



New species of *Crotonia* (Acari: Oribatida: Crotoniidae) from Lord Howe and Norfolk Islands: further evidence of long-distance dispersal events in the biogeography of a genus of Gondwanan relict oribatid mites

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Abstract

Three new species of oribatid mite belonging to the genus *Crotonia* are described: one from Lord Howe Island (*C. gorgonia* **sp. nov.**) and two (*C. norfolkensis* **sp. nov.** and *C. utricularia* **sp. nov.**) from Norfolk Island, South-west Pacific. *Crotonia gorgonia* **sp. nov.** belongs to the Capistrata species group which reaches its highest diversity in Australia but is absent from New Zealand. *Crotonia norfolkensis* **sp. nov.** is a member of the Cophinaria group, recorded from Australia, New Zealand and New Caledonia, but with closest morphological similarity to *C. brachyrostrum* (Hammer, 1966) from New Zealand. *Crotonia utricularia* **sp. nov.** belongs to the Unguifera group, which reaches its highest diversity in New Zealand, is absent from Australia, and is present on Vanuatu and the Marquesas. The distribution of members of the species-groups of *Crotonia* in the south-western Pacific indicates that the species from Lord Howe Island has affinities with species from Australia, while the species from Norfolk Island are both most similar to species from New Zealand, and represents further evidence of the capacity of *Crotonia* spp. for long-distance dispersal to oceanic islands.

Key words: Mite, oribatid, taxonomy, morphology, long-distance dispersal, biogeography, island faunas, Pacific

Introduction

The Gondwanan relict oribatid mite genus *Crotonia* is of considerable biogeographical and evolutionary interest. Its distribution shows harmonic Gondwanan and disjunct trans-Pacific vicariant patterns (Colloff, 2009b), with the majority of the 68 species (including those described herein) recorded from South and Central America, Africa, Australia, New Zealand and New Caledonia. But there is also evidence of dispersal events, with four species recorded from oceanic islands in the Atlantic (St. Helena and the Falkland Islands) and three species from the Pacific (The Marquesas, Vanuatu and Campbell Island). The present paper provides additional evidence of long-distance dispersal events to oceanic islands.

This is the sixth in a series of papers on *Crotonia* in the Australasian region. Previous publications have dealt with the genus in Tasmanian rainforest (Colloff, 2009a), species-group concepts and biogeography (Colloff, 2009b); phylogenetic relationships of *Crotonia* and related genera (Colloff & Cameron, 2009); species in rainforests and wet sclerophyll forests in Victoria (Colloff & Perdomo, 2009) and Queensland (Colloff, 2010). As a result, and with contributions by Olszanowski (2000) and Łochyńska (2008a), knowledge of the systematics and biogeography of *Crotonia* in the region has been substantially revised. Taken together with previous work from New Zealand and South-western Pacific islands (Hammer, 1966; Wallwork, 1966; Wallwork, 1977a; Hammer & Wallwork, 1979; Luxton, 1982; Łochyńska, 2008b) some biogeographical patterns of the species-groups are starting to emerge. Species-groups represent an appropriate unit for the study of biogeographical patterns of *Crotonia* because many species represent short-range endemics (Colloff, 2009b; Colloff, 2010) and most have not been recorded from other than the vicinity of their type locality. In a recent review of *Crotonia*, Colloff (2009b) proposed a revised series of six species-groups of which three occur in Australia: Capistrata, Cophinaria and Lanceolata. Two new species-groups,