A NEW GENUS AND TWO NEW SPECIES OF FRESHWATER CRABS FROM MÉXICO, *ODONTOHELPHUSA TONINAE* AND *STYGOHELPHUSA LOPEZFORMENTI* (CRUSTACEA: BRACHYURA: PSEUĐOTHELPHUSIDAE)

Fernando Alvarez and José Luis Villalobos

Abstract. — *Odontothelphusa toninae* is described from the State of Chiapas. This is the third species of the genus *Odontothelphusa*, extending its range to the south and east. *Stygothelphusa lopezformenti*, a new genus and species, is described from northern Oaxaca, and is a cave-dwelling species with advanced modifications for a troglobitic life.

With the new species described in this paper, and others recently published (Alvarez 1989, Rodríguez & Hobbs 1989), the Isthmus of Tehuantepec appears, potentially, as the geographical area with the highest diversity of pseudothelphusid crabs. *Odontothelphusa toninae*, new species, is the third known species of the genus and it is probably the most primitive one, being the most similar to the *Potamocarcinus* line. *Stygothelphusa lopezformenti*, new species, is a cave-dwelling species which is highly modified from the typical pseudothelphusid body plan. Although it does not appear as specialized as the species of the genus *Typhlopseudothelphusa* Rioja, 1952, this new species is in a very advanced stage of adaptation to the cave environment, suggesting an established troglobitic life style. A comparison of the lengthening of appendages is presented between *Typhlopseudothelphusa* and *Stygothelphusa*, new genus, using the same ratios used by Rodriguez & Hobbs (1989). All the specimens are deposited in the Carcinological Collection, Instituto de Biología, Universidad Nacional Autónoma de México (IBUNAM). The gonopod terminology used is that proposed by Smalley (1964) and by Smalley & Addkison (1984). Carapace breadth and carapace length are abbreviated as cb and cl; catalog numbers are preceded by the letters EM which denote an access number; and the abbreviation USNM is for the Smithsonian Institution, National Museum of Natural History, Washington, D.C.

*Odontothelphusa* Rodriguez, 1982

Remarks. — This genus was proposed by Rodriguez (1982) for a species treated by Pretzmann (1968) as *Potamocarcinus* (*Zilchia*) *maxillipes* (Rathbun, 1898). The character that justified *Odontothelphusa* was the distinctly flattened apical part of the male gonopod with two spines on the mesodistal angle; one larger, strong spine on the mesoproximal angle, and a simple marginal process that does not reach the apex of the gonopod. In contrast, the genus *Potamocarcinus* exhibits a large triangular cephalic tooth and one or two smaller cephalic teeth, the apex of the gonopod is not flattened along a caudocephalic axis, and the marginal process is recurved over the apex. Recently, Rodriguez & Hobbs (1989) described *O. monodontis* from Grutas del Coconá in the State of Tabasco, México, which became the second species in the genus.

*Odontothelphusa toninae*, new species

Fig. 1

Holotype. — δ, cb 56.4 mm, cl 37.2 mm; small stream passing through the ruins of
Fig. 1. Left gonopod and left third maxilliped of Odontothelphusa toninae, new species: a, lateral view; b, mesial view; c, cephalic view; d, apical view; e, left third maxilliped, outer view. Scale bars: a–d = 1 mm; e = 5 mm.
Tonina, Municipio de Ocosingo, Chiapas (16°53'N, 92°00'W), 8 Apr 1986, colls.: J. L. Villalobos, A. Cantu, and J. C. Nates; IBUNAM EM-7912.

Material examined.—7 º (juveniles), cb 26.1, 25.8, 25.6, 23.1, 18.5, 14.4, 14.4 mm, cl 17.8, 17.5, 17.7, 15.9, 12.8, 10.6, 10.2 mm; 1 ª, cb 33.4 mm, cl 22.4 mm; same locality and collectors as holotype; IBUNAM EM-7912A. 2 º, cb 34.7, 30.3 mm, cl 22.8, 20.6 mm; 4 ª, cb 47.6, 25.7, 25.3, 20.9 mm, cl 31.2, 17.2, 17.1, 14.5 mm; highway Ocosingo-Palenque km 125, Chiapas (17°01'N, 92°08'W), 9 Apr 1986, colls.: D. Valle and E. Lira, IBUNAM EM-5770.

Description.—Carapace slightly convex. Frontal borders well marked; superior one straight, divided by median groove, inferior one continuous, bilobed in frontal view.

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Table 1.—Comparison of some ratios of troglobitic species of the genera Typhlopseudothelphusa Rioja, 1952, and Stygothelphusa, new genus.

<table>
<thead>
<tr>
<th>Ratio</th>
<th>T. hyba</th>
<th>T. acanthochela</th>
<th>T. mocinoa</th>
<th>S. lopezformenti</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carapace breadth/carapace length</td>
<td>1.46</td>
<td>1.53</td>
<td>1.58</td>
<td>1.86</td>
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<tr>
<td>3rd pereiopod length/carapace breadth</td>
<td>1.60</td>
<td>2.22</td>
<td>1.66</td>
<td>1.41</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Segments of 3rd pereiopod</th>
<th></th>
<th></th>
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<th></th>
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<tbody>
<tr>
<td>Carpus/merus</td>
<td>1.35</td>
<td>0.34</td>
<td>0.38</td>
<td>0.38</td>
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<tr>
<td>Propodus/merus</td>
<td>0.66</td>
<td>0.68</td>
<td>0.69</td>
<td>0.60</td>
</tr>
<tr>
<td>Dactyl/merus</td>
<td>0.74</td>
<td>0.53</td>
<td>0.57</td>
<td>0.62</td>
</tr>
</tbody>
</table>

1 Rodríguez & Hobbs (1989).
2 Holotype (USNM 216239).
3 Paratype (USNM 93740).

 Gin with tiny tubercles, internal and inferior margins with well defined spines of uniform size. Interior margin of carpus with typical large spine and 4 smaller spines proximally. Palm of right chela smooth, with distinct ridge on superior margin bearing small granules and spines; inferior margin similar to superior margin. Fingers gaping, dactyl with large proximal tooth, one small tooth proximal to large tooth, 10 small teeth distal to large tooth. Propodus with alternate large and small teeth. Propodus and dactyl slightly curved mesially, covered with small tubercles and spines forming 8 discernible longitudinal rows. For a comparison of ratios between Stygothelphusa, new genus, and Typhlopseudothelphusa, see Table 1.

Type species.—Stygothelphusa lopezformenti, new species.

Etymology.—The generic name is derived from the Latin "stygo" (subterranean waters) and "thelphusa," generic name for freshwater crabs.

Stygothelphusa lopezformenti, new species

Figs. 2, 3

Holotype.—♂, cb 47.2 mm, cl 25.6 mm; Cueva del Brujo, Rancho el Guayabo, 4 km south of Jacatepec, Municipio Valle Nacional, Oaxaca, 8 Oct 1968, coll.: W. López-Forment; IBUNAM EM-10034.

Description.—Gonopod straight and strong. In cephalic view, proximal 2/3 of gonopod twice as thick as distal 1/3. Mesial process semicircular in mesial view, with proximal field of spines; subtriangular in caudal view. In lateral view, gonopod uniformly broad with mesial process protruding distally. Lateral surface with 3 strong spines coming out from lateral crest. Marginal process simple, straight, reaching apex. In apical view, mesial process very prominent, slightly curved laterally, apex cavity elongated, field of setae in cephalic portion, field of small spines in caudal portion.

Etymology.—The species name is derived from the collector's name William López-Forment.

Remarks.—A new genus is proposed due to the unique body proportions found in this crab and to the distinct gonopod morphology. This genus is placed in the Tribe Potamocarcinini based on the following characters: straight gonopod with elongated apical field of spines, and a very large mesial spine [equivalent to the "strong triangular tooth" defined by Rodríguez (1982)]. In posterior view, there are similarities among the gonopods of S. lopezformenti and Potamocarcinus richmondi, P. magnus, P. aspoekorum, and P. leptomelus, namely the position of the marginal process and appearance of mesial process. However, the gonopod’s apex is not Potamocarcinus-like, resembling more the typical Pseudothelphusa morphology. The pereiopods of S. lopezformenti are intermediate between those
Fig. 2. Left gonopod, left third maxilliped, and major chela of *Stygothelphusa lopezformenti*, new species: a, mesial view; b, cephalic view; c, lateral view; d, apical view; e, left third maxilliped; f, right chela, outer view. Scale bars: a–e = 1 mm; f = 5 mm.
of the genus *Typhlopsudeothelphusa* and those of epigean species. The carapace breadth/carapace length ratio is higher in species of *Stygothelphusa* than in species of *Typhlopsudeothelphusa*. However, the ratio of third pereiopod length/carapace breadth exceeds 1.6 in species of *Typhlopsudeothelphusa*, whereas in species of *Stygothelphusa* this ratio is lower due to the proportionally wider carapace. In *S. lopezformenti* the eyes are still complete, although the elongation of appendages and the lack of pigmentation suggest a troglobitic life style.

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Literature Cited


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