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CRUSTACEANS IN FRESHWATER BODIES IN A COASTAL PROTECTED AREA (41°S, KATALAPI PARK, CHILE)

BY

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The coastal inland waters in Chile had been relatively poorly studied, and the main studies available were based on species reports, mainly of crustaceans, but there were no studies at community level (Jara et al., 2006). The northern region of Patagonia south of 40°S has numerous native forests with small water bodies such as rivers, small lakes, ephemeral pools, streams and wetlands (Niemeyer & Cereceda, 1984). Unfortunately, in recent decades fragmentation of habitats has been reported, with the consequence of habitat loss for the endemic aquatic fauna (Jara et al., 2006).

The present study was done in a private protected area in coastal mountains, close to Puerto Montt (41°S), called Katalapi Park, with perennial vegetation of forests and shrubs (Escandón et al., 2013). One pool, three streams, and two rivers were visited in January 2013 (table I). In each case, pH, temperature, total dissolved solids and conductivity were measured with an Hanna sensor, and a plankton sample was collected in the pool, called Chapito Laguna, using an Apstein net (20 cm mouth diameter and 80 μm mesh size), whereas for the streams and rivers samples were collected using a Surber net (50 $\times$ 50 cm, 100 μm mesh size). Specimens collected were fixed with absolute ethanol and identified with specialized literature (Schmitt, 1942; Araya & Zúñiga, 1985; González, 2003).

Three species can here be reported from Chapito Laguna, i.e., the cladoceran branchiopods *Simocephalus* sp. and *Chydorus sphaericus* (O. F. Müller, 1785), and the cyclopoid copepod, *Eucyclops serrulatus* (Fischer, 1851). This last species was also observed in stream 2. The amphipod, *Hyalella chiloensis* González & Watling, 2001 is reported to live in streams 3 and 4. The anomuran decapod *Aegla*

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TABLE I

Geographical location, temperature, total dissolved solids, conductivity, pH and species reported for the sites studied

	Chapito Laguna (41°31′17.6″S 72°45′13.3″W)	Stream 1 (41°31′17.6″S 72°45′13.9″W)	Stream 2 (41°31′19.6″S 72°45′15.9″W)	Stream 3 (41°31′17.3″S 72°45′07.9″W)	Arroyo 4 (41°31′17.3″S 72°45′07.9″W)	Tineo river 1 (41°31′22.5″S 72°45′12.1″W)	Tineo river 2 (41°31′23.0″S 72°45′03.3″W)
Temperature (°C)	13.8	13.6	14.6	17.0	18.7	16.5	15.9
Total dissolved solids (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Conductivity (mS/cm)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
pH	8.88	8.94	7.57	7.56	7.57	7.29	7.70
BRANCHIOPODA, CLADOCERA:							
Simocephalus sp.	X						
Chydorus sphaericus (O. F. Müller, 1785)	X						
COPEPODA, CYCLOPOIDA:							
Eucyclops serrulatus (Fischer, 1851)	X		X				
AMPHIPODA:							
Hyalella chiloensis Gonzalez & Watling, 2001				X	X		
DECAPODA, ANOMURA:							
Aegla abtao Schmitt, 1942		X				X	X

abtao Schmitt, 1942 is reported for stream 1 and the river localities Tineo 1 and Tineo 2 (table I).

These results would agree with similar reports on numbers of species for valleys and mountain water bodies in Chilean Patagonia, where in permanent and ephemeral pools two to six species can usually be found (De los Ríos & Roa, 2010), whereas in rivers it is possible to find one to three species of crustaceans (Figueroa et al., 2007; Moya et al., 2009).

The cladocerans in Chapito Laguna, *Simocephalus* sp. and *C. sphaericus*, are the main elemants in that zooplankton fauna and as such typical of mesotrophic shallow ponds, as well as for some pristine mountain lakes (De los Ríos-Escalante et al., 2012). This is a different pattern in comparison to that seen in Patagonian lakes, which have also a low species number, with a maximum of five species, but with a high dominance of calanoid copepods, and a low abundance or practically an absence of daphniids (De los Ríos-Escalante, 2010). Recent reports still mention that many wetlands located inside native forests have been poorly studied (Correa-Araneda et al., 2011) and the few studies about these ecosystems that have been published indicated that only low numbers of species of crustaceans, primarily cladocerans, can be found in such water bodies, such in the absence of calanoids (De los Ríos-Escalante et al., 2012).

As regards rivers, the literature on Patagonian rivers mentions the presence of species of the genera *Aegla* and *Hyalella* in many rivers in Patagonian, but both genera do not coexist in the same site (Figueroa et al., 2003, 2007; Oyanedel et al., 2008; Moya et al., 2009; Valdovinos et al., 2010). The possible cause would be the different ecological niches of both these genera, because *Aegla* inhabits not or only low polluted sites, mainly associated with the higher zones of the river, whereas *Hyalella* can inhabit zones with much organic matter, i.e., associated with the lower and intermediary reaches of the river (Figueroa et al., 2003, 2007).

If we consider that many of these water bodies are endangered due to human intervention, i.e., not only pollution but also habitat fragmentation, the presence and hence the preservation of endemic species may well be at risk (Jara et al., 2006). As a consequence, studying sites like these, as has been done in the present investigation, can be interesting for conservation purposes and further studies on aquatic crustaceans with a first aim at making an inventory as well as to understand the geographical patterns in the distribution of the species found.

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