

Remarks. This species closely resembles *V. emeryi* Wheeler, 1906, in having the larger size (HL > 0.55 mm, HW > 0.50 mm), presence of a large brown spot of frons, and a developed subpetiolar process. It is distinguished from the latter by the absence of propodeal spines, and having an angulate posterodorsal corner of petiolar node in profile.

Vollenhovia emeryi is distributed from Hokkaido to Yaku-shima in Japan, while this new species is restricted to the Amami Islands (Fig. 10).

This species corresponds to *Vollenhovia* sp. 3 ("Oh-umematsuari" in Japanese) in Terayama and Yamauchi (1992).

Vollenhovia okinawana sp. nov.

(Figs. 4, 8)

Holotype. Worker. HL 0.53 mm; HW 0.45 mm; SL 0.31 mm; CI 85; SI 69; WL 0.63 mm; PL 0.24 mm; PH 0.21 mm; DPW 0.15 mm; TL 2.1 mm.

Head longer than wide, with subparallel sides and weakly concave posterior margin in frontal view. Mandibles with 7 teeth; basalmost tooth minute. Clypeal carinae subparallel. Antennae with 12 segments; scape 0.58 x head length. Eyes 0.13 mm in diameter.

Dorsum of promesonotum almost straight in profile; metanotal groove not incised dorsally; posterodorsal corner of propodeum dully angulate, without tooth in profile.

Petiole as long as high, with convex dorsal outline in profile; anterodorsal and posterodorsal corners not forming angle. Subpetiolar process low and small; its thin lamellar wall ca. 0.04 mm in height. Postpetiole slightly longer than high, highest at posterior 1/3 in profile; posterodorsal margin concave.

Head shagreened with relatively large coarse punctures; space between punctures less than 0.5 x their own diameters; dorsum of alitrunk punctated with unsculptured longitudinal band medially; mesosoma, propodeum and petiole reticulate; sculpture on petiole weaker than that on propodeum; postpetiole smooth in most part; gaster and legs smooth and subopaque.

Color: reddish brown; mandibles, antennae, and legs yellowish brown; frons without dark brown spot.

Paratype female. HL 0.60 mm; HW 0.56 mm; SL 0.35 mm; CI 94; SI 62; WL 0.88 mm; PL 0.25 mm; PH 0.29 mm; DPW 0.18 mm; TL 2.6 mm. (one measured).

Head slightly longer than wide, with slightly concave posterior margin in frontal view; eyes 0.15 mm in diameter; ocelli forming right triangle.

Alitrunk 0.45 mm in maximum dorsal width; dor-

sum of pro- and mesonotum coarsely punctated, with smooth interspaces; mesonotum with an unsculptured longitudinal band medially; propodeum without tooth.

Petiole higher than long, with convex dorsal outline in profile. Subpetiolar process low and small. Postpetiole highest at posterior 1/3, with concave posterodorsal margin in profile.

Forewings 0.60 mm in length.

Color: reddish brown; ocellar triangular area dark brown; frons without large brown spot.

Variation. Five paratype workers with the following measurements and indices: HL 0.48-0.49 mm; HW 0.45 mm; SL 0.29-0.30 mm; CI 92-95; SI 63-64; WL 0.60-0.63 mm; PL 0.20-0.24 mm; PH 0.19-0.20 mm; DPW 0.15-0.16 mm; TL 2.0-2.2 mm.

Eye diameter varies from 0.12 to 0.13 mm. In some specimens the basalmost tooth of mandibles is obscure.

Holotype. Worker, Gushiken, Notobu, Okinawa-jima, Okinawa Pref., 1.I.1985, K. Yamauchi leg.

Paratypes. 1 female, 6 workers, same data as holotype; 1 female, 2 workers, Nakijin, Motobu, Okinawa-jima, Okinawa Pref., XII.1990, K. Yamauchi leg.; 8 females, 21 workers, Fuku-gawa, Okinawa-jima, Okinawa Pref., 31.XII.1984, K. Yamauchi leg.

Type depository. The holotype and some paratypes are deposited in the Museum of Nature and Human Activities, Hyogo, and the other paratypes are in the National Institute of Agro-Environmental Sciences, Tsukuba, and National Science Museum, Tokyo.

Etymology. The specific epithet refers to the type locality.

Remarks. This species is very similar to *V. benzai* sp. nov. However, it is distinguished from the latter by the shape of the postpetiole which is highest at posterior 1/3 and concave posterodorsal margin in the female and worker (highest at midlength and convex posterodorsal margin in *benzai*).

This species corresponds to *Vollenhovia* sp. 4 ("Okinawa-umematsuari" in Japanese) in Terayama and Yamauchi (1992). This new species produces usual alate females and is widely distributed from southern to northern regions of the Okinawa-jima island. However, an ecologically different population is also present in this island. It produces ergatoid females only as reproductive females and is restricted to the northern part of the island. This population corresponds to *Vollenhovia* sp. 7 ("Yanbaru-umematsuari" in Japanese) in Terayama and Yamauchi (1992). No consistent differences in worker and male external morphology have been identified between *V. okinawana* sp. nov. and *V.* sp. 7. We reserve the taxonomic status of those in this paper.