

# A New Species of *Ischnochiton* (Mollusca: Polyplacophora) in the Gulf of California

by

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**Abstract.** A new species of chiton, *Ischnochiton carolianus* Ferreira, spec. nov., is described from San Carlos, Sonora (type locality) and Smith Island, Bahía de los Angeles, Gulf of California, Mexico, dredged at depths of 61-91 m to 182 m. Specimens are very small (up to 8.5 mm long) resembling *I. tenuisculptus* (Carpenter, 1864).

ALMOST SIMULTANEOUSLY, I was entrusted with two collections of chitons from the Gulf of California, independently obtained by Carol and Paul Skoglund, Phoenix, Arizona, and Forrest and Leroy Poorman, Westminster, California. As fortune would have it, both collections contained specimens of a species which further study revealed to be new to science.

Class Polyplacophora Gray, 1821

Order Neoloricata Bergenhayn, 1955

Suborder Ischnochitonina Bergenhayn, 1930

Family Ischnochitonidae Dall, 1889

Genus *Ischnochiton* Gray, 1847

*Ischnochiton carolianus* Ferreira, spec. nov.

(Figures 1 to 6)

**Diagnosis:** Very small (largest specimen, 8.5 mm long) chitons, carinate, not beaked. Lateral areas well defined with small, convex, round, granules in quincunx; central areas pitted in quincunx; mucro anterior. Girdle with very small, imbricated scales, with 10-12 riblets. Radula with unicuspid major lateral teeth.

**Type material:** **Holotype** and 11 **paratypes**, dredged at 100 m, 5 km south of San Antonio Pt., San Carlos, Guaymas, Sonora, Mexico, *leg.* Forrest and Leroy Poorman, November 1980; and 3 **paratypes**, dredged at 61-91 m, 5 km south of Tetas de Cabras, San Carlos, Sonora, Mex-

ico, *leg.* Carol and Paul Skoglund, November 1979. **Holotype** deposited at the California Academy of Sciences (CAS 035074); **paratypes**, at the California Academy of Sciences (CAS 035075), Los Angeles County Museum of Natural History (LACM 2032), United States National Museum of Natural History (USNM 749857), Academy of Natural Sciences of Philadelphia (ANSP 357502) and in the private collections of Carol and Paul Skoglund, Forrest and Leroy H. Poorman, and Antonio J. Ferreira.

**Other material:** Smith Id. (north end), Bahía de los Angeles, Gulf of California, Mexico, 3 specimens dredged at 182 m, *leg.* Carol and Paul Skoglund, May 1980.

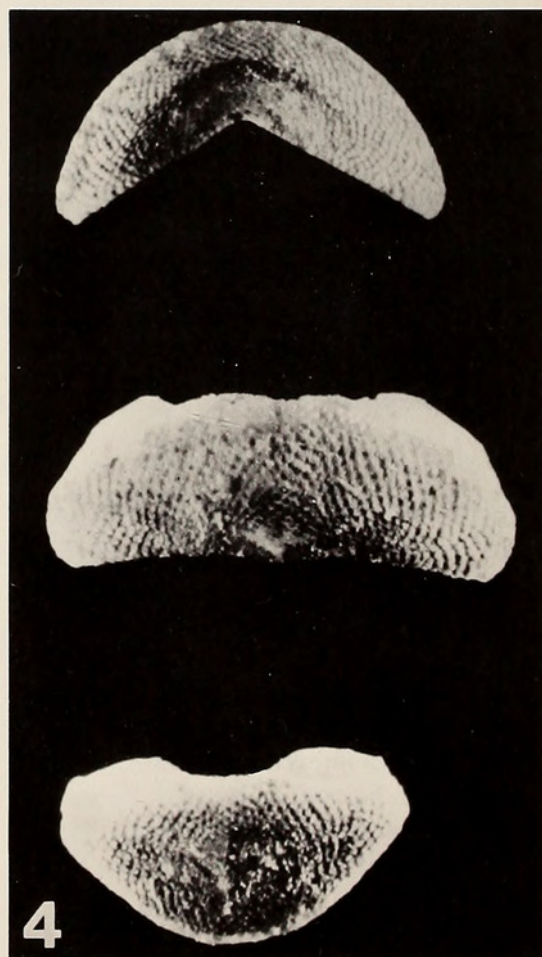
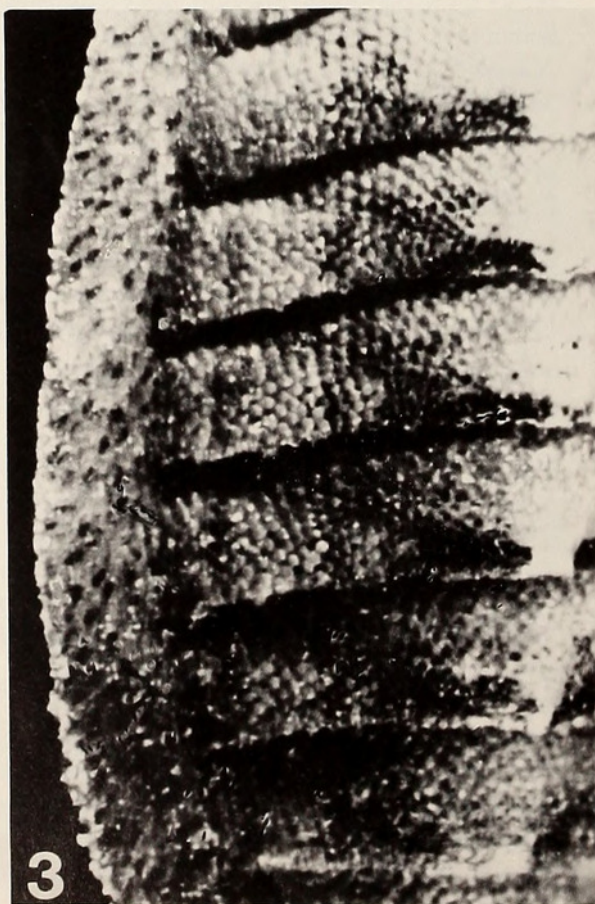
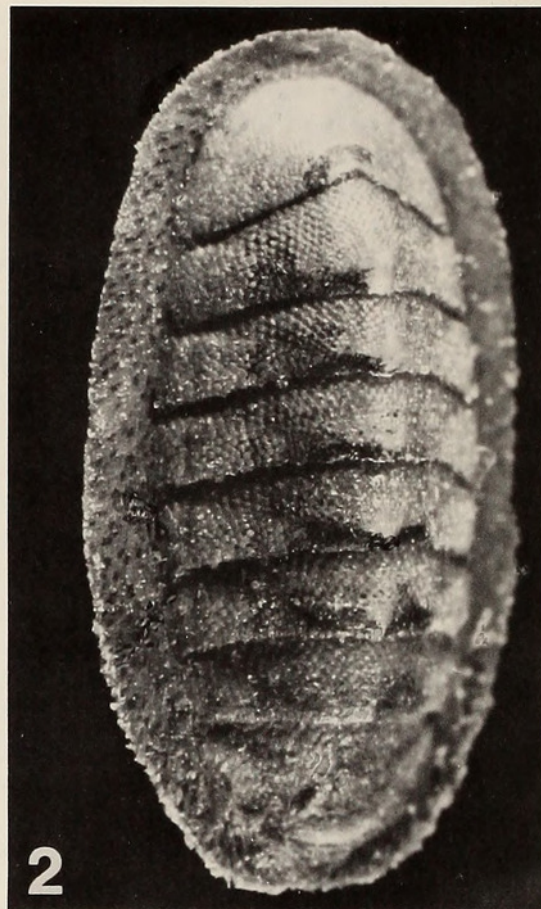
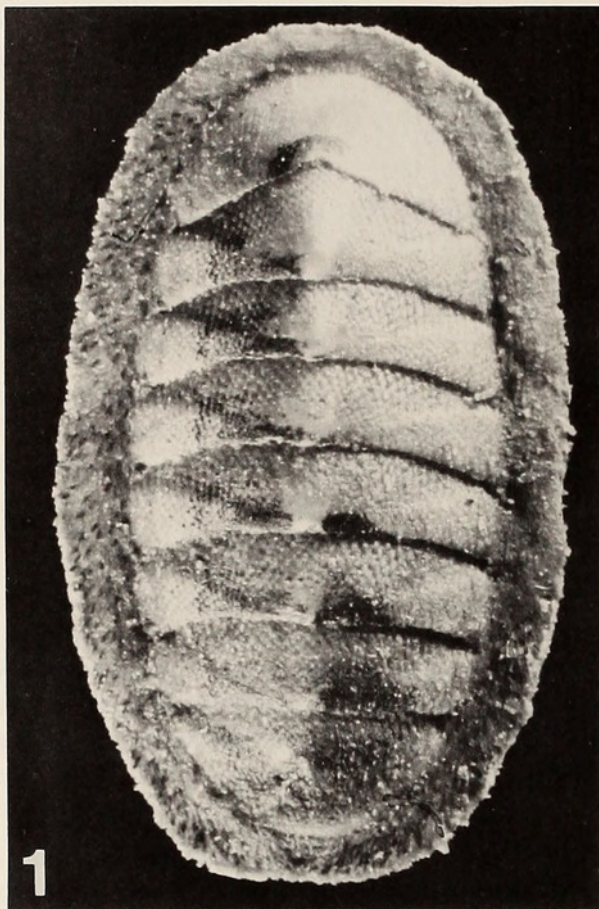
**Type locality:** 5 km south of Punta San Antonio, San Carlos, Sonora, Mexico (27°56'N; 111°06'W).

**Description:** **Holotype** (Figures 1, 2, 3)—dry specimen, 7.5 mm long, 4.5 mm wide, uniformly brown with some irregular black smudges (? artifact) on valves and girdle scales; valves moderately elevated and carinate; posterior edge of intermediate valves, straight, not (or obsoletely) beaked; lateral areas well defined, moderately elevated; anterior valve, lateral areas of intermediate valves, and postmucro area of posterior valve sculptured with inconspicuous, round, convex granules, about 80  $\mu$ m in diameter, close together in quincunx; central areas minutely punctated in quincunx; mucro anterior, inconspicuous; postmucro, concave; girdle, 0.6 mm wide at valve iv, uniformly covered with very small, oval, imbricated scales; gills unascertainable.

**Paratypes**—in several shades of brown (one mottled with reddish hues), agreeing with holotype in all major respects. Size range, including girdle, 8.5  $\times$  5.4 mm to

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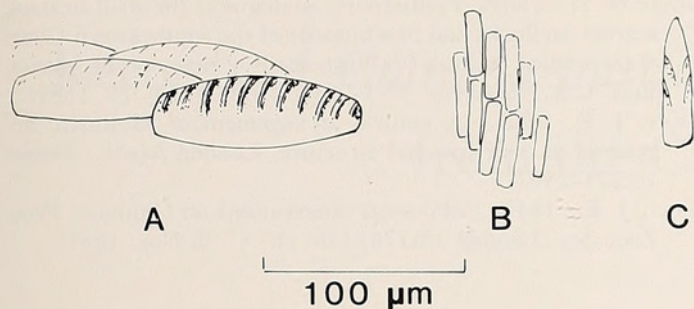


Figure 5

*Ischnochiton carolianus* Ferreira, spec. nov. **Paratype** (CAS 035075); dry specimen, 6.0 mm long, including girdle. Girdle elements: A. scales of upper surface; B. scales of undersurface; C. spicules of margin.

3.8 × 2.5 mm; body width/length, mean = 0.65 (SD = 0.35; N = 11).

**Paratype** (Figure 4), 6.0 × 4.0 mm, disarticulated: anterior valve, 1.0 mm long, 2.1 mm wide; posterior valve, 1.2 mm long, 2.2 mm wide, width of sutural laminae/width of sinus = 0.4. Articulamentum white; sutural laminae subrectangular, very short (0.2 mm long on valve viii), almost continuous across a very shallow and poorly defined sinus; insertion teeth sharp, small; slits 12-1-8 followed by slit-rays. Girdle's upper surface covered with strongly imbricated, oval scales (Figure 5A), up to 100 μm long, with 10-12 riblets; undersurface with transparent, rectangular scales (Figure 5B), 50 × 20 μm; marginal fringe of inconspicuous spicules (Figure 5C), 60 × 30 μm, with oblique, screw-like striations. Radula, 2.0 mm long, comprising 24 rows of mature teeth; median tooth about 120 μm long, edges slightly incurved, 40 μm wide at anterior blade, 30 μm at waist; first lateral teeth, 50 μm long, with small knob at antero-outer corner (Figure 6A); major lateral teeth with unicuspid head (Figure 6B); outer marginal teeth 65 μm long, 45 μm wide.

**Distribution:** *Ischnochiton carolianus* is known only from the type locality, San Carlos, Sonora, Mexico, and Smith Id., Bahía de los Angeles, Gulf of California, Mexico, at depths of 61-91 m to 182 m.

**Remarks:** *Ischnochiton carolianus* resembles *I. tenuisculptus* (Carpenter, 1864), a species occurring from Panama to Peru, in color, shape of body, and the simplicity of

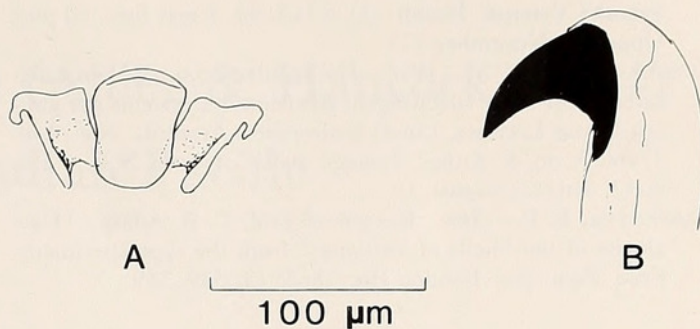


Figure 6

*Ischnochiton carolianus* Ferreira, spec. nov. **Paratype** (CAS 035075); dry specimen, 6.0 mm long, including girdle. Radula: A. median and first lateral teeth; B. head of second (major) lateral tooth.

tegmental features. The two species seem to differ in size (largest specimen examined of *carolianus*, 8.5 mm long; of *tenuisculptus*, 15.8 mm long), and are quite distinct in the (1) tegmental granules of lateral areas and end valves (regular in size and height in *carolianus*; larger and higher round granules, standing out, randomly, amidst smaller and lower ones in *tenuisculptus*); (2) mucro (definitely anterior in *carolianus*; central or only slightly anterior in *tenuisculptus*); (3) girdle scales (up to 100 μm long in *carolianus*; up to 180 μm long in *tenuisculptus*); and (4) radula's major lateral teeth (unicuspid in *carolianus*; bicuspid in *tenuisculptus*).

The species is here called *carolianus* after Carol Skoglund, Phoenix, Arizona, who, together with her husband Paul E. Skoglund, first collected and made available specimens for study.

#### ACKNOWLEDGMENTS

Appreciation is here expressed to Carol and Paul E. Skoglund and to Forrest L. and Leroy H. Poorman, who provided the material for study; and to Dr. Barry Roth, California Academy of Sciences, who critically reviewed the manuscript.

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#### Explanation of Figures 1 to 4

Figure 1. *Ischnochiton carolianus* Ferreira, spec. nov. **Holotype** (CAS 035074); dry specimen, 7.5 mm long, including girdle.

Figure 2. Same as in Figure 1. Side view.

Figure 3. Same as in Figure 1. Close-up of lateral and pleural areas.

Figure 4. *Ischnochiton carolianus* Ferreira, spec. nov. **Paratype** (CAS 035075); dry specimen, 6.0 mm long, including girdle. Tegmental side of valves i, vi, and viii.



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