

Lycastopsis riojai, a new species of polychaete (Polychaeta: Nereidae) from the Gulf of California

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Abstract: *Lycastopsis riojai* n. sp. is described from 16 specimens collected in the intertidal of El Pardito Island (24°52'N, 110°38'W), Baja California Sur. It has short antennae; tentacular cirri jointed basally; blades of compound falcigers with 7-8 denticles, and jaws with 4-5 teeth. A key to all the species of the genus and comments of the related species are also included.

Key words: Gulf of California, *Lycastopsis riojai*, Nereidae, new species, Polychaeta

Côrrea (1948) proposed the subfamily Lycastinae, based on *Lycastis* Savigny, 1822, a confusing genus and later referred to *Namanereis* Chamberlin, 1919. This genus and related genera, including *Lycastopsis* Augener, 1922, were referred by Hartman (1959b) to the new subfamily Namanereidinae.

The genus *Lycastopsis* Augener, 1922 was established for those nereidids that have three pairs of tentacular cirri, well developed parapodia but with notopodium reduced to an aciculum and dorsal cirrus (sub-biramous parapodia). Fauchald (1977) regarded the absence of notacacula as a distinctive feature for *Lycastopsis* despite the fact that all species of the genus have them. Wu Baoling *et al.* (1985) among others, have used the name sub-biramous for this kind of parapodia. The genus *Namalycastis* is very similar to *Lycastopsis*, the main difference being that the former has four pairs of tentacular cirri, not three.

Lycastopsis includes seven species, almost all are widely euryhaline (Rioja 1946), some are marine and others use brackish and freshwater habitats. In this note I describe the eighth species of the genus and the second one from Mexico.

The taxonomic affinities and related problems of the species of *Lycastopsis* have been

treated in some detail (Wesenberg-Lund 1958, Marcus 1960), but some difficulties still remain. A summary of the species of *Lycastopsis* and their distribution is shown in Table 1. The species are discussed as follows:

1) *L. pontica* Bobretzky, 1872, under *Lycastis* from the Black Sea, Bay of Sevastopol. La Greca (1949: 164) redescribed the species from the Bosphorus and confirmed the supposition of Correa (1948: 217) that the species belongs to *Lycastopsis*. Wesenberg-Lund (1958: 17) considered *L. beumeri* (Augener 1922) as a junior synonym of *L. pontica*, but the development of the dorsal cirrus (Marcus 1960: 61) and the number of teeth on the jaws differed (see Key). The synonymy by Hartman (1959a: 247) as *Namanereis quadraticeps* (Blanchard, 1849), enclosing several species including *L. pontica*, is not sound due to the large variation between the species with respect to the jaw dentition and other features. Pettibone (1963: 150) reported this species from Massachusetts and Lana (1987: 1061) from the littoral of the State of Parana, Brazil. These reports have to be taken with caution due to the distance and the ecological problems.

2) *L. beumeri* Augener, 1922, was described from Cuba, St. Martin, St. Barthélemy, Bonaire and Aruba. Augener (1936: 346)

TABLE 1

Species of Lycastopsis including data on type locality, synonyms, references, and distribution.

Species	Type Locality	Synonyms	Reference	Distribution
<i>L. pontica</i> (Bobretzky)	Black Sea	<i>Namanereis quadraticeps</i> (Blanchard)	Hartman (1959a)	Black Sea; Massachusetts (?); Parana, Brazil (?)
<i>L. beumeri</i> Augener	Cuba	<i>L. pontica</i> <i>N. quadraticeps</i>	Hartman (1959a)	Cuba; Bonaire; Aruba
<i>L. catarractarum</i> Feuerborn	Java	<i>N. quadraticeps</i>	Hartman (1959a)	Java; Sumatra
<i>L. hummelincki</i> Augener	Bonaire	<i>N. hummelincki</i> (Augener)	Hartman (1959a)	Bonaire; Curaçao
<i>L. amboinensis</i> Pflugfelder	Amboina	<i>N. quadraticeps</i>	Hartman (1959a)	Amboina; Indonesia
<i>L. augeneri</i> Okuda	Hokkaido Island	<i>N. quadraticeps</i> <i>L. pontica</i>	Hartman (1959a) Pettibone (1963)	Hokkaido Island; Bay of Amniva; Peter the Great Bay; Tsingtao, Qingdao Pier, China
<i>L. tecolutlensis</i> Rioja	Tecolutla	<i>N. quadraticeps</i>	Hartman (1959a) Pettibone (1963)	Tecolutla, Mexico
<i>L. riojai</i> (Described herein)	El Pardito Island			El Pardito Island, Mexico

added information on the species with material that he could not examine before. Pettibone (1963), following Wesenberg-Lund (1958: 17), regarded *L. beumeri* as a synonym of *L. pontica*. Hartman (1959a: 247) also included it as a synonym of *N. quadraticeps*.

3) *L. catarractarum* Feuerborn, 1932, was described from Java and Sumatra. The records from Amboina (Augener 1933: 352, Wesenberg-Lund 1958: 17) should be referred to *L. amboinensis* (fide Marcus 1960: 60). This species is also synonymous with *N. quadraticeps* (Hartman 1959a: 247).

4) *L. hummelincki* Augener, 1933, was described from Bonaire and Curaçao. Marcus (1960: 58) added considerable information about the species with additional material not available to Augener. Hartman (1959b: 163) transferred the species to *Namanereis*. It is the only species of the genus that

lacks eyes (Wesenberg-Lund 1958: 17; Marcus 1960: 58).

5) *L. amboinensis* Pflugfelder, 1933, from Amboina, Moluca Island, Indonesia. Hartman (1959a: 247) regarded it as a synonym of *N. quadraticeps*, however it may be distinguished from other species in that it has the body dorso-ventrally compressed (Marcus 1960: 61).

6) *L. augeneri* Okuda, 1937, from Hokkaido Islands, Japan. Uschakov (1955) reported the species in the Bay Amniva, Sakhalin, and from Peter the Great Bay, Vladivostok. Hartman (1959a: 247) regarded it as a synonym of *N. quadraticeps*. Pettibone (1963: 150) recognized it as a synonym of *L. pontica*, but these two differ because *L. augeneri* has appendage of falciger with 12-20 denticles and *L. pontica* has 7-8 denticles. Uschakov and Wu Baoling (1965: 59) reported this species from Tsingtao, China. Imajima (1972: 40) explained that *N.*

quadriceps included by Imajima and Hartman (1964: 146) should be referred to *Lycastopsis*, because it has three pairs of tentacular cirri instead of the four pairs, typically found in *Namanereis* (Hutchings and Glasby 1985). Wu Baoling *et al.* (1985) reported it from Qingdao Pier, China.

7) *L. tecolutlensis* Rioja, 1946, was described from Tecolutla, Veracruz, Mexico. Hartman (1959a: 247) made it a synonym of *N. quadriceps*. Pettibone (1963: 150) referred it to *L. beumeri*. They differ in the development of the dorsal cirri. In *L. tecolutlensis* the dorsal cirri are cirriform and in *L. beumeri* they are conical and basally widened, and there are some setal differences like the morphology of the blades (Salazar-Vallejo in press).

The type material has been deposited in the National Museum of Natural History, Smithsonian Institution (USNM) and in the collection of the Universidad Autónoma de Baja California Sur (UABCS).

Lycastopsis riojai n. sp.
(Fig. 1 A-F, Tables 2,3)

Material examined: El Pardito Island, Baja California Sur (24°52'N, 110°38'W), August 5 1987. Holotype (USNM 128301) and two paratypes (USNM 128302); 13 paratypes (UABCS 01 NERE-001).

Description: Body subcylindrical, ventral side slightly flattened. Living specimens were grayish but lacking color in alcohol. Holotype with 56 setigers, 8 mm in length and 0.7 mm in width.

Prostomium (Fig. 1A) broad, with pair of well-developed palpi, with rounded apical palpostyles; 2 short anterior antennae; 2 pairs of eyes in trapezoidal arrangement and placed close to lateral margins. Peristomium shorter than following setigerous segments with 3 pairs of short tentacular cirri, anterior pair slightly shorter than posterior pairs; tentacular cirri fusiform and clearly jointed basally. Jaws curved ventrally, with 4 teeth on inner border or 3 teeth plus apex (Fig. 1D).

Parapodia sub-biramous (Fig. 1C); notopodium represented by black aciculum; digitiform dorsal cirrus swollen basally; setae absent. Neuropodium well developed, with trian-

gular postsetal ligule; ventral cirrus shorter than dorsal cirrus, digitiform and also swollen basally. Supra-acicular neurosetae including a compound heterogomph spiniger and one heterogomph falciger; subacicular bundle with 4 heterogomph falcigers; blades of spinigers (Fig. 1E) serrated basally over half to two thirds of their length, its distal part is completely smooth; blades of falcigers (Fig. 1F) provided with fine denticles basally with bare third.

Pygidium (Fig. 1B) provided with 2 short anal cirri, as long as pygidium swollen basally, each one. Prepygidial segment without parapodia.

Variability: On the basis of the 16 specimens examined, the variability of several morphological features is shown in Table 2; the averages agree well with the holotype. Table 3 shows the setal distribution of the species.

Etymology: The species is named as a modest homage to Enrique Rioja, prominent Spanish scientist, who contributed many important works to the taxonomy of polychaetes in Mexico.

Discussion: The species of the genus *Lycastopsis* are very similar. Some features might vary due to dimorphism or to adaptation to different environments or substrates; for example the development of the dorsal cirrus and the absence of well developed notopodia, may be due to the fact that there is not need for constant ventilation (Uschakov 1972) or to minimize the friction between the grains of sand. The identification of these species is rather difficult. The number of teeth in the jaws, is a feature which ought to be used more extensively, since it appears to be relatively constant in the species in which they have been counted.

Lycastopsis riojai is closely allied to *L. tecolutlensis* as can be seen in the Key. That species has not been collected again and the type specimens is lost (Salazar-Vallejo pers. com.). The original description of *L. tecolutlensis* is brief and the number of teeth in the jaws is not detailed. The main differences are the development of the antennae, the lack of basal joints in the tentacular cirri, and the more numerous denticles in the blades of the compound falcigers.

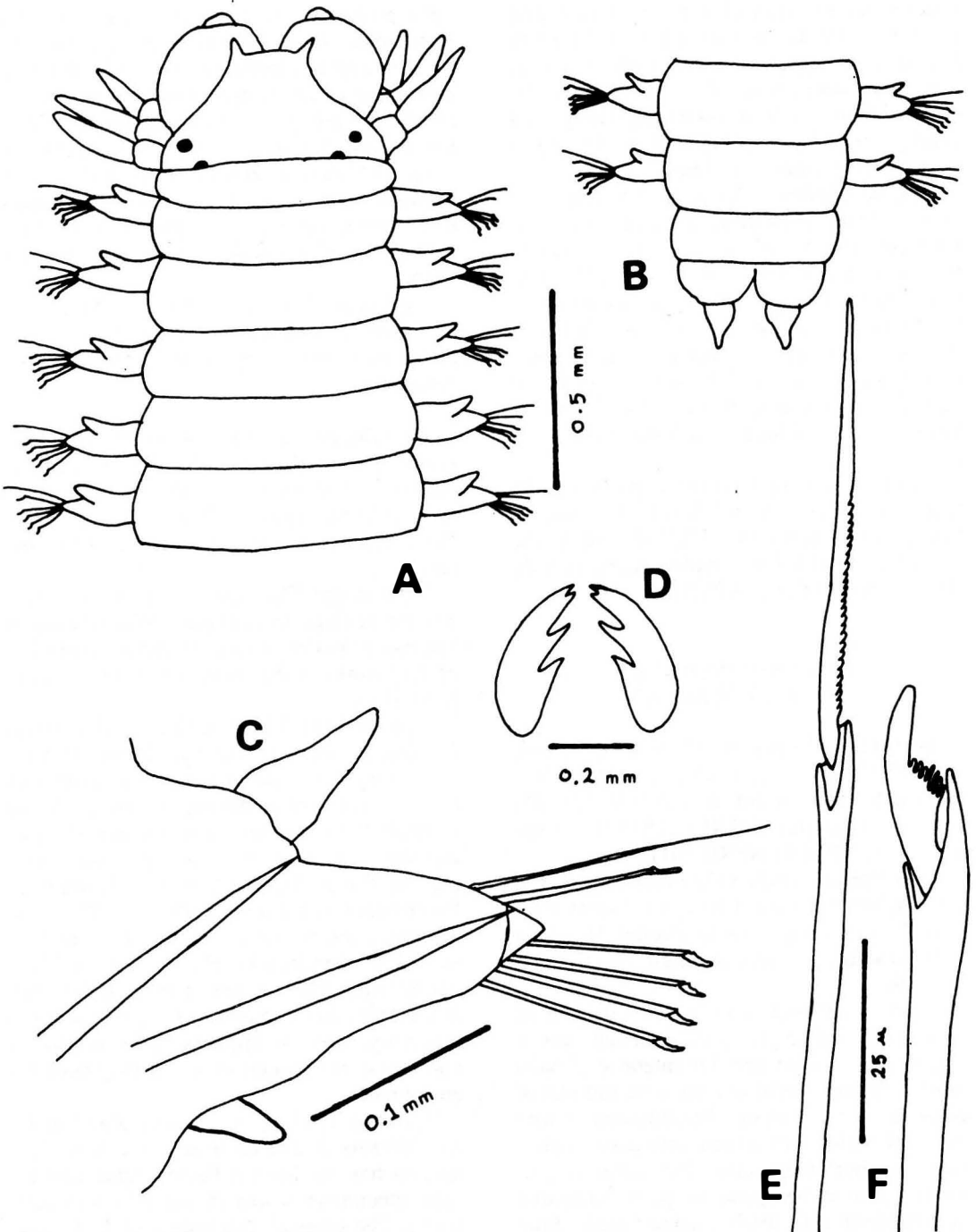


Fig. 1. *Lycastopsis riojai* n. sp. A. Anterior end, dorsal view; B. Posterior end, dorsal view; C. Anterior right parapodium; D. Jaws, dorsal view; E. Neuropodial compound heterogomph spiniger; F. Neuropodial compound heterogomph falciger.

TABLE 2

Variability of some morphological features of *Lycastopsis riojai*. n = Number of specimens, X = Mean, SD = Standard deviation.

Feature	n	X	range	SD
Setigers*	9	55.6	25-74	12.9
Length* (mm)	9	8.8	3-15	2.9
Width (mm)	16	0.7	0.3-0.9	0.1
Mandibular teeth	16	4.5	4-5	0.5

* Only complete animals included

TABLE 3

Distribution of compound heterogomph neurosetae in *Lycastopsis riojai*. For posterior setigers incomplete animals not included.

	Anterior Neurosetae Setigers	Middle Setigers	Posterior Setigers
Supra-acicular spinigers	1	0-2	0-1
Supra-acicular falcigers	1	1	1
Subacicular falcigers	3-5	3-5	2-5

Key to the species of *Lycastopsis* (modified from Marcus 1960)

- 1 Blades of compound neurosetae spinigerous and falcate2
- Blades of compound neurosetae spinigerous and pseudo-spinigerous*L. hummelincki*

- 2 (1) Body dorso-ventrally flattened; anterior 3 setigerous segments much narrower than following ones*L. amboinensis*
- Body cylindrical, slightly flattened ventrally; setigerous segments of about same width3

- 3 (2) Blades of compound falcigers with denticles beginning below smooth distal third4
- Blades of compound falcigers with small denticles on distal third6

- 4 (3) Jaw with teeth; width of shaft of compound falciger one-fourth the length of blade measured at base5
- Jaw with 1-2 teeth below apex; width of shaft of compound falciger one-third the length of blade measured at base*L. beumeri*

- 5 (4) Antennae well developed; tentacular cirri without basal joints; blades of compound falciger with more than eight denticles per falciger*L. tecolutensis*
- Antennae short; tentacular cirri with one basal joint; blades of compound falciger with 7-8 denticles per falciger*L. riojai* n. sp.

- 6 (3) Blades of compound falcigers with 7-8 denticles; dorsal cirri shorter than parapodia*L. pontica*
- Blades of compound falcigers with 12-20 or more denticles; dorsal cirri longer than parapodia7

- 7 (6) Jaw with 9-11 teeth; length of anal cirri one-half the pygidial width; blades of compound falcigers with 20 or more denticles*L. catarractarum*
- Jaw with 7-8 teeth; length of anal cirri one-third the pygidial width; blades of compound falcigers with 12-15 denticles*L. augeneri*

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RESUMEN

Se describe *Lycastopsis riojai* n. sp. con base en 16 ejemplares colectados en el área intermareal de la Isla El Pardito (24°52'N, 110°38'W), Baja California Sur. Esta especie presenta antenas cortas; cirros tentaculares articulados basalmente; apéndice de los falcíferos compuesto con 7 a 8 denticulos, y mandíbulas con 4 a 5 dientes. Se incluye una clave para todas las especies del género y comentarios de las especies relacionadas.

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