



New species of *Crotonia* (Acari: Oribatida) from Tasmania Rainforest, and the habitat preferences of Crotoniidae

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Abstract

Two new species of oribatid mite belonging to the genus *Crotonia* are described from tree trunks and their associated bryophytes in callidendrous rainforest, dominated by *Nothofagus cunninghami*, in Northeastern Tasmanian: *C. tasmaniana* **sp. nov.** and *C. pyemaireneri* **sp. nov.** *Holonostrus ryszardi* Łochyńska, 2008 is designated the junior subjective synonym of *Crotonia ovata* Olszanowski, 2000, and a supplementary description of the latter species is provided. The apparent arboreal habitat preferences of crotoniid mites are considered. In Tasmanian rainforest, the frequency of occurrence of these mites in moss on bark is higher than in terrestrial habitats, but not significantly so. High rainfall, a closed canopy, a low mean annual temperature and a consequent extensive corticolous and terricolous cover of bryophytes presents a continuum for these mites between ground and above-ground habitats.

Key words: Mite, taxonomy, Oribatida, Crotoniidae, morphology, systematics, Gondwana, relict, Tasmania, conservation, corticolous, habitat preference, arboreal

Introduction

The family Crotoniidae contains the genera *Austronostrus*, *Crotonia* and *Holonostrus*. Almost all species are confined to the Southern Hemisphere. *Crotonia* is the most diverse and widely distributed genus, with 34 species listed by Subías (2004) from Australia, New Zealand, Oceanic Islands, Africa and South and Central America. *Holonostrus* contains 12 described species with a similar distribution to *Crotonia*, and the monotypic genus *Austronostrus* is known from New Zealand. Crotoniids have been regarded as predominantly arboreal, or at least occurring in above-ground vegetation (Luxton 1982).

The cool temperate rainforests of Tasmania are of international conservation significance (Jarman & Brown 1983; Jarman *et al.* 2005; Brown & Read 1996; Read 2005). Located mostly in the Western and Northwestern part of the State, rainforests occupy about 760,000 ha (11%) of Tasmania (cf. maps in references cited above). The dominant tree species include Myrtle Beech (*Nothofagus cunninghami*), Sassafras (*Atherosperma moschatum*), Leatherwood (*Eucryphia lucida*) and Celery Top Pine (*Phyllocladus asplenifolius*) (Jarman & Brown, 1983; Jarman *et al.* 2005). The diversity of invertebrates in these rainforests has been surveyed intensively and quantitatively (Coy *et al.* 1993 and references therein), including the isolated Northeastern rainforests (Brown 1992), from which the species described herein were found. The acarine material from the Tasmanian Rainforest Invertebrate Survey, deposited in the Australian National Collection of Insects (ANIC), is the subject of on-going taxonomic studies. For oribatid mites, these include the Euptyctima (Colloff & Niedbala 1997; Niedbala & Colloff 1997) and Crotoniidae (Łochyńska 2008a, 2008b).

The material from the Tasmanian Rainforest Invertebrate Survey is of particular biogeographical and ecological importance in relation to the Crotoniidae because of the Gondwanan relictual distribution of the family (Hammer & Wallwork 1979) and its tendency toward arboreal habitats. Some 158 samples in the