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Austral Hepaticae 50. *Gackstroemia* in New Zealand, together with an interesting new species

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Abstract

Gackstroemia novae-zelandiae sp. nov. is added to the genus *Gackstroemia*, a genus confined to the south temperate. The new species has been previously included within *G. weindorferi*, and is endemic to New Zealand. *Gackstroemia weindorferi* of New Zealand and Australia (Tasmania, Victoria, and New South Wales) and *G. alpina* are also treated.

Key words: liverworts, Marchantiophyta, *Gackstroemia*, Lepidolaenaceae, taxonomy

Introduction

The Lepidolaenaceae were established by Nakai (in Ogura, 1943) and have been revised by Grolle (1967). Hodgson (1959) regarded the New Zealand plants placed by Grolle in *G. weindorferi* as identical to *Lepidolaena magellanica* (Lamarck 1792: 284) Evans (1892: 140) (= *Gackstroemia magellanica* (Lamarck 1792: 284) Trevisan (1877: 397). In fact *Gackstroemia* Trevisan (1877: 397) had been uniformly treated as a synonym of *Lepidolaena* Dumortier (1835: 13) until Grolle (1967) reinstated the genus. Grolle (1967) treated all Australasian plants of *Gackstroemia* as a single species *G. weindorferi* (Herzog in Verdoorn 1933: 103) Grolle (1967: 20), the type of which is from Tasmania. Schuster (1973), however, argued that the plants assigned by Grolle to *G. weindorferi* did not agree with the Tasmanian plants sensu the description and illustration of that species in Grolle (1967). Schuster (1973, p. 348) included a table contrasting the New Zealand plant from the Tasmanian population, and documented differences in capsule shape and thickness, pattern of thickenings of the capsule wall inner layer of cells, spore wall sculpture and diameter, and elater diameter. In addition Schuster (1973, p. 350) described the New Zealand population as having 3–4-spiral elaters that are "exceedingly variable in diam., length and form" vs. narrower elaters (6.5–7.5 μm in diameter) and 2-spiral in *G. weindorferi* (Grolle, 1967). Schuster (1973, p. 348) concluded that Grolle's "description is so much at variance with the New Zealand plant that, clearly, something is very wrong with (a) either [his] diagnosis or (b) his assumption that the Tasmanian and New Zealand plants represent a single taxon." Schuster (1973, p. 348) then concluded that "the discrepancies are sufficiently numerous that, I think, a re-investigation is needed, which will be reported on at such a time that enough sporophyte material has become available."

Unfortunately production of sporophytes in *Gackstroemia* is infrequent. The detailed description and illustration of the sporophyte of *G. weindorferi* in Grolle (1967) were based on Tasmanian material. Details of the sporophyte as well as gynoecium published in Schuster (1973) were based on material that he collected in New Zealand. Schuster (1973) noted that the New Zealand plants are (p. 348) "lowland," but may extend to ca. 4500 ft. in the North Island, comparing it to elevations found for *Nothofagus menziesii* forest. Schuster (1973, p. 349) stated that "although Grolle refers both the Tasmanian [type] plant and those from New Zealand to *G. weindorferi*, the sporophyte differences cited [in Schuster's table] suggest that if the observations of Grolle are correct, the lowland New Zealand plant cannot be identical to the Tasmanian." A

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