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THE GENUS SPHAEROGASTRA TROUSSART WITH DESCRIPTION OF A NEW SPECIES FROM TEXAS (ANALGESOIDEA, DERMOGLYPHIDAE) 1

BY

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The genus Sphaerogastra Trouessart (1897) included only the type species, Sphaerogastra thylacodes. Trouessart described S. thylacodes in a publication by Berlese (1897).

Trouessart (1898) described a species of Dermoglyphus, D. monstruosus, which he placed in the subgenus Sphaerogastra. Canestrini and Kramer (1899) accepted Sphaerogastra as a genus and included in it Dermoglyphus (Sphaerogastra) monstruosus Trouessart. Vitzthum (1929) recognized the genus but treated it as mono-typical, listing only S. thylacodes Trouessart. Bedford (1932) included the genus in a synoptic check-list of ectoparasites from birds of South Africa. Baker and Wharton (1952), Radford (1953), Turk (1953), Dubinin (1953) and Gaud and Mouchet (1959) accepted the genus Sphaerogastra and referred to it in regard to placement in a particular family group. Dubinin (1956) treated the genus and included illustrations, additional description notes and hosts for S. thylacodes. In this publication Dubinin recognized the genus as containing two species, S. thylacodes and S. monstrosa (the latter species trivial name being changed from -us to -a to agree in gender with the genus). However, Dubinin did not include a description or drawing for S. monstrosa. Since it has not been possible to obtain the type material or slides of Sphaerogastra thylacodes, only S. monstrosa and the new species herein described have been available for study. The work of Dubinin (1956) has been the only source used in this work to compare S. monstrosa and the new species from Texas with S. thylacodes.

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Sphaerogastra crena, new species.

Female. — Body flat, broadly ovate posteriorly, narrowing anteriorly. A pair of prominent pseudostigmata organs on gnathosoma. Propodosoma and hysterosoma separated by infolding of exoskeleton. The infolding giving appearance of a suture, more prominently expressed in male than female. Anterior legs arising from margin of body; posterior legs inserted on hysterosoma, with well-developed propodosomal shield. Hysterosomal region without shield, clearly membranous, hypertrophied, giving body a circular appearance. Propodosomal region marked by well-developed propodosomal shield, bearing two large external and internal scapular setae. Idiosoma with two pair of setae. External and internal scapular setae subequal. Humeral setae of same shape as external and internal scapulars, but smaller, located near margin of body in proximity of infolding of exoskeleton that separates propodosoma and hysterosoma.

Ventrally chelicerae are large and scissor-shaped. Apodemes of legs I fused forming a "U". Apodemes of legs II extending to infolding of exoskeleton that extends from dorsal region, slightly curved at apex toward margin of body. A sclerotized plate associated with apodemes extends from tip of apex of apodemes to margin of body (Fig. 1). Genital arch a small sclerotized bar between posterior pair of legs. Genitalia an inverted "V", occupying region between posterior legs (Fig. 1). A pair of genital seta located next to genitalia between sclerotization of apodemes of posterior legs and sclerotized area of genitalia. Sclerotized area of apodemes of posterior legs with three pairs of setae. A pair of microseta located adjacent to genital seta, on sclerotized area next to fused apodemes of legs III and IV. Two pairs of macrosetae near margin of body, ends extending beyond body margin. Ventral region containing four pairs of setae (excluding genital setae and setae associated with apodemes of posterior legs). An anterior pair located between fused apodemes of legs I and apodemes of legs II. A pair placed on hysterosoma near margin of body similar in structure to anterior pair. Two pairs of anal setae located next to anal opening. All legs bearing caruncles, chaetotaxy of legs as shown in Figs. 5, 6, 7, 8. Length .656 mm; width .506 mm.

Male. — Body broadly ovate, much smaller than female, apparently having only three pairs of legs. Without prominent pseudostigmata organ as found in female, with same infolding of exoskeleton separating propodosoma and hysterosoma. Dorsum with propodosomal shield, not covering propodosoma as in female but smaller and triangular-shaped (Fig. 4). Two pairs of setae on idiosoma. External and internal scapulars subequal, located below propodosomal shield within striated area between infolding of exoskeleton and shield. Humeral setae smaller than scapular setae, located on hysterosoma below infolding of exoskeleton near margin of body. Anterior legs arising from margin of body, posterior legs inserted on hysterosoma.
Sphaergastra crena n. sp.

Fig. 1, Ventral view of holotype female. — Fig. 2, Dorsal view of holotype female. — Fig. 3, Ventral view of allotype male. — Fig. 4, Dorsal view of allotype male. — Fig. 5, First pair of legs of holotype female showing placement of setae. — Fig. 6, Second pair of legs of holotype female showing placement of setae. — Fig. 7, Third pair of legs of holotype female showing arrangement of setae on tarsus. — Fig. 8, Fourth pair of legs of holotype female showing arrangement of setae on tibia and tarsus.
Ventrally chelicerae small, not resembling female, in that they are elongated and teeth are scarcely visible. Apodemes of legs I connected by a small sclerotized bar. Apex of apodemes extends beyond connected sclerotized bar. Apodemes of legs II curved at apex, extending to infolding of exoskeleton separating propodosoma from hysterosoma. Male genitalia located between posterior pair of legs, well-developed and forming an inverted “W”. Legs IV well-developed, legs III absent. Sclerotized area around posterior legs similar to that found in female, with three pairs of setae of same shape and structure as female. The microsetae next to apodemes of legs IV; macrosetae near margin of body. Ventrally there are four pairs of setae (excluding setae associated with apodemes of posterior legs); anteriorly a pair between apodemes of legs I and II, a pair on margin of hysterosoma, and two pairs of anal setae associated with anal opening which is an elongated oval slit. Legs IV larger than anterior legs, chaetotaxy resembling that of legs IV of female (Fig. 8). Length 426 mm.; width .311 mm.

FIG. 9, Arrangement of propodosomal shield and scapular setae of S. crena, n. sp. --- Fig. 10, Arrangement of propodosomal shield and scapular setae of S. thylacodes Trt. --- Fig. 11, Arrangement of propodosomal shield and scapular setae of S. monstruosus Trt.

This species is described from the female holotype and male allotype along with 14 paratypes five males and nine females. The holotype (U.S.N.M. No 2893) and allotype are deposited in the United States National Museum, Washington, D.C. Paratypes have also been deposited at the Laboratoire d’Acarologie, Paris, France, and the author’s personal collection. The holotype, allotype and paratypes were taken from Charadrius wilsonia, Kleberg County, Texas, March 16, 1962. The host was collected by Burruss and Shirley McDaniel eight miles south of Riviera, Texas, off Farm Road 2510 along sandy beach of Baffin Bay, Kleberg County, Texas. 

Sphaerogastra crena n. sp. may be separated from all other members of the genus Sphaerogastra by the absence of legs III in the male and the shape of the propodosomal shield of both the male and female.

The occurrence of a male that has only three pairs of legs instead of the normal four pairs that are characteristic of the majority of the Acarina can possibly be explained by the fact that members of the genus Sphaerogastra are highly specialized and adapted for living in the microhabitat of the quills of feathers. It would appear that the male, unlike the female, utilizes secretions that are to be found within
the feathers as a source of food. This is shown by the structure of the mouthparts. In the female the chelicera are large and well adapted to be used in capturing and devoiring other mites that occur in the quills. In direct contrast is the very small and under-developed chelicera of the male.

The other families within the Acarina that have adults possessing only three pairs of legs are Podapolipodia and Phytoptipalpidae. However, this is the first record of a form possessing only three pairs of legs in the super family Analgoidea.

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