

## A new combination for *Parmelia protosignifera*, an overlooked species of *Notoparmelia*

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ABSTRACT. – The new combination *Notoparmelia protosignifera* is proposed for *Parmelia protosignifera*. The species is illustrated and discussed briefly.

KEYWORDS. – Australia, biodiversity, lichens, *Parmelia*, Parmeliaceae, Tasmania.

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### INTRODUCTION

*Notoparmelia* A. Crespo, Ferencova & Divakar is a recent segregate of the large genus *Parmelia* Ach., a group which was, historically, the repository for almost all foliose lichens, but which has been progressively refined and revised over the last two centuries. The changes to the delimitation of *Parmelia* were based initially purely on morphology, then with the addition of anatomical and chemical features, and, most recently, on the basis of DNA-sequence data. *Notoparmelia* comprises a group of essentially Australasian species. It was recognised as a distinct lineage within *Parmelia* sensu stricto by Crespo et al. (2010), and then segregated formally by Ferencova et al. (2014) on the basis of additional micromorphological and anatomical characters, chiefly pertaining to the exciple and ascospores. The salient features of *Notoparmelia* are the foliose, grey thallus (due to cortical atranorin), with well-developed lobes with marginal and/or laminal, elongate pseudocyphellae, and the black lower surface with abundant rhizines. These features are shared with *Parmelia* sensu stricto, from which *Notoparmelia* differs by having generally larger apothecia with a radially split disc, an unstratified proper exciple, and somewhat smaller ascospores with thinner walls  $\leq 1 \mu\text{m}$  thick (Ferencova et al. 2014). These differences are not clear-cut, however, and the recognition of the genus rests strongly on molecular data.

When Ferencova et al. (2014) described the genus, they also made the necessary new combinations for 16 of the species but, inexplicably, overlooked or omitted *Parmelia protosignifera* Elix & J.Johnst., a widespread Australasian endemic (McCarthy 2023). This has caused difficulties for the compilation regional checklists (McCarthy 2023) and, most recently, the writing of the new *Tasmanian Lichen Flora* (<https://flora.tmag.tas.gov.au/about/lichens/>). The species has been studied in some detail, leaving no doubt that it belongs in *Notoparmelia*, and so the necessary new combination is introduced here.

### MATERIALS AND METHODS

Comparative observations of the species studied is based on the extensive collections of Parmeliaceae held in the Tasmanian Herbarium (HO), type material held in the Australian National Herbarium (CANB) and the National Herbarium of Victoria (MEL), and literature sources as cited. Ascospore measurements are presented in the format smallest measurement–*mean*–largest measurement, with *n* signifying the number of observations.

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**Figure 1.** *Notoparmelia protosignifera* habit, showing grey, foliose lobes with a network of white pseudocyphellae (Kantvilas 1136/01, HO); inset showing apothecium (Moscal 11044 p.p., HO). Scales = 5 mm. Photos from J. Jarman.

## RESULTS AND DISCUSSION

With its extensive, loosely to tightly adnate foliose thallus lacking soredia and isidia, composed of irregular, imbricate, plane, undulate or concave lobes, (1.5–)2–12 mm wide, a pale grey to pale greenish grey upper surface with abundant, fleck-like, linear or effigurate, laminal pseudocyphellae that sometimes develop into a conspicuous white network, and abundant, simple to squarrose rhizines, *Parmelia protosignifera* (Figure 1) is morphologically identical to *N. signifera* (Nyl.) A. Crespo, Ferencová & Divakar, the type species of *Notoparmelia*. It also displays the critical features that characterise the genus (Ferencova et al. 2014), notably, the relatively large, often radially lacerate apothecia, an unstratified exciple and broadly ellipsoid ascospores, 12–14.9–17 × 8–9.3–11 μm ( $n=50$ ), with the wall 0.6–0.8(–1) μm thick. It differs from *N. signifera* unequivocally by its chemical composition, which consists of atranorin, chloroatranorin and protocetraric acid (medulla K± reddish brown, KC–, C–, P+ red, UV–). In contrast, *N. signifera* contains atranorin, chloroatranorin, salazinic acid, consalazinic acid (minor) and lobaric acid (± minor) (medulla K+ yellow→red, KC–, C–, P+ orange-red, UV–). Further descriptive data are provided by Elix & Johnston (1988) and Elix (1994).

Based on the morphological similarities between *Parmelia protosignifera* and *N. signifera*, as well as the fact that *P. protosignifera* possesses the morphological characters that distinguish *Notoparmelia* from other genera, it is clear that *P. protosignifera* belongs to *Notoparmelia*. The necessary combination is provided below. With the transfer of this taxon to *Notoparmelia*, all but one of the Australian and Tasmanian species treated as *Parmelia* by Elix (1994) and Kantvilas et al. (2002) are now transferred to *Notoparmelia*. The single exception remaining in *Parmelia* sensu stricto is the cosmopolitan *P. sulcata* Taylor (McCarthy 2023). In New Zealand, *P. saxatilis* (L.) Ach. is also present (Galloway 2007).

*Notoparmelia protosignifera* is widely scattered on rocks, mostly in highland or locally moister habitats in Tasmania, the south-eastern Australian mainland (Victoria, New South Wales and the Australian Capital Territory) and New Zealand (McCarthy 2023). Its habitat is essentially identical to that of *N.*

*signifera*, although it is far less common (G. Kantvilas, unpublished data). Whilst the two species are essentially indistinguishable morphologically, the lobes of *N. protosignifera* are generally a little less leathery and less frequently discoloured dark grey or blackish. The two species can be sympatric and are best distinguished by means of a K-test.

#### TAXONOMIC SECTION

**Notoparmelia protosignifera** (Elix & J.Johnst.) Kantvilas, comb. nov.  
MycoBank# MB856134.

≡ *Parmelia protosignifera* Elix & J.Johnst., Mycotaxon 31: 493. 1988. **TYPE: AUSTRALIA. NEW SOUTH WALES:** eastern slopes of Tinderry Peak, 12 km E of Michelago, 35°42'S 149°16'E, 1338 m, on sheltered granite rock ledge, 8.xii.1977, *J.A. Elix 4051* (CANB!, holotype; MEL!, isotype).

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