

A new species of *Stilbopogon* from the Monvero dunes of California (Tiphidae, Hymenoptera)

Lynn S. Kimsey¹

¹ *Bohart Museum of Entomology, University of California, Davis, 95616, USA*

Corresponding author: Lynn S. Kimsey (lskimsey@ucdavis.edu)

Academic editor: Michael Ohl | Received 2 September 2021 | Accepted 7 October 2021 | Published 29 October 2021

<http://zoobank.org/2A1B8A78-02A1-42FC-8413-073AE3034CB6>

Citation: Kimsey LS (2021) A new species of *Stilbopogon* from the Monvero dunes of California (Tiphidae, Hymenoptera). *Journal of Hymenoptera Research* 86: 145–150. <https://doi.org/10.3897/jhr.86.73837>

Abstract

One new species in the brachycistidine tiphid genus *Stilbopogon*, *monveroensis* is described from the Monvero Dunes in Fresno Co., California. A revised key to the species of *Stilbopogon* is included.

Keywords

Brachycistidinae, *costaricaensis*, *Quemaya*

Introduction

Brachycistidine wasps are an obscure group of generally nocturnal aculeate parasitoids. Males are winged and very different appearing than females, in much the same pattern as in the Mutillidae. However, brachycistidines lack any kind of colorful pigmentation, ranging in color from yellowish brown to nearly black. For decades there was a separate taxonomy for males versus females and no sex associations were made until Kimsey (2006). One consequence of making the sex associations was that the genus *Quemaya* Pate, 1947 (based on males) was predated by *Stilbopogon* Mickel & Krombein, 1942 (based on females). *Stilbopogon*, under the old name of *Quemaya*, was first revised by Kimsey and Wasbauer (1996).

Very little is known about the biology of the Brachycistidinae. The winged males are generally collected in blacklight traps and the wingless females in pitfall traps. Members of this group were assumed to be parasitoids much like the rest of the family.

The first host record for any species of Brachycistidinae was found to be a tenebrionid larvae found being attacked by a female *Stilbopogon* in the daytime (Borowiec and Kimsey 2015).

Males in the genus *Stilbopogon* exhibit a number of unusual features, even among the brachycistidines. *Stilbopogon* is the smallest bodied group in the subfamily. The largest males belong to *Stilbopogon confusa* Kimsey & Wasbauer, which reach 6 mm in length. Males in the majority of species range in length from 3–4 mm. Females are much smaller. There are also a few species of *Stilbopogon*, including *costaricaensis* Kimsey & Bohart, and the new species described below, that have proportionally small eyes and even smaller ocelli. These species are also dark brown to black in coloration. These head and coloration modifications suggest that the new species and *costaricaensis* may actually be diurnal.

Materials and methods

The new species described below was collected in Malaise traps run on the Monvero Dunes in Fresno County, California, in June and July, 2015. This is odd sand dune system is located on top of a ridge in the interior central coastal range of California, between 600 and 670 m above sea level (Fig. 1). It is considered to be the remains of an Upper Cretaceous reef (Stewart 1946). The dunes are vegetated by a combination of inner coastal range and Mojave Desert plant species, including large *Ephedra californica* plants.



Figure 1. Landscape view of Monvero Dunes looking south. Photo courtesy of Michael Powers, U.S. Bureau of Land Management.

Results

Identification key to *Stilbopogon* males

(modified from Kimsey and Wasbauer 1998)

- 1 Forewing with two submarginal cells **2**
- Forewing with one submarginal cell (as in Fig. 2) **5**
- 2 Mandible with two apical teeth; distance between midocellus and closest eye margin less than 1.5 midocellus diameters *arenicola* (Wasbauer)
- Mandible with three apical teeth, one may be very small; distance between midocellus and closest eye margin more than 1.5 midocellus diameters **3**
- 3 Mesopleuron densely punctate, with punctures evenly dispersed over entire surface and 1–2 puncture diameters apart; propodeum coarsely sculptured with irregular demarcation between dorsal and posterior surfaces indicated by rugae *confusa* (Kimsey & Wasbauer)
- Mesopleuron sparsely punctate, with punctures generally 4–6 puncture diameters apart, denser dorsally than posteroventrally, surface above midcoxa nearly impunctate; propodeum smooth, without distinct punctation or rugosities, and no demarcation between dorsal and posterior surfaces **4**
- 4 Midocellus separated from eye margin in front view by more than 2 midocellus diameter; epipygium apically bidentate *perpunctata* (Cockerell)
- Midocellus separated from eye margin in front view by less than 2 midocellus diameters; epipygium apically flat and broadly triangular *megalops* (Kimsey & Wasbauer)
- 5 Gular carina with basal tooth-like projection near mandible; clypeus transversely indented, without medial projection, arcuately raised apicomediaally; epipygium apex truncate *inermis* (Malloch)
- Gular carina simple; clypeus and epipygium various **6**
- 6 Flagellomeres I and II subequal in length, about twice as long as broad or longer; epipygium apex strongly convex and lip-like *marcida* (Bradley)
- Flagellomeres I shorter than II, and between 1.2 and 1.8× as long as broad; epipygium apex medially emarginate or truncate **7**
- 7 Midocellus larger, separated by 2 midocellus diameters or less from nearest eye margin; flagellomere I 1.6× as long as broad or longer **8**
- Midocellus small, separated by 3 or more midocellus diameters from nearest eye margin; flagellomere I 1.5× as long as broad or shorter **9**
- 8 Midocellus separated from nearest eye margin by 1.5 midocellus diameters or less; epipygial apex convex; clypeus with broad, blunt medial projection, bulging and strongly subtriangular in profile; forewing R1 vein strongly angulate near costal margin, marginal cell broadly parallel-sided *mexicana* (Kimsey & Wasbauer)
- Midocellus separated from nearest eye margin by 1.8–2.0 midocellus diameters; epipygial apex bidentate; clypeus with narrow nose-like or almost

- digitate medial projection; forewing R1 vein narrowly separated from stigma, curved or indistinguishable near costal margin..... *paupercula* (Bradley)
- 9 Midocellus five or more midocellus diameters from nearest eye margin (as in Fig. 3)..... **10**
- Midocellus 3.0–3.5 midocellus diameters from nearest eye margin **11**
- 10 Flagellomere I 1.1–1.2× as long as broad; flagellomere II 1.4× as long as broad; propodeum coarsely sculptured, with irregular, partial transverse carina *costaricaensis* (Kimsey & Wasbauer)
- Flagellomere I 1.4–1.5× as long as broad; flagellomere II 1.8–1.9× as long as broad (Fig. 3); propodeum smooth without sculpturing or transverse carina (Fig. 6)..... *monveroensis* Kimsey, sp. nov.
- 11 Clypeus with small, sharp medial projection, apical truncation 1.5 midocellus diameters wide; epipygial apex medially emarginate, with sublateral carina..... *eurekaensis* (Kimsey & Wasbauer)
- Clypeus with broad, transverse medial projection subtended by discrete declivity, apical truncation 2 midocellus diameters wide; epipygial apex truncate *sonorensis* (Kimsey & Wasbauer)

Systematics

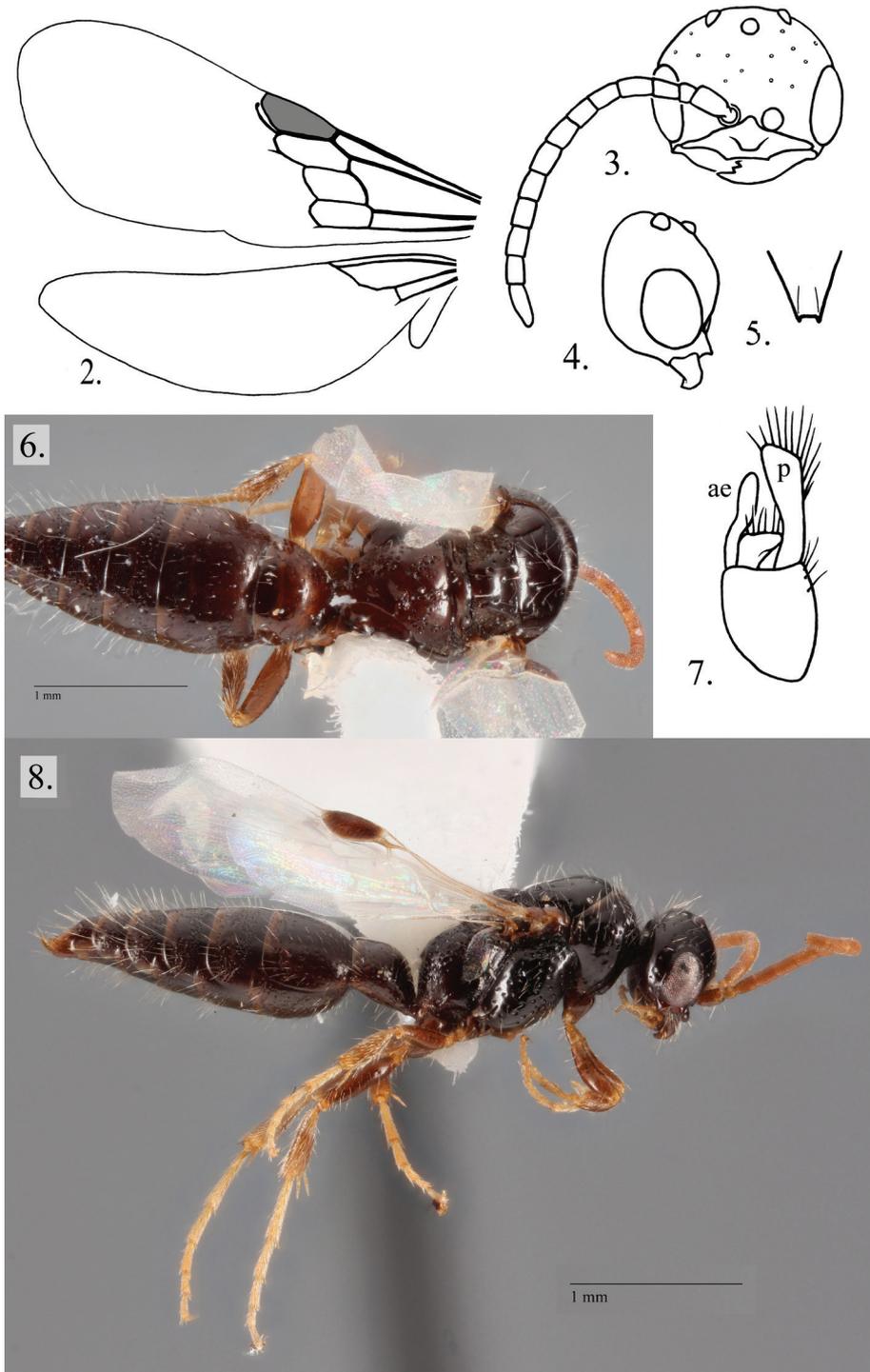
Stilbopogon monveroensis Kimsey, sp. nov.

<http://zoobank.org/56B005C7-390E-4FE8-A4B1-4C4E871D2707>

Figs 2–8

Diagnosis. *Stilbopogon monveroensis* has the small ocelli (Fig. 3), single submarginal cell (Fig. 2), and short broad flagellomeres (Fig. 3) that characterize *S. costaricaensis*, and less so *S. sonorensis* and *S. eurekaensis*. The nasiform clypeus (Figs 3, 4), small eyes, and finely sculptured propodeum (Fig. 6) are diagnostic for this species.

Description. Male. Body (Figs 6, 8); length 2.5–4.4 mm. **Head:** face (Fig. 3): clypeus with subrectangular medial projection, projection apex 1.0–1.1 midocellus diameter wide, appearing acute in profile (Fig. 5), apicomедial truncation 2.6–2.7 midocellus diameters wide in front view (Fig. 3); mandible with three apical teeth, preapical teeth subequal in length; gular carina simple; flagellomere I length 1.4–1.5× breadth; flagellomere II 1.9–2.0× as long as broad; interantennal distance 1.5 midocellus diameters wide; distance from midocellus to closest eye margin 5.8–6.0 midocellus diameters. **Mesosoma:** mesopleuron with punctures 2–4 puncture diameters apart; forewing with one submarginal cell; marginal cell small, more than 3× as long as broad, widely separated from costal margin (Fig. 2); propodeum largely impunctate and smooth, with small medial patch of fine rugae. **Metasoma:** epipygium apicomедially truncate, with two sublateral carinae, each terminating in small tooth, apical surface forming an ovoid, slightly sunken medial area (Fig. 5); paramere gently tapering, apicoventral angle obtuse (Fig. 7). **Color:** body dark brown to black; antenna pale brown, slightly yellower than legs; wing veins pale brown to transparent, stigma brown; wing membrane untinted.



Figures 2–8. *Stilbopogon monveroensis* male **2** fore and hindwing venation **3** front view of face **4** lateral view of head **5** dorsal view of epipygium **6** dorsal view of body **7** lateral view of male genital capsule **8** lateral view of body. Abbreviations: ae = aedeagus, p = parameres.

Female. Unknown.

Etymology. This species is named after the site of collection in the Monvero Dunes.

Material examined. *Holotype* male; USA: California, Fresno Co., Monvero Dunes, Monocline ridge, 29 km sw Mendota, 10 June 2015, 36.4974, -120.5312, 500 m, MT4 near *Ephedra californica*, M. Powers. Paratypes: 19 males: 6: same data as holotype; 6: MT1, 36°32'N, 120°33'W, 569 m, 10 June 2015, near *Ephedra*, M. Powers; 4: MT1, 36°32'N, 120°33'W, 7 July–8 August 2015, M. Powers; 1: 36.539, -120.567, 15–30 June 2015, MT1 near *Ephedra californica*, M. Powers; 3: 498 m, 17 July 2015, 498 m, 36°32'N, 120°33'W, MT2, Bohart Museum crew. All types are deposited in the Bohart Museum of Entomology, University of California, Davis.

Distribution. This species has only been found in the Monvero Dunes in Fresno Co., California.

Remarks. Most species of *Stilbopogon* appear to be quite widespread in arid and desert regions of North and Central America. *Stilbopogon monveroensis* appears to be the exception to this. However, its restricted distribution may be more the result of limited collecting than actual endemism.

Acknowledgements

This study was made possible by logistical and personnel support from the U.S. Bureau of Land Management, particularly with the assistance of Mike Powers.

References

- Borowiec M, Kimsey LS (2015) The first host record for the wasp subfamily Brachycistidinae. *Proceedings of the Entomological Society of Washington* 117(1): 62–64. <https://doi.org/10.4289/0013-8797.117.1.62>
- Kimsey LS (2006) Competing taxonomies: reexamination of the female-based genera of Brachycistidinae. *Zootaxa* 1211: 21–34. <https://doi.org/10.11646/zootaxa.1211.1.2>
- Kimsey LS, Wasbauer MS (1996) Revision of the American tiphid genus *Quemaya* Pate. *Journal of Hymenoptera Research* 7(1): 38–47.
- Kimsey LS, Wasbauer MS (2006) Phylogeny and checklist of the nocturnal tiphids of the Western Hemisphere. *Journal of Hymenoptera Research* 15(1): 9–25.
- Stewart R (1946) *Geology of Reef Ridge Coalinga District California*. USDI Geological Survey Professional Paper 205-C, 52 pp. <https://doi.org/10.3133/pp205C>