STUDIES ON THE NEW ZEALAND, AND SOME RELATED, SPECIES OF *PTERIS* L.

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ABSTRACT

Studies on the New Zealand and some related species of *Pteris* L.

Four New Zealand species are recognised:

(1) *P. tremula* R.Br., (also in Australia, Lord Howe Is., Norfolk Is., the Kermadecs Is. and the Chatham Is.).

(2) *P. carsei* sp. nov. (previously '*P. comans*') (also in Australia and the Kermadec Is.).

(3) *P. macilenta* A. Rich. (previously *P. macilenta* var. *saxatilis* Carse) endemic.

(4) *P. pendula* Col. (previously *P. macilenta* Auct. non. Rich. and *P. macilenta* var. *pendula* (Col.) Cheeseman) endemic.

The taxonomy and nomenclature of these species is discussed in detail and the nomenclature is also discussed for *P. kingiana* Endl. (previously sometimes treated as *P. tremula*) and *P. zahlbruckneriana* Endl. (previously treated under '*P. comans*' or *P. endlicheriana* Agardh) both Norfolk Is. endemics, and the taxonomy of *P. sp.aff.comans* LHI (previously '*P. comans*') endemic to Lord Howe Island is also discussed.

Detailed study of the spores and paleae using conventional light microscopy and SEM was made for these species and also *P. comans* Forst. f. (from the New Hebrides) and *P. novae-caledoniae* from New Caledonia.

Comparisons of the distribution, fronds, stipes, venation, rhizomes, paleae, indumentum, apices, sori, sporangia and spores have been made and where appropriate material of *P. dentata*

ssp. flabellata, P. pacifica and P. vittata, has also been compared. Further comparisons have been made with material of 'P. comans' from other Pacific Islands including Fiji (three species), Rarotonga, Samoa, Tahiti (each one species).

P. tremula, P. kingiana and P. novae-caledoniae are exceptional in the genus because they lack paraphyses in the sori. P. kingiana and P. novae-caledoniae have a copious waxy deposit around and among the sporangial stalks but P. tremula has no accessory sporangial features at all.

Germination and gametophyte growth follow the normal pattern for the genus. Some gametophytes can be kept alive and growing for considerable periods (up to three years) and become elongate, ribbon-like and unisexual (female).

Hybridisation was achieved between P. carsei and P. macilenta. The progeny resemble the natural hybrid swarms suspected of being the product of the same parents.

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