



<http://dx.doi.org/10.11646/zootaxa.3904.2.2>

<http://zoobank.org/urn:lsid:zoobank.org:pub:676DA9F1-F2C1-44DA-ACCE-BDEAD7DBD7AF>

First faunal inventory of large branchiopods (Crustacea: Branchiopoda) of Western Maharashtra, India with taxonomical and distributional comments

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Abstract

An updated inventory of large branchiopods of the Western Maharashtra state, India is presented for the first time. Employing current identification keys, we have detailed the egg morphology of *Eulimnadia indocylindrova*, which shares some similarities with *E. geayi* from South America and *E. alluaudi* from Madagascar, based on these egg characters. A thorough re-description of few morphological traits of the same species is also presented. We also have described the female of a *Cyzicus* species seen rarely from the studied region. Distributional comments on few species are also reported.

Key words: *Artemia*, *Streptocephalus*, *Triops*, *Eulimnadia*, egg morphology

Introduction

There are about 550 species of large branchiopods worldwide (Ahyong *et al.* 2011). These animals, considered as the 'flagship' species of temporary water bodies, are one of the most conspicuous but least studied animal assemblages (Witham *et al.* 1998; Brendonck *et al.* 2008; Rogers 2009). Many groups of large branchiopods such as notostracans and spinicaudatans show morphological plasticity (Rogers 2009; Brendonck *et al.* 2008) making their taxonomical identification difficult. There have been recent revisions of many taxa using morphological and molecular techniques (Brendonck *et al.* 1992; 2000; Murugan *et al.* 2002; Weekers *et al.* 2002; Rogers 2006; Rabet 2010; Rabet *et al.* 2012; Rogers *et al.* 2012; Korn *et al.* 2013; Rogers *et al.* 2013; Schwentner *et al.* 2009, 2013) resolving some problems and posing new questions as well. The knowledge about the Indian large branchiopod distribution is fragmentary to date (Tiwari 1951; Longhurst 1955; Karande & Inamdar 1959, 1960; Royan & Alfred 1971; Raj 1971; Battish 1981, 1983; Balaraman & Nayar 2004; Babu & Nandan 2010; Rabet 2010; Simhachalam & Timms 2012). Many regions within the country still remain unexplored. High morphological variability, as mentioned before, has compounded the problem with many new species being described and subsequently synonymized. The Western region of Maharashtra is one such area with few scattered records of large branchiopods (Kulkarni 1953; Pai 1958; Karande & Inamdar 1959, 1960; Ghate & Shetty 1997; Ghate *et al.* 2003; Velu & Munuswamy 2003; John *et al.* 2004; Padhye *et al.* 2011a, 2011b; Vikas *et al.* 2011, Rogers & Padhye 2014) but with no comprehensive inventory. Western region of Maharashtra also incorporates a part of the Western Ghats which are known to have very high endemic flora and fauna (Myers *et al.* 2000). It thus becomes imperative to catalogue the large branchiopods from such regions.

The main aim of the study is therefore Maharashtra state, India based on new collections and previous records. Along with the inventory, we describe egg structure of *Eulimnadia indocylindrova* along with re-description of few of its conventional morphological traits and provide a complete description of female of a *Cyzicus* species.

acknowledge Dr. Yugandhar Shinde Dr. Avinash Vanjare, Mr. Shriraj Jakhalekar and Mr. Chandrakant Redican for their help during the field collections. We thank Sylvain Pont for SEM facility of the *Direction des Collections* located at the *Muséum National d'Histoire Naturelle*, Paris. Dr. Sameer Padhye would like to acknowledge Dr. Sanjay Molur, WILD and Dr. Neelesh Dahanukar, IISER, Pune for their support.

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