NOTES AND NEWS

A NEW RECORD OF HYALELLA AZTECA SAUSSURE, 1858 (AMPHIPODA, HYALELLIDAE) FROM THE LERMA-CHAPALA BASIN, MEXICAN PACIFIC COAST

BY

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INTRODUCTION

Biodiversity in wetlands has decreased as a result of the development of anthropogenic activities such as agriculture, industry, and urban growth (Moreno & Callisto, 2006). The most important freshwater areas along the Pacific coast of Mexico are the Balsas-Tepalcatepec basin to the south and the Lerma-Chapala basin to the north (19-20°N 101-102°W). The second one includes five lakes, one pond, five springs, and seven dams, among which the lakes of Pátzcuaro, Zirahuén, and Cuitzeo are notable for their area, and also for the adjacent human settlements as well as for farming and fishing as economic activities (Correa et al., 1983; Arriaga-Cabrera et al., 2000).

Hyalella azteca Saussure, 1858 is an abundant amphipod in aquatic communities of invertebrates associated with submerged macrophytes, emergent macrophytes, floating-leaves macrophytes, freely floating vegetation, and soft bare substrates, in limnetic ecosystems across the American continent (Poi de Neiff & Bruquetas de Zozaya, 1989; France, 1992; Hann, 1995; Benke et al., 1999; Merritt et al., 1999; Taylor et al., 1999; Wissinger & Gallagher, 1999; Yozzo & Diaz, 1999; Alcocer et al., 2000; Angradi et al., 2001; Cheruvilil et al., 2002). It has been studied widely in regard to its ecology, life history, biology, and, especially, toxicology. Nevertheless, studies on the ample variation of its morphology, fecundity, predation by fish, as well as isolation and reproductive strategies, all refer to it as H.
**azteca** (cf. Strong, 1972; France, 1992; Wellborn, 1994a, b, 1995, 2000; McPeek & Wellborn, 1998; Marsden & Rainbow, 2004). In Mexico, records of *H. azteca* are scarce (Alcocer et al., 2000; Arriaga-Cabrera et al., 2000; González & Watling, 2002) and the studies of the principal lakes of the Lerma-Chapala basin have focused mainly on the ichthyofauna, aquatic invertebrates other than amphipods, and water quality (Chacón-Torres & Rosas-Mongue, 1998; Soto-Galera et al., 1998).

**MATERIALS AND METHODS**

A total of 54 trawls and 54 cores was obtained during daylight hours from the lakes Cuitzeo and Pátzcuaro. Amphipods associated with freely floating and submerged aquatic macrophytes were collected with a butterfly net (0.44 m² sampling area) that was towed parallel to the coast along the littoral. The samples of infauna were obtained with a steel corer with an area of 0.33 m² and 20.5 cm diameter. *Hyalella azteca* was identified following the taxonomic characteristics proposed by Bousfield (1973) and González & Watling (2002). Temperature, depth, dissolved oxygen, total phosphorus, nitrates, and sediment organic matter were measured in both lakes following conventional techniques (APHA, 1989).

**RESULTS**

Specimens collected in Cuitzeo and Pátzcuaro included 8,309 macroinvertebrates of which 4,889 were amphipods (58.8%) and all were identified as *Hyalella azteca*. The epifauna yielded 97% of the amphipods found and 3% came from the infauna. *H. azteca* was collected in areas shallower than 1 m. Physico-chemical parameters were similar in both lakes (table I).

In Cuitzeo, 1,535 amphipods were collected from the roots of the water hyacinth, *Eichhornia crassipes* (Mart.) Solms and 24 were caught from soft bare substrates. In contrast, in Pátzcuaro 3,323 specimens were associated with *E. crassipes* and the submerged vegetation of *Potamogeton* sp. and *Myriophyllum*

<table>
<thead>
<tr>
<th>Lake</th>
<th>T (°C)</th>
<th>Z (m)</th>
<th>pH</th>
<th>O₂D (mg l⁻¹)</th>
<th>TP (µg l⁻¹)</th>
<th>NO₃ (mg l⁻¹)</th>
<th>OM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cuitzeo</td>
<td>25</td>
<td>0.48</td>
<td>7.26</td>
<td>7.50</td>
<td>2.03</td>
<td>0.52</td>
<td>0.108</td>
</tr>
<tr>
<td>Pátzcuaro</td>
<td>21</td>
<td>0.97</td>
<td>7.13</td>
<td>7.21</td>
<td>5.11</td>
<td>0.60</td>
<td>0.067</td>
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</tbody>
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