

## RESEARCH NOTES

A NEW SPIDER, *PARATHEUMA MAKAI*  
(ARANEAE, DESIDAE), FROM HAWAII

In two previous papers (Beatty and Berry 1988a, 1988b) we dealt with the seven known species of the desid genus *Paratheuma* Bryant, and we suggested that the discovery of additional species might be expected. One such species was subsequently collected on two of the Hawaiian Islands and is described here.

The specimens occurred on rocky ocean beaches, as is characteristic for the genus; but the Hawaiian beaches, in contrast to many other localities where *Paratheuma* occurs, were almost devoid of broken coral. Instead, a dark, smooth heavy volcanic rock (probably basalt) (Fig. 1) or abrasive lava was common. On Kauai the spiders were found on the sand under basalt rocks varying from about 10-50 cm in diameter. On Hawaii they were on sand in the spaces between smaller pieces of rough porous lava.

Four adults of each sex were measured. Total length was measured from anterior carapace margin (or anterior eye margin when eyes projected beyond carapace) to the base of the spinnerets. Some specimens from Kauai were reared



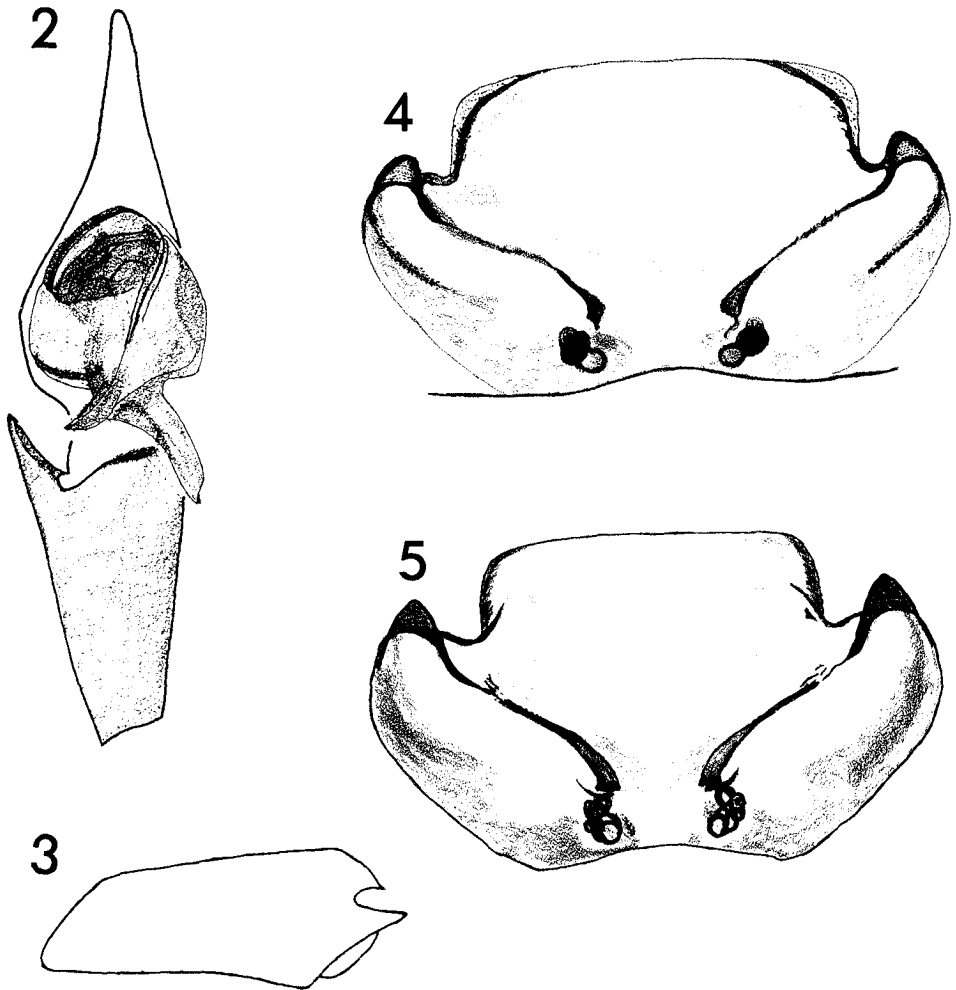
Figure 1.—Type locality of *Paratheuma makai*, beach at Kapaa, Kauai, Hawaii.

in the laboratory but are not listed below. Juveniles listed here are not considered paratypes.

*Paratheuma makai*, new species

**Holotype.**—Male from Hawaii; Kauai Island, at mile marker 9.4 N of Kapaa, under beach rocks, 14 Jan. 1988 (J. W. and E. R. Berry) in Bishop Museum, Honolulu, Hawaii. The name, regarded as a noun in apposition, is a Hawaiian word meaning “toward the ocean”.

**Diagnosis.**—Male with relatively short (length less than twice basal width), erect, almost triangular tibial apophysis, and long arcuate retrolateral branch of conductor tip. Female with epigynal depressions curved slightly forward anteriorly, the hoods flanked medially by distinct notch-like depressions. Similar to *P. australis* Beatty and Berry, *P. insulana* (Banks), and *P. rangiroa* Beatty and Berry, but clearly distinguished from them by the characteristics cited.



Figures 2-5.—Genitalia of *Paratheuma makai*: 2, left pedipalp, ventral; 3, tibia of left pedipalp, lateral; 4, epigynum, ventral; 5, epigynum, dorsal, cleared.

**Descriptive notes.**—*Male*: Total length 3.3-4.0 mm, carapace length 1.7-1.9 mm, maximum carapace width 1.26-1.32 mm. Embolus arising on medial side of bulb near middle of bulb's length, its structure as in other species of the genus. End of conductor with short medially directed branch and long arcuate retrolateral branch curving down over distal retrolateral surface of tibia (Fig. 2). Tibial apophysis erect, shorter than in any other species except *P. interaesta* (Roth and Brown), triangular, its length less than twice its basal width (Fig. 3.). Bristle pattern as in other Pacific species.

*Female*: Total length 3.5-4.3 mm, carapace length 1.6-1.7 mm, maximum carapace width 1.08-1.26 mm. Epigynal depressions pale, extending obliquely forward, arching slightly mediad at anterior ends. Epigynal hoods distinct, flanked medially by depressions. Anterior border of epigynum broadly rectangular (Fig. 4). Ducts of epigynum narrow, twisted tightly around themselves so that their course is very difficult to determine (Fig. 5). Seminal receptacle and duct complex smaller than in other Pacific species.

**Discussion.**—Many localities on Kauai were searched, but the spiders were found only at the beach at Kapaa, where they were abundant. No specimens were found on Oahu, and few on Hawaii. However, only a small portion of Hawaii's beach was searched.

Specimens from Hawaii were smaller than the mean for specimens from Kauai; but only one adult of each sex was taken on Hawaii, and the male matured in the laboratory. In all other characters they agreed with the Kauai specimens. Genitalic structure in both sexes is most similar to those of *P. australis* and *P. rangiroa*, and somewhat less to *P. insulana*. Other structures are almost uniform throughout the genus.

This species conforms to the distribution pattern shown by other species of the genus—only one species of *Paratheuma* on any given island, although a given species may occur on more than one island or island group. Further investigation is needed to confirm this pattern and to determine the total area occupied by the genus. Islands in need of investigation are those in Polynesia east and south of Rangiroa and Manihi, and in Melanesia, Indian Ocean and the Atlantic Ocean.

**Distribution.**—**HAWAII:** Kauai and Hawaii Islands.

**Specimens examined.**—**HAWAII:** *Kauai Island*, under beach rocks at mile marker 9.4 N of Kapaa, 14 Jan. 1988 (J. W. and E. R. Berry), 7 males, 5 females, 4 immatures. *Hawaii Island*, in lava on beach, 25 road miles NW of Kailua at Anaehoomalu, 18 Jan. 1988 (J. W. and E. R. Berry), 1 male, 1 female, 2 immatures.

#### LITERATURE CITED

- Beatty, J. A. and J. W. Berry. 1988a. The spider genus *Paratheuma* Bryant (Araneae, Desidae). J. Arachnol., 16:47-54.
- Beatty, J. A. and J. W. Berry. 1988b. Four new species of *Paratheuma* (Araneae, Desidae) from the Pacific. J. Arachnol., 16:339-347.

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