THREE NEW MILLIPEDS OF THE GENUS *CLEIDOGONA* (CLEIDOGONIDAE: CHORDEUMIDA) FROM THE SOUTHERN STATES

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The three species of *Cleidogona* described here bring the number from the United States to 22. There probably are others in the Southeastern States. Thorough collection, especially during the fall and winter months in the South, and revision of the genus are needed.

The southernmost record for the genus in Florida is Lake County.

**ACKNOWLEDGMENTS AND DEPOSITION OF TYPES**

Mr. W. E. Tarpley and Dr. Howard V. Weems, Jr., generously contributed the specimens that are mentioned in this paper.

The holotypes of the forms described here will be deposited in the American Museum of Natural History. A male paratype of *Cleidogona alata* will be deposited in the United States National Museum.

The holotype of *Cleidogona moderata* Causey was previously stated to be in the American Museum of Natural History (Causey, 1957); the correct deposition is the California Academy of Sciences, Golden Gate Park, San Francisco, California.

**Genus *Cleidogona* Cook and Collins**


The anterior gonopods of *Cleidogona* are relatively simple. The sternum is a weak rodlike piece; laterad, where it is expanded, it articulates freely with a small, triangular sclerite and the coxal skeleton. There is no cheirite. The coxal skeleton is entirely free from its homologue, but the two approach or touch each other in the midline. Laterad the coxa extends distad as a triangularly shaped piece that bears a few stiff setae. The seminal canal opens at the apex of the most conspicuous part of the anterior gonopod, the ventral or anterior branch. The two less conspicuous dorsal or posterior branches (the "bifid plate" of the genus *Pseudotremia*) have been incorrectly referred to as the posterior gonopods by recent authors.

The posterior gonopods, or ninth legs, are composed of 5 segments. The first is an elongated coxoprefemur, the second is an elongated and thickened femur, the third and fourth, which are short and subequal, are the postfemur and the tibia, and the last segment, the tarsus, is about equal to the preceding two. There is a tarsal claw.

The legs anterior to the gonopods show little modification; occasionally the coxae of the seventh pair bear a small protuberance on the caudal surface. The coxae of the tenth and eleventh legs have conspicuous gland openings and usually from 1 to 3 small ridges, lobes, or protuberances; the second segments sometimes bear a rounded protuberance on the mesial surface; and the third segments usually protrude on the lateral surface. The sternal peg between the twelfth legs is the largest in the family.
Cleidogona saripa, new species

Figures 1 and 2

**Diagnosis:** A small species closely related to *C. hadena*, from which it is distinguished by details of the apical region of the ventral branch of the anterior gonopods.

**Type Locality:** Savannah River Plant, Aiken Co., South Carolina, 1 ♂, Dec. 21, 1957, W. A. Tarpiey.

**Range:** Known only from the type locality.

**Description of the Male Holotype:** Length about 16 mm, greatest width 1.5 mm. Body brown above, shading to white below the segmental setae. Metazonites darker than prozonites. Metazonites of typical body segments with six small, light colored oval spots on which the segmental setae are set; a larger light colored oval area is between the outer two spots and confluent with them; prozonites with a large light colored spot contiguous with the large spot on the metazonites. Antennae and top of head brown. Eyes black, the ocelli in series of 1, 7, 6, 5, 4, 1. Legs white at base, shading to light brown distally.

Legpairs 1 and 2 shorter, as usual. Legpairs 3 and 4 slightly shorter. First 4 segments of legpairs 3 through 7 slightly swollen. Mesodistal margin of segments 3 of legpairs 5, 6, and 7 produced in a short, acute angle. Caudal surface of coxae of legpair 7 with a small, rounded protuberance; much of the mesial surface of the coxae is finely granular. Coxae of legpairs 10 and 11 with the usual cylindrical lobe through which the coxal gland opens. Coxae of legpair 10 with 2 small lobes on the distal margin, one laterad and the other mesiad; the dorsal surface of the mesial lobe is granular. Caudal surface of coxae of legpair 11 with a small triangular lobe and a longitudinal ridge. Sternal peg between legpair 12 rectangular, the anterioventral angle with a minute knot at the apex.

The anterior gonopods are as shown in figures 1 and 2. The ventral branch is slightly bowed toward its homologue and perhaps touches it at the apex. The bifid condition of the apical region of the anterior gonopod is best seen from the lateral view; the ventral apical lobe is flattened and broadly rounded at the apex; the dorsal apical lobe is longer than the ventral lobe, its apex is narrowly acute, and it is membranous and fringed along the mesial margin. The seminal canal opens on the fringed margin of the dorsal apical lobe.

The dorsal branches of the anterior gonopods are sharply bent; the apical region is bifid and larger than in *C. hadena* but not as large as in *C. carolina* Causey 1957.

The posterior gonopods, or ninth legs, are without any distinctive characters, as shown in the figure of *C. wrayi* Causey, 1957. The mesial...
surface of the coxoprefemur is divided into two unequal parts, of which
the distal part is rounded and about twice the length of the proximal part,
which is squarish but in life is probably rounded. The ratio of the length
to the thickness of the femur is about 3/1.

The female is unknown.

*Cleidogona hadena*, new species

Figures 3 and 4

**Diagnosis:** Nearest *C. saripa*, from which it is distinguished by de-
tails of the apical region of the ventral branch of the anterior gonopods.

**Type Locality:** Juniper Springs, Marion Co., Florida, 1 ♂, Oct. 30,
1959, R. E. Woodruff.

**Range:** Known only from the type locality.

**Description of the Male Holotype:** Length 17 mm., greatest width
1.6 mm. Body brown above, shading abruptly to white below the segmental
setae. Metazonites and prozonites about the same color. Arrangement
of light colored oval spots as in *C. saripa*. Antennae and top of head brown.
Eyes black, the ocelli arranged in series of 1, 7, 6, 5, 4, 2.

Legpairs 1 through 7 as in *C. saripa*. Coxal gland lobes of legpairs 10
and 11 longer than they are wide. Legpair 10 with a rounded, warty pro-
tuberance on the mesodistal surface of the coxae, a warty protuberance on
the mesial surface of segment 2, and a protuberance without warts on the
distolateral surface of the coxae. Caudal surface of the coxae of legpair
11 with a small triangular lobe and a longitudinal ridge. Sternal peg be-
tween legpair 12 with a minute knob at the anteroventral angle and the
margin above it rounded.

The anterior gonopods are as shown in figures 3 and 4. In situ the
ventral branches are well separated, subparallel, and the mesial setose pieces
are nearly contiguous in the midline; the apical region is divided into a
shorter, stouter, simple ventral piece that is broadly angular at the apex
and a longer membranous piece that is finely setose along its mesial margin.
The opening of the seminal canal is at the acute apex of the setose piece.

The dorsal branches of the anterior gonopods are arched. Their apical
region is small and bifid (figure 4).

The posterior gonopods, or ninth legs, are without any distinctive char-
acters. Details are approximately as described for *C. saripa*.

The female is unknown.

*Cleidogona alata*, new species

Figures 5-7

**Diagnosis:** In the *saripa* series; distinguished by the large lateral
lobes at the base of the dorsal branches of the anterior gonopods.

**Type Locality:** 1 mile south of Ila, Madison Co., Georgia, pine-hard-
wood forest. 2 ♀, Jan. 17, 1953, E. J. Kuenzler.

**Range:** Known only from the type locality.

**Description of the Male Holotype:** Length about 17.5 mm., greatest
width 1.8 mm. After 7 years in alcohol, the color of the dorsum is light
brown, shading to cream color below the segmental setae. Metazonites
darker than the prozonites. Arrangement of the light colored spots as in *C. saripa*. Antennae and top of head brown. Eyes black, the ocelli arranged in series of 1, 7, 6, 5, 3, 2, 1.

Legpairs 1 through 7 as in *C. saripa*. Coxae of legpairs 10 and 11 with thick, cylindrical lobes approximately twice as long as broad through which the coxal glands open. Legpair 10 with lateral and mesial protuberances on the distal margin of the coxal segments and on the mesial surface of segments 2; the mesial lobes are granular. Legpair 11 with the coxal segments enlarged distad and with a shallow transverse furrow across the caudal surface. Anteroventral angle of the sternal peg between legpair 12 with a rounded lobe (figure 5).

The anterior gonopods are as shown in figures 6 and 7. In situ the ventral branches are subparallel and contiguous only along the mesial margin of the fringed membrane. The apical region bears 2 membranous pieces; the smaller one is subapical and mesiad; the other one is much larger, the position is mesodorsal, and its margin is partly fringed and partly setose.

The dorsal branches of the anterior gonopods are much less curved than in related species. At the apex they are bifid and relatively small. Laterad and near the base each dorsal branch bears a large bilobed piece that with its homologue forms a bashilike structure.

The posterior gonopods are without any distinctive characters. Details are approximately as described for *C. saripa*.

The male paratype has the distal region of the ventral branches of the anterior gonopods damaged. In all other important characters it corresponds to the holotype.

The female is unknown.

**Literature Cited**
