

***Lironeca desterroensis* sp. nov. (Isopoda, Cymothoidae) from the gills of a marine fish, *Cetengraulis edentulus* Cuvier, of Santa Catarina Island, Brazil ¹**

Vernon E. Thatcher ², José M. Souza-Conceição ³ & Glauco Fernando Jost ³

¹ Contribution number 1426 of the Departamento de Zoologia, Universidade Federal do Paraná.

² Departamento de Zoologia, Universidade Federal do Paraná. Caixa Postal 19020, 81531-980 Curitiba, Paraná, Brasil. Research Fellow of the CNPq.

³ Centro de Ciências Tecnológicas da Terra e do Mar (CTTMar), Universidade do Vale do Itajaí. 88302-202 Itajaí, Santa Catarina, Brasil.

ABSTRACT. *Lironeca desterroensis* sp. nov. (Isopoda, Cymothoidae) is described on the basis of 105 females and three males taken from the gill chambers of the marine fish, *Cetengraulis edentulus* (Cuvier, 1829), obtained near Santa Catarina Island, Brazil. The new species resembles *Lironeca redmanni* Leach, 1818, in size and general appearance but differs from that species in a number of important respects. In the new species, the pleotelson is larger, the pleonites are laterally produced, the uropods have elongate and slender rami and the larval stage (Pullus II) has a prominent frontal projection.

KEY WORDS. Brazil, cymothoid, fish parasite, gill parasite, isopod parasite, marine isopod.

According to TRILLES (1991), there are some 334 species of Cymothoidae in 42 genera known worldwide. THATCHER (2000) reported that 45 of these species occur in South America with 27 in freshwater and 18 on marine fishes. At present, some 16 species of Cymothoidae are known from marine fishes of the Brazilian coast. These include two species of the genus *Anilocra* Leach, 1818, five of *Cymothoa* Fabricius, 1793, one of *Glossobius* Schioedte & Meinert, 1884, three of *Mothocya* Costa, 1851 and four of *Nerocila* Leach, 1818. A single species of *Lironeca* has been reported, namely, *L. redmanni* Leach, 1818. The present paper describes an additional species of the latter genus.

MATERIAL AND METHODS

During one year, from December 2000 to December 2001, 14 collections of fish and their isopods were made near Florianópolis, Santa Catarina Island. The Cymothoidae were removed from the branchial chambers of their hosts and preserved in 70% ethanol. Appendages were dissected from the isopods with needles and cleared in pure phenol for study in temporary mounts. More permanent preparations were made by means of the phenol-balsam method described in THATCHER (1991). Photographs were made with a digital camera at 5000 pixels and drawings were made with the aid of a camera lucida. Measurements are in micrometers (mm) unless designated as millimeters (mm).

RESULTS

***Lironeca* Leach, 1818**

***Lironeca desterroensis* sp. nov.**

Figs 1-32

Host: *Cetengraulis edentulus* Cuvier.

Site: Branchial chambers.

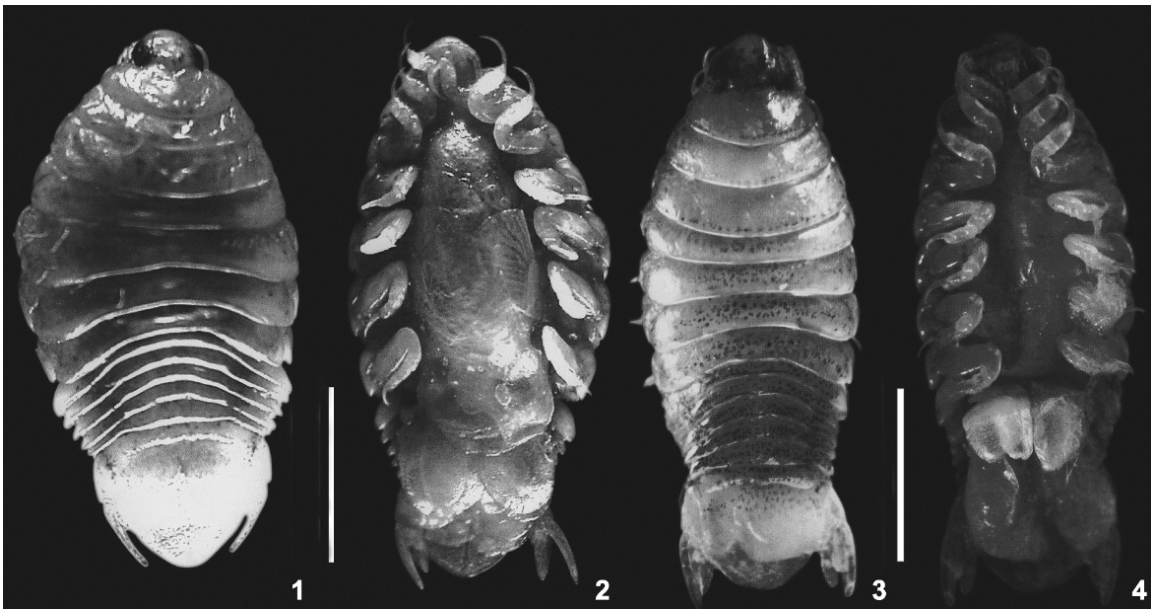
Type Locality: Saco dos Limões, South Bay, Santa Catarina Island, Florianópolis, Santa Catarina State, Brazil.

Prevalence: 163 infected fish of 950 examined (17.16%).

Intensity: 175 cymothoids in 163 infected fish = 1.07.

Type material: holotype female, Alotype male and four paratype females deposited in the Crustacean Collection of the Instituto Nacional de Pesquisas da Amazônia, Manaus, AM, Brazil and 80 paratype females and 1 paratype male deposited in the collections of the Museu Oceanográfico do Vale do Itajaí (MOVI-UNIVALI), Itajaí, Santa Catarina, Brazil.

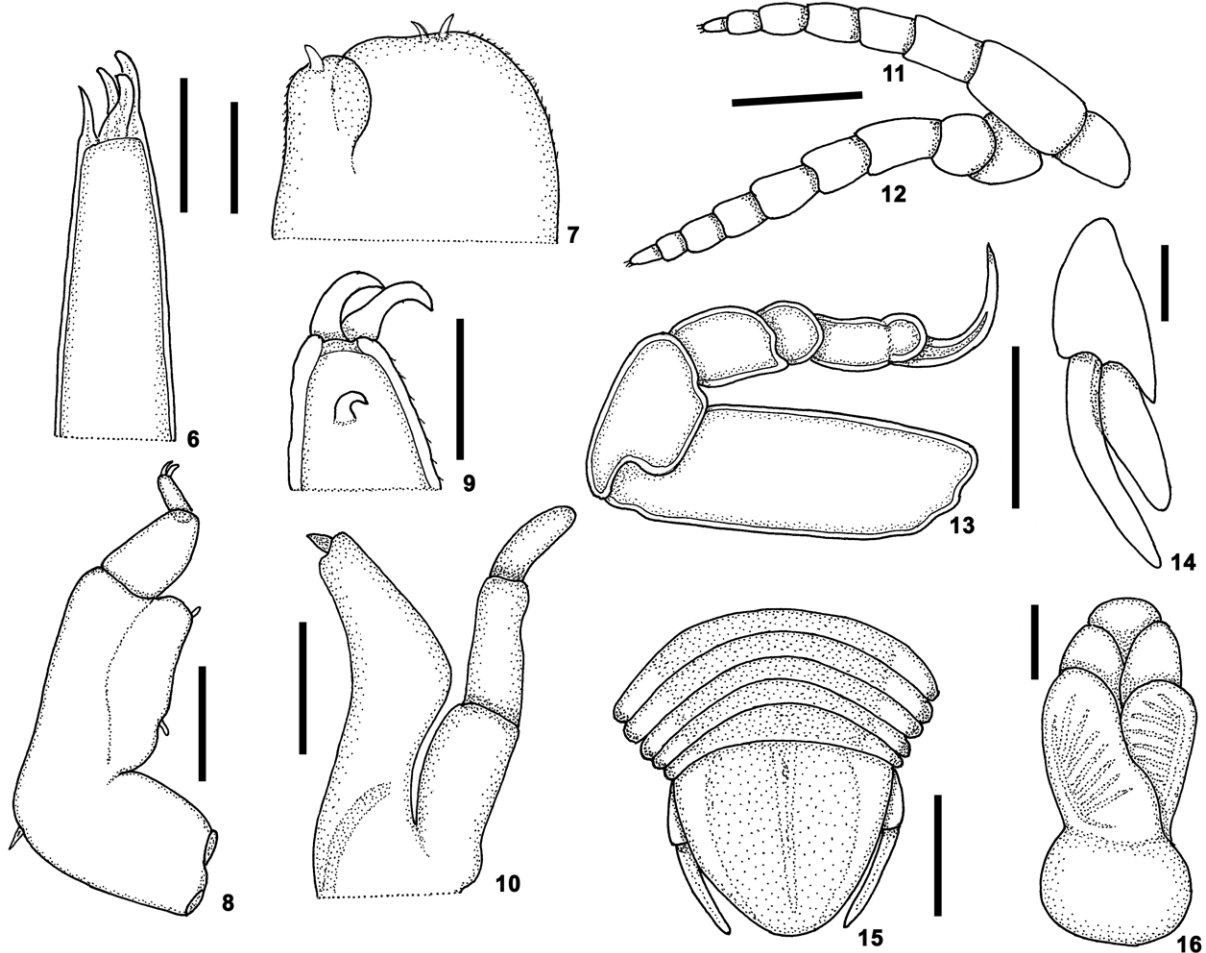
Etymology: the species name is based on the type locality, Florianópolis, Santa Catarina, which was formerly known as "Desterro." The name derived from the fact that numerous shipwreck survivors reached shore there and joined the indians, thus becoming "desterrados" or expatriates. The name was changed to Florianópolis in 1894 to honor Mal. Floriano Peixoto, a former president of Brazil.



Figures 1-4. *Lironeca desterroensis* sp. nov. (1-2) Female: (1) dorsal view, (2) ventral view, scale = 5 mm; (3-4) male: (3) dorsal view, (4) ventral view, scale = 2 mm.



Figure 5. *Lironeca desterroensis* sp. nov., female in branchial chamber of *Cetengraulis edentulus*. Scale = 10 mm.



Figures 6-16. *Lironeca desterroensis* sp. nov., female. (6-10) mouth-parts: (6) tip of maxillule, (7) tip of maxilla, (8) maxilliped, (9) tip of maxillipedal palp, (10) mandible and palp; (11) antennule, (12) antenna, (13) pereopod 7, (14) uropod, (15) pleon and pleotelson, (16) oostegites. Scales: 6, 7 and 9 = 100 μ m, 8 = 500 μ m, 10 = 300 μ m, 11 and 12 = 500 μ m, 13 and 14 = 1000 μ m, 15 = 3000 μ m, 16 = 2000 μ m.

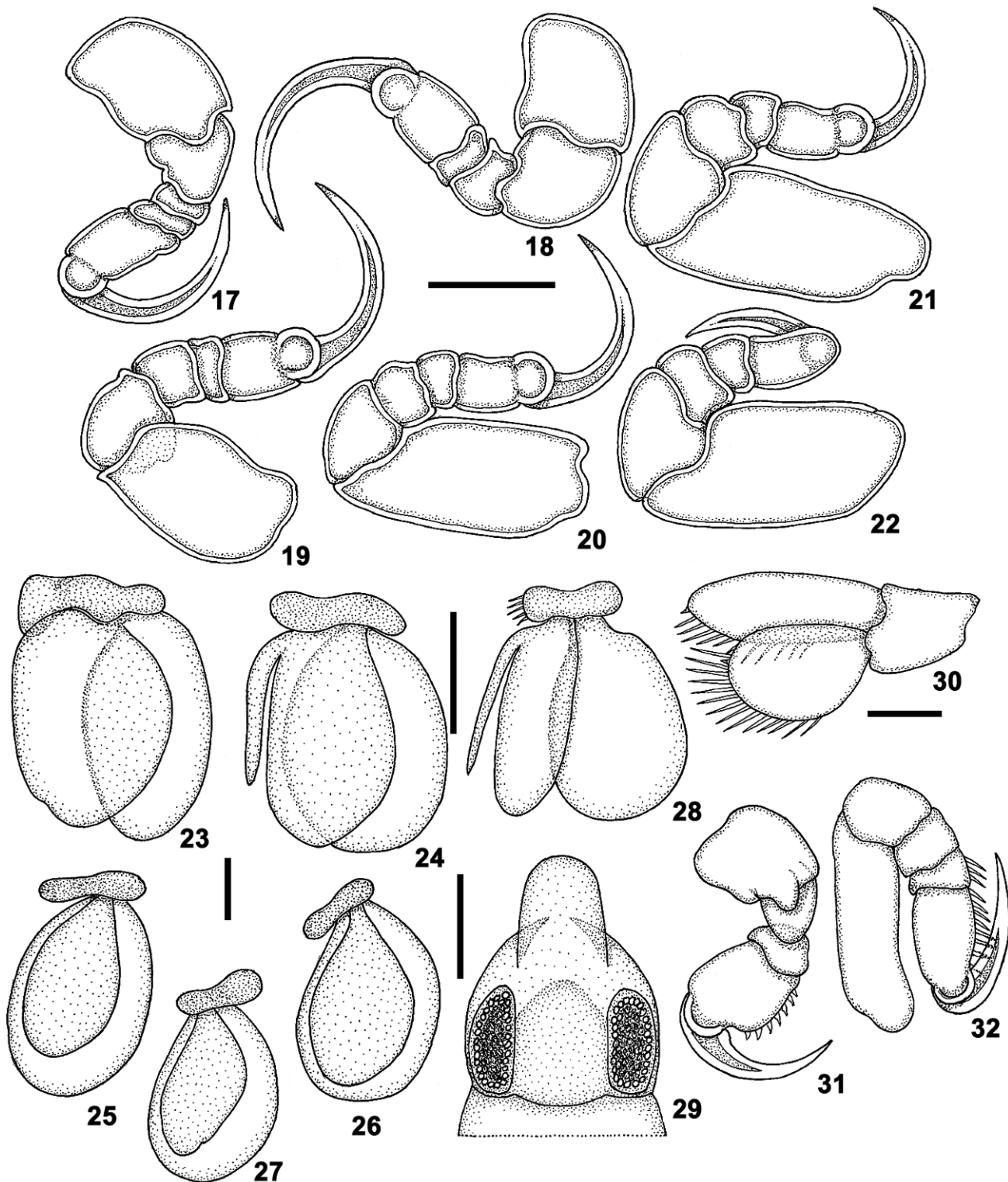
Description (103 females and three males examined; 10 females and three males measured: table I). Female: body about twice as long as wide, asymmetrical, not highly convex, widest at level of pereonites 5 and 6 (Figs 1-2). Cephalon not much immersed in pereonite 1, eyes prominent, frons rounded.

Mouthparts (Figs 6-10): mandible with terminal incisor, palp of three articles, slightly longer than mandible; maxillule with four terminal recurved spines; maxilla bilobed with one or two small terminal spines on each lobe; maxilliped with medial lobe and two-spined palp. Antennule (Fig. 11) of eight articles; antenna (Fig. 12) of 9 articles. Pereon: pereonite 1 longer than others and 7 shorter; coxal plates not extending beyond respective pereonite; pereopods (Figs 13 and 17-22) relatively short but with long dactyls.

Oostegites as in figure 16. Pleon (Figs 1 and 15): pleonite 1 as wide as, or wider than, pereonite 7 and partially immersed

therein; pleonites 2-5 progressively narrowing; 5 subequal in width to pleotelson; 5 longest, others subequal in length; all pleonites laterally produced. Pleotelson tapered posteriorly, about as long as wide. Uropods extending to or slightly beyond posterior margin of pleotelson; exopod longer than endopod, both rami slender (Fig. 14). Pleopods simple, bilaminar (Figs. 23-27); pleopod 2 with appendix masculinum.

Male (Figs 3, 4 and 28): Body nearly three times longer than wide, little convex. Cephalon not immersed in pereonite 1; frons produced in younger specimens; eyes large. Pereon: pereonites 1-3 longer than 4-7; pereon widest at pereonites 4 and 5 but not as wide as in female. Pleon not much narrower than pereonite 7; pleonites not produced laterally. Uropods extend beyond posterior margin of pleotelson. Appendix masculinum on pleopod 2 longer and more slender than that of female. Other characters as in female.



Figures 17-32. *Lironeca desterroensis* sp. nov.: (17-22) female, pereopods 1-6; (23-27) female pleopods 1-5; (28-32) male: (28) pleopod 2, (29) cephalon of pullus II, (30) uropod of pullus II, (31) pereopod 1 of pullus II, (32) pereopod 6 of pullus II. Scales: 17-32 = 1000 μ m, 28 = 1000 μ m, 29 = 500 μ m, 30-32 = 200 μ m.

Table 1. Measurements (mm) of 10 females and three males of *Lironeca desterroensis* sp. nov.

	Body		Pleotelson	
	Length	Width	Length	Width
Females	20	10	4	5
	20	10	4	5
	18	9	3	4
	18	9	4	4
	17	8	3	3
	17	8	4	4
	16	8	4	4
	15	8	4	4
	15	7	3	4
	15	7	3	3
Means	17	8.4	3.6	4.0
Males	14	5	2.5	2.5
	12	4	2	2
	11	4	2	2
Means	12.3	4.3	2.2	2.2

Pullus II (Figs 29-32): Cephalon with prominent anterior extension (frons); eyes large. Pereopods with numerous spines especially on propodus and carpus. Uropods with marginal setae.

Pathology (Fig. 5): *Lironeca desterroensis* sp. nov. is large for the host it invades and therefore causes extensive destruction of gill filaments which in turn reduces the host's metabolic

capacity. Although no data are presently available with respect to growth in these fish, a reduction in metabolic capacity normally slows growth.

DISCUSSION

Lironeca desterroensis sp. nov. differs from the only known local species of the genus, *Lironeca redmanni* Leach, 1818, in the following respects. In the new species, the pleon and pleotelson are wider; the pleonites are laterally produced in the female; the uropods have slender rami (not wide spatulate rami) and the larval stage (Pullus II) has a prominent anterior projection.

ACKNOWLEDGEMENTS

The authors thank the following institutions and individuals for their collaboration: Financial assistance was provided by the Departamento de Estradas de Rodagem, Santa Catarina State (DER-SC) through the project on environmental monitoring along the express highway SC-Sul, Baía Sul, Florianópolis. Logistical support was provided by CTTMar/UNIVALI, the Third Pelotão of Environmental Police of Santa Catarina and by the Santa Catarina Yacht Club. The oceanographer, Giuliano P.C.M. Huergo, and the fisherman, Maciel Antônio, aided in collecting fish hosts and the historian, Alceu A. da Conceição provided information on the origin of the name "desterro."

REFERENCES

- THATCHER, V.E. 1991. Amazon fish parasites. *Amazoniana*, Ploen, **11** (3/4): 263-571.
- . 2000. The isopod parasites of South American fishes, p. 193-226. In: G. SALGADO-MALDONADO; A.N.G. ALDRETE & V.M. VIDAL-MARTÍNEZ (Eds). *Metazoan Parasites in the Neotropics: A systematic and ecological perspective*. Mexico, Instituto de Biología, Universidad Nacional Autónoma de México Press, 310p.
- TRILLES, J.P. 1991. Catalogue mondial des Cymothoidae. *Studia Marina*, Kotor, **21/22** (1-2): 5-288.

Received in 25.XI.2002; accepted in 15.V.2003.