



Three new species of the freshwater snail genus *Tylomelania* (Caenogastropoda: Pachychilidae) from the Malili lake system, Sulawesi, Indonesia

THOMAS VON RINTELEN¹ & MATTHIAS GLAUBRECHT

Museum für Naturkunde, Humboldt-Universität zu Berlin, 10115 Berlin, Germany

¹Corresponding author. E-mail: thomas.rintelen@museum.hu-berlin.de

Abstract

The ancient Malili lake system on the Indonesian island Sulawesi hosts a large species flock of the viviparous freshwater gastropod *Tylomelania*. Molecular and morphological data have previously shown that this species flock resulted from three independent lake colonizations and subsequent adaptive radiations. In a recent taxonomic revision of these radiations 25 species have been recognized. Here we describe three new species from the system found during new sampling campaigns. Despite their highly distinct shell morphology, these species were previously overlooked because of their very restricted distribution range and, in one case, the very small size. Of these new species, two are endemic to a section of the Larona River, which drains the entire lake system, while the third species has only been found at one locality in central Lake Mahalona. The discovery of these species can contribute significantly to our understanding of evolution in the entire species flock, as two of the species form a basal branch of an entire clade and all show a high degree of habitat specialization. The local endemism of the Larona River species in particular makes them highly vulnerable to extinction caused by habitat destruction.

Key words: ancient lakes, freshwater, adaptive radiation

Introduction

The Indonesian island Sulawesi is the largest, ecologically most diverse (Whitten *et al.* 2002) and possibly also oldest (Hall 2002) island in the oceanic island area commonly known as Wallacea (Dickerson 1928). Its fauna is particularly rich in endemic taxa and has its fair share of endemic genera as well (Whitten *et al.* 2002). Among these is the viviparous pachychilid freshwater gastropod *Tylomelania* Sarasin & Sarasin, 1898 (Caenogastropoda: Cerithioidea). This group is mainly known for its speciose species flocks in the ancient lakes of Sulawesi, viz. Lake Poso and the Malili lakes (Fig. 1). These have recently been shown to constitute model cases of adaptive radiation (Rintelen *et al.* 2004; Rintelen & Glaubrecht 2005).

In the Malili lakes the detailed taxonomic study of new material collected since 1991 has led to a considerable revision of previous species diversity estimates in these lakes. Bouchet (1995) considered the number of 23 originally described species from both Lake Poso and the Malili lakes (species described by Sarasin & Sarasin 1897; 1898; Kruimel 1913) to be too high and suggested that only twelve biospecies occur in all ancient lakes of Sulawesi. Rintelen & Glaubrecht (2003) described two new lacustrine species from the Malili lakes and proposed 16 valid taxa to occur there alone, which is also the number described by the Sarasins and Kruimel for these lakes. Finally, 25 taxa have been recognized in a recent revision of the Malili lakes taxa including the description of nine new species (Rintelen *et al.* 2007).

Intensive new sampling from 2002–2005 in the Malili lake area has provided a hitherto unparalleled coverage of the system. As a first result from the analysis of this new material we here describe three new species