ZYGOPA MICHAELIS HOLTHUIS, 1960: A FIRST RECORD AND RANGE EXTENSION TO THE CONTINENTAL UNITED STATES (DECAPODA ANOMURA, ALBUNEIDAE) [1]

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The sand crab genus *Zygopa* was established by Holthuis (1960) to contain those members of the family Albuneidae which, although appearing somewhat *Albunea*-like, were aberrant in possessing very small, fused, yoke-like eyes, and in having the anterior margin of the carapace cut into two submedian teeth separated by a distinct concavity instead of possessing a single median tooth. The genus presently contains two species, the western Atlantic *Zygopa michaelis*, and the western Pacific *Zygopa nortoni*, described from the Philippine Islands by Serene & Umali (1965).

Zygopa michaelis is apparently known from the six original males and 14 females collected by J. S. Zaneveld and L. B. Holthuis, in January 1957, from 4 m of water at the type locality, Sint Michiels Baai, on the southern coast of Curaçao, Netherlands Antilles. In the process of depositing some of our material into the National Museum of Natural History (USNM), Mr. C. Allan Child, Curator of Crustacea at that institution informed us of another specimen of *Z. michaelis*, collected April 20, 1950 from a rocky reef off Palm Beach, Florida. This specimen, a female, remained unidentified until after Holthuis' original description, when it was subsequently determined by Dr. Ian E. Efford.

While examining a collection of crustaceans from the southeastern and central eastern Florida coast, collected by R/V "George M. Bowers", Southeastern Regional Fisheries Center, NOAA, we were fortunate to discover four additional specimens of *Zygopa michaelis* Holthuis, 1960. These specimens, obtained from relatively shallow water off Miami, Florida, plus the Palm Beach specimen noted above, are the first to be recorded from the continental United States, and constitute a range extension northward from Curaçao in the southern Caribbean Sea of approximately 2100 km.

Zygopa michaelis Holthuis, 1960. (Plate 1)

Material examined. — 2 ♂♂, 12.0 × 14.5 and 10.9 × 13.3 mm, cl × cw (carapace length by carapace width); 2 ♀♀, 8.8 × 10.7 and 9.5 × 11.6 mm, cl × cw; R/V "George M. Bowers", 3 August 1976, 25°50.2'N 80°04.9'W; 4 ft tumbler dredge; 30 fms (55 m); coll. D. Harper; USNM

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168 526, and SIFP 89:2968. — 1 ♀, 6.9 × 8.4 mm; Atlantic Ocean, Palm Beach County, off Palm Beach, Florida; 20 April 1950; 30-40 fms (55-73 m); Thompson-McGinty, collectors; USNM 122644.

The five specimens agreed in nearly every particular with the original description provided by Holthuis. Indeed, the species was easily recognizable not only by the much-reduced eyes (which at first glance make the specimens appear to be completely eyeless), but also by the distinctively sculptured and grooved carapace which sets this species apart from the comparatively smoother, more common members of the family known from tropical, subtropical, and warm temperate eastern American waters, viz. *Albunea gibbesi, A. paretii, A. richmondi, Lepidopa benedicti* and *L. websteri* (cf. Holthuis, 1960; Williams, 1965; Gore, unpubl. data).

Color notes taken on the four preserved specimens from off Miami were substantially in agreement with those provided by Holthuis, and the overall color of our specimens ranged from ivory to chalky white. We noted a slight iridescence on the abdominal pleura, and ventrally on the coxae of the pereiopods. The abundant pilosity ranged from translucent yellow to a distinct golden brown. The minute corneas of the eyes were discernible but without pigment, and if they were faceted it was not easily seen. The USNM specimen, by virtue of its longer preservation, was eggshell white, with translucent yellow-brown setae.

The range of *Zygopa michaelis* now extends from the southern Caribbean (Curaçao) to off southeastern Florida. While this distribution presently is disjunct through the Caribbean, we believe this may be an artifact of collecting because the species, like other members of the family, is so cryptic. The fact that the first specimens of *Z. michaelis* were obtained with a suction dredge indicates what may probably be the most successful method of collecting these animals. The Miami, Florida specimens were collected with a tumbler dredge, which is a modified scallop-dredge consisting of a rectangular steel frame and a net of chain-linked steel rings (Cummins, 1971). Deep-digging rugged gear similar to this may provide further specimens from time to time. The method of collection for the Palm Beach specimen was not noted.

The larger male (slightly damaged frontally) and the smaller female from off Miami have been deposited in the USNM; the remaining two Miami specimens are deposited in the Reference Collections, Indian River Coastal Zone Study, Link Port, Ft. Pierce, Florida (SIFP 89:2968). For comparative purposes with other material the following measurements are provided for the Miami (USNM, SIFP, respectively) and Palm Beach (USNM) specimens: fronto-orbital, ♂, damaged; ♀, 1.2 mm; ♂, 1.7, ♀, 1.4 mm; ♀, 1.0 mm; intramedial tooth width, ♂, damaged, ♀, 4.9 mm; ♂, 5.3, ♀, 4.8 mm; ♀, 3.1 mm; anterolateral width, ♂, 12.2, ♀, 9.0 mm; ♂, 11.4, ♀, 10.0 mm; ♀, 7.1 mm; anterolateral tooth width, ♂, 13.3, ♀, 10.2 mm; ♂, 12.8, ♀, 11.1 mm; ♀, 8.0 mm.

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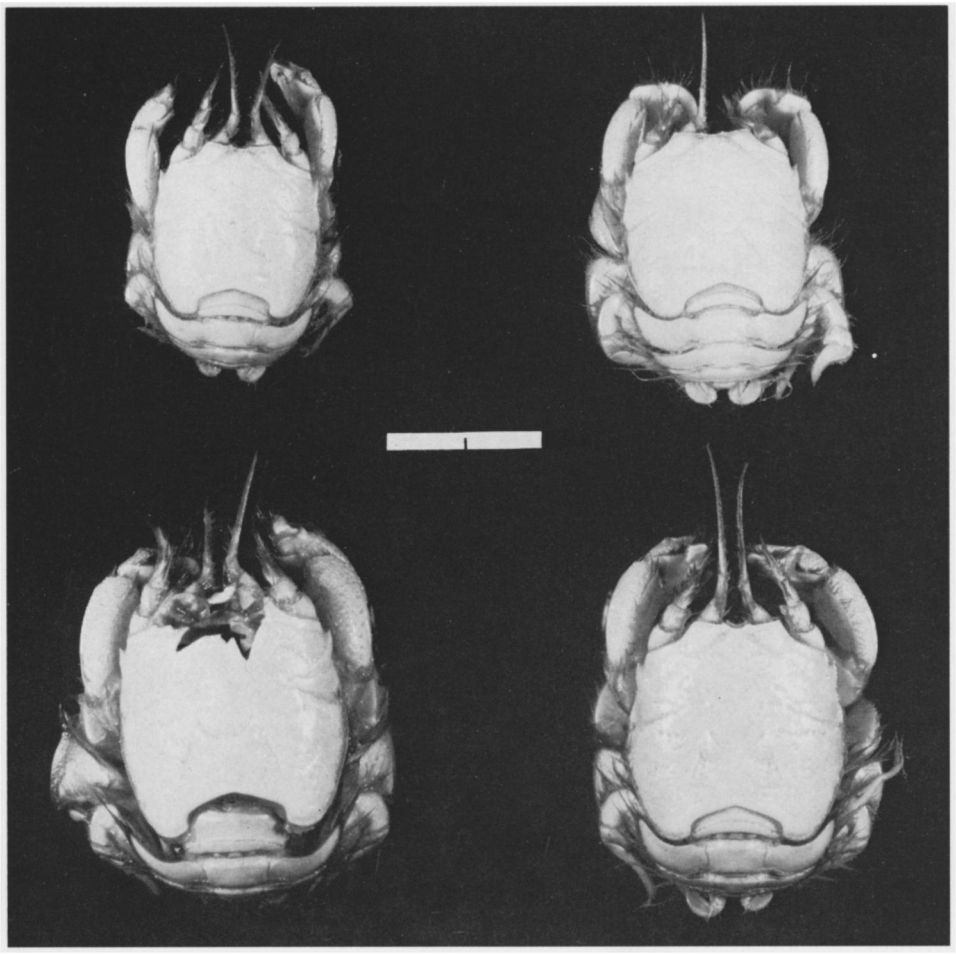

Zygopa michaelis Holthuis, 1960. Females (upper) and males (lower) from off Miami, Florida, U.S.A. Specimens on left, USNM 168526; on right, SIFP 89:2968. Scale line equals 10 mm.

placing their collected material at our disposal, and for providing information on the tumbler dredge; Mr. C. Allan Child, USNM, for bringing the fifth Floridan specimen to our attention; and Dr. Ian E. Efford, Office of Energy Conservation, Energy, Mines and Resources Canada, for graciously allowing us to incorporate his specimen in this publication.

LITERATURE CITED

CUMMINS, R., Jr., 1971. Calico scallops of the southeastern United States. Dept. Commerce, spec. sci. Rep. Fish. (627): 1-22, figs. 1-23.

HOLTHUIS, L. B., 1960. Notes on American Albuneidae (Crustacea Decapoda, Anomura) with the description of a new genus and species. Proc. Kon. Ned. Akad. Wet., (C), **64** (1): 21-36, figs. 1-5.

SERENE, R. & A. F. UMALI, 1965. A review of Philippine Albuneidae, with descriptions of two new species. Philip. J. Sci., **94**: 87-116, pls. 1-6, figs. 1-12.

WILLIAMS, A. B., 1965. Marine decapod crustaceans of the Carolinas. Fish. Bull., U. S. Fish Wildl. Serv., **65** (1): i-xi, 1-298, figs. 1-252.