Wirth, 1969;  
  - waterBody: Gulf of California; island: Isla San Esteban; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 20.IV.1920; individualCount: 3; sex: female;  
  - lifeStage: adult; recordedBy: EP VanDuzee; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980;  
  - institutionCode: CAS, ANSP

Figure 7.  
Distribution of *P. hardyi* (Kauai).
c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach near Koko Crater; verbatimEventDate: 17.xii.1922; individualCount: 1; sex: female; lifeStage: adult; recordedBy: EH Bryan; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Lianski; verbatimLocality: no location given; verbatimEventDate: 19.v.1923; individualCount: 1; sex: male; lifeStage: adult; recordedBy: C. Grant; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: ANSP

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koko Head; verbatimEventDate: 23.vi.1923; individualCount: 3; sex: female; lifeStage: adult; recordedBy: EH Bryan; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Lianski; verbatimLocality: no location given; verbatimEventDate: 19.v.1923; individualCount: 1; sex: female; lifeStage: adult; recordedBy: EH Bryan; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo; verbatimEventDate: xii.1945; individualCount: 2; sex: female; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Lanikai; verbatimEventDate: 29.xii.1945; individualCount: 1; sex: female; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Lanikai; verbatimEventDate: 29.xii.1945; individualCount: 2; sex: male; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waimea, on intertidal rocks; verbatimEventDate: 31.i.1946; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waimea, on intertidal rocks; verbatimEventDate: 31.i.1946; individualCount: 7; sex: male; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waimea, on intertidal rocks; verbatimEventDate: 31.i.1946; individualCount: 12; sex: female; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980
kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Sand Island, light trap; verbatimEventDate: 22.v.1946; individualCount: 1; sex: male; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koko Head; verbatimEventDate: 25.vi.1946; individualCount: 2; sex: female; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Rabbit Island; verbatimEventDate: 30.viii.1946; individualCount: 1; sex: male; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Rabbit Island; verbatimEventDate: 30.viii.1946; individualCount: 2; sex: female; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Kilauea; verbatimEventDate: 8.ix.1946; individualCount: 1; sex: female; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Nawiliwili; verbatimEventDate: 9.ix.1946; individualCount: 1; sex: male; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Waialua; verbatimEventDate: 9.ix.1946; individualCount: 2; sex: female; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Waialua; verbatimEventDate: 7.ix.1952; individualCount: 28; sex: female; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM
v. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla Cerralvo; country: Mexico; verbatimLocality: Gordas Point; verbatimEventDate: 20.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 12; sex: male; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

w. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla Cerralvo; country: Mexico; verbatimLocality: Gordas Point; verbatimEventDate: 20.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 13; sex: female; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

x. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla Partida; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 23.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 2; sex: male; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

y. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla Partida; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 23.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 11; sex: female; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

z. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla San Francisco; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 24.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 20; sex: female; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

aa. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla San Francisco; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 24.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 34; sex: male; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

ab. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; country: Mexico; stateProvince: Baja California Sur; verbatimLocality: Agua Verde Bay; verbatimEventDate: 26.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 3; sex: female; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

ac. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; country: Mexico; stateProvince: Baja California Sur; verbatimLocality: Agua Verde Bay; verbatimEventDate: 26.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 1; sex: male; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS
ad. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla Idefonso; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 30.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 8; sex: male; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

ae. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla Idefonso; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 30.iii.1953; eventRemarks: Sefton-Orca Expedition; individualCount: 10; sex: female; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

af. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; country: Mexico; stateProvince: Baja California Norte; verbatimLocality: San Felipe; verbatimEventDate: 19.ii.1954; individualCount: 34; sex: female; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

ag. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; country: Mexico; stateProvince: Baja California Norte; verbatimLocality: San Felipe; verbatimEventDate: 19.ii.1954; individualCount: 19; sex: male; lifeStage: adult; recordedBy: PH Arnauld; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

ah. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; country: Peru; verbatimLocality: Lima, 3km northwest Canete; verbatimEventDate: 13.iii.1954; individualCount: 12; sex: male; lifeStage: adult; recordedBy: El Schlinger, ES Ross; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

ai. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; country: Peru; verbatimLocality: Lima, 3km northwest Canete; verbatimEventDate: 13.iii.1954; individualCount: 10; sex: female; lifeStage: adult; recordedBy: El Schlinger, ES Ross; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

aj. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Hauula; verbatimEventDate: 4.vii.1955; individualCount: 2; sex: male; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

ak. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Midway; verbatimLocality: at light; verbatimEventDate: 12.xi.1959; individualCount: 1; sex: male; lifeStage: adult; recordedBy: no collector given; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

al. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; country: Mexico; stateProvince: Sonora; verbatimLocality: San Carlos Bay; verbatimEventDate: 10.viii.1960; individualCount: 11; sex: female; lifeStage: adult;
recordedBy: PH Arnauld, E Ross, Rentz; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

am. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; country: Mexico; stateProvince: Sonora; verbatimLocality: San Carlos Bay; verbatimEventDate: 10.viii.1960; individualCount: 9; sex: male; lifeStage: adult; recordedBy: PH Arnauld, E Ross, Rentz; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

an. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Laysan; verbatimLocality: no location given; verbatimEventDate: ix.1961; individualCount: 1; sex: female; lifeStage: adult; recordedBy: GD Butler; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

ao. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla Salsipuedes; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 20.v.1962; individualCount: 10; sex: male; lifeStage: adult; recordedBy: Ryckman, Ryckman, Christianson; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

ap. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; waterBody: Gulf of California; island: Isla Salsipuedes; country: Mexico; verbatimLocality: no location given; verbatimEventDate: 20.v.1962; individualCount: 6; sex: female; lifeStage: adult; recordedBy: Ryckman, Ryckman, Christianson; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

aq. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Galapagos Archipelago; island: Isla Santa Cruz; country: Ecuador; verbatimLocality: Academy Bay; verbatimEventDate: 24.i.1964; individualCount: 1; sex: female; lifeStage: adult; recordedBy: RD Cavagnaro, RO Schuster; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

ar. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Galapagos Archipelago; island: Isla Santa Fe; country: Ecuador; verbatimLocality: no location given; verbatimEventDate: 5.ii.1964; individualCount: 11; sex: female; lifeStage: adult; recordedBy: TP Pappenfuss; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

as. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Galapagos Archipelago; island: Isla Santa Cruz; country: Ecuador; verbatimLocality: Academy Bay, at light; verbatimEventDate: 17.ii.1964; individualCount: 1; sex: male; lifeStage: adult; recordedBy: PD Ashlock; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

at. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Galapagos Archipelago; island: Isla Santa Cruz; country: Ecuador; verbatimLocality: Academy Bay, at light; verbatimEventDate: 17.ii.1964; individualCount: 1; sex: female; lifeStage: adult; recordedBy: PD Ashlock; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM
au. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Galapagos Archipelago; island: Isla Pinta; country: Ecuador; verbatimLocality: southeast coast; verbatimEventDate: 25.v.1964; individualCount: 22; sex: male; lifeStage: adult; recordedBy: DQ Cavagnaro; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

av. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu, wave swept rocks; verbatimEventDate: 25.ix.1966 and 20.xi.1966; individualCount: 47; sex: female; lifeStage: adult; recordedBy: JR Vockeroth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC

aw. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu, wave swept rocks; verbatimEventDate: 25.ix.1966 and 20.xi.1966; individualCount: 40; sex: male; lifeStage: adult; recordedBy: JR Vockeroth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CAS

ax. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu, wave swept rocks; verbatimEventDate: 25.ix.1966 and 20.xi.1966; individualCount: 21; sex: male; lifeStage: adult; recordedBy: W. Voss; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC

ay. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kailua-Kona; verbatimEventDate: 2.x.1966; individualCount: 1; sex: female; lifeStage: adult; recordedBy: W. Voss; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC

az. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kailua-Kona; verbatimEventDate: 2.x.1966; individualCount: 31; sex: female; lifeStage: adult; recordedBy: W. Voss; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC

ba. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Honokowai; verbatimEventDate: 28.x.1966; individualCount: 2; sex: female; lifeStage: adult; recordedBy: T. Saigusa; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC

bb. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kihei; verbatimEventDate: 28.x.1966; individualCount: 1; sex: male; lifeStage: adult; recordedBy: T. Saigusa; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC

bc. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kihei; verbatimEventDate:
28.x.1966; individualCount: 1; sex: female; lifeStage: adult; recordedBy: T. Saigusa; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC

**Other materials:**

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Leahi, at shore; verbatimEventDate: 26.ii.1911; lifeStage: adult; catalogNumber: 2006004911; recordedBy: Terry; identifiedBy: Cresson; institutionCode: BPBM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koko Head; verbatimEventDate: 23.vii.1922; lifeStage: adult; catalogNumber: 2006004873; recordedBy: EH Bryan, Jr.; identifiedBy: Cresson; institutionCode: BPBM
Canaceoides; scientificNameAuthorship: Wirth, 1969;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach, near Koko Head; verbatimEventDate: 17.xii.1922; lifeStage: adult; catalogNumber: 2006004895; recordedBy: EH Bryan, Jr.; identifiedBy: Cresson; institutionCode: BPBM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach, near Koko Head; verbatimEventDate: 17.xii.1922; lifeStage: adult; catalogNumber: 2006004897; recordedBy: EH Bryan, Jr.; identifiedBy: Cresson; institutionCode: BPBM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach, near Koko Head; verbatimEventDate: 17.xii.1922; lifeStage: adult; catalogNumber: 2006004889; recordedBy: EH Bryan, Jr.; identifiedBy: Cresson; institutionCode: BPBM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; scientificNameAuthorship: Wirth, 1969;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach, near Koko Head; verbatimEventDate: 17.xii.1922; lifeStage: adult; catalogNumber: 2006004890; recordedBy: EH Bryan, Jr.; identifiedBy: Cresson; institutionCode: BPBM

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach, near Koko Head; verbatimEventDate: 17.xii.1922; lifeStage: adult; catalogNumber: 2006004891; recordedBy: EH Bryan, Jr.; identifiedBy: Cresson; institutionCode: BPBM

o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach, near Koko Head; verbatimEventDate: 17.xii.1922; lifeStage: adult; catalogNumber: 2006004892; recordedBy: EH Bryan, Jr.; identifiedBy: Cresson; institutionCode: BPBM

p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach, near Koko Head; verbatimEventDate: 17.xii.1922; lifeStage: adult; catalogNumber: 2006004893; recordedBy: EH Bryan, Jr.; identifiedBy: Cresson; institutionCode: BPBM

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach, near Koko Head; verbatimEventDate: 17.xii.1922; lifeStage: adult; catalogNumber: 2006004894; recordedBy: EH Bryan, Jr.; identifiedBy: Cresson; institutionCode: BPBM

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Lsianski; verbatimEventDate: 19.v.1923; lifeStage: adult; catalogNumber: 2006004656; recordedBy: C Grant; institutionCode: BPBM

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Lsianski; verbatimEventDate: 19.v.1923; lifeStage: adult; catalogNumber: 2008008252; recordedBy: C Grant; identifiedBy: J Straxanac; dateIdentified: 1991; institutionCode: BPBM

t. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Rabbit Island; verbatimEventDate: 26.viii.1934; lifeStage: adult; catalogNumber: 2006004855; recordedBy: EH Bryan, Jr.; identifiedBy: MD Delfinado; institutionCode: BPBM

u. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waikiki; verbatimEventDate: 16.iv.1950; individualCount: 1; lifeStage: adult; recordedBy: MS Adachi; institutionCode: UHM

v. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kailua; verbatimEventDate: xii.1950; individualCount: 8; lifeStage: adult; recordedBy: NLH Krauss; institutionCode: UHM

w. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Honaunau;
verbatimEventDate: x.1951; individualCount: 9; lifeStage: adult; recordedBy: HA Bess; institutionCode: UHM

x. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Ala Wai Canal; verbatimEventDate: vi.1952; individualCount: 1; lifeStage: adult; recordedBy: MS Adachi; institutionCode: UHM

y. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu; verbatimEventDate: iii.1953; individualCount: 2; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

z. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Waialua Beach; verbatimEventDate: vii.1953; individualCount: 3; lifeStage: adult; catalogNumber: 2006004924; recordedBy: JL Gressitt; institutionCode: BPBM

aa. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Mokumanu I.; verbatimEventDate: 23.vi.1954; lifeStage: adult; catalogNumber: 2006004765; recordedBy: EH Bryan, Jr.; institutionCode: BPBM

ab. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kona, near Puuhonu Point; verbatimEventDate: 23.i.1957; lifeStage: adult; catalogNumber: 2006004771; recordedBy: EH Bryan, Jr.; institutionCode: BPBM

ac. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kona, near Puuhonu Point; verbatimEventDate: 23.i.1957; lifeStage: adult; catalogNumber: 2006004924; recordedBy: JL Gressitt; institutionCode: BPBM

ad. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waianae; verbatimEventDate: 1958; individualCount: 1; lifeStage: adult; catalogNumber: 2006004720; recordedBy: Y Kondoh; institutionCode: UHM

ae. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kona, Kahalu; verbatimEventDate: August 1958; lifeStage: adult; catalogNumber: 2006004720; recordedBy: Y Kondoh; institutionCode: UHM

af. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Lisianski; verbatimEventDate: 18.ix.1964; lifeStage: adult; catalogNumber: 2006004649; recordedBy: JW Beardsley; institutionCode: BPBM

ag. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waianae Beach Park;
verbatimEventDate: 11.vi.1967; individualCount: 13; lifeStage: adult; recordedBy: JA Tenorio; institutionCode: UHM

ah. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Nawaiwiwi Dock; verbatimEventDate: 14.vii.1968; individualCount: 3; lifeStage: adult; recordedBy: JA Tenorio; institutionCode: UHM

ai. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Kapaa Beach Park, Kapaa; verbatimEventDate: 13.viii.1968; IndividualCount: 48; lifeStage: adult; recordedBy: OM Barber; institutionCode: UHM

aj. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Naalehu Beach Park; verbatimEventDate: 15.vii.1968; IndividualCount: 7; lifeStage: adult; recordedBy: JA Tenorio; institutionCode: UHM

ak. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Kalapana; verbatimEventDate: 29.xi.1968; IndividualCount: 10; lifeStage: adult; recordedBy: JA Tenorio, JM Tenorio; institutionCode: UHM

al. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Wailua Beach; verbatimEventDate: 4.iv.1970; IndividualCount: 26; lifeStage: adult; recordedBy: L Teremoto, L Uyenishi; institutionCode: UHM

am. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kahului, Power Plant Discharge #1; verbatimEventDate: 08.viii.1973; lifeStage: adult; catalogNumber: 2006004912; recordedBy: D Devaney; identifiedBy: JA Tenorio; institutionCode: BPBM

an. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kahoolewa; verbatimLocality: Hakoawa Point, to 2km SW; minimumElevationInMeters: 0; maximumElevationInMeters: 66; verbatimEventDate: 07.xi.1979; lifeStage: adult; catalogNumber: 2006008014; recordedBy: GM Nishida; identifiedBy: NL Evenhuis; dateIdentified: 1984; institutionCode: BPBM

ao. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 10; verbatimEventDate: 24.vi.1990; lifeStage: adult; catalogNumber: 2008008253; recordedBy: J Strazanac; institutionCode: BPBM

ap. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 24; verbatimEventDate: 20030929; lifeStage: adult; catalogNumber: 2006008014; recordedBy: GM Nishida; identifiedBy: NL Evenhuis; dateIdentified: 1984; institutionCode: BPBM
**ak.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Blaisdead Park, Waimalu Stream; verbatimEventDate: 28.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000617; recordedBy: GA Samuelson; identifiedBy: K Arakaki; institutionCode: BPBM

**ar.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, Okokiolepe Pond, sheltered cove; verbatimEventDate: 23.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000595; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**as.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, at Pearl Harbor entrance; verbatimEventDate: 23.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000596; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**at.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, at Pearl Harbor entrance; verbatimEventDate: 23.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000597; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**au.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, at Pearl Harbor entrance; verbatimEventDate: 23.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000598; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**av.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, edge of fish pond; verbatimEventDate: 23.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000599; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**aw.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, at Pearl Harbor entrance; verbatimEventDate: 23.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000600; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**ax.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, edge of fish pond; verbatimEventDate: 23.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000617; recordedBy: GA Samuelson; identifiedBy: K Arakaki; institutionCode: BPBM

**ay.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969;
Studies in Hawaiian Diptera III: New Distributional Records for Canacidae ...

islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, at Pearl Harbor entrance; verbatimEventDate: 23.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000601; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

az. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, at Pearl Harbor entrance; verbatimEventDate: 23.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000602; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

ba. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Aiea Bay, rocky shoreline; verbatimEventDate: 24.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000603; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bb. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Aiea Bay, rocky shoreline; verbatimEventDate: 24.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000619; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bc. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Iroquois Point, at Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000620; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bd. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Aiea Bay, stream mouth; verbatimEventDate: 24.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000621; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

be. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000606; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bf. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000607; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bg. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000610; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bh. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; sex: female; lifeStage: adult; catalogNumber: 2008000611; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bi. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000612; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bk. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000613; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bl. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000614; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bm. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000615; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bn. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric
Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000615; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bo. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wai'au Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000616; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bp. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wai'au Hawaiian Electric Power Plant, open rocky shoreline at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000618; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bq. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: E'o Canal, Ted Makalena Golf Course, at shore line; verbatimEventDate: 27.vii.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000622; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

br. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: E'o Canal, Ted Makalena Golf Course, at shore line; verbatimEventDate: 27.vii.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000623; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bs. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: E'o Canal, Ted Makalena Golf Course, at shore line; verbatimEventDate: 27.vii.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000624; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bt. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: E'o Canal, Ted Makalena Golf Course, at shore line; verbatimEventDate: 27.vii.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000625; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bu. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimEventDate: 13 Aug 2005; lifeStage: adult; catalogNumber: 2006016244; recordedBy: PT Oboyski; identifiedBy: PT Oboyski; dateIdentified: 2005; institutionCode: BPBM

bv. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimEventDate: 13 Aug 2005;
bw. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kolekole Beach Park; verbatimEventDate: 31.vii.2009; lifeStage: adult; recordedBy: RT Lapoint; identifiedBy: PM O'Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205642

bx. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Kikiaola, Small Boat Harbor; verbatimEventDate: 5.i.2010; lifeStage: adult; recordedBy: PM O'Grady; identifiedBy: PM O'Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205640

by. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Punalu'u Beach Park; verbatimEventDate: 26.vi.2010; lifeStage: adult; recordedBy: NL Evenhuis; identifiedBy: PM O'Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205519

bz. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Ninole, Kauwale Fish Pond; verbatimEventDate: 26.vi.2010; lifeStage: adult; recordedBy: NL Evenhuis; identifiedBy: PM O'Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205646

cb. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Bay Park; verbatimEventDate: 12.i.2011; lifeStage: adult; recordedBy: NL Evenhuis, G Bennett, KR Goodman; identifiedBy: PM O'Grady; dateIdentified: 2014; institutionCode: EMEC

cd. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; verbatimEventDate: 12.i.2011; lifeStage: adult; recordedBy: KR Goodman; identifiedBy: PM O'Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205638

ce. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: angulatus; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Beach rocks near mile 21.25; verbatimEventDate: 12.i.2011; lifeStage: adult; recordedBy: KR Goodman;
identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205645

identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205639

identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205520

Native status: adventive

Distribution: HAWAIIAN ISLANDS: Midway, Laysan, Lisianski, Nihoa, Kauai, Oahu, Molokai, Kahoolawae, Maui, Hawaii (Fig. 8); MEXICO: Baja California Norte, Baja California Sur, Sonora; ECUADOR: Galapagos Islands; PERU

Figure 8.

Distribution of C. angulatus in the main Hawaiian Islands. This species is also found in the Northwest Hawaiian Islands (Laysan, Lisianski, Midway, Nihoa).

Notes: Cresson (1926), [description of Canace nudata]; Williams (1938), as C. nudata, [ecology; eggs, larvae, puparium]; Wirth (1951), as C. nudata, [family revision; male genitalia (ventral and lateral)]; Wirth (1969), [original description; male genitalia, female terminalia, ninth sternum, spermatheca, distribution map (partial)]; Hardy and Delfinado
(1980), [redescription and revision of Hawaiian taxa; head (front and lateral), female terminalia (dorsal and ventral), spermathecae, wing, surstylus; cephalopharyngaeal skeleton (larval and pupal, puparium, third instar larvae]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist]; Evenhuis and Eldredge (2004), [Natural History of Nihoa and Necker Islands].

**Canaceoides hawaiiensis** Wirth, 1969

**Materials**

**Holotype:**
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Hana; verbatimEventDate: 20.vi.1967; individualCount: 1; sex: male; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

**Paratypes:**
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: ex pools of salt water; verbatimEventDate: 12.vi.1922; individualCount: 1; sex: male; lifeStage: adult; recordedBy: EH Bryan; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: ANSP
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: ex pools of salt water; verbatimEventDate: 12.vi.1922; individualCount: 1; sex: female; lifeStage: adult; recordedBy: EH Bryan; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: ANSP
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Wawamalu Beach near Koko Crater; verbatimEventDate: 17.xii.1922; individualCount: 3; sex: male; lifeStage: adult; recordedBy: EH Bryan; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: ANSP
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Mapulehu, Kupeke Pond; verbatimEventDate: 28.viii.1944; individualCount: 2; sex: male; lifeStage: adult; recordedBy: Y Tanada; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Niaupala; verbatimEventDate: 28.xi.1944; individualCount: 3; sex: male; lifeStage: adult; recordedBy: Y Tanada; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Niaupala;
Studies in Hawaiian Diptera III: New Distributional Records for Canacidae...

verbatimEventDate: 28.xii.1944; individualCount: 4; sex: female; lifeStage: adult; recordedBy: Y Tanada; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Hanauma Bay; verbatimEventDate: 4.i.1946; individualCount: 2; sex: male; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Nawiliwili; verbatimEventDate: 9.ix.1946; individualCount: 1; sex: male; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Hanauma Bay; verbatimEventDate: 4.vii.1950; individualCount: 2; sex: female; lifeStage: adult; recordedBy: MS Adachi; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Honaunau, Kona; verbatimEventDate: x.1951; individualCount: 13; sex: male; lifeStage: adult; recordedBy: HA Bess; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koko Head; verbatimEventDate: vi.1955; individualCount: 2; sex: male; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980
p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiakea; verbatimEventDate: v.1958; individualCount: 5; sex: male; lifeStage: adult; recordedBy: Y Kondo; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiakea; verbatimEventDate: v.1958; individualCount: 4; sex: female; lifeStage: adult; recordedBy: Y Kondo; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: on lava at edge of sea; verbatimEventDate: 10.ii.1965; individualCount: 1; sex: male; lifeStage: adult; recordedBy: NLH Krauss; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: on lava at edge of sea; verbatimEventDate: 10.ii.1965; individualCount: 3; sex: female; lifeStage: adult; recordedBy: NLH Krauss; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

t. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Sunset Beach, light trap; verbatimEventDate: 24.iii.1966; individualCount: 4; sex: male; lifeStage: adult; recordedBy: no collector given; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

u. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Sunset Beach, light trap; verbatimEventDate: 24.iii.1966; individualCount: 2; sex: female; lifeStage: adult; recordedBy: no collector given; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

v. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu, wave swept rocks; verbatimEventDate: 24.vii.1966; individualCount: 29; sex: male; lifeStage: adult; recordedBy: JR Vockeroth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

w. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu, wave swept rocks; verbatimEventDate: 24.vii.1966; individualCount: 30; sex: female; lifeStage: adult; recordedBy: JR Vockeroth; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

x. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kaanapali; verbatimEventDate: 28.x.1966; individualCount: 5; sex: male; lifeStage: adult; recordedBy: T. Saigusa; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC
y. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kaanapali; verbatimEventDate: 28.vi.1966; individualCount: 2; sex: female; lifeStage: adult; recordedBy: T. Saigusa; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC

z. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kalapana Park; verbatimEventDate: 24.iii.1967; individualCount: 1; sex: male; lifeStage: adult; recordedBy: T. Saigusa; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: CNC

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Hana; verbatimEventDate: 20.vi.1967; individualCount: 3; sex: female; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Honaunau; verbatimEventDate: October 1951; lifeStage: adult; catalogNumber: 2006004948; recordedBy: HA Bess; identifiedBy: WW Wirth; dateIdentified: 1969; institutionCode: BPBM
c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Honaunau; verbatimEventDate: October 1951; lifeStage: adult; catalogNumber: 2006004951; recordedBy: HA Bess; identifiedBy: WW Wirth; dateIdentified: 1969; institutionCode: BPBM
d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Honaunau; verbatimEventDate: October 1951; lifeStage: adult; catalogNumber: 2006004950; recordedBy: HA Bess; identifiedBy: WW Wirth; dateIdentified: 1969; institutionCode: BPBM
e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Honaunau;
verbatimEventDate: x.1951; lifeStage: adult; catalogNumber: 2006004949; recordedBy: HA Bess; identifiedBy: WW Wirth; dateIdentified: 1969; institutionCode: BPBM

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waianae; verbatimEventDate: May 1958; lifeStage: adult; catalogNumber: 2006004946; recordedBy: Y Kondo; identifiedBy: WW Wirth; dateIdentified: 1969; institutionCode: BPBM

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waianae; verbatimEventDate: May 1958; lifeStage: adult; catalogNumber: 2006004947; recordedBy: Y Kondo; identifiedBy: WW Wirth; dateIdentified: 1969; institutionCode: BPBM

h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008266; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008267; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008268; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008269; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008263; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008276; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008257; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM
o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008254; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008265; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008256; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008264; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008260; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

t. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008261; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

u. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008262; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

v. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008255; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

w. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: on coast; verbatimEventDate: 20.iv.1983; lifeStage: adult; catalogNumber: 2008008255; recordedBy: WC Gagne; identifiedBy: DE Hardy; institutionCode: BPBM

x. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 10; verbatimEventDate: 25.vi.1990; lifeStage: adult;
catalogNumber: 2008008270; recordedBy: J Strazanac; identifiedBy: DE Hardy; institutionCode: BPBM

y. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 10; verbatimEventDate: 25.vi.1990; lifeStage: adult; catalogNumber: 2008008271; recordedBy: J Strazanac; identifiedBy: DE Hardy; institutionCode: BPBM

z. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 10; verbatimEventDate: 25.vi.1990; lifeStage: adult; catalogNumber: 2008008272; recordedBy: J Strazanac; identifiedBy: DE Hardy; institutionCode: BPBM

aa. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 10; verbatimEventDate: 25.vi.1990; lifeStage: adult; catalogNumber: 2008008273; recordedBy: J Strazanac; identifiedBy: DE Hardy; institutionCode: BPBM

ab. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 10; verbatimEventDate: 25.vi.1990; lifeStage: adult; catalogNumber: 2008008274; recordedBy: J Strazanac; identifiedBy: DE Hardy; institutionCode: BPBM

ac. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 10; verbatimEventDate: 25.vi.1990; lifeStage: adult; catalogNumber: 2008008275; recordedBy: J Strazanac; identifiedBy: DE Hardy; institutionCode: BPBM

ad. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 10; verbatimEventDate: 25.vi.1990; lifeStage: adult; catalogNumber: 2008008277; recordedBy: J Strazanac; identifiedBy: DE Hardy; institutionCode: BPBM

ae. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Nihoa; verbatimLocality: Miller Valley; minimumElevationInMeters: 10; verbatimEventDate: 25.vi.1990; lifeStage: adult; catalogNumber: 2008008258; recordedBy: J Strazanac; identifiedBy: DE Hardy; institutionCode: BPBM

af. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Ponds, Ewa Stream; minimumElevationInMeters: O; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000626; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
ag. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Ninole, Kauwale Fish Pond; verbatimEventDate: 26.vi.2010; lifeStage: adult; recordedBy: NL Evenhuis; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205542

ah. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Whittington Beach Park, South Coast, Kau; verbatimEventDate: 1.viii.2010; lifeStage: adult; recordedBy: PM O’Grady, BS Ort, NA Pantoja; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205121

ai. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Whittington Beach Park, South Coast, Kau, sweeping lava rocks and estuary; verbatimEventDate: 1.viii.2010; lifeStage: adult; recordedBy: PM O’Grady, BS Ort, NA Pantoja; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 612.6

aj. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Alakahi Trail to Onomea Bay, adjacent to Hawaii Botanical Garden, sweeping rocks in surf; verbatimEventDate: 2.vii.2010; lifeStage: adult; recordedBy: PM O’Grady, BS Ort, RT Lapoint, GM Bennett, NA Pantoja; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 614.4

ak. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kolekole Beach Park, sweeping along ocean coast; verbatimEventDate: 2.viii.2010; lifeStage: adult; recordedBy: PM O’Grady, BS Ort, RT Lapoint, GM Bennett, NA Pantoja; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 616.3

al. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Alakahi Trail to Onomea Bay, adjacent to Hawaii Botanical Garden; verbatimEventDate: 2.vii.2010; lifeStage: adult; recordedBy: PM O’Grady, RT Lapoint, GM Bennett, NA Pantoja; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205130

am. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Alakahi Trail to Onomea Bay, adjacent to Hawaii Botanical Garden; verbatimEventDate: 2.viii.2010; lifeStage: adult; recordedBy: BS Ort; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205636

an. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Canaceoides; specificEpithet: hawaiiensis; scientificNameAuthorship: Wirth, 1969; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: South West Molokai, Hale O Lono; verbatimEventDate: 12.i.2011; lifeStage: adult; recordedBy: KR Goodman; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205643
Native status: endemic

Distribution: HAWAIIAN ISLANDS: Nihoa, Kauai, Oahu, Molokai, Maui, Hawaii (Fig. 9).

![Figure 9. Distribution of C. hawaiiensis in the main Hawaiian Islands. This species is also found in the Northwest Hawaiian Islands (Nihoa).](image)

Notes: Wirth (1969), [original description; male genitalia, female terminalia, ninth sternum, spermatheca]; Hardy and Delfinado (1980), [redescription and revision of Hawaiian taxa; female terminalia (dorsal and ventral), spermathecae, ninth sternum, epandrium and surstylus]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist]; Evenhuis and Eldredge (2004), [Natural History of Nihoa and Necker Islands].

*Procanace acuminata* Hardy and Delfinado, 1980

Materials

Holotype:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: acuminata; scientificNameAuthorship: Hardy &
Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream, east slope of Mauna Kea; verbatimElevation: 1000 ft.; verbatimEventDate: 29.v.1970; individualCount: 1; sex: male; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

**Paratypes:**

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*: specificEpithet: *acuminata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Valley; verbatimEventDate: vi.1952; individualCount: 3; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*: specificEpithet: *acuminata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Valley, on wet rocks in swift moving stream; verbatimEventDate: vi.1952; lifeStage: adult; recordedBy: DE Hardy, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*: specificEpithet: *acuminata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Wailua; verbatimEventDate: vi.1953; individualCount: 3; lifeStage: adult; recordedBy: CR Joyce; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*: specificEpithet: *acuminata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Wailua; verbatimEventDate: vi.1953; lifeStage: adult; recordedBy: CR Joyce; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*: specificEpithet: *acuminata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Stream; verbatimEventDate: 13.ix.1968; individualCount: 1; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*: specificEpithet: *acuminata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kawaiiki Stream; verbatimEventDate: 27.xii.1969; individualCount: 1; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*: specificEpithet: *acuminata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Honomu Maili Stream; verbatimEventDate: 28.ii.1970; individualCount: 1; lifeStage: adult;
O'Grady P, Pak N

recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Honomu Maiki Stream; verbatimEventDate: 28.i.1970; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Valley; verbatimEventDate: 27.iii.1970; individualCount: 10; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: On Stream, Iao Valley; verbatimEventDate: 28.iii.1970; individualCount: 20; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Valley, on wet rocks in swift moving stream; verbatimEventDate: 28.iii.1970; individualCount: 8; sex: 3 males, 5 females; lifeStage: adult; recordedBy: DE Hardy, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Stream in Iao Valley; verbatimElevation: 1375 ft.; verbatimEventDate: 31.iii.1970; individualCount: 3; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Makamakahoe Valley, on wet rocks along stream; verbatimElevation: 1100 ft.; verbatimEventDate: 31.iii.1970; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Rainbow Falls Park; verbatimEventDate: 28.v.1970; individualCount: 1; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: above Rainbow Falls, on rocks in swift stream; verbatimEventDate: 28.v.1970; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980
q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Pahoehoe Stream; verbatimEventDate: 29.v.1970; individualCount: 3; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM
r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; verbatimElevation: 1000 ft.; verbatimEventDate: 29.v.1970; individualCount: 10; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM
s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; verbatimElevation: 750 ft.; verbatimEventDate: 29.v.1970; individualCount: 11; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

t. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream, east slope of Mauna Kea; verbatimElevation: 1000 ft.; verbatimEventDate: 29.v.1970; individualCount: 1; sex: female; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

u. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream, east slope of Mauna Kea; verbatimElevation: 1000 ft.; verbatimEventDate: 29.v.1970; lifeStage: adult; recordedBy: MD Delfinado; JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

w. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Pahoehoe, on rocks in swift moving stream; verbatimEventDate: 29.v.1970; lifeStage: adult; recordedBy: MD Delfinado; JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

x. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Stream; verbatimElevation: 800 ft.; verbatimEventDate: 2.ix.1970; individualCount: 3; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM
Other materials:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Moaula Stream; verbatimElevation: 2000 ft.; verbatimEventDate: 28.xi.1933; individualCount: 4; lifeStage: adult; recordedBy: FX Williams; institutionCode: UHM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Valley; verbatimEventDate: 30.xi.1933; individualCount: 4; lifeStage: adult; recordedBy: FX Williams; institutionCode: UHM

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Nahiku; verbatimEventDate: viii.1952; individualCount: 1; lifeStage: adult; recordedBy: NLH Krauss; institutionCode: UHM

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Ulupalakua; verbatimEventDate: 8.ii.1958; individualCount: 13; lifeStage: adult; recordedBy: NLH Krauss; institutionCode: UHM

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Valley, Stream below Moaula Falls; verbatimEventDate: 16.iii.1970; individualCount: 72; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Waterfalls, Halawa Valley; verbatimEventDate: 16.iii.1970; individualCount: 95; lifeStage: adult; recordedBy: JA Tenorio; institutionCode: UHM

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Moaula Falls, Halawa Valley; verbatimEventDate: 16.iii.1970; individualCount: 79; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Stream; verbatimEventDate: 16.iii.1970; individualCount: 61; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Valley; verbatimEventDate: 16.iii.1970; individualCount: 2; lifeStage: adult; recordedBy: JA Tenorio; institutionCode: UHM

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality:
Moaula Falls, Halawa Valley; verbatimEventDate: 16.iii.1970; lifeStage: adult; recordedBy: DE Hardy, MD Delfinado, JA Tenorio

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004967; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004960; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004962; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004963; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004964; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004965; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004966; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004961; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM
| Record | Verbatim Data | Identified By | Institution Code |
|--------|---------------|---------------|------------------|
| 1.     | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004959; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; | DE Hardy & MD Delfinado; | BPBM |
| 2.     | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004952; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; | DE Hardy & MD Delfinado; | BPBM |
| 3.     | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004953; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; | DE Hardy & MD Delfinado; | BPBM |
| 4.     | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006004968; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; | DE Hardy & MD Delfinado; | BPBM |
| 5.     | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; | DE Hardy & MD Delfinado; | UHM |
| 6.     | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 29.v.1970; lifeStage: adult; | DE Hardy & MD Delfinado; | UHM |
| 7.     | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 29.v.1970; lifeStage: adult; | DE Hardy & MD Delfinado; | UHM |
| 8.     | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 29.v.1970; lifeStage: adult; | DE Hardy & MD Delfinado; | UHM |
| 9.     | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 29.v.1970; lifeStage: adult; | DE Hardy & MD Delfinado; | UHM |
| 10.    | Stream, above Rainbow Falls, Delfinado, 1980; Maui, Iao Valley, on stream; verbatimEventDate: 29.v.1970; lifeStage: adult; | DE Hardy & MD Delfinado; | UHM |
ab. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; minimumElevationInMeters: 750; verbatimEventDate: 29.v.1970; lifeStage: adult; catalogNumber: 2006004954; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; datetidentified: 1980; institutionCode: BPBM

ac. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; minimumElevationInMeters: 750; verbatimEventDate: 29.v.1970; lifeStage: adult; catalogNumber: 2006004957; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; datetidentified: 1980; institutionCode: BPBM

ad. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; minimumElevationInMeters: 750; verbatimEventDate: 29.v.1970; lifeStage: adult; catalogNumber: 2006004955; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; datetidentified: 1980; institutionCode: BPBM

ae. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; minimumElevationInMeters: 750; verbatimEventDate: 29.v.1970; lifeStage: adult; catalogNumber: 2006004956; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; datetidentified: 1980; institutionCode: BPBM

af. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; minimumElevationInMeters: 1000; verbatimEventDate: 29.v.1970; lifeStage: adult; catalogNumber: 2006004958; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; datetidentified: 1980; institutionCode: BPBM

ag. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pulena Stream; verbatimElevation: 650 ft.; verbatimEventDate: 3.vi.1970; individualCount: 5; lifeStage: adult; recordedBy: J Kjargaard; institutionCode: UHM

ah. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: 0.5 miles above Wailau Stream gauge; verbatimElevation: 700 ft.; verbatimEventDate: 3.vi.1970; individualCount: 1; lifeStage: adult; recordedBy: J Kjargaard; institutionCode: UHM

ai. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: 0.25 miles below Wailau Stream gauge; verbatimElevation: 550 ft.; verbatimEventDate: 4.vi.1970; individualCount: 1; lifeStage: adult; recordedBy: J Kjargaard; institutionCode: UHM

aj. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kohala
Mountains, Honopue Stream; verbatimElevation: 2000 ft.; verbatimEventDate: 12.vi.1970; individualCount: 1; lifeStage: adult; recordedBy: WC Gagne; institutionCode: UHM

ak. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Seven Sacred Pools; verbatimEventDate: 3.viii.1970; individualCount: 4; lifeStage: adult; recordedBy: MD Delfinado; institutionCode: UHM

al. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Wailuku River; verbatimElevation: 880 ft.; verbatimEventDate: 14.viii.1970; individualCount: 8; lifeStage: adult; recordedBy: JA Tenorio; institutionCode: UHM

am. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Stream, Iao Valley; verbatimElevation: 800 ft.; verbatimEventDate: 2.ix.1970; individualCount: 56; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

ao. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kopiliula Stream, Hana; verbatimElevation: 1200 ft.; verbatimEventDate: 4.ix.1970; individualCount: 8; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

ap. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waikane Stream; verbatimElevation: 600 ft.; verbatimEventDate: 4.ix.1970; individualCount: 30; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

aq. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kinihapai Stream, Iao Valley; verbatimElevation: 300 ft.; verbatimEventDate: 2.x.1970; individualCount: 1; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

ar. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005037; recordedBy: DA Polhemus; identifiedBy: WN Mathis; datelimited: 1992; institutionCode: BPBM

as. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; verbatimElevation: 400; minimumElevationInMeters: 400; eventDate: 26.vii.1990; verbatimEventDate: 26.x.1990; individualCount: 1; sex: 1 male; lifeStage: adult; catalogNumber: 2006005039; recordedBy: DA Polhemus; identifiedBy: WN Mathis; datelimited: 1992; institutionCode: USNM
at. kingdom: **Animalia**; phylum: **Arthropoda**; class: **Insecta**; order: **Diptera**; family: **Canacidae**; genus: **Procanace**; specificEpithet: **acuminata**; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: **Hawaiian Islands**; island: **Hawaii**; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.x.1990; lifeStage: adult; catalogNumber: 2006005038; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

au. kingdom: **Animalia**; phylum: **Arthropoda**; class: **Insecta**; order: **Diptera**; family: **Canacidae**; genus: **Procanace**; specificEpithet: **acuminata**; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: **Hawaiian Islands**; island: **Hawaii**; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 400; verbatimEventDate: 26.x.1990; individualCount: 5; sex: 3 males, 2 females; lifeStage: adult; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: USNM

av. kingdom: **Animalia**; phylum: **Arthropoda**; class: **Insecta**; order: **Diptera**; family: **Canacidae**; genus: **Procanace**; specificEpithet: **acuminata**; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: **Hawaiian Islands**; island: **Molokai**; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004999; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ax. kingdom: **Animalia**; phylum: **Arthropoda**; class: **Insecta**; order: **Diptera**; family: **Canacidae**; genus: **Procanace**; specificEpithet: **acuminata**; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: **Hawaiian Islands**; island: **Molokai**; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004975; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ay. kingdom: **Animalia**; phylum: **Arthropoda**; class: **Insecta**; order: **Diptera**; family: **Canacidae**; genus: **Procanace**; specificEpithet: **acuminata**; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: **Hawaiian Islands**; island: **Molokai**; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004993; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

az. kingdom: **Animalia**; phylum: **Arthropoda**; class: **Insecta**; order: **Diptera**; family: **Canacidae**; genus: **Procanace**; specificEpithet: **acuminata**; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: **Hawaiian Islands**; island: **Molokai**; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004994; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ba. kingdom: **Animalia**; phylum: **Arthropoda**; class: **Insecta**; order: **Diptera**; family: **Canacidae**; genus: **Procanace**; specificEpithet: **acuminata**; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: **Hawaiian Islands**; island: **Molokai**; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0;
maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
catalogNumber: 2006004995; recordedBy: DA Polhemus; identifiedBy: WN Mathis;
dateIdentified: 1992; institutionCode: BPBM

bb. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Peleku

maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
catalogNumber: 2006004996; recordedBy: DA Polhemus; identifiedBy: WN Mathis;
dateIdentified: 1992; institutionCode: BPBM

bc. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Peleku

maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
catalogNumber: 2006004991; recordedBy: DA Polhemus; identifiedBy: WN Mathis;
dateIdentified: 1992; institutionCode: BPBM

bd. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Peleku

maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
catalogNumber: 2006004998; recordedBy: DA Polhemus; identifiedBy: WN Mathis;
dateIdentified: 1992; institutionCode: BPBM

be. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Peleku

maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
catalogNumber: 2006004990; recordedBy: DA Polhemus; identifiedBy: WN Mathis;
dateIdentified: 1992; institutionCode: BPBM

bf. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Peleku

maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
catalogNumber: 2006005000; recordedBy: DA Polhemus; identifiedBy: WN Mathis;
dateIdentified: 1992; institutionCode: BPBM

bg. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Peleku

maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
catalogNumber: 2006005001; recordedBy: DA Polhemus; identifiedBy: WN Mathis;
dateIdentified: 1992; institutionCode: BPBM

bh. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Peleku

maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
Studies in Hawaiian Diptera III: New Distributional Records for Canacidae ...
catalogNumber: 2006004978; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
bp. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004979; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
bq. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004980; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
br. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004992; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
bs. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004982; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
bt. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005008; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
bu. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004984; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
bv. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
catalogNumber: 2006004985; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

bw. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004986; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

bx. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004987; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

by. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004988; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

bz. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005032; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ca. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004981; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

cb. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004989; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

cc. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult;
Pelekunu TNCH Preserve, Lower Pelekunu Valley; maximumElevationInMeters: 0;

19.viii.1991; Molokai; Insecta; CatalogNumber: 2006005025; recordedBy: DA Polhemus; institutionCode: BPBM;verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0;maximumElevationInMeters: 0;

Canacidae; family: Dipteridae; Order: Diptera; lifeStage: adult; kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Dipteridae; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; verbatimEventDate: 19.viii.1991; lifeStage: adult; minimumElevationInMeters: 0;maximumElevationInMeters: 0;

O’Grady P, Pak N
catalogNumber: 2006005022; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ck. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005033; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

cl. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005034; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

cm. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005036; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

cn. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005035; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

cd. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005030; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

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**cr.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005009; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

**cu.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005010; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

**ct.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005011; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

**cv.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005012; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

**cw.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005024; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

**cx.** kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005023; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005017; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005018; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005019; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005020; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult;
catalogNumber: 2006005007; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
d.
  kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 100; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006005014; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
dg.
  kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004976; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
dh.
  kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004969; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
di.
  kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004970; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
dj.
  kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult; catalogNumber: 2006004971; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
dk.
  kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: acuminata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Pelekunu TNCH Preserve, Lower Pelekunu Valley; minimumElevationInMeters: 0; maximumElevationInMeters: 98; verbatimEventDate: 19.viii.1991; lifeStage: adult;
Native status: endemic

Distribution: HAWAIIAN ISLANDS: Molokai, Maui, Hawaii (Fig. 10).

Notes: Hardy and Delfinado (1980), [original description; female terminalia (dorsal and ventral), spermathecae, ninth sternum, epandrium and surstylus]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist].
**Procanace bifurcata** Hardy and Delfinado, 1980

**Materials**

**Holotype:**
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *bifurcata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Opaeula Stream; verbatimElevation: 1150 ft.; verbatimEventDate: 12.vi.1970; individualCount: 1; sex: male; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

**Paratypes:**
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *bifurcata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waihale, Manoa; verbatimEventDate: 13.viii.1933; lifeStage: adult; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *bifurcata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Head of Kaluanui Valley; verbatimEventDate: 22.iii.1936; lifeStage: adult; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *bifurcata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Head of Kaluanui Valley; verbatimEventDate: v.1951; individualCount: 1; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *bifurcata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Head of Kaluanui Valley; verbatimEventDate: i.1952; lifeStage: adult; recordedBy: MS Adachi, DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *bifurcata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Manoa Valley; verbatimEventDate: i.1953; lifeStage: adult; recordedBy: MS Adachi, DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM
- kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *bifurcata*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Manoa Valley; verbatimEventDate: i.1949; lifeStage: adult; recordedBy: MS Adachi, DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM
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h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Punalu'u Stream; verbatimEventDate: 24.v.1962; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Opaeula Stream; verbatimElevation: 1150 ft.; verbatimEventDate: 12.v.1970; individualCount: 26; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kahalanui Stream; verbatimEventDate: 26.v.1970; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kawai-iki Stream; verbatimEventDate: 12.vi.1970; individualCount: 1; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Opaeula Stream; verbatimElevation: 1150 ft.; verbatimEventDate: 12.vi.1970; individualCount: 1; sex: female; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Opaeula Stream; verbatimElevation: 1150 ft.; verbatimEventDate: 12.vi.1970; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kawai-iki Stream; verbatimEventDate: 12.vi.1970; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Hanakapiai, mouth of River nr beach; verbatimEventDate: 10.viii.1971; lifeStage: adult; recordedBy: MD Delfinado, DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

Other materials:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu, Manoa; verbatimEventDate: 13.viii.1933; lifeStage: adult; catalogNumber:
2006005050; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Manoa Valley, Waihi-iki; verbatimEventDate: 22.iii.1936; lifeStage: adult; catalogNumber: 2006005042; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Head of Kaluanui Valley; verbatimEventDate: May 1951; lifeStage: adult; catalogNumber: 2006005048; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Head of Kaluanui Valley; verbatimEventDate: v.1951; lifeStage: adult; catalogNumber: 2006005049; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Manoa Valley; verbatimEventDate: January 1952; lifeStage: adult; catalogNumber: 2006005051; recordedBy: MS Adachi; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Punalu'u; verbatimEventDate: 24.v.1968; lifeStage: adult; catalogNumber: 2006005043; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Moaula Valley; verbatimEventDate: 16.iii.1970; individualCount: 58; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kahalani Stream; verbatimEventDate: 26.v.1970; lifeStage: adult; catalogNumber: 2006005041; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Opaeula Stream; verbatimEventDate: 12.vi.1970; individualCount: 5; lifeStage: adult; recordedBy: MD Delfinado; institutionCode: UHM

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy &
Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Opaeula Stream; verbatimEventDate: 12.vi.1970; individualCount: 3; lifeStage: adult; recordedBy: JA Tenorio; institutionCode: UHM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Opaeula Stream; minimumElevationInMeters: 1150; verbatimEventDate: 12.vi.1970; lifeStage: adult; catalogNumber: 2006005045; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Opaeula Stream; minimumElevationInMeters: 1150; verbatimEventDate: 12.vi.1970; lifeStage: adult; catalogNumber: 2006005044; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: West Maui, Iao Valley; minimumElevationInMeters: 1150; verbatimEventDate: 12.vi.1970; lifeStage: adult; catalogNumber: 2006005046; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: West Maui, Iao Valley; minimumElevationInMeters: 1150; verbatimEventDate: 12.vi.1970; lifeStage: adult; catalogNumber: 2006005047; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Stream, Iao Valley; verbatimElevation: 800 ft.; verbatimEventDate: 2.ix.1970; individualCount: 72; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Wai Kane Stream; verbatimEventDate: 4.ix.1970; individualCount: 2; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kipahulu Valley; verbatimElevation: 500 ft.; verbatimEventDate: 1.x.1970; individualCount: 28; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: bifurcata; scientificNameAuthorship: Hardy &
Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kinihapai Stream, Iao Valley; verbatimElevation: 500 ft.; verbatimEventDate: 2.x.1970; individualCount: 48; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

verbatimLocality: Kopiliula Stream, Hana; verbatimElevation: 500 ft.; verbatimEventDate: 2.x.1970; individualCount: 9; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

verbatimLocality: Kauai, Hanakapai Stream, 5m elevation, 200m from ocean; eventDate: 2.i.2002; individualCount: 5; sex: females; lifeStage: adult; recordedBy: RA Englund; identifiedBy: PM O’Grady; dateIdentified: i.2016; institutionCode: BPBM

Native status: endemic

Distribution: HAWAIIAN ISLANDS: Kauai, Oahu, Molokai and Maui (Fig. 11).

Figure 11.
Distribution of *P. bifurcata* (Kauai, Oahu, Molokai and Maui).

Notes: Hardy and Delfinado (1980), [original description; female terminalia (dorsal and ventral), spermathecae, ninth sternum, epandrium and surstylus]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist].
Procanace confusa Hardy and Delfinado, 1980

Materials

Holotype:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Akaka Falls; verbatimEventDate: 19.vi.1964; individualCount: 1; sex: male; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

Paratypes:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waihee Stream; verbatimEventDate: v.1952; lifeStage: adult; recordedBy: M Tamashiro; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waihee Valley; verbatimEventDate: v.1952; individualCount: 1; lifeStage: adult; recordedBy: M Tamashiro; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waihee Valley; verbatimEventDate: vi.1952; individualCount: 1; lifeStage: adult; recordedBy: M Tamashiro; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Valley, on wet rocks in swift running stream; verbatimEventDate: vi.1952; lifeStage: adult; recordedBy: DE Hardy, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waialua; verbatimEventDate: vi.1953; sex: 1 female; lifeStage: adult; recordedBy: CR Joyce; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waialua; verbatimEventDate: vii.1953; individualCount: 3; sex: 3 females; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Akaka Falls; verbatimEventDate: 19.vi.1964; individualCount: 29; lifeStage: adult; recordedBy:
DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Akaka Falls; verbatimEventDate: 19.vi.1964; individualCount: 1; sex: female; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Valley, on wet rocks in swift running stream; verbatimEventDate: 13.ix.1968; sex: 1 female; lifeStage: adult; recordedBy: DE Hardy, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kipahulu Valley; verbatimEventDate: 21.ii.1970; individualCount: 15; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kipahulu Valley, Seven Sacred Pools; verbatimEventDate: 21.ii.1970; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waiakani Falls, roadside water dripping; verbatimEventDate: 26.iii.1970; individualCount: 2; sex: 2 females; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Valley, on wet rocks in swift running stream; verbatimEventDate: 28-31.iii.1970; sex: 1 male; lifeStage: adult; recordedBy: DE Hardy, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Stream in Iao Valley; verbatimElevation: 1375 ft.; verbatimEventDate: 31.iii.1970; individualCount: 10; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Stream in Iao Valley; verbatimElevation: 1375 ft.; verbatimEventDate: 31.iii.1970; individualCount: 10; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy &
Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; verbatimElevation: 750 ft.; verbatimEventDate: 29.v.1970; individualCount: 1; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; verbatimElevation: 1000 ft.; verbatimEventDate: 29.v.1970; individualCount: 2; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kaieie Stream; verbatimElevation: 1000 ft.; verbatimEventDate: 29.v.1970; individualCount: 5; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Pahoehoe Stream; verbatimEventDate: 29.v.1970; individualCount: 29; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

t. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Pahoehoe Stream; verbatimEventDate: 29.v.1970; lifeStage: adult; recordedBy: MD Delfinado, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

u. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; verbatimEventDate: 29.v.1970; lifeStage: adult; recordedBy: MD Delfinado, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

v. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream, on rocks in stream; verbatimElevation: 750 ft.; verbatimEventDate: 29.v.1970; individualCount: 1; sex: 1 female; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

w. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Wailuku River; verbatimElevation: 500 ft.; verbatimEventDate: 23.vi.1970; individualCount: 2; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

x. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kopiliula Stream; verbatimEventDate: viii.1970; lifeStage: adult; recordedBy: DE Hardy, MD Delfinado, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980
y. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Wailuku River; verbatimEventDate: iii-v.1971; lifeStage: adult; recordedBy: MD Delfinado, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

Other materials:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley; verbatimEventDate: vi.1952; sex: male; lifeStage: adult; catalogNumber: 2006005065; recordedBy: M Tamachiro; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Wailua; verbatimEventDate: June 1953; sex: male; lifeStage: adult; catalogNumber: 2006005052; recordedBy: CR Joyce; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM
c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Wailua; verbatimEventDate: June 1953; lifeStage: adult; catalogNumber: 2006005053; recordedBy: CR Joyce; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM
d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Wailua; verbatimEventDate: June 1953; lifeStage: adult; catalogNumber: 2006005054; recordedBy: CR Joyce; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM
e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Wailua; verbatimEventDate: June 1953; lifeStage: adult; catalogNumber: 2006005055; recordedBy: CR Joyce; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Wailua; verbatimEventDate: vi.1953; lifeStage: adult; catalogNumber: 2006005055; recordedBy: CR Joyce; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM
g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Keanae; verbatimEventDate: vii.1953; lifeStage: adult; catalogNumber: 2006005067; recordedBy: CR Joyce; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM
h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley; minimumElevationInMeters: 1375; verbatimEventDate: 21.iii.1970; lifeStage: adult; catalogNumber: 2006005070; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley; minimumElevationInMeters: 1375; verbatimEventDate: 21.iii.1970; lifeStage: adult; catalogNumber: 2006005071; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley; on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006005068; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: West Maui, Iao Valley; on stream; verbatimEventDate: 28.iii.1970; lifeStage: adult; catalogNumber: 2006005069; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Pahoehe Stream; verbatimEventDate: 28.v.1970; sex: female; lifeStage: adult; catalogNumber: 2006005061; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Pahoehe Stream; verbatimEventDate: 28.v.1970; sex: female; lifeStage: adult; catalogNumber: 2006005062; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Pahoehe Stream; verbatimEventDate: 28.v.1970; sex: male; lifeStage: adult; catalogNumber: 2006005064; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Pahoehe Stream; verbatimEventDate: 28.v.1970; sex: male; lifeStage: adult; catalogNumber: 2006005063; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy &
Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; minimumElevationInMeters: 750; verbatimEventDate: 29.v.1970; sex: male; lifeStage: adult; catalogNumber: 2006005058; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kaieie Stream; minimumElevationInMeters: 1000; verbatimEventDate: 29.v.1970; sex: female; lifeStage: adult; catalogNumber: 2006005059; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kapue Stream; minimumElevationInMeters: 750; verbatimEventDate: 29.v.1970; sex: female; lifeStage: adult; catalogNumber: 2006005060; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kapue Stream; minimumElevationInMeters: 750; verbatimEventDate: 29.v.1970; sex: male; lifeStage: adult; catalogNumber: 2006005056; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

t. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters: 1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005114; recordedBy: GM Nishida; institutionCode: BPBM

u. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters: 1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005108; recordedBy: GM Nishida; institutionCode: BPBM

w. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters: 1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005109; recordedBy: GM Nishida; institutionCode: BPBM

x. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters:
1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005110; recordedBy: GM Nishida; institutionCode: BPBM

y. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters: 1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005111; recordedBy: GM Nishida; institutionCode: BPBM

z. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters: 1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005113; recordedBy: GM Nishida; institutionCode: BPBM

aa. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters: 1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005115; recordedBy: GM Nishida; institutionCode: BPBM

ab. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters: 1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005117; recordedBy: GM Nishida; institutionCode: BPBM

ac. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters: 1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005118; recordedBy: GM Nishida; institutionCode: BPBM

ad. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: East Maui, Hahalawe Gulch; minimumElevationInMeters: 1197; maximumElevationInMeters: 1345; verbatimEventDate: 05.v.1984; lifeStage: adult; catalogNumber: 2006005116; recordedBy: GM Nishida; institutionCode: BPBM

ae. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005107; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

af. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005106; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
an. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980, islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Opaepaeua Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005098; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ah. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980, islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005091; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ai. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980, islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005092; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

aj. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980, islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005093; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ak. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980, islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005094; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

al. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980, islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005095; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

am. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980, islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005097; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

an. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980, islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005088; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ao. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy &
Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005099; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ap. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005101; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

aq. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005102; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

ar. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005096; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

as. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005082; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

at. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005079; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

au. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990; lifeStage: adult; catalogNumber: 2006005090; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

av. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: confusa; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Hilo, NW of Honolii Stream; minimumElevationInMeters: 1312; verbatimEventDate: 26.vii.1990;
ax. **kingdom:** Animalia; **phylum:** Arthropoda; **class:** Insecta; **order:** Diptera; **family:** Canacidae; **genus:** Procanace; **specificEpithet:** confusa; **scientificNameAuthorship:** Hardy & Delfinado, 1980; **islandGroup:** Hawaiian Islands; **island:** Hawaii; **verbatimLocality:** Hilo, NW of Honolii Stream; **minimumElevationInMeters:** 1312; **verbatimEventDate:** 26.vii.1990; **lifeStage:** adult; **catalogNumber:** 2006005081; **recordedBy:** DA Polhemus; **identifiedBy:** WN Mathis; **dateIdentified:** 1992; **institutionCode:** BPBM

ay. **kingdom:** Animalia; **phylum:** Arthropoda; **class:** Insecta; **order:** Diptera; **family:** Canacidae; **genus:** Procanace; **specificEpithet:** confusa; **scientificNameAuthorship:** Hardy & Delfinado, 1980; **islandGroup:** Hawaiian Islands; **island:** Hawaii; **verbatimLocality:** Hilo, NW of Honolii Stream; **minimumElevationInMeters:** 1312; **verbatimEventDate:** 26.vii.1990; **lifeStage:** adult; **catalogNumber:** 2006005089; **recordedBy:** DA Polhemus; **identifiedBy:** WN Mathis; **dateIdentified:** 1992; **institutionCode:** BPBM

az. **kingdom:** Animalia; **phylum:** Arthropoda; **class:** Insecta; **order:** Diptera; **family:** Canacidae; **genus:** Procanace; **specificEpithet:** confusa; **scientificNameAuthorship:** Hardy & Delfinado, 1980; **islandGroup:** Hawaiian Islands; **island:** Hawaii; **verbatimLocality:** Hilo, NW of Honolii Stream; **minimumElevationInMeters:** 1312; **verbatimEventDate:** 26.vii.1990; **lifeStage:** adult; **catalogNumber:** 2006005083; **recordedBy:** DA Polhemus; **identifiedBy:** WN Mathis; **dateIdentified:** 1992; **institutionCode:** BPBM

ba. **kingdom:** Animalia; **phylum:** Arthropoda; **class:** Insecta; **order:** Diptera; **family:** Canacidae; **genus:** Procanace; **specificEpithet:** confusa; **scientificNameAuthorship:** Hardy & Delfinado, 1980; **islandGroup:** Hawaiian Islands; **island:** Hawaii; **verbatimLocality:** Hilo, NW of Honolii Stream; **minimumElevationInMeters:** 1312; **verbatimEventDate:** 26.vii.1990; **lifeStage:** adult; **catalogNumber:** 2006005085; **recordedBy:** DA Polhemus; **identifiedBy:** WN Mathis; **dateIdentified:** 1992; **institutionCode:** BPBM

bb. **kingdom:** Animalia; **phylum:** Arthropoda; **class:** Insecta; **order:** Diptera; **family:** Canacidae; **genus:** Procanace; **specificEpithet:** confusa; **scientificNameAuthorship:** Hardy & Delfinado, 1980; **islandGroup:** Hawaiian Islands; **island:** Hawaii; **verbatimLocality:** Hilo, NW of Honolii Stream; **minimumElevationInMeters:** 1312; **verbatimEventDate:** 26.vii.1990; **lifeStage:** adult; **catalogNumber:** 2006005086; **recordedBy:** DA Polhemus; **identifiedBy:** WN Mathis; **dateIdentified:** 1992; **institutionCode:** BPBM

bc. **kingdom:** Animalia; **phylum:** Arthropoda; **class:** Insecta; **order:** Diptera; **family:** Canacidae; **genus:** Procanace; **specificEpithet:** confusa; **scientificNameAuthorship:** Hardy & Delfinado, 1980; **islandGroup:** Hawaiian Islands; **island:** Hawaii; **verbatimLocality:** Hilo, NW of Honolii Stream; **minimumElevationInMeters:** 1312; **verbatimEventDate:** 26.vii.1990; **lifeStage:** adult; **catalogNumber:** 2006005087; **recordedBy:** DA Polhemus; **identifiedBy:** WN Mathis; **dateIdentified:** 1992; **institutionCode:** BPBM

bd. **kingdom:** Animalia; **phylum:** Arthropoda; **class:** Insecta; **order:** Diptera; **family:** Canacidae; **genus:** Procanace; **specificEpithet:** confusa; **scientificNameAuthorship:** Hardy & Delfinado, 1980; **islandGroup:** Hawaiian Islands; **island:** Hawaii; **verbatimLocality:** Hilo, NW of Honolii Stream; **minimumElevationInMeters:** 1312; **verbatimEventDate:** 26.vii.1990; **lifeStage:** adult; **catalogNumber:** 2006005080; **recordedBy:** DA Polhemus; **identifiedBy:** WN Mathis; **dateIdentified:** 1992; **institutionCode:** BPBM

be. **kingdom:** Animalia; **phylum:** Arthropoda; **class:** Insecta; **order:** Diptera; **family:** Canacidae; **genus:** Procanace; **specificEpithet:** confusa; **scientificNameAuthorship:** Hardy & Delfinado, 1980; **islandGroup:** Hawaiian Islands; **island:** Hawaii; **verbatimLocality:** Hilo, NW of Honolii Stream; **minimumElevationInMeters:** 1312; **verbatimEventDate:** 26.vii.1990; **individualCount:** 25; **sex:** 11 males, 14 females; **lifeStage:** adult; **recordedBy:** DA Polhemus; **identifiedBy:** WN Mathis; **dateIdentified:** 1992; **institutionCode:** USNM
Studies in Hawaiian Diptera III: New Distributional Records for Canacidae ...
Native status: endemic

Distribution: HAWAIIAN ISLANDS: Maui, Hawaii (Fig. 12).

Figure 12.
Distribution of *P. confusa* (Maui, Hawaii) and *P. quadrisetosa* (Kauai).

Notes: Hardy and Delfinado (1980), [original description; female terminalia (dorsal and ventral), spermathecae, ninth sternum, epandrium and surstylus]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist].
**Procanace constricta** Hardy and Delfinado, 1980

**Materials**

**Holotype:**

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *constricta*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Valley, collected on wet rocks in swift moving stream; verbatimEventDate: vii.1952; individualCount: 1; sex: male; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

**Paratypes:**

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *constricta*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Valley, collected on wet rocks in swift moving stream; verbatimEventDate: vii.1952; individualCount: 1; sex: female; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *constricta*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Valley, collected on wet rocks in swift moving stream; verbatimEventDate: vii.1952; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *constricta*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Valley, collected on wet rocks in swift moving stream; verbatimEventDate: vii.1952; sex: 1 female; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *constricta*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: below Moalau Falls; verbatimEventDate: 16.iii.1970; sex: 1 female; lifeStage: adult; recordedBy: DE Hardy, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *constricta*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Halawa Valley, waterfalls; verbatimEventDate: 16.iii.1970; sex: 1 female; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *constricta*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Kopilulu and Waikane Streams; verbatimEventDate: 9.iv.1970; lifeStage: adult; recordedBy: DE Hardy, JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *constricta*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Molokai; verbatimLocality: Wailua
Stream gauge; verbatimElevation: 605 ft.; verbatimEventDate: 4.vi.1970; lifeStage: adult; recordedBy: J Kjargaard; identifiedBy: DE Hardy & MD Delfinado; datadIdentified: 1980

h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waikane Stream; verbatimElevation: 600 ft.; verbatimEventDate: 4.ix.1970; individualCount: 7; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; datadIdentified: 1980; institutionCode: UHM

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kopiliula Stream, Hana; verbatimElevation: 1200 ft.; verbatimEventDate: 4.ix.1970; individualCount: 7; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; datadIdentified: 1980; institutionCode: UHM

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kopiliula Stream, Hana; verbatimElevation: 1200 ft.; verbatimEventDate: 4.ix.1970; individualCount: 2; sex: 2 females; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; datadIdentified: 1980; institutionCode: USNM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waikane Stream; verbatimElevation: 600 ft.; verbatimEventDate: 4.ix.1970; sex: 1 female; lifeStage: adult; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; datadIdentified: 1980; institutionCode: USNM

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Wailuku River; verbatimEventDate: 22.vi.1971; lifeStage: adult; recordedBy: MD Delfinado; JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; datadIdentified: 1980

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Wailuku River; verbatimElevation: 500 ft.; verbatimEventDate: 23.vi.1971; individualCount: 4; lifeStage: adult; recordedBy: JA Tenorio; identifiedBy: DE Hardy & MD Delfinado; datadIdentified: 1980; institutionCode: UHM

Other materials:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluauui Valley, at a stream; verbatimElevation: 609 m.; verbatimEventDate: 14.v.1946; sex: 1 female; lifeStage: adult; recordedBy: WW Wirth; identifiedBy: PM O'Grady; datadIdentified: 22 Jan 2016; institutionCode: USNM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Seven Sacred Pools; verbatimEventDate: 3.viii.1970; individualCount: 2; lifeStage: adult; recordedBy: MD Delfinado; institutionCode: UHM
c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kopiliula Stream, Hana; verbatimEventDate: 4.ix.1970; individualCount: 26; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM
d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waikane Stream; minimumElevationInMeters: 600; verbatimEventDate: 04.ix.1970; lifeStage: adult; catalogNumber: 2006005120; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; institutionCode: BPBM
e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waikane Stream; minimumElevationInMeters: 600; verbatimEventDate: 04.ix.1970; lifeStage: adult; catalogNumber: 2006005121; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; institutionCode: BPBM
f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waikane Stream; minimumElevationInMeters: 600; verbatimEventDate: 04.ix.1970; lifeStage: adult; catalogNumber: 2006005122; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; institutionCode: BPBM
g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Waikane Stream; minimumElevationInMeters: 600; verbatimEventDate: 04.ix.1970; lifeStage: adult; catalogNumber: 2006005123; recordedBy: DE Hardy; identifiedBy: DE Hardy & MD Delfinado; institutionCode: BPBM
h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kipahulu Valley; verbatimElevation: 500 ft.; verbatimEventDate: 2.x.1970; individualCount: 5; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM
i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Kinihapai Stream, Iao Valley; verbatimElevation: 500 ft.; verbatimEventDate: 2.x.1970; individualCount: 2; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM
j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Waipio Valley,Â Near base of He’eilawe Falls at dammed reservoir; verbatimEventDate: 2.vii.2010; individualCount: 4; sex: females; lifeStage: adult; recordedBy: BS Ort; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC
k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: constricta; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Kohala Mountains, sweeping in stream where bridge crosses road, 0.5 miles before end; verbatimEventDate: 4.viii.2010; lifeStage: adult; recordedBy: PM O’Grady, RT Lapoint, B
Native status: endemic

Distribution: HAWAIIAN ISLANDS: Oahu, Molokai, Maui, Hawaii (Fig. 13).

Figure 13.
Distribution of *P. constricta* (Molokai, Maui, Hawaii) and *P. williamsi* (Oahu).

Notes: Hardy and Delfinado (1980), [original description; female terminalia (dorsal and ventral), spermathecae, ninth sternum, epandrium and surstylus]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist].

**Procanace nigroviridis** Cresson, 1926

Materials

*Holotype:*

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Awaawapuhi; verbatimEventDate: 16.vi.1922; individualCount: 1; sex: male; lifeStage: adult; recordedBy: EH Bryan; identifiedBy: DE Hardy & MD Delfinado; datedIdentified: 1980; institutionCode: BPBM

*Other materials:*

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Awaawapuhi; verbatimEventDate: 16.vi.1922; lifeStage: adult; catalogNumber: 2006005125; recordedBy: EH Bryan, Jr.; identifiedBy: DE Hardy; datedIdentified: 1980; institutionCode: BPBM
b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Kalalau Valley; verbatimEventDate: viii.1953; individualCount: 101; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Kalalau; verbatimElevation: 2.5 miles upstream on rocks; verbatimEventDate: 22.iii.1970; individualCount: 1; lifeStage: adult; recordedBy: J Kjargaard; institutionCode: UHM

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Waipoo Falls; verbatimEventDate: 2.iv.1970; individualCount: 1; lifeStage: adult; recordedBy: L Uyenishi; institutionCode: UHM

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Kalalau; verbatimElevation: 3/4 mile upstream on rocks; verbatimEventDate: 4.iv.1970; individualCount: 5; lifeStage: adult; recordedBy: J Kjargaard; institutionCode: UHM

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Top of Wailua Falls; verbatimEventDate: 4.iv.1970; individualCount: 1; lifeStage: adult; recordedBy: MD Dellinado; institutionCode: UHM

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Wailua Falls; verbatimEventDate: 4.iv.1970; individualCount: 13; lifeStage: adult; recordedBy: MD Dellinado; institutionCode: UHM

h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Kalalau; verbatimElevation: 3/4 mile upstream on rocks; verbatimEventDate: 4.iv.1970; individualCount: 5; sex: 1 male, 4 females; lifeStage: adult; recordedBy: J Kjargaard; institutionCode: USNM

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006005163; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006005156; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926;
kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006005157; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006005159; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006005160; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

do. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006005162; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006005153; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006005164; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006005165; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: nigroviridis; scientificNameAuthorship: Cresson, 1926; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990;
Native status: endemic

Distribution: HAWAIIAN ISLANDS: Kauai (Fig. 10).

Notes: Cresson (1926), [original description]; Wirth (1951), [family revision; male genitalia (ventral and lateral), female genitalia (lateral); Hardy and Delfinado (1980), [redescription and revision of Hawaiian taxa; head (front and lateral), female terminalia (dorsal and ventral), spermathecae, wing, surstylus; cephalopharyngeal skeleton (larval and pupal, puparium, third instar larvae]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist].
**Procanace quadrisetosa** Hardy and Delfinado, 1980

**Materials**

**Holotype:**

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *quadrisetosa*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Waipoo Falls, Waimea Canyon, Kokee, on wet rocks; verbatimEventDate: 2.iv.1970; individualCount: 1; sex: female; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

**Paratypes:**

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *quadrisetosa*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Waipoo Falls, Waimea Canyon, Kokee, on wet rocks; verbatimEventDate: 2.iv.1970; individualCount: 1; sex: female; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *quadrisetosa*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Wailua Falls; verbatimEventDate: 4.iv.1970; individualCount: 2; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *quadrisetosa*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Wailua Falls, on wet rocks; verbatimEventDate: 4.iv.1970; individualCount: 1; sex: female; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

**Other material:**

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: *quadrisetosa*; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; verbatimLocality: Kokee Stream near Canyon Trail; verbatimEventDate: 10.i.2010; lifeStage: adult; recordedBy: PM O'Grady, RT Lapoint, GM Bennett, B Ort, NA Pantoja; identifiedBy: PM O'Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 588.8

**Native status:** endemic

**Distribution:** HAWAIIAN ISLANDS: Kauai (Fig. 12).

**Notes:** Hardy and Delfinado (1980), [original description; head (front and lateral), female terminalia (dorsal and ventral), spermathecae, wing, surstylus; cephalopharyngael skeleton (larval and pupal, puparium, third instar larvae]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist].
Procanace williamsi Wirth, 1951

Materials

Holotype:
  a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalihi, light trap near
shore; verbatimEventDate: 11.v.1946; individualCount: 1; sex: male; lifeStage: adult;
recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; datatIdentified: 1980;
institutionCode: USNM

Paratypes:
  a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951;
islandGroup: Hawaiian Islands; verbatimLocality: from plane; verbatimEventDate:
8.xi.1944; individualCount: 1; sex: female; lifeStage: adult; recordedBy: WW Wirth;
identifiedBy: DE Hardy & MD Delfinado; datatIdentified: 1980; institutionCode: UHM
  b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951;
islandGroup: Hawaiian Islands; verbatimLocality: from plane; verbatimEventDate:
8.xi.1944; individualCount: 1; sex: male; lifeStage: adult; catalogNumber: 59965;
recordedBy: WW Wirth; identifiedBy: DE Hardy & MD Delfinado; datatIdentified: 1980;
institutionCode: USNM

Other materials:
  a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waikiki;
verbatimEventDate: 16.iv.1950; individualCount: 5; lifeStage: adult; recordedBy: MS
Adachi; institutionCode: UHM
  b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waikiki;
verbatimEventDate: 16.iv.1950; individualCount: 2; sex: 2 males; lifeStage: adult;
recordedBy: MS Adachi; institutionCode: USNM
  c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waikiki;
verbatimEventDate: 16.iv.1950; individualCount: 2; sex: 2 males; lifeStage: adult;
recordedBy: MS Adachi; institutionCode: USNM
  d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Ala Wai Canal;
verbatimEventDate: vi.1952; individualCount: 22; lifeStage: adult; recordedBy: MS Adachi;
institutionCode: UHM
  e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae;
genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951;
islandGroup: Japan; island: Shikoku; verbatimLocality: Ehime Prefecture, Matsuyama;
verbatimEventDate: 4.x.1961; individualCount: 2; sex: female; lifeStage: adult;
recordedBy: I Miyagi; institutionCode: EIHU
f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Kyushu; verbatimLocality: Kagoshima Prefecture, Ibusuki; verbatimEventDate: 17.x.1961; individualCount: 4; sex: male; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Kyushu; verbatimLocality: Kagoshima Prefecture, Ibusuki; verbatimEventDate: 17.x.1961; individualCount: 3; sex: female; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

h. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Ewa; verbatimElevation: light trap; verbatimEventDate: xi.1962; individualCount: 1; lifeStage: adult; recordedBy: JW Beardsley; institutionCode: UHM

i. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Shikoku; verbatimLocality: Ehime Prefecture, Nagahama; verbatimEventDate: 8.ix.1962; individualCount: 5; sex: female; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

j. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Shikoku; verbatimLocality: Ehime Prefecture, Nagahama; verbatimEventDate: 8.ix.1962; individualCount: 6; sex: male; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

k. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Shikoku; verbatimLocality: Ehime Prefecture, Uwajima; verbatimEventDate: 9.ix.1962; individualCount: 20; sex: female; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

l. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Shikoku; verbatimLocality: Ehime Prefecture, Uwajima; verbatimEventDate: 9.ix.1962; individualCount: 20; sex: male; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

m. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Honshu; verbatimLocality: Sizuoka Prefecture, Izu; verbatimEventDate: 20.vii.1963; individualCount: 10; sex: female; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

n. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Honshu; verbatimLocality: Sizuoka Prefecture, Izu; verbatimEventDate: 20.vii.1963; individualCount: 5; sex: male; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Honshu; verbatimLocality: Sizuoka Prefecture, Omaezaki; verbatimEventDate: 22.vii.1963; individualCount: 10; sex: female; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU
p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Honshu; verbatimLocality: Sizuoka Prefecture, Omaezaki; verbatimEventDate: 22.vii.1963; individualCount: 5; sex: male; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Kyushu; verbatimLocality: Tsushima; verbatimEventDate: 6.viii.1963; individualCount: 7; sex: female; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Kyushu; verbatimLocality: Yakushima; verbatimEventDate: 13.viii.1963; individualCount: 20; sex: female; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Japan; island: Kyushu; verbatimLocality: Yakushima; verbatimEventDate: 13.viii.1963; individualCount: 13; sex: male; lifeStage: adult; recordedBy: I Miyagi; institutionCode: EIHU

t. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaneohe Fire Station; verbatimEventDate: 28.iii.1966; individualCount: 3; lifeStage: adult; recordedBy: no collector given; institutionCode: UHM

u. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu, brackish pond on coral Ala Moana; eventDate: 25.ix.1966; verbatimEventDate: 25.iv.1966; individualCount: 4; sex: 2 males, 2 females; lifeStage: adult; recordedBy: JR Vockeroth; identifiedBy: W Mathis; institutionCode: USNM

w. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu, brackish pond on coral Ala Moana; eventDate: 8.i.1996; verbatimEventDate: 25.iv.1966; individualCount: 4; sex: 4 females; lifeStage: adult; recordedBy: JR Vockeroth; identifiedBy: W Mathis; institutionCode: USNM

x. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Ala Wai Canal; verbatimEventDate: 22.v.1970; individualCount: 33; lifeStage: adult; recordedBy: JA Tenorio, MD Dedlinado; institutionCode: UHM

y. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kahana Stream Estuary;
verbatimEventDate: 26.v.1970; individualCount: 45; lifeStage: adult; recordedBy: SL Montgomery; institutionCode: UHM

z. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Laiemaloo Bridge, Laie; verbatimEventDate: 26.v.1970; individualCount: 39; lifeStage: adult; recordedBy: L Teremoto, L Uyenishi; institutionCode: UHM

aa. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waimea Bay, under bridge; verbatimEventDate: 26.v.1970; individualCount: 1; lifeStage: adult; recordedBy: JA Tenorio; institutionCode: UHM

ab. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Oneawa Canal, Kailua; verbatimEventDate: 31.v.1970; individualCount: 53; lifeStage: adult; recordedBy: JA Tenorio; institutionCode: UHM

ac. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu Stream, near pipeline bridge; verbatimEventDate: 19.xi.1997; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000695; recordedBy: DJ Preston; identifiedBy: K Arakaki; institutionCode: BPBM

ad. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu Stream, near pipeline bridge; verbatimEventDate: 19.xi.1997; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000693; recordedBy: DJ Preston, R Englund, R Wolfe; identifiedBy: K Arakaki; institutionCode: BPBM

ae. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu Stream, near pipeline bridge; verbatimEventDate: 19.xi.1997; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000694; recordedBy: DJ Preston, R Englund, R Wolfe; identifiedBy: K Arakaki; institutionCode: BPBM

af. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu Stream, near pipeline bridge; verbatimEventDate: 19.xi.1997; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000548; recordedBy: DJ Preston, R Englund, R Wolfe; identifiedBy: K Arakaki; institutionCode: BPBM

ag. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Halawa Stream, at Salt Lake Blvd.; verbatimEventDate: 08.xii.1997; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000708; recordedBy: DJ Preston; identifiedBy: K Arakaki; institutionCode: BPBM

ah. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koolau Mountains,
Halawa Stream, South of Salt Lake Blvd Bridge; minimumElevationInMeters: 0; maximumElevationInMeters: 16; verbatimEventDate: 23.iii.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000709; recordedBy: DJ Preston, R Englund, R Wolfe; identifiedBy: K Arakaki; institutionCode: BPBM

ai. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000760; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

aj. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000761; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

ak. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000764; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

al. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000763; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

am. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000765; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

an. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000766; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

ao. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000767; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

ap. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks:
Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000769; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

aq. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000768; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

ar. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000762; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

as. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000770; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

at. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000773; recordedBy: GA Samuelson; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

au. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000772; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

av. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Middle Loch, near Waiawa Springs along shore; verbatimEventDate: 06.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000771; recordedBy: K Arakaki; identifiedBy: K Arakaki; dateIdentified: 1998; institutionCode: BPBM

aw. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Blaisdell Park, shoreline; verbatimEventDate: 28.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008005104; recordedBy: K Arakaki; identifiedBy: K Arakaki; institutionCode: BPBM

ax. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Blaisdell Park, shoreline; verbatimEventDate: 28.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008005103; recordedBy: K Arakaki; identifiedBy: K Arakaki; institutionCode: BPBM
ay. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsii; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waimalu Stream, Blaisdell Park; verbatimEventDate: 28.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000716; recordedBy: GA Samuelson; identifiedBy: K Arakaki; institutionCode: BPBM

az. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsii; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waimalu Stream, Blaisdell Park; verbatimEventDate: 28.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000715; recordedBy: K Arakaki; identifiedBy: K Arakaki; institutionCode: BPBM

ba. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsii; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Blaisdell Park, shoreline; verbatimEventDate: 28.v.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000714; recordedBy: K Arakaki; identifiedBy: K Arakaki; institutionCode: BPBM

bb. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsii; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koolau Mountains, Halawa Stream, bridge area along stream; minimumElevationInMeters: 0; maximumElevationInMeters: 3; verbatimEventDate: 02.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000751; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bc. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsii; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koolau Mountains, Halawa Stream, bridge area along stream; minimumElevationInMeters: 0; maximumElevationInMeters: 3; verbatimEventDate: 02.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000752; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bd. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsii; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koolau Mountains, Halawa Stream, McDonald's Area; minimumElevationInMeters: 0; verbatimEventDate: 02.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000755; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

be. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsii; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koolau Mountains, Halawa Stream, McDonald's Area; minimumElevationInMeters: 0; verbatimEventDate: 02.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000759; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bf. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsii; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koolau Mountains, Halawa Stream, McDonald's Area; minimumElevationInMeters: 0; verbatimEventDate:
02.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000756; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koolau Mountains, Halawa Stream, McDonald's Area; minimumElevationInMeters: 0; verbatimEventDate: 02.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000758; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bh. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koolau Mountains, Halawa Stream (lower), under bridge; minimumElevationInMeters: 0; verbatimEventDate: 02.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000753; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bi. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Koolau Mountains, Halawa Stream (upper); minimumElevationInMeters: 0; verbatimEventDate: 02.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000754; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bk. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Waiawa Springs, stream bank; minimumElevationInMeters: 0; verbatimEventDate: 03.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000717; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bl. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Waiawa Springs, stream bank; minimumElevationInMeters: 0; verbatimEventDate: 03.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000718; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bm. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Waiawa Springs, stream bank; minimumElevationInMeters: 0; verbatimEventDate: 03.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000719;
Studies in Hawaiian Diptera III: New Distributional Records for Canacidae ...

recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bn. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Waiau Spring, stream bank; minimumElevationInMeters: 0; verbatimEventDate: 03.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000720; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bo. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waikele Stream, near Cultural Garden; verbatimEventDate: 09.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000706; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bp. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waikele Stream, near Cultural Garden; verbatimEventDate: 09.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000704; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bq. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waikele Stream, near Cultural Garden; verbatimEventDate: 09.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000703; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

br. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waikele Stream, near Cultural Garden; verbatimEventDate: 09.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000707; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bs. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waikele Stream, near Cultural Garden; verbatimEventDate: 09.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000705; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bt. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000635; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bu. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks:
Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000636; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bv. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000637; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bw. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000638; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bx. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000639; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

by. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000642; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

bz. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000666; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000659; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

cb. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000660; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

cc. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000661; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.06.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000662; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.06.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000663; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.06.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000656; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.06.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000665; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.06.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000667; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.06.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000668; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.06.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000669; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu;verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000670; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
Samuelson, K Arakaki, K Kami; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000647; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

cu.

province: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000658; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

cv.

province: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000649; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

cx.

province: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000657; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

cy.

province: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000651; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

cz.

province: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000652; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

da.

province: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000653; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

db.

province: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000654; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
dc. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu; shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000655; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

dd. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu; shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000641; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

de. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu; shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000675; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

df. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu; shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000673; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

dg. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu; rocky mud flats; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000692; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

dh. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000676; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

di. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu; shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000674; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

dj. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honolulu; shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000683; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

dk. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; scientificNameAuthorship: Wirth, 1951;
| Island Group | Island |verbatimLocality | minimumElevationInMeters | catalogNumber | recordedBy | institutionCode |
|-------------|-------|-----------------|------------------------|---------------|------------|----------------|
| Hawaiian Islands | Oahu | Pearl Harbor, Honouliuli | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |
| Hawaiian Islands | Oahu | Pearl Harbor | rocky mud flats | 17.vi.1998 | K Arakaki, GA Samuelson, K Kami | BPBM |

**Procanace williamsi**

- **Scientific Name**: Procanace williamsi
- **Authorship**: Wirth, 1951
- **Family**: Canacidae
- **Order**: Diptera
- **Class**: Insecta
- **Phylum**: Arthropoda
- **Kingdom**: Animalia

**verbatimLocality**:
- Honolulu, Oahu, Hawaii
- Pearl Harbor Survey
- Life Stage: Adult
- Catalog Number: 2008000689
- Recorded By: K Arakaki, GA Samuelson, K Kami
- Institution Code: BPBM

**verbatimLocality**:
- Honolulu, Oahu, Hawaii
- Pearl Harbor Survey
- Life Stage: Adult
- Catalog Number: 2008000679
- Recorded By: K Arakaki, GA Samuelson, K Kami
- Institution Code: BPBM

**verbatimLocality**:
- Honolulu, Oahu, Hawaii
- Pearl Harbor Survey
- Life Stage: Adult
- Catalog Number: 2008000678
- Recorded By: K Arakaki, GA Samuelson, K Kami
- Institution Code: BPBM

**verbatimLocality**:
- Honolulu, Oahu, Hawaii
- Pearl Harbor Survey
- Life Stage: Adult
- Catalog Number: 2008000669
- Recorded By: K Arakaki, GA Samuelson, K Kami
- Institution Code: BPBM

**verbatimLocality**:
- Honolulu, Oahu, Hawaii
- Pearl Harbor Survey
- Life Stage: Adult
- Catalog Number: 2008000680
- Recorded By: K Arakaki, GA Samuelson, K Kami
- Institution Code: BPBM

**verbatimLocality**:
- Honolulu, Oahu, Hawaii
- Pearl Harbor Survey
- Life Stage: Adult
- Catalog Number: 2008000681
- Recorded By: K Arakaki, GA Samuelson, K Kami
- Institution Code: BPBM

**verbatimLocality**:
- Honolulu, Oahu, Hawaii
- Pearl Harbor Survey
- Life Stage: Adult
- Catalog Number: 2008000682
- Recorded By: K Arakaki, GA Samuelson, K Kami
- Institution Code: BPBM

**verbatimLocality**:
- Honolulu, Oahu, Hawaii
- Pearl Harbor Survey
- Life Stage: Adult
- Catalog Number: 2008000683
- Recorded By: K Arakaki, GA Samuelson, K Kami
- Institution Code: BPBM
17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000685; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
dt. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, rocky mud flats; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000690; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
du. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, rocky mud flats; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000686; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
dv. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, rocky mud flats; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000688; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
dw. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli, shore; minimumElevationInMeters: 0; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000681; recordedBy: GA Samuelson, K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
dx. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, Honouliuli edge of mangrove; verbatimEventDate: 17.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000687; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
dy. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, E'o Stream, waterline, near bridge foundation; verbatimEventDate: 19.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000699; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
dz. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Pearl Harbor, E'o Stream, waterline, near bridge foundation; verbatimEventDate: 19.vi.1998; eventRemarks: Pearl
Harbor Survey; lifeStage: adult; catalogNumber: 2008000698; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**eb.**
- kingdom: Animalia
- phylum: Arthropoda
- class: Insecta
- order: Diptera
- family: Canacidae
- genus: Procanace
- specificEpithet: williamsi
- scientificNameAuthorship: Wirth, 1951
- islandGroup: Hawaiian Islands
- island: Oahu
- verbatimLocality: E'o Stream, in canal
- verbatimEventDate: 19.vi.1998
- eventRemarks: Pearl Harbor Survey; lifeStage: adult
- catalogNumber: 2008000700; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**ec.**
- kingdom: Animalia
- phylum: Arthropoda
- class: Insecta
- order: Diptera
- family: Canacidae
- genus: Procanace
- specificEpithet: williamsi
- scientificNameAuthorship: Wirth, 1951
- islandGroup: Hawaiian Islands
- island: Oahu
- verbatimLocality: Pearl Harbor, E'o Stream, waterline, near bridge foundation
- verbatimEventDate: 19.vi.1998
- eventRemarks: Pearl Harbor Survey; lifeStage: adult
- catalogNumber: 2008000696; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**ed.**
- kingdom: Animalia
- phylum: Arthropoda
- class: Insecta
- order: Diptera
- family: Canacidae
- genus: Procanace
- specificEpithet: williamsi
- scientificNameAuthorship: Wirth, 1951
- islandGroup: Hawaiian Islands
- island: Oahu
- verbatimLocality: Pearl Harbor Survey; lifeStage: adult
- verbatimEventDate: 19.vi.1998
- eventRemarks: Pearl Harbor Survey; lifeStage: adult
- catalogNumber: 2008000697; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**ee.**
- kingdom: Animalia
- phylum: Arthropoda
- class: Insecta
- order: Diptera
- family: Canacidae
- genus: Procanace
- specificEpithet: williamsi
- scientificNameAuthorship: Wirth, 1951
- islandGroup: Hawaiian Islands
- island: Oahu
- verbatimLocality: Aiea Bay, rocky shoreline
- verbatimEventDate: 24.vi.1998
- eventRemarks: Pearl Harbor Survey; lifeStage: adult
- catalogNumber: 2008000748; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**ef.**
- kingdom: Animalia
- phylum: Arthropoda
- class: Insecta
- order: Diptera
- family: Canacidae
- genus: Procanace
- specificEpithet: williamsi
- scientificNameAuthorship: Wirth, 1951
- islandGroup: Hawaiian Islands
- island: Oahu
- verbatimLocality: Aiea Stream
- verbatimEventDate: 24.vi.1998
- eventRemarks: Pearl Harbor Survey; sex: female
- lifeStage: adult
- catalogNumber: 2008000744; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**eg.**
- kingdom: Animalia
- phylum: Arthropoda
- class: Insecta
- order: Diptera
- family: Canacidae
- genus: Procanace
- specificEpithet: williamsi
- scientificNameAuthorship: Wirth, 1951
- islandGroup: Hawaiian Islands
- island: Oahu
- verbatimLocality: Aiea Bay, rocky shoreline
- verbatimEventDate: 24.vi.1998
- eventRemarks: Pearl Harbor Survey; lifeStage: adult
- catalogNumber: 2008000745; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**eh.**
- kingdom: Animalia
- phylum: Arthropoda
- class: Insecta
- order: Diptera
- family: Canacidae
- genus: Procanace
- specificEpithet: williamsi
- scientificNameAuthorship: Wirth, 1951
- islandGroup: Hawaiian Islands
- island: Oahu
- verbatimLocality: Aiea Bay, rocky shoreline
- verbatimEventDate: 24.vi.1998
- eventRemarks: Pearl Harbor Survey; lifeStage: adult
- catalogNumber: 2008000747; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

**ei.**
- kingdom: Animalia
- phylum: Arthropoda
- class: Insecta
- order: Diptera
- family: Canacidae
- genus: Procanace
- specificEpithet: williamsi
- scientificNameAuthorship: Wirth, 1951
- islandGroup: Hawaiian Islands
- island: Oahu
- verbatimLocality: Aiea Bay, rocky shoreline
- verbatimEventDate: 24.vi.1998
- eventRemarks: Pearl Harbor Survey; lifeStage: adult
- catalogNumber: 2008000749; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
ej. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Alea Bay, rocky shoreline; verbatimEventDate: 24.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000750; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

ek. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Alea Bay, rocky shoreline; verbatimEventDate: 24.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000746; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

el. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Ponds, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000741; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

em. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Ponds, stream from watercress farm; minimumElevationInMeters: 0; maximumElevationInMeters: 3; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000742; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

eo. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Ponds, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000738; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

ep. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Ponds, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000740; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

eq. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Ponds, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000732; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM
er. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000725; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

es. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Pond, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000726; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

et. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Pond, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000727; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

eu. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Pond, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000728; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

ev. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Pond, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000731; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

ew. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000722; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

ex. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000722; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

ey. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalauao Pond, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000734; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

ez. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951;
islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluapao Ponds, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000733; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

fa. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluapao Ponds, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000735; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

fb. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluapao Ponds, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000736; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluapao Ponds, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000737; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluapao stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000724; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluapao stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000723; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

ff. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluapao stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000721; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluapao Ponds, Ewa Stream; minimumElevationInMeters: 0; verbatimEventDate: 29.vi.1998; eventRemarks:
Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000739; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

fl. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000710; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

fj. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000711; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

fk. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000712; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

fl. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waiau Hawaiian Electric Power Plant, at ewa end; minimumElevationInMeters: 0; verbatimEventDate: 30.vi.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000713; recordedBy: K Arakaki, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

fm. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: E‘o Canal, Ted Makalena Golf Course, at shore line; verbatimEventDate: 27.vii.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000701; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

fn. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: williamsi; scientificNameAuthorship: Wirth, 1951; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: E‘o Canal, Ted Makalena Golf Course, at shore line; verbatimEventDate: 27.vii.1998; eventRemarks: Pearl Harbor Survey; lifeStage: adult; catalogNumber: 2008000702; recordedBy: K Arakaki, GA Samuelson, K Kami; identifiedBy: K Arakaki; institutionCode: BPBM

Native status: adventive

Distribution: HAWAIIAN ISLANDS: Oahu (Fig. 13); JAPAN.

Notes: Wirth (1951), [original description; male genitalia (ventral and lateral)]; Hardy and Delfinado (1980), [redescription and revision of Hawaiian taxa; head (front and lateral), female terminalia (dorsal and ventral), spermathecae, wing, surstylus; cephalopharyngael skeleton (larval and pupal, puparium, third instar larvae]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist].
Procanace wirthi Hardy and Delfinado, 1980

Materials

Holotype:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; IslandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Maunawili Stream, on wet rocks; verbatimElevation: 800 ft.; verbatimEventDate: 15.iv.1970; IndividualCount: 1; sex: male; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

Paratypes:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; IslandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Hering Valley, Tantalus, wet rocks near waterfall; verbatimEventDate: 30.vii.1933; lifeStage: adult; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu, Hering Valley, Tantalus; verbatimEventDate: 30.vii.1933; lifeStage: adult; catalogNumber: 2006005169; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Konahuanui, on stream rocks; verbatimEventDate: 12.v.1935; lifeStage: adult; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Konahuanui; verbatimEventDate: 12.v.1935; lifeStage: adult; catalogNumber: 2006005167; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waihi-iki, Manoa Valley; verbatimEventDate: 22.iii.1936; lifeStage: adult; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Manoa Valley, Waihi-iki; verbatimEventDate: 22.iii.1936; sex: female; lifeStage: adult; catalogNumber: 2006005166; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

g. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Manoa Valley, Waihi-iki; verbatimEventDate: 22.iii.1936; sex: female; lifeStage: adult; catalogNumber:
kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waianae; verbatimEventDate: 19.vii.1936; lifeStage: adult; catalogNumber: 2006005176; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waianae, swift water stone ditch; verbatimEventDate: vii.1936; lifeStage: adult; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluauui Stream; verbatimElevation: 2000 ft.; verbatimEventDate: 18.x.1936; lifeStage: adult; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluauui Stream; minimumElevationInMeters: 2000; verbatimEventDate: 18.x.1936; individualCount: 2; lifeStage: adult; catalogNumber: 2006005170; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluauui Stream; minimumElevationInMeters: 2000; verbatimEventDate: 18.x.1936; sex: male; lifeStage: adult; catalogNumber: 2006005174; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu Kalihi Stream; verbatimEventDate: 13.iii.1937; lifeStage: adult; catalogNumber: 2006005172; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Honolulu Kalihi Stream; verbatimEventDate: 13.iii.1937; lifeStage: adult; catalogNumber: 2006005172; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM
1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Punaluu Stream; verbatimEventDate: 28.xi.1937; lifeStage: adult; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Punaluu; minimumElevationInMeters: 800; verbatimEventDate: 28.xi.1937; sex: male; lifeStage: adult; catalogNumber: 2006005173; recordedBy: FX Williams; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kalihi Stream, wet boulder; verbatimEventDate: 13.iii.1957; lifeStage: adult; recordedBy: FX Williams, D Ashdow; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Punaluu Stream; verbatimEventDate: 12.vi.1968; lifeStage: adult; recordedBy: FX Williams, D Ashdow; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

t. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Maunawili Stream; verbatimElevation: 800 ft., on rocks; verbatimEventDate: 15.iv.1970; individualCount: 12; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: UHM

u. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Maunawili Stream; minimumElevationInMeters: 800; verbatimEventDate: 15.iv.1970; lifeStage: adult; catalogNumber: 2006005178; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

v. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Maunawili Stream, on wet rocks; verbatimElevation: 800 ft.; verbatimEventDate: 15.iv.1970; individualCount: 1; sex: female; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

w. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Maunawili Stream, on wet rocks; verbatimElevation: 800 ft.; verbatimEventDate: 15.iv.1970; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980

x. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Maunawili Stream; minimumElevationInMeters: 800; verbatimEventDate: 15.iv.1970; lifeStage: adult; catalogNumber: 2006005177; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: BPBM

y. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado,
1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Maunawili Stream; verbatimElevation: 800 ft., on rocks; verbatimEventDate: 15.iv.1970; individualCount: 3; sex: 2 males, 1 female; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

Other materials:

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kahana Stream; verbatimElevation: 180 ft.; verbatimEventDate: 27.viii.1970; individualCount: 4; sex: 4 males; lifeStage: adult; recordedBy: DE Hardy; institutionCode: USNM

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kahana Valley; verbatimElevation: 600 ft.; verbatimEventDate: 17.ix.1970; individualCount: 5; lifeStage: adult; recordedBy: DE Hardy; institutionCode: UHM

c. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaluaulu Stream, on wet rocks; minimumElevationInMeters: 800; verbatimEventDate: 22.iv.1970; sex: 1 female; lifeStage: adult; recordedBy: MD Delfinado; identifiedBy: DE Hardy & MD Delfinado; dateIdentified: 1980; institutionCode: USNM

d. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Maui; verbatimLocality: Iao Valley, West Maui; verbatimEventDate: 30.x.1990; individualCount: 2; sex: 1 male, 1 female; lifeStage: adult; recordedBy: DA Polhemus; institutionCode: USNM

e. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006008034; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

f. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; verbatimElevation: 240; verbatimEventDate: 08.xi.1990;
individualCount: 7; sex: 4 males, 3 females; lifeStage: adult; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: USNM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006008033; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Makaleha Stream, at Makaleha Springs; minimumElevationInMeters: 787; verbatimEventDate: 08.xi.1990; lifeStage: adult; catalogNumber: 2006008035; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaneohe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006008026; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaneohe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006008028; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaneohe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006008029; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaneohe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006008030; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaneohe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006008031; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kaneohe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006008032; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM
o. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kanehoe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006008027; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

p. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kanehoe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006005179; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

q. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kanehoe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006005180; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

r. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kanehoe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006005181; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

s. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kanehoe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006005182; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

t. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Waihee Stream, near Kanehoe; verbatimElevation: 215; verbatimEventDate: 22.xi.1991; individualCount: 8; sex: 5 males, 3 females; lifeStage: adult; recordedBy: DA Polhemus; institutionCode: USNM

u. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kanehoe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006005184; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

v. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: Procanace; specificEpithet: wirthi; scientificNameAuthorship: Hardy & Delfinado, 1980; islandGroup: Hawaiian Islands; island: Oahu; verbatimLocality: Kanehoe, near Waihee Stream; minimumElevationInMeters: 705; verbatimEventDate: 22.xi.1991; lifeStage: adult; catalogNumber: 2006005183; recordedBy: DA Polhemus; identifiedBy: WN Mathis; dateIdentified: 1992; institutionCode: BPBM

Native status: endemic
**Distribution:** HAWAIIAN ISLANDS: Kauai, Oahu (Fig. 14).

![Distribution Map](image)

Figure 14.
Distribution of *P. wirthi* (Oahu and Kauai)

**Notes:** Hardy and Delfinado (1980), [redescription and revision of Hawaiian taxa; head (front and lateral), female terminalia (dorsal and ventral), spermathecae, wing, surstylus; cephalopharyngael skeleton (larval and pupal, puparium, third instar larvae]; Mathis (1992), [World Catalog]; Nishida (2002), [Hawaiian Arthropod Checklist].

**Procanace unnamed species**

**Materials**

a. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: unnamed species; islandGroup: Hawaiian Islands; island: Hawaii; verbatimLocality: Wailuku River; verbatimElevation: 50 ft.; verbatimEventDate: 23.vi.1971; lifeStage: adult; recordedBy: JA Tenorio

b. kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Diptera; family: Canacidae; genus: *Procanace*; specificEpithet: unnamed species; islandGroup: Hawaiian Islands; island: Kauai; verbatimLocality: Hanapakai Stream; verbatimEventDate: 11.i.2010; lifeStage: adult; recordedBy: PM O’Grady, BS Ort, RT Lapoint, GM Bennett; identifiedBy: PM O’Grady; dateIdentified: 2014; institutionCode: EMEC; collectionCode: 205649

**Native status:** endemic

**Distribution:** HAWAIIAN ISLANDS: Hawaii
Identification keys

**Revised Key to the Hawaiian Species of Canacidae**

This key relies heavily on the couplets in the Hardy and Delfinado (1980) keys to the Tethinidae and the Canacidae. It has been modified to accommodate the inclusion of Tethinidae in the Canacidae and to add the new species *Procanace hardyi*. The first couplet separates Canacidae and Ephydridae. While these families aren't close phylogenetically, they are commonly collected in the same habitats in Hawaii and do look quite similar.

1. C broken once at terminus of Sc (Fig. 15); lower portion of face not bulging (Fig. 16).  
   **Canacidae, 2**

   – C broken twice, with both humeral and subcostal breaks (Fig. 22); lower portion of face typically large, extending over oral cavity (Fig. 21).  
   **Ephydridae**

2. Single pair of fronto-orbital setae present; frons with only a few scattered setae; gena covered with short setae; oral vibrissae weak; only two incomplete rows of acrostichael setulae; cell M joined with 2nd cell M2.  
   **Pelomyiinae, *Pelomyia occidentalis* Williston, 1893**

   – Three to five fronto-orbital setae present; other characters not in the combination above.  
   **3**

3. Genal setae lacking.  
   **Tethininae, refer to Munari & Evenhuis (2011)**

   – Genal setae present.  
   **Canacinae, 4**

4. One pair of strong setae present on front, just anterior and lateral to the ocellar triangle (Fig. 16); mesofrons lacking setae; 4 pairs of strong setae present on genae (Fig. 16); scutellum with 2-4 strong setae on disc (Fig. 17).  
   **Canaceoides, 5**

   – No strong setae on front; at least a few setulae on mesofrons; 3 (or fewer) pairs of genal setae; scutellum lacking strong setae on disc (Fig. 20).  
   **Procanace, 6**

5. Femur irregularly setose, with setae present on all posterior surfaces (Fig. 18). Hawaiian Islands, Ecuador, Mexico, Peru.  
   **Canaceoides angulatus** Wirth

   – Femur with setae on two distinct rows on posterior and posterodorsal surfaces; no setae on posteroventral surface (Fig. 19). Hawaiian Islands.  
   **Canaceoides hawaiiensis** Wirth
|   | Predominately dull black, including squamae and halteres, often with brownish pollinosity on mesonotum and scutellum and greenish sheen over front and face; clypeus very large, nearly as long as face; mesofrons with only a few setae on lower portion; actostichal setulae absent; wings dark, smoky gray; usually two strong genal setae. Hawaiian Islands. | nigroviridis complex, 7 |
|---|---|---|
| – | Mostly lighy-gray pollinose, with squamae and halteres yellow; clypeus small, less than ½ length of face; front with numerous setulae over lower ½ - 2/3; acrostichals well developed; 3 strong genal setae. Oahu, Japan. | Procanace williamsi Wirth |
| 7 | Males. | 8 |
| – | Females. | 14 |
| 8 | Surstylus bifurcate, each lobe roughly equal in size; lacking a small basal lobe on outer margin. | 9 |
| – | Surstylus not divided, with small basal lobe arising from outer ventral margin. | 10 |
| 9 | Outer lobe of surstylus straight, broad (not tapered and blunt), rounded at apex. Kauai, Oahu, Molokai, Maui. | Procanace bifurcata Hardy & Delfinado |
| – | Outer lobe curved upward, tapered at apex, with apical portion thinner, more translucent than remainder of lobe. Hawaii, Maui. | Procanace confusa Hardy & Delfinado |
| 10 | Surstylus slender, boomerang shaped. Kauai, Oahu. | Procanace wirthi Hardy & Delfinado |
| – | Surstylus not as above. | 11 |
| 11 | Surstylus comparatively slender, 3-4x longer than wide. Hawaii, Maui, Molokai. | Procanace acuminata Hardy & Delfinado |
| – | Surstylus shorter and broader, ½ longer than wide | 12 |
| 12 | Hypandrium forming a complete ring beneath apices of stustyli; front and face usually with a coppery green sheen; mesonotum and scutellum chocolate-brown pollinose with a faint green sheen. Kauai. | Procanace nigroviridis Cresson |
| – | Hypandrium developed into two upcurved arms on venter; coloration not as above. | 13 |
| 13 | Oahu, Molokai, Maui, Hawaii. | Procanace constricta Hardy & Delfinado |
|----|----------------------------|----------------------------------------|
|    | Kauai                      | Procanace hardyi sp. nov               |
| 14 | Second tergum greatly elongated, tergites 1+2 longer than remainder of abdomen. Hawaii, Maui, Molokai. | Procanace acuminata Hardy & Delfinado |
|    | Second tergum equal in size of other tergites (or only slightly longer than tergites 1 and 3 in P. wirthi). | 15 |
| 15 | Abdomen constricted medially. | 16 |
|    | Abdomen not constricted medially. | 17 |
| 16 | Lateral margins of tergite 8 do not extend beyond the apex of the ovipositor; thickened setae on ovipositor long, distinct (Fig. 5). Kauai. | Procanace hardyi sp. nov. |
|    | Lateral margins of tergite 8 extend beyond the apex of the ovipositor; thickened setae on ovipositor short, indistinct (Fig. 6). Oahu, Molokai, Maui, Hawaii. | Procanace constricta Hardy & Delfinado |
| 17 | Posterior plates of 8th sternum each with 7-8 long setae; 8th tergum with a row long and short setae. | 18 |
|    | Characteristics of 8th sterna and terga not as above. | 19 |
| 18 | Kauai, Oahu, Molokai, Maui. | Procanace bifurcata Hardy & Delfinado |
|    | Maui and Hawaii. | Procanace confusa Hardy & Delfinado |
| 19 | Eighth tergum comparatively narrow, with four long setae on hind margin. Kauai. | Procanace quadrisetosa Hardy and Delfinado |
|    | Eighth tergum with numerous setae of varying lengths. | 20 |
| 20 | Cerci short and broad, as wide as long; eighth tergum cordate, as long as wide; ninth sternum nearly divided in middle of anterior margin; seventh sternum large, at least two times longer than atrial sclerotization and convex. Oahu and Kauai. | Procanace wirthi Hardy & Delfinado |
|    | Cerci longer than wide; eighth tergum about two times wider than long; ninth sternum entire, not concave on anterior margin; seventh sternum scarcely longer than atrial sclerotization and concave on posterior margin. Kauai. | Procanace nigroviridis Hardy & Delfinado |
Figure 15.
Wing of *Canaceoides hawaiiensis*, showing a single break at the terminus of the subcostal vein. The specimen imaged was from collection 205542.

Figure 16.
Face of *Canaceoides hawaiiensis*, showing the widely separated antennal bases and swollen upper portion of the face and enlarged clypeus. The specimen imaged was from collection 205542.
Figure 17.
Dorsal view of posterior thorax of *Canaceoides angulatus* showing extranumerary setae on disc of scutellum. The specimen imaged is from collection 205519.

Figure 18.
Leg of *Canaceoides angulatus* showing irregularly placed setae on posterior surface of femur. The specimen imaged is from collection 205519.
Figure 19.
Leg of *Canaceoides hawaiensis*, showing two regular rows of setae on posterior surface of femur. The specimen imaged was from collection 205542.

Figure 20.
Dorsal view of posterior thorax of *Procanace constricta* showing the lack of supernumerary setae on disc of scutellum. The specimen imaged is from collection 205268.
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