

Catalog of the Rutidermatidae  
(Crustacea: Ostracoda)

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and  
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## ABSTRACT

Cohen, Anne C., and Louis S. Kornicker. Catalog of the Rutidermatidae (Crustacea: Ostracoda). *Smithsonian Contributions to Zoology*, number 449, 11 pages, 1987.—A catalog of the myodocopid ostracode family Rutidermatidae includes all significant references before March 1986. Other data are presented concerning known distribution, biology, ecology, and life history of the 30 species in the 3 genera (*Alternochelata*, *Rutiderma*, *Scleraner*) of the Rutidermatidae.

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# Catalog of the Rutidermatidae (Crustacea: Ostracoda)

*Anne C. Cohen  
and Louis S. Kornicker*

## Introduction

This publication deals with 1 of the 3 families of Ostracoda belonging to the superfamily Sarsiellacea (Kornicker, 1986:178), suborder Myodocopina, in the order Myodocopida (sensu Kornicker and Sohn, 1976, fig.2). The Myodocopida comprise 5 families with about 375 species of which 30 species belong to the 3 genera of Rutidermatidae. We have tried to include all significant references to the family published before March 1986. The endings of some specific names have been changed to conform to the neuter gender of the genus *Rutiderma*. In addition to the synonymies, the distribution of each taxon is given. No Rutidermatidae have been reported from the Arctic, Antarctic, and east coast of South America. While the absence of rutidermatids from the cold polar regions is probably real, lack of reports from eastern South America is probably due to lack of or inadequate collecting. Other sparsely represented regions include much of the Indo-West Pacific, most of the coast of Australia, most Pacific islands, and much of the tropical coast and islands of the Americas.

We list information on the biology, ecology, and life history of each taxon. Ecological data are mainly restricted to depth and substrate, but some publications reported stomach contents, temperature, salinity, parasites, juvenile stages, and clutch size.

We indicate the kind of type, depository of the holotype, and type-locality. The names of institutions holding many of the types listed herein are abbreviated as follows:

USNM = former United States National Museum, collections in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

Zool. Mus. Univ. Copenhagen = Zoological Museum of the University of Copenhagen.

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Zoologisches Museum Hamburg = Zoologisches Institut und Zoologisches Museum, Universität Hamburg.

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## RUTIDERMATIDAE Brady and Norman, 1896

RUTIDERMATIDAE Brady and Norman, 1896:626, 628, 639, 673.

General works: Skogsberg, 1920:31, 33, 156, 159, 165, 166, 168, 171, 173, 195.—Mertens, 1958, pls. 6, 10.—Poulsen, 1962:5, 11, 13, 339, 365; 1965:5–44, 47–50, 52, 56, 146, 147, 155, 451–454, 456, 457, 464, 465, 468, 481–483, fig. 152.—Hartmann, 1966:166, 168, 183, 185, 193, 200, 209.—Kornicker, 1975a:34, 35, 37, 38, 41; 1983:1–86.

Diagnosis, description: Brady and Norman, 1896:673.—Kornicker, 1975b:645, 646.—Hartmann and Puri, 1974:14.—Kornicker and Caraion, 1978:3.—Kornicker, 1981a:30–36, 42, 43, 46–49, 52, 53, 55–57, 63, 66, 67 [compares to other families].—Cohen, 1982:183.—Kornicker, 1983:12–16.

Keys: Müller, 1912:34, 35 [*Rutiderma*].—Poulsen, 1965:17, 18 [*Rutiderma*].—Kornicker, 1975b:646 [south of latitude 35°S].—Kornicker and Caraion, 1978:54.—Kornicker and Cohen, 1978:500.—Kornicker and Myers, 1981:3, 4 [California coast].—Kornicker, 1983:16, 25 [genera worldwide, species of S.E. North America and Gulf of Mexico].

Regional works: *East Pacific*: Chile: Hartmann, 1965:328–332.—Kornicker, 1975b:645–682. Panama: Poulsen, 1965:7, 8, 17, 18, 22, 32–35, 43. El Salvador: Hartmann, 1959:195, 196, 198, 199; Kornicker, 1984:127–131. Baja California, Mexico: McKenzie, 1965:58, 62–66. California, U.S.A.: Juday, 1907:141, 142, 147–149.—Kornicker and Myers, 1981:1–35. Washington (state), U.S.A.: Lie, 1968:274, 288, 550.—Lie and Kisker, 1970:2279.

*West Atlantic*: Bimini, Bahamas: Kornicker, 1958:224, 236–238. Continental shelf of S.E. North America and Gulf of Mexico: Kornicker, 1983:1–86.

*East Atlantic*: Bay of Biscay: Brady and Norman, 1896:673–675. West Africa: Kornicker and Caraion, 1978:54–73. Ivory Coast: Kornicker, 1975a:40–45. Southwest Africa: Klie, 1940:404, 406.—Hartmann, 1974:237.—Hartmann and Hartmann-Schröder, 1975:360. South Africa: Müller, 1908:92, 93.—Hartmann, 1974:237.—Hartmann and Hartmann-Schröder, 1975:360.

*Indo-West Pacific*: Indian Ocean: Mozambique: Hartmann, 1974:237. Red Sea: Hartmann, 1964:39.—Poulsen, 1965:7, 8, 11, 14, 17, 38, 41–44. Thailand: Poulsen, 1965:7, 8, 11, 14, 17, 18, 22–32, 34, 38, 41, 452. Australia: Kornicker, 1982:793–806.

General habitat: Marine, benthic: 1–560 (±1100, ±1834) m., lagoons, sounds, continental shelf, rarely continental slope. Pelagic: Juday, 1907:142.—Poulsen, 1965:41, 44.—Deevey, 1968:12.—Kornicker, 1983:11.

Biology, ecology: Klie, 1940:404, 406 [substrate].—Kornicker, 1958:224, 236–238 [response to light, substrate, temperature, salinity].—Hartmann, 1964:39 [substrate]; 1965:328, 331.—Hartmann-Schröder and Hartmann, 1965:30, 31 [substrate].—McKenzie, 1965:58–60 [substrate, temperature, salinity, productivity].—Poulsen, 1965:22, 31, 35 [substrate].—Lie, 1968:274, 288, 550 [substrate].—Lie and Kisker, 1970:2279 [substrate, community].—Kornicker, 1975a:40–45 [substrate, temperature, salinity]; 1975b:34, 35, 37, 38, 41–43, 46–49, 52, 53, 60, 62, 65, 70, 74, 80 [zonation, depth, food, eye size, clutch size, swimming bristles].—Kornicker and Myers, 1981:2, 4, 10, 19, 25 [substrate, temperature].—Kornicker, 1982:793 [substrate, salinity]; 1983:4, 7, 11, 12, 24, 70, 85 [substrate, temperature, salinity, food, swimming bristles].

Parasites: Chonistomatid copepods found in *Rutiderma darbyi* and *R. sterreri*.

Life history and ontogeny: Poulsen, 1965:13, 28–31, 34, 37, 38.—Kornicker, 1975b:52, 74, 658, 660, 661, 665, 673, 674, 680, 682.—Kornicker and Caraion, 1978:63–65.—Kornicker, 1981a:30–36.—Kornicker and Myers, 1981:2.—Kornicker, 1982:794–799, 801; 1983:22, 25, 28, 33, 43, 51, 59, 67, 70, 77, 84.

#### *Alternochelata* Kornicker, 1958

*Rutiderma* (*Alternochelata*) Kornicker, 1958:236–238 [type-species, by monotypy: *Rutiderma* (*Alternochelata*) *polychelata* Kornicker, 1958; gender: feminine].—Poulsen, 1965:11, 17.

*Alternochelata*.—McKenzie, 1965:62.—Kornicker, 1975b:645, 646, 678.—Kornicker and Caraion, 1978:66 [keys].—Kornicker, 1983:16 [keys].

DISTRIBUTION.—Atlantic: Great Bahama Bank; northern Gulf of Mexico; off Mauritania and Spanish Sahara. Pacific: Great Barrier Reef, Australia.

HABITAT.—Marine, benthic, 1–560 m (questionable record at 1100 m; Kornicker, 1983:16) on substrates of sand, muddy sand, mud, Gorgonacea.

LIFE HISTORY AND ONTOGENY.—1–6 brooded eggs, broken swimming bristles on adult females of *A. sikorai*, *A. nealei*, and *A. lizardensis*.

#### *Alternochelata lizardensis* Kornicker, 1982

*Alternochelata lizardensis* Kornicker, 1982:793–805, figs. 1–6 [female holotype: USNM; type-locality: "Lizard Island main lagoon . . . sand flat, depth 6 m" (Great Barrier Reef, Australia)]; 1983:12, 16, 25 [compares to other species].

DISTRIBUTION.—Lizard Island Group, Great Barrier Reef, Australia.

HABITAT.—Benthic; low intertidal–12.3 m; sand flat near coral reef.

LIFE HISTORY AND ONTOGENY.—Adult male and female, A–1 male, 4–6 eggs, broken swimming bristles on females.

#### *Alternochelata nealei* Kornicker and Caraion, 1978

*Alternochelata nealei* Kornicker and Caraion, 1978:3–6, 66–73, figs. 56–59 [female holotype: "Grigore Antipa" Museum of Natural History, Bucharest, Romania; type-locality: "Station X013 . . . 19°46'00"N, 17°08'00"W; 61 m . . . Islamic Republic of Mauritania"].—Kornicker and Myers, 1981:2 [mentions].—Kornicker, 1983:12, 16, 24, 25.

*Alternochelata neali*.—Kornicker, 1982:805 [compares to *A. lizardensis*; misspelling].

DISTRIBUTION.—Northeast Atlantic off Islamic Republic of Mauritania and Spanish Sahara.

HABITAT.—Benthic, shelf-bathyal, 53–560 m (questionable record at 1100 m); mud, muddy sand, Gorgonacea washings, sand substrates.

LIFE HISTORY AND ONTOGENY.—Adult male and female, 2–3 eggs, female with broken natatory bristles.

#### *Alternochelata polychelata* Kornicker, 1958

*Rutiderma* (*Alternochelata*) *polychelata* Kornicker, 1958:232, 237, 238, figs. 46:6A,B, 59A–E, 86C–G [female holotype: USNM; type-locality: station "110F-2 . . . Bimini Id., Bahama Ids"].—Poulsen, 1965:7, 8, 17, 18, 43.

*Rutiderma polychelata*.—Hartmann, 1965:328 [mentions].

*Alternochelata polychelata*.—McKenzie, 1965:62 [inferred].—Kornicker and Caraion, 1978:66, 73 [compares to *A. nealei*].—Kornicker, 1982:793, 805 [compares to *A. lizardensis*]; 1983:11–14, 16, 17, 25, fig. 5.

DISTRIBUTION.—Bimini, Bahamas.

HABITAT.—Benthic; 1–5 m; calcareous sand; about 29°C, about 37‰ salinity.

LIFE HISTORY AND ONTOGENY.—Female, juvenile female.

#### *Alternochelata sikorai* Kornicker, 1983

*Alternochelata sikorai* Kornicker, 1983:1, 7–10, 12–14, 16–25, figs. 6–9 [female holotype: USNM; type-locality: "Sta EFG-2, in vicinity of East Flower Garden, continental shelf off Texas . . . 27°53'N, 93°38'W . . . 112 m"].

*Alternochelata* species A.—Flint, 1981, fig. 4.

DISTRIBUTION.—Gulf of Mexico off Louisiana and Texas.

HABITAT.—Benthic, 61–137.2 m.

LIFE HISTORY AND ONTOGENY.—Adult male and female, 1–3 eggs; broken swimming bristles on female.

#### *Rutiderma* Brady and Norman, 1896

*Rutiderma* Brady and Norman, 1896:623, 627, 640–642, 673 [type-species, by monotypy: *Rutiderma compressa* Brady and Norman, 1896; gender:



neuter].—Judy, 1907:147 [diagnosis].—Müller, 1908:90–92 [diagnosis, compares to other genera]; 1912:24, 34, 35 [diagnosis, key].—Skogsborg, 1920:165–168, 173 [systematic position].—Kornicker, 1958:236, 237 [diagnosis of subgenus *Rutiderma*].—Hartmann, 1965:328 [compares to *Alternochelata*].—McKenzie, 1965:57, 62 [diagnosis, compares to *Alternochelata*].—Poulsen, 1965:6–17 [diagnosis, general], 17, 18 [key], 43 [map], 52, 453, 456, figs. 151c, 152b. —Hartmann, 1966:129, 165, 183, 184; 1975:588, 589, 591, 681. —Kornicker, 1975b:645–648, 678 [diagnosis, compares to other genera, key to Antarctic species].—Kornicker and Myers, 1981:2 [diagnosis, key to California species].—Kornicker, 1983:25, 26 [key to species of western North Atlantic and Gulf of Mexico].

**DISTRIBUTION.**—Between latitudes 45°N and 53°S. East Pacific: Washington (state), U.S.A.; Pt. Arguello, California, U.S.A. to Scammon Lagoon, Baja California, Mexico; El Salvador; Pearl Islands, Panama; Chile. West Atlantic: Bermuda, North Carolina to Florida, Bahama Islands; Gulf of Mexico: Florida to Texas; Caribbean Sea: Belize; Virgin Islands; Barbados. East Atlantic: Bay of Biscay; Ivory Coast; South West Africa; South Africa. Indo-West Pacific: Mozambique; Red Sea; Thailand; Melbourne, Australia.

**HABITAT.**—Marine, lowest reported salinity 30‰ (*R. mollitum*); mostly benthic, intertidal to 317 m (questionably collected at 1834 m) on substrates of sand, shelly sand, sand-mud and gravel, sand in *Thalassia* beds, ooze and sand, eel grass in tide pools, tuft-algae and coral-algae reefs, corals, gravels, mud, oyster shells, red sponge and algae, silty clay, clay; also collected in surface and bottom plankton (*Rutiderma lomae*, *R. arcuatile*, *R. fusca*, *R. species*).

**LIFE HISTORY AND ONTOGENY.**—Juvenile sexual dimorphism (Poulsen, 1965:13); 1–4 brooded eggs.

**STOMACH CONTENTS.**—Annelids, diatoms, copepods, polychaetes, harpacticoid copepods, nematodes, crustaceans.

**PARASITES.**—Choniostomatid copepods (*Rutiderma darbyi* and *R. sterreri*).

#### *Rutiderma antiqua* Herrig, 1981

*Rutiderma antiqua* Herrig, 1981:682, 683, fig. 4; pl. III: fig. 7; pl. IV: figs. 1–5; pl. V: fig. 1.

**DISTRIBUTION.**—Lowermost Jurassic (Lower Sinemurian to Upper Pliensbachian), Thuringia, German Democratic Republic.

**HABITAT.**—Marly sediments.

**MATERIAL.**—Adults and juveniles.

**REMARKS.**—This is the only fossil record of the family. The small size of the specimens suggests to the present authors that they are probably Cladocopa.

#### *Rutiderma arcuatile* Kornicker, 1983

*Rutiderma arcuatile* Kornicker, 1983:11–13, 25, 67–70, figs. 39, 40 [female holotype: USNM; type-locality: "East side of Bolongo Bay, St. Thomas Island, U.S. Virgin Islands . . . 18°18'59"N, 64°53'45"W . . . intertidal"].

**DISTRIBUTION.**—Northwest Atlantic: Virgin Islands: St. Croix and St. Thomas Islands.

**HABITAT.**—Benthic, intertidal, shifting sands by rocks; planktonic near bottom, 9 m, outer reef.

**LIFE HISTORY AND ONTOGENY.**—Female, 3 eggs.

**STOMACH CONTENTS.**—Copepods.

#### *Rutiderma chessi* Kornicker and Myers, 1981

*Rutiderma chessi* Kornicker and Myers, 1981:2, 3, 31–34, figs. 19, 20 [female holotype: USNM; type-locality: "San Clemente Island, sta D-3"].

**DISTRIBUTION.**—Northeast Pacific: off California, U.S.A.: San Clemente Island.

**LIFE HISTORY AND ONTOGENY.**—Female, 4 eggs.

#### *Rutiderma cohenae* Kornicker, 1983

*Rutiderma cohenae* Kornicker, 1983:4, 11–13, 15, 25, 26, 62–67, 85, figs. 36–38 [female holotype: USNM; type-locality: "San Salvador, Bahamas . . . San Salvador Island, dump reef . . . about 4 m"].

**DISTRIBUTION.**—Northwest Atlantic: Key West, Florida, U.S.A. and San Salvador Island, Bahamas.

**HABITAT.**—Benthic; subtidal to 4 m; sand in *Thalassia* beds.

**LIFE HISTORY AND ONTOGENY.**—Female, 3–4 eggs.

#### *Rutiderma compressum* Brady and Norman, 1896

*Rutiderma compressa* Brady and Norman, 1896:623, 673–675, pl. 58, figs. 9–16 [holotype: unknown; type-locality: "one of these was from off the Cap de Penas (Bay of Biscay), the other from the Fosse de Cap Breton; depth, 150 mètres."].—Darby, 1965:29 [compares to *R. mollita*].—McKenzie, 1965:62 [mentions].—Poulsen, 1965:6, 8, 9, 17, 18, 38, 43. —Kornicker, 1975a:43 [compares to *R. leloeffi*]; 1975b:30, 646, 657, 675. —Kornicker and Caraion, 1978:2, 54, 65, 66 [compares to *R. tridens*].—Kornicker, 1983:25 [mentions]; 1985:3 [mentions].

[?] *Rutiderma compressa*.—Müller, 1908:53, 92, 93, pl. 7: figs 1–13 [questionably referred to *R. tridens* by Kornicker and Caraion, 1978:60, 65: "The carapace of *R. tridens* resembles that of the female of *R. compressa* from South Africa illustrated by Müller (1908, pl. 7:1). Müller's specimen has been put into synonymy of *R. tridens* with a question, because the 1st antenna illustrated by Müller (1908, pl. 7:2) does not show a lateral bristle on the 2nd joint, but this could be because the illustration is a medial view of the limb. The 1st, 3rd, and 4th endites of the 6th limb illustrated by Müller (1908, pl. 7:12) have a different number of bristles than do the same endites of the two specimens of *R. tridens* described herein, but this could be the result of intraspecific variability."].—Müller, 1912:35. —Klie, 1940:404, 406 [identification of African specimens needs verification].—Hartmann, 1964:39 [identification of Red Sea specimens needs verification]; 1966:183, 201, fig. 115b [after Müller].—Hartmann-Schröder and Hartmann, 1974:70, 76, 78, 84 [distribution]. *Rutiderma* (*Rutiderma*) *compressa*.—Kornicker, 1958:236, 237 [compares to *R. dimochelata*].

[?] *Rutiderma africana*.—Puri, 1966:484 [Puri credits *R. africana* Müller to Klie, 1940:404–448, but *R. africana* is not described or mentioned in the Klie, 1940 or Müller publications. Puri probably meant *R. compressa* instead of *R. africana* because Klie, 1940 lists *R. compressa* between *Cypridina dorsoserrata* Müller and *Philomedes africana* Klie, and Puri,

1966, lists *R. africana* Müller between *Cypridina dorsoserrata* Müller and *Philomedes africana* Klie].

[?] *Rutiderma* cf. *compressa*.—Hartmann-Schröder and Hartmann, 1974:48, 56, 77.—Hartmann, 1974:237.—Hartmann and Hartmann-Schröder, 1975:360 [identification of African specimens needs verification].

Not *Rutiderma compressa*.—Hartmann, 1965:328 [adults = *R. gerdhartmanni* Kornicker, 1975; juveniles = *R. species A*, Kornicker, 1975].

**DISTRIBUTION.**—Northeast Atlantic: Bay of Biscay: Cabo de Penas, Spain; Fosse Capbreton, France (fide Klie, 1940). [?] Southeast Atlantic: Lüderitz Bay, South West Africa; Simonstown, Atlantic coast of South Africa near Cape of Good Hope. [?] Indo-West Pacific: Al Ghurdaqah, Egypt, Red Sea; Tongaat, coast of South Africa; Xai Xai, Moçambique, Mozambique.

**HABITAT.**—Benthic; 150 m; [?] 1–2 m, subtidal; [?] shallow, sand; [?] rock and gravel beach, hummock-algae, tropical littoral; [?] rock-dwelling.

**LIFE HISTORY AND ONTOGENY.**—Female, A–1 female, juvenile.

#### *Rutiderma darbyi* Kornicker, 1983

*Rutiderma dinochelata*.—Darby, 1965:28, 56, 57, pl. 13: figs. 1–9, pl. 14: figs. 1–7.—Kornicker, 1975b:65, 74. [Not Kornicker, 1958.]

*Rutiderma darbyi* Kornicker.—Bradford, 1980:141, fig. 2 [deliberate nomen nudem].

*Rutiderma darbyi* Kornicker, 1983:2–7, 11–14, 17, 25, 36–47, 62, 85, figs. 18–24, pl. 1 [female holotype: USNM; type-locality: "Georgia continental shelf, 31°05'N, 80°35'W . . . 26 m"]; 1985:25.

**DISTRIBUTION.**—Northwest Atlantic: North Carolina to Florida, U.S.A.; Gulf of Mexico: Florida; Bahamas.

**HABITAT.**—Benthic; intertidal to 168 m; sea grasses; sediment between rocks; surface sediment of tidal flat with *Diplanthera*; fine to coarse sand; *Thalassia* bed.

**LIFE HISTORY AND ONTOGENY.**—Female, male, 2–4 eggs.

**STOMACH CONTENTS.**—Annelids, diatoms, copepods.

**PARASITES.**—Choniostomatid copepods (Bradford, 1980; Kornicker, 1983:43).

#### *Rutiderma dinochelatum* Kornicker, 1958

*Rutiderma (Rutiderma) dinochelata* Kornicker, 1958:224, 236–238, figs. 46:8A,B, 57A–F, 58A–D, 86B,F,J [female holotype: USNM; type-locality: "Bimini area . . . Great Bahama Bank . . . bottom . . . 1–20 meters"].

*Philomedes lomae*.—Kornicker, 1958:233, 234, figs. 46:7A,B, 52:A–E, 53:A–D, 86:A,E,I.—Poulsen, 1965:15,17 [recognizes specimens as male *Rutiderma*]. [Not Juday, 1907.]

*Rutiderma (Rutiderma) donochelata*.—Kornicker, 1958:297, fig. 86B,F,J [misspelling].

*Rutiderma dinochelata*.—Hartmann, 1965:328 [mentions].—McKenzie, 1965:66 [compares to *R. judayi*].—Poulsen, 1965:7, 8, 17, 18, 43.—Kornicker, 1969:110; 1975a:43 [compares to *R. leloeffi*]; 1975b:675.

*Rutiderma dinochelatum*.—Kornicker, 1981b:8 [compares to *R. sterreri*]; 1983:11–14, 25–28, 70, figs. 10, 11.

Not *Rutiderma dinochelata*.—Darby, 1965:28, 56, 57, pl. 13: figs. 1–9, pl. 14: figs. 1–7 [= *R. darbyi* Kornicker, 1983].—Kornicker, 1975b:65, 74.

**DISTRIBUTION.**—Northwest Atlantic: Bahama Islands: Bimini and Andros Islands.

**HABITAT.**—Benthic, intertidal–20 m; temperature: about 29°C; salinity: 31–42‰.

**LIFE HISTORY AND ONTOGENY.**—Female, juvenile female.

**BIOLOGY.**—Response to light (Kornicker, 1958:224).

#### *Rutiderma fuscum* Poulsen, 1965

*Rutiderma fusca* Poulsen, 1965:7, 8, 11, 14, 17, 38, 41–44, fig. 12 [male holotype: Zool. Mus. Univ. Copenhagen; type-locality: "Guardaga, Red Sea; surface" (perhaps locality is Al Ghurdaqah, Egypt)].—Kornicker, 1975b:70, 80.—Cohen and Kornicker, 1975:21, 26.

**DISTRIBUTION.**—Type-locality only.

**LIFE HISTORY AND ONTOGENY.**—Male.

#### *Rutiderma gerdhartmanni* Kornicker, 1975

*Rutiderma compressa*.—Hartmann, 1965:328 [part: adults].—Hartmann-Schröder and Hartmann, 1965:25, 30, 33, 41, 45 [adults only]. [Not Brady and Norman, 1896.]

*Rutiderma gerdhartmanni* Kornicker, 1975a:43 [nomen nudum]; 1975b:25, 29, 47, 60, 70, 74, 80, 646–657, 673–675, 678, figs. 406, 408–410 [female holotype: Zoologisches Museum Hamburg; type-locality: "Bahia Inglés, Chile, 41°48'S, 75°53'W; 12 m"].—Hartmann and Petersen, 1978:228 [location of types].—Kornicker, 1981a:67.

**DISTRIBUTION.**—Type-locality only.

**HABITAT.**—Benthic; 12 m; sand-mud and gravel.

**LIFE HISTORY AND ONTOGENY.**—Female, male, 4 eggs.

#### *Rutiderma gyre* Kornicker, 1983

*Rutiderma gyre* Kornicker, 1983:4–8, 10–13, 15, 25, 54–62, 80, figs. 30–35, pl. 3 [female holotype: USNM; type-locality: "Gulf of Mexico off Galveston, Texas . . . 28°10'N, 94°18'W; 53.5 m"].

**DISTRIBUTION.**—Northwest Atlantic: Florida shelf, U.S.A.; predominantly Gulf of Mexico: Florida to Texas.

**HABITAT.**—Benthic; 6.1–148 m.

**LIFE HISTORY AND ONTOGENY.**—Female, male, 1–4 eggs.

#### *Rutiderma hartmanni* Poulsen, 1965

*Rutiderma hartmanni* Poulsen, 1965:7, 8, 17, 18, 22, 32–35, 43, fig. 8 [female holotype: Zool. Mus. Univ. Copenhagen; type-locality: "SW-Bay, San José, Pearl Ids., Panama, E. Pacific; 9 m"].—Kornicker, 1975a:43 [compares to *R. leloeffi*].—Cohen and Kornicker, 1975:21, 26.—Kornicker, 1975b:70, 80, 678.—Kornicker and Cohen, 1981:740.—Kornicker, 1985:ii, iii, 1–27, figs. 1–9.

Not *Rutiderma rostrata*.—Hartmann, 1959:195, 196, 198, 199 [placed in synonymy of *R. hartmanni* by Poulsen, 1965; transferred to synonymy of *R. pax*].

**DISTRIBUTION.**—East Pacific: San José, Pearl Islands, Panama.

**HABITAT.**—Benthic; 9 m; ooze and sand.

LIFE HISTORY AND DEVELOPMENT.—Male, female, juveniles, life history, sexual dimorphism, swimming bristles (Kornicker, 1985).

STOMACH CONTENTS.—Nematode (in female), spheres and sclerites (in male).

#### *Rutiderma irrostratum* Kornicker and Caraion, 1978

*Rutiderma irrostratum* Kornicker and Caraion, 1978:3–6, 54, 56–60, 106, figs. 49–51, pl. 31 [female A–1 juvenile holotype: “Grigore Antipa” Museum of Natural History, Bucharest, Romania; type-locality: “Station X053 . . . 21°47′00″N, 17°28′02″W; 260 m . . . Spanish Sahara”].—Kornicker, 1981a:67.

DISTRIBUTION.—Northeast Atlantic off Spanish Sahara, Mauritania.

HABITAT.—Benthic; shelf-bathyal; 94–250 m; sand and mud.

LIFE HISTORY AND ONTOGENY.—Ovigerous female, A–1 female and male, juvenile.

STOMACH CONTENTS.—Harpacticoid copepod, polychaete, nematode in gut.

#### *Rutiderma judayi* McKenzie, 1965

*Rutiderma judayi* McKenzie, 1965:58, 64, 66, fig. 3, pl. 1: fig. 2, [female holotype: USNM; type-locality: “Laguna Ojo de Liebre . . . Scammon Lagoon, Baja California . . . about 7 m”].—Kornicker, 1975b:678 [compares to *R. species B*].—Kornicker and Myers, 1981:2–4, 25–31, 34, figs. 15–18.

DISTRIBUTION.—Northeast Pacific in Scammon Lagoon, Baja California, Mexico; San Diego and San Clemente Island, California, U.S.A.

HABITAT.—Benthic, 7–21 m; fine to coarse sands, mostly poorly sorted, quartz and sometimes shells principle components, surface water temperature and salinity: 18.5°C–25°C, 34–37‰; lagoon organic production rate: 50 mg c/m<sup>3</sup>/day; part of lower lagoon faunal assemblage; 3 cm deep, eel grass in tide pools.

LIFE HISTORY AND ONTOGENY.—Female, male.

#### *Rutiderma kalkei* Kornicker, 1983

*Rutiderma kalkei* Kornicker, 1983:1, 10, 12, 13, 15, 16, 25, 73–80, figs. 44–48 [female holotype: USNM; type-locality: “South Texas continental shelf, off Port Isabel . . . 26°10′N, 96°24′W . . . 91 m”].

*Rutiderma kalkei*.—Kornicker, 1983:12 [misspelling].

DISTRIBUTION.—Gulf of Mexico: South Texas shelf, U.S.A.

HABITAT.—Benthic, 91 m.

LIFE HISTORY AND ONTOGENY.—Female, male, 3 eggs.

FOOD.—Nematode.

#### *Rutiderma leloeuffi* Kornicker, 1975

*Rutiderma leloeuffi* Kornicker, 1975a:2, 40–45, figs. 29–32 [adult female holotype: USNM; type-locality: “Station 18, near Grand Bassam, Ivory

Coast . . . 5°12′05″N, 3°49′05″W, 20 m”].—Kornicker and Caraion, 1978:2–4, 6, 54–56, 66, 103–105, fig. 48, pls. 28–30.—Kornicker, 1981a:67.

DISTRIBUTION.—Northeast Atlantic: off Ivory Coast and Mauritania.

HABITAT.—Benthic; shelf-bathyal; 20–150 m; fine sand; water temperature and salinity: 28.9°C, 34.4‰.

LIFE HISTORY AND ONTOGENY.—Female, A–1 male.

#### *Rutiderma licinum* Kornicker, 1983

*Rutiderma licinum* Kornicker, 1983:2, 4–8, 10, 12–14, 25, 47–54, 85, figs. 25–29, pl. 2 [female holotype: USNM; type-locality: “Gulf of Mexico, off Galveston, Texas, 53 m . . . 28°16′N, 94°06′30″W”]; 1984:130, fig. 3c [compares with *R. pax*].

DISTRIBUTION.—Northwest Atlantic: North Carolina shelf, U.S.A.; Gulf of Mexico: Florida, Alabama, and Texas.

HABITAT.—Benthic; 17–68 m.

LIFE HISTORY AND ONTOGENY.—Female, male, 1–3 eggs.

#### *Rutiderma lomae* (Juday, 1907)

*Philomedes lomae* Juday, 1907:141, 142 [syntypes not extant; female neotype: USNM, designated by Kornicker and Myers, 1981:10; neotype-locality: “33°34′15″N, 118°00′45″W”].—Müller, 1912:26, 31.—Skogsborg, 1920:380 [not in *Philomedes*].—Lucas, 1931:399 [mentions].—Poulsen, 1962:358, 395 [compares to *Scleroconcha*].—McKenzie, 1965:57 [mentions].—Poulsen, 1965:15–17, 22.

[?] *Philomedes lomae*.—Hartmann, 1956:230, 231, 247; 1957:60, 61, 76 table opposite p. 83 [identification of specimens from El Salvador needs verification].—Hartmann-Schröder and Hartmann, 1962:33, 34, 48.—Hartmann, 1962:171, 264 [identification of specimens from Chile needs verification].

*Rutiderma lomae*.—Kornicker and Myers, 1981:1–4, 10–18, 34, figs. 5–10 [designates neotype].

Not *Philomedes lomae*.—Kornicker, 1958:233, 234, figs. 46:7A,B, 52:A–E, 53:A–D, 86:A,E,I [= *R. dinochelatum*].

DISTRIBUTION.—Northeast Pacific: California, U.S.A. (locality data for Juday, 1907, in Michael and McEwen, 1915:133, 143); off San Diego, off Santa Catalina Island, and Oxnard; [?] El Salvador. [?] Southeast Pacific: Bay of Caldera, Chile.

HABITAT.—Planktonic, surface (Juday, 1907); benthic, sediment 9.8°C. [?] Benthic; upper sublittoral, shelly sand beach.

LIFE HISTORY AND ONTOGENY.—Male, female, juvenile female, 4 eggs.

#### *Rutiderma mollitum* Darby, 1965

*Rutiderma mollita* Darby, 1965:29, 58, pl. 15: figs. 1, 2 [female holotype: University of Michigan Museum of Paleontology; type-locality: “from 65 feet of water . . . offshore . . . vicinity of Sapelo Island, Georgia”].—Kornicker, 1975b:74.—Kornicker and Caraion, 1978:66 [compares to *R. tridens*].

*Rutiderma mollitum*.—Kornicker, 1983:2–7, 12, 13, 15, 25, 28–36, 54, 85, figs. 12–17.

**DISTRIBUTION.**—Northwest Atlantic: shelf off South Carolina to Florida; Gulf of Mexico: shelf off Florida, Alabama.

**HABITAT.**—Benthic; 5.4–190 m; salinity about 30‰ (Darby) and 35‰, 32°C, fine to coarse sand.

**LIFE HISTORY AND ONTOGENY.**—Female, male, 3–4 eggs.

#### *Rutiderma mortenseni* Poulsen, 1965

*Rutiderma mortenseni* Poulsen, 1965:7, 8, 11, 14, 17, 38–41, 43, 44, fig. 11 [male holotype: Zool. Mus. Univ. Copenhagen; type-locality: "Virgin Ids., West Indies"]; 1969:35, fig. 11c.—Kornicker, 1975a:43 [compares to *R. leloeffi*].—Cohen and Kornicker, 1975:21, 26.—Kornicker, 1975b:70, 80.—Kornicker and Cohen, 1981:740.—Kornicker, 1983:12, 13, 25, 28, 62, 67, 70.

**DISTRIBUTION.**—Type-locality only.

**LIFE HISTORY AND ONTOGENY.**—Male.

#### *Rutiderma normani* Poulsen, 1965

*Rutiderma normani* Poulsen, 1965:7, 8, 11, 14, 17, 18, 22–32, 34, 38, 41, 452, figs. 4–7, 150 [female holotype: Zool. Mus. Univ. Copenhagen; type-locality: "Thailand, Koh Kahdat; 8–10 m"].—Cohen and Kornicker, 1975:21, 26.—Kornicker, 1975a:43 [compares to *R. leloeffi*]; 1975b:70, 74, 80.—Hanai, Ikeya, and Yajima, 1980:49.—Kornicker and Cohen, 1981:740.—Hiruta, 1983:674, tbl. 1.—Kornicker, 1985:14.

**DISTRIBUTION.**—Type-locality only.

**HABITAT.**—Benthic; 2–17 m; sand, gravel, corals.

**LIFE HISTORY AND ONTOGENY.**—Female, male, juvenile male, juvenile females?, 4 eggs.

#### *Rutiderma ovatum* Kornicker, 1975

*Rutiderma ovata* Kornicker, 1975b:10, 29, 47, 60, 65, 70, 74, 80, 646, 647, 650, 655–673, 687, figs. 412–424, 432 h–k [female holotype: USNM; type-locality: "Eltanin Cruise 3, station 71, sample 71–26 . . . 31°05'S, 71°44'W to 31°06'S, 71°47'W; 192–176 meters . . . shelf . . . west of Chile"]; 1981a:67.—Kornicker and Cohen, 1981:740.—Kornicker, 1985:25, 26.

**DISTRIBUTION.**—Southeast Pacific: off Chile: 31°10'S, 71°56'W; 31°05'S, 71°44'W; 31°06'S, 71°47'W.

**HABITAT.**—Benthic; 192–176 m (shelf); [?] 1834 m (probably not collected at that depth).

**LIFE HISTORY AND ONTOGENY.**—Female, male, A–1 juvenile male, juvenile, 2–4 eggs.

**STOMACH CONTENTS.**—Nematodes, crustaceans, annelids, copepods.

#### *Rutiderma pax* Kornicker, 1984

*Rutiderma rostrata*.—Hartmann, 1959:195, 196, 198, 199.—Kornicker and Myers, 1981:4 [note in synonymy that species not *R. rostratum* Juday, 1907]. [Not Juday, 1907.]

*Rutiderma rostata*.—Hartmann, 1959:195 [misspelling].

*Rutiderma hartmanni* Poulsen, 1965:32 [part; includes only *R. rostrata* of Hartmann in synonymy].

*Rutiderma pax* Kornicker, 1984:127–131, figs. 1–3a [female holotype: Zoologisches Museum Hamburg, type-locality: "Off Mejanguera Island, Gulf of Fonseca, El Salvador, sublittoral . . . 12 m"].

**DISTRIBUTION.**—Northeast Pacific: El Salvador: Mejanguera.

**HABITAT.**—Benthic; 12 m; mud.

**LIFE HISTORY AND ONTOGENY.**—Female, 1 egg.

#### *Rutiderma rostratum* Juday, 1907

*Rutiderma rostrata* Juday, 1907:142, 147–149, pl. 20: figs. 8–13 [female holotype: unique specimen, probably not extant; type-locality: "Catch 612, Glorietta Bight, San Diego Bay, June 30, 1903" (32°40.6'N, 117°10.5'W, 0 m, locality given in Michaels and McEwen, 1915:133, 143)].—Müller 1912:35.—Lucas, 1931:399 [mentions].—Poulsen, 1965:6–9, 17, 18, 22, 31–35, 43 [Juday specimens only].

*Rutiderma* (*Rutiderma*) *rostrata*.—Kornicker, 1958:236, 237 [compares to *R. dinochelata*].

[?] *Rutiderma rostrata*.—Lie, 1968:274, 288, 550 [specimens not available; identification needs verification].—Lie and Kisker, 1970:2279.

*Rutiderma rostratum*.—Kornicker and Myers, 1981:1–10, figs. 1–4.—Kornicker, 1984:127–130, fig. 3b,d [compares to *R. pax*].

Not *Rutiderma rostrata*.—Hartmann, 1959:195, 196, 198, 199 [= *R. pax* Kornicker, 1983]; 1965:328 [mentions].—Poulsen, 1965:8, 11, 14, 17–22, 31–35, 38, 41, 43, figs. 2, 3 [= *R. species*].—McKenzie, 1965:58, 62–64, fig. 2; pl. 1: fig. 3, [= *R. species*].—Cohen and Kornicker, 1975:21, 26.—Kornicker, 1975b:70, 80, 678.—Kornicker and Cohen, 1981:740.

**DISTRIBUTION.**—Northeast Pacific: off California, U.S.A.: San Diego, Oxnard, Monticeito. [?] Northeast Pacific: Washington, U.S.A.: Puget Sound and off northern coast about 125°W between 47°N and 48°N.

**HABITAT.**—Benthic: 11–22 m; sand. [?] Benthic; 15–317 m; sand, sand and mud, mud, mud and gravel, fine sand mixed with shell fragments.

**LIFE HISTORY AND ONTOGENY.**—Female, male, 2 eggs.

**ECOLOGY.**—[?] Community (Lie, 1968).

#### *Rutiderma rotundum* Poulsen, 1965

*Rutiderma rotunda* Poulsen, June 10, 1965:7, 8, 17, 18, 22, 34–38, 43, 455, figs. 9, 10 [female holotype: Zoolog. Mus. Univ. Copenhagen; type-locality: "La Jolla, California, shallow water"].—Cohen and Kornicker, 1975:21, 26.—Kornicker, 1975b:70, 74, 80, 673; 1985:14.

*Rutiderma californica* McKenzie, July 15, 1965:58, 65, 66, fig. 4; pl. 1: fig. 1 [female holotype: USNM; type-locality: "Laguna Ojo de Liebre . . . Scammon Lagoon, Baja California, Mexico"].—Kornicker, 1975b:673 [compares to *R. ovata*].

*Rutiderma rotundum*.—Kornicker and Myers, 1981:2, 3, 18–25, figs. 11–14.

**DISTRIBUTION.**—Northeast Pacific: California, U.S.A.: off La Jolla (Poulsen), Irvine Beach, Ocean Beach (San Diego), between Newport Beach and Laguna Beach; Mexico: Scammon Lagoon, Baja California.

**HABITAT.**—Benthic; 0.3–less than 22 m; shallow water, rocks with algae, eel grass, tide pools; fine to coarse sand, mostly poorly sorted, mainly quartz or shell, 18.5°C surface

water, surface salinity 34–37‰, productivity about 50 mg C/m<sup>3</sup>/day; eel grass and tide pool vegetation.

LIFE HISTORY AND ONTOGENY.—Females, male, juvenile females, 2–4 eggs.

#### *Rutiderma sterreri* Kornicker, 1981

*Rutiderma sterreri* Kornicker, 1981b:1, 2, 5–8, figs. 3–5 [female holotype: USNM; type-locality: "Harrington Sound, Bermuda . . . about 11 m"]; 1983:11–13, 25, 70–73, figs. 41–43.—Maddocks and Kornicker, 1986:282, pl. 90 [part].

DISTRIBUTION.—Northwest Atlantic: Bermuda.

HABITAT.—Benthic; intertidal–11 m; algae, grasses, oysters, shells, mud with grass, mud, coarse sand with *Thalassia* and *Halimeda* overlying mud, red sponge and algae, sand/mud under rocks.

LIFE HISTORY AND ONTOGENY.—Female, male, 4 eggs.

PARASITES.—Choniostomatid copepod (Kornicker, 1981:8).

#### *Rutiderma tridens* Kornicker and Caraion, 1978

*Rutiderma tridens* Kornicker and Caraion, 1978:3–5, 54, 60–66, 107, 108, figs. 52–55, pls. 32, 33 [A–1 juvenile male holotype, USNM; type-locality: "Station X051 . . . 21°48'01"N, 17°02'00"W; 30 m; . . . Spanish Sahara"].—Kornicker, 1981a:67.

[?] *Rutiderma compressa*.—Müller, 1908:53, 92, 93, pl. 7: figs. 1–13 [questionably referred to *R. tridens* by Kornicker and Caraion, 1978:60, 65: "The carapace of *R. tridens* resembles that of the female of *R. compressa* from South Africa illustrated by Müller (1908, pl. 7:1). Müller's specimen has been put into synonymy of *R. tridens* with a question, because the 1st antenna illustrated by Müller (1908, pl. 7:2) does not show a lateral bristle on the 2nd joint, but this could be because the illustration is a medial view of the limb. The 1st, 3rd, and 4th endites of the 6th limb illustrated by Müller (1908, pl. 7:12) have a different number of bristles than do the same endites of the two specimens of *R. tridens* described herein, but this could be the result of intraspecific variability."].—Müller, 1912:35.—Hartmann, 1966:183, 201, fig. 115b [after Müller]. [Not Brady and Norman, 1896.]

DISTRIBUTION.—Northeast Atlantic: off Spanish Sahara. [?] Southeast Atlantic: South Africa.

HABITAT.—Benthic; 30 m; sand.

LIFE HISTORY AND ONTOGENY.—A–I male.

#### Species in Open Nomenclature

##### *Rutiderma* species, Hansen, 1925

*Rutiderma* species.—Hansen, 1925:63, pl. 4: fig. 2.

##### *Rutiderma* species, Poulsen, 1965

*Rutiderma* species.—Poulsen, 1965, figs. 151c, 152B.

##### *Rutiderma* species, Deevey, 1968

*Rutiderma* species.—Deevey, 1968:12.

DISTRIBUTION.—Planktonic; northwest Atlantic: Sargasso Sea off Bermuda, 32°10'N, 64°30'W, bottom depth about 3000 m.

#### *Rutiderma* species A, Kornicker, 1975

*Rutiderma* (*Rutiderma*) *compressa*.—Hartmann, in Hartmann-Schröder and Hartmann, 1965:328 [part: N-1 male]. [Not Brady and Norman, 1896.]

*Rutiderma compressa*.—Hartmann-Schröder and Hartmann, 1965:30, 33, 41, 45 [N-1 male only].

*Rutiderma* species A.—Kornicker, 1975a:43 [compares to *R. leloeffi*]; 1975b:25, 29, 47, 60, 70, 646, 647, 656, 673–675, 678, fig. 425.

DISTRIBUTION.—Southeast Pacific: Bahia Inglés, Chile; 41°48'S, 75°53'W.

HABITAT.—Benthic; 12 m; mud with sand and rocks.

LIFE HISTORY AND ONTOGENY.—A–1 juvenile male.

#### *Rutiderma* species B, Kornicker, 1975

*Rutiderma* species B.—Kornicker, 1975a:43 [compares to *R. leloeffi*]; 1975b:12, 16, 29, 60, 62, 80, 646, 647, 650, 656, 675–678, figs. 426, 427.

DISTRIBUTION.—Southeast Pacific: off Chile: 52°56'S, 75°00'W to 52°56'S, 75°00'W; 50°20'S, 75°20'W, Seno Contreras, Isla Gravello, Chile.

HABITAT.—Bottom, 92–101 m (shelf): 1–2 m, fine to medium sand, much attached algae, perhaps slightly brackish.

LIFE HISTORY AND ONTOGENY.—Male.

#### *Rutiderma* species 1, Poore, Rainer, Spies, and Ward, 1975

*Rutiderma* species 1.—Poore, Rainer, Spies, and Ward, 1975:31, 61.

*Rutiderma* species.—Kornicker, 1982:793 [mentions].

DISTRIBUTION.—Port Phillip Bay, Melbourne, Australia.

HABITAT.—Benthic; more than 20 m; silty clay and clay, salinity 34.95‰ (station data in Beasley, 1966:69–105, and Poore and Rainer, 1975:373).

#### *Rutiderma* species B, Kornicker, 1983

*Rutiderma* species B.—Kornicker, 1983:1, 10, 12, 13, 15, 25, 26, 80–85, figs. 49–51.

DISTRIBUTION.—Gulf of Mexico: South Texas Shelf, U.S.A.

HABITAT.—Benthic; 15 m.

LIFE HISTORY AND ONTOGENY.—Female, male, 1–2 eggs.

STOMACH CONTENTS.—Nematode.

#### *Rutiderma* species A, McCain, 1984

*Rutiderma* species A.—McCain, 1984:99.

**DISTRIBUTION.**—Arabian Gulf (northern area).

**HABITAT.**—Near-shore seagrass.

***Rutiderma* species B, McCain, 1984**

*Rutiderma* species B.—McCain, 1984:99

**DISTRIBUTION.**—Arabian Gulf (northern area).

**HABITAT.**—Near-shore seagrass.

***Rutiderma* species indeterminate, Kornicker, 1983**

*Rutiderma* species indeterminate.—Kornicker, 1983:3, 11, 12, 25, 85 [= one or more species].

**DISTRIBUTION.**—Northwest Atlantic: Florida shelf, U.S.A.; Bahamas: Andros Island; U.S. Virgin Islands: St. Croix, Tague Bay; Windward Islands: Barbados.

**HABITAT.**—Benthic, intertidal-subtidal; planktonic in water column above bottom.

**LIFE HISTORY AND ONTOGENY.**—Male, A-1 juvenile male, juveniles.

***Rutiderma* species, Kornicker, 1985**

*Sarsiella* species 1.—Bonaduce, Ciliberto, Minichelli, Masoli, and Pugliese, 1983, fig. 2:5.

*Rutiderma* species.—Kornicker, 1985:26.

**DISTRIBUTION.**—Red Sea.

***Scleraner* Kornicker, 1975**

*Scleraner* Kornicker, 1975b:645, 646, 648, 656, 678. [Type-species by

original designation: *Rutiderma* (*Rutiderma*) *chacaoi* Hartmann, 1965. Gender: masculine.]

This genus comprises a single species.

***Scleraner chacaoi* (Hartmann, 1965)**

*Rutiderma* (*Rutiderma*) *chacaoi* Hartmann, 1965:328–332, figs. 36–44 [A-1 juvenile female holotype: Zoologisches Museum Hamburg; type-locality: "Golf von Corcovado, Kanal von Chacao, Südchile" (South Chile)].

*Rutiderma chacaoi*.—Hartmann-Schröder and Hartmann, 1965:24, 30, 33, 45 [station data, ecology].—Hartmann, 1966:129, 183, 184, figs. 73i, 106e [after Hartmann, 1965]; 1975:682, fig. 398a [after Hartmann, 1965].—Hartmann and Petersen, 1978:228 [location of types].

*Scleraner chacaoi*.—Kornicker, 1975b:16, 24, 29, 47, 60, 62, 70, 80, 650, 656, 678–682, fig. 428.

*Scleraner chaco*i.—Kornicker, 1983:12 [misspelling].

**DISTRIBUTION.**—Southeast Pacific: Chile: Golfo de Chacao; 53°41'40"S, 72°0'45"W (shelf), Fortesque Bay, Straits of Magellan; 50°16'42"S, 74°48'28"W (shelf).

**HABITAT.**—Benthic; 190 m; fine-grained sand with mud, detritus and rocks, temperature about 11°C, O<sub>2</sub> about 3.5 ml/l, 21.3 and 30 m, bottom coarse with much red algae and bottom of pea gravel with mud.

**LIFE HISTORY AND ONTOGENY.**—A-1 female, A-1 male, juveniles.

**Species Incorrectly Assigned to Rutidermatidae**

*Rutiderma*(?) species.—Bonaduce, Ciliberto, Minichelli, Masoli, and Pugliese, 1983, fig 2:4.

*Incertae sedis*.—Kornicker, 1985:26 [may be a larval ascothoracid (*Grygier*, 1985:296); distribution: Red Sea].

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