

Holotype: SDNHM 67150, height 22 mm, diameter 23 mm.

Paratype: SDNHM 67152 from SDNHM loc. 4071.

Type Locality: SDNHM loc. 3403.

Distribution: Basal San Francisquito Formation, (area 14) Warm Springs Mountain, Los Angeles Co.; Point Loma Formation, (area 19) San Diego Co., California; Rosario Formation, (area 21) five miles east of La Misió, northwestern Baja California, Mexico.

Geologic Age: Latest Campanian to late Maastrichtian.

Discussion: Five specimens were studied. Preservation is generally excellent for three specimens from the Point Loma Formation near Carlsbad, although the protoconch of the holotype is imperfectly preserved. The incomplete, crushed specimen from Warm Springs Mountain is from beds of latest Maastrichtian age at the base of the San Francisquito Formation (LACMIP loc.

14310). Although the abapertural side is not available, the flatness of the apical whorls suggests that it is probably *L. lomaensis*.

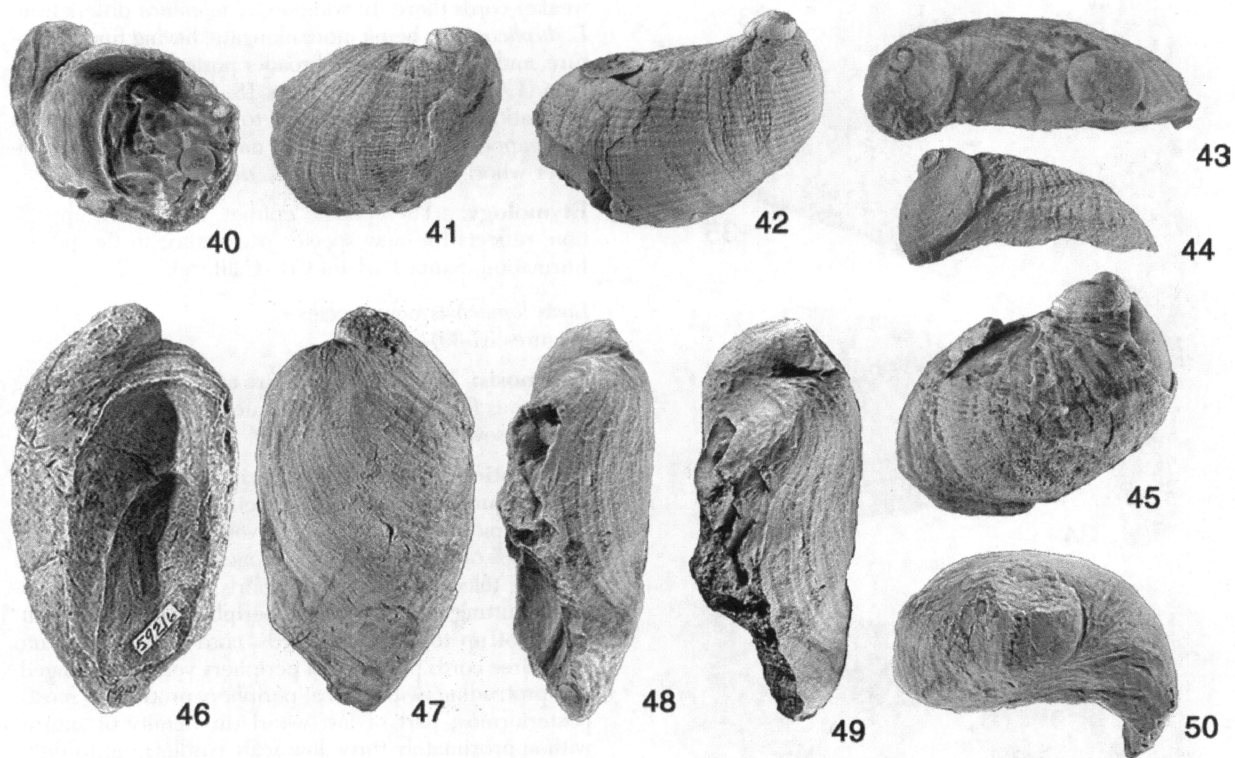
The new species is most similar to *Lysis duplicosta* but available specimens are smaller than a large *L. duplicosta*. *Lysis lomaensis* also has a lower spire, more carinate last whorl (especially posterior to the medial carina), and spiral threads on interspaces between carinae.

Abaperturally, *L. lomaensis* is similar in shape and sculpture to *Garzasia intermedia*, but *L. lomaensis* has a lower spire and in the apertural view the shelf margin is less arcuate, not sigmoid, and the shelf does not spiral into the umbilicus.

Group of *Lysis suciensis*

The group of *L. suciensis* differs from that of *L. duplicosta* in having a more elongate aperture and finer spiral sculpture.

Lysis suciensis (Whiteaves, 1879)
(Figures 40-50)



Figures 40-50. *Lysis suciensis* (Whiteaves, 1879). Specimens coated with ammonium chloride. **40-41.** Hypotype LACMIP 13389, LACMIP loc. 26020. **40.** Apertural view, vertical dimension 44 mm, horizontal dimension 40 mm. **41.** Abapertural view, height 25 mm, diameter 43 mm. **42-43.** Hypotype LACMIP 13390, LACMIP loc. 10711. **42.** Abapertural view, height 18 mm, diameter 26.5 mm. **43.** Lateral view, vertical dimension 8 mm, diameter 26.5 mm. **44.** Hypotype LACMIP 13391, LACMIP loc. 10095, lateral view, vertical dimension 5 mm, diameter 12.5 mm. **45.** Hypotype LACMIP 13392, Cañon San Fernando, 32 km southeast of El Rosario, Baja California, Mexico, abapertural view, height 18 mm, diameter 21 mm. **46-50.** Hypotype LACMIP 10495, LACMIP loc. 26020. **46-47.** Vertical dimension 70 mm, horizontal dimension 38 mm. **46.** Apertural view. **47.** Abapertural view. **48.** Right-lateral view, vertical dimension 70 mm, horizontal dimension 25 mm. **49.** Slightly oblique right-lateral view, vertical dimension 70 mm, horizontal dimension 27 mm. **50.** Lateral view, vertical dimension 25 mm, horizontal dimension 36 mm.

Stomatia suciensis Whiteaves, 1879: 128-129, pl. 16, fig. 4.
Lysis suciensis (Whiteaves) Whiteaves, 1903: 367, pl. 45, fig. 3. Stecheson, 2004: 60-62, pl. 2, figs. 4-5.
Lysis californiensis Packard, 1922: 431, pl. 37, figs. 2-3; Stadium, 1973: pl. 2, fig. 12.
Lysis duplicosta Gabb. Saul and Alderson, 1981: 36, pl. 3, figs. 3-4. Not. *Lysis duplicosta* Gabb, 1864.

Diagnosis: Medium to large *Lysis*, shell elongate with fine, usually wavy cordlets, sculpture obsolete on large specimens.

Description: Medium to large (height up to 84 mm), crepiduliform, elongately expanded; spire moderately high to low, approaching horizontal coiling, and approximately 30 to 35% of total shell height; protoconch approximately 1 to 1.5 whorls, low and smooth; teleoconch approximately 1.5 to 2 whorls, whorls subcarinate to rounded; periphery near one-third whorl height; suture abutting just anterior to periphery, descending; growth line slightly to moderately parasigmoidal, with sinus at posterior end of outer lip on large, smooth individuals; sculpture consisting of fine narrow cordlets, usually wavy, alternating in strength, with narrow interspaces; aperture elongate ovoid, its abapertural margin sharply demarked and steeply descending; inner lip and columella flattened and expanded to form crescentic and moderately wide deck submerged within aperture, posterior end attached to inside of outer lip; inner deck margin concavely curved.

Syntypes: Of *Stomatia suciensis* CGS 5771, a-d.

Lectotype (here chosen): Of *Stomatia suciensis* CGS 5771, height 66 mm.

Paralectotypes: Of *Stomatia suciensis* CGS 5771a-CGS 5771d.

Holotype: Of *Lysis californiensis* UCMP 12287.

Paratype: Of *Lysis californiensis* UCMP 12288.

Type Locality: *Stomatia suciensis*, Sucia Island, San Juan Co., Washington. Of *Lysis californiensis*, UCMP loc. 2167, Santa Ana Mountains, Orange Co., California.

Figured Specimens: LACMIP 10495, 13389, from LACMIP loc. 26020; LACMIP 13390 from LACMIP loc. 10711; LACMIP 13391 from LACMIP loc. 10095; LACMIP 13392 from the Rosario Formation, (area 22) 26 km east of coastline at elevation 200 m on west side of Cañon San Fernando, 15 km north of Mesa San Carlos, approximately 32 km. southeast of El Rosario, Baja California, Mexico.

Distribution: Upper Cedar District Formation, (area 1) Denman Island, Gulf Islands, British Columbia; Lower Cedar District Formation, (area 2) Sucia Island, San Juan Co., Washington; Chico Formation, (area 7) Granite Bay, Placer Co.; Jalama Formation, (area 12) western Santa Ynez Mountains, Santa Barbara Co.; Chatsworth Formation, (area 16) Bell Canyon and Dayton Canyon, Simi Hills, Ventura Co., California; Ladd Formation, upper Holz Shale Member, (area 18) Santa Ana

Mountains, Orange Co., California; Rosario Formation (area 22) at Cañon San Fernando, 26 km SE of El Rosario Baja California; Valle Formation, (area 23) 10 km north from Punta Abreojos, Baja California Sur, Mexico.

Geologic Age: Late early Campanian and early Maastriichtian.

Discussion: The above description was based on 107 specimens. The deck of smaller specimens is rather narrow and attaches to the base of the previous whorl. Small specimens are rounded, larger specimens more elongate. In larger specimens the shelf is broader and its posterior end attaches to the inside of the outer lip. Several specimens, especially the larger specimens, have an obtusely biangulate whorl abapical to the periphery. Most specimens from Sucia Island are of small size and badly weathered, but Whiteaves's largest specimen (1879: 129, pl. 16, fig. 4), here designated as lectotype, was indicated by him to be "two inches and a half in length" (i.e., 66 mm). The specimen from Bell Canyon (area 16) of Figures 46-50, lacking its spire and with its outer lip broken, is 75 mm high.

The ribbing on larger specimens from the Chatsworth Formation in Bell and Dayton canyons, Simi Hills (area 16) tends to become fainter toward the outer lip especially on the posterior slope. The specimen figured (Figures 40, 41) retains ribbing around the periphery, but the ribs fade posteriorly toward the aperture. Height range of the smoother specimens is 45 to 76 mm (incomplete), making these the largest specimens thus far found of *Lysis*. The largest of these specimens are larger than representatives of most species of *Crepidula*; only *Grandicrepidula princeps* (Conrad, 1856), attains a larger size.

Genus *Garzasia* new genus

Type Species: *Garzasia diabla* new species from the "Garzas Sand" Member of the Moreno Formation, Stanislaus Co., California; mid Maastriichtian.

Description: Very low to moderately high spired, *Calyptraea*-like shell with weak to strong spiral cords, aperture very broadly expanded and forming base of shell, shelf attached marginally, surrounding the umbilicus, and spiralling into it.

Discussion: *Garzasia* is most similar to *Lysis* but differs from the latter in that the deck surrounds and spirals into an umbilicus somewhat as in *Calyptraea* but with a wider more open umbilicus. It differs from *Calyptraea* in having a sturdier shelf attached marginally as in *Trochita*. It differs from *Trochita* (Figure 71) in having the shelf crescentic with an arcuate to slightly sigmoidal shelfal edge, the axis of spiraling of its shelf off center, and external ribbing spiral rather than protractive.

Etymology: The genus *Garzasia* is named for the "Garzas Sand" and Garzas Creek, Stanislaus Co., California.

Garzasia intermedia (Cooper, 1894)
 (Figures 51-54)