



Towards a more complete knowledge of the liverwort flora of Panama

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Abstract

One hundred and seven species, two subspecies and one variety of liverworts are newly reported from Panama including 27 species which were previously unknown from Central America. In total, 328 new province records are listed. The number of liverwort and hornwort species from Panama is now close to 470. Notes on the geographical distribution of the species are provided.

Key words: diversity, liverworts, new records, Neotropics

Introduction

A first checklist of liverworts and hornworts of Panama was compiled by Stotler et al. (1998) who reported 289 species including 4 species of hornworts. Subsequently, Dauphin et al. (2006) added 27 liverwort and eight hornwort species, and Dauphin (2007) some further 24 liverworts. Costa (2008) presented new records of six species of *Metzgeria*, and Ilkiu-Borges (2006) five species of *Prionolejeunea*. Further new records of liverworts are found in scattered literature which appeared since the first checklist of 1998, e.g. Dauphin (2003), Dauphin & Gradstein (2003), He (1999), Heinrichs (2002), Heinrichs & Gradstein (2000), Heinrichs et al. (1999; 2002), Morales & Dauphin (1998), Reiner-Drehwald (2005; 2010a), Reiner-Drehwald & Schäfer-Verwimp (2008), Reiner-Drehwald et al. (2013), Salazar Allen (2001; 2005), Schäfer-Verwimp (2012), So (2005), and others. Sporadically, liverwort taxa from Panama have also been included in molecular studies, for example by Dong et al. (2012), Heinrichs et al. (2012; 2012a; 2013; 2014; 2014a; 2014b), Villarreal et al. (2010), and Ye et al. (2013). In this paper, 110 new records of liverwort taxa are presented, raising the number of liverwort and hornwort species from Panama to about 470 (Schäfer-Verwimp, ms).

The collections have been made by the author and his wife Inge Verwimp during two short stays in 2010 and 2013. The collection sites are listed below. All distributional data referring to the provinces of Panama are based on the overview of Stotler et al. (1998), if not indicated otherwise. The nomenclature adopted by Stotler et al. (1998) is given in brackets if a deviant nomenclature is used.

Voucher specimens are stored in the herbarium of the author, which will be deposited in JE; duplicates are indicated.

List of localities (the coordinates are based on WGS 84; the collection numbers are given in brackets).

Prov. Panamá

1 Cerro Jefe, humid secondary vegetation along unpaved road, 750–1000 m, 9°13.4–5' N, 79°22.7–9' W, 29 Mar 2010 [30720–30742].

Prov. Coclé

2 El Valle de Anton, Alto de La Mesa, cultivation area with remnants of secondary rain forest, 800–850 m, 8°38' N, 80°07' W, 31 Mar 2010 [30743–30758].

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