Two natives it might not be extravagant to claim as rheophytes are Podocarpus totara and P. acutifolius; they have limber firm-leaved saplings and a marked ability to develop new roots from the lower trunk after burial by sand and gravel. Perhaps other flood plain trees, such as the lacebarks, owe their similar juvenile form (i.e. flexuose, not divaricating) to river-shaping as much as to the moa.

Finally, we must consider the Waitakere Range's most abundant rheophyte, even though it is adventive -- mist flower (Eupatorium riparium). This is coming to dominate all our northern stream beds but does equally well on clay road cuttings or at the foot of slopes in woodland, e.g. Auckland Domain. Van Steenis suggests that in its home of Mexico or West Indies it might be a kremnophyte, that is, a plant of steep banks such as river terrace scarps or landslide scars. He notes that it was deliberately introduced to highland Java for the purpose of stabilizing earth walls in tea and cinchona plantations!

Mist flower has the typical rheophytic leaf shape and can make strong growth of adventitious roots. It would seem to disperse a short way by wind and over longer distances through virtue of the barbellate nature of the achene and pappus.

Though mist flower is of interest as one of the relatively few rheophytes in the Compositae, we can hope that it will not be too long before some insect or parasite arrives (or that we adopt the Javanese practice of composting the species), giving our native rheophytes a chance of having their story told in greater depth than has been attempted here.

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EQUISETUM FLUVIATILE - A NEW ADVENTIVE SPECIES IN NEW ZEALAND

P.J. de Lange

INTRODUCTION

de Lange (1988) records the presence of a previously unrecorded Equisetum species adventive in the country and compares the species with four Equisetum present in the country. Plants were considered closest to E. palustre L. but further material was sent on to the National Museum Herbarium (WELT) for Dr Brownsey to examine. Following examination of fresh material the species has now been correctly identified as Equisetum fluviatile L., the water horsetail of Toman & Felix (1974). The following briefly describes both the essential differences between E. palustre and E. fluviatile.

THE EQUISETUM COLLECTIONS

de Lange (1988) illustrates two herbarium specimens (figures 1 & 2) taken from cultivated plants grown at MAF(Tech) Experimental Gardens, Ruakura, Hamilton. These collections are typical of the species growth form as exhibited in both wild and cultivated specimens. During May 1988, the author visited WELT and together with Dr Brownsey tentatively identified the Equisetum as E. fluviatile by comparison with collections of E. arvense in WELT and various publications on the genus, however a full determination was not possible since insufficient material was available and furthermore fresh material was necessary to examine the internal features of the stems.

During this time the author prepared an article for the Auckland Botanical Society Journal (de Lange 1988), in the hope of revealing further localities in the region. That article was intended to illustrate the new Equisetum without actually providing a name for it but comparisons were made with what Equisetum material was available at the University Herbarium and Gardens and the script prepared accordingly.

Upon my return from Wellington as promised, I posted live specimens of both E. hyemale and the unknown species to WELT and proceeded to examine all literature on Equisetum available to me. Initially the University of Waikato Herbarium (WAIK) specimen number 9016 (figure 1, de Lange 1988) was redetermined (7 June 1988) as E. fluviatile following the discussions held at WELT, but examination of various Equisetum publications and confusion over the various characters caused this collection and the one in MAF(Tech) to be redetermined as Equisetum palustre L. (13 June 1988).

The prepared script for the Journal was altered and the manuscript sent off. I then received the following note from Dr Brownsey (dated 14 June 1988)

> 'You are absolutely correct about the Equisetum material. With the benefit of your fresh material, the difference between the two was quite evident. The larger plant from Napier is E. fluviatile ...'

Convinced the new adventive was E. palustre I immediately posted off a letter with my reasoning and awaited the outcome. Not long after I received the following letter form Dr Brownsey, dated 30 June 1988:

> '... I am almost certain you are wrong about the Equisetum! My specimens have, on average, about 12 grooves and 12 teeth. From memory, it had a very large hollow stem when fresh (it is now pressed, so I can not check). There is little or no branching. The stems are over 3 mm in diameter. The teeth are not ribbed and they have only a narrow scarious margin. All these characteristics agree with the description of E. fluviatile in both Clapham, Tutin and Warburg 1962 and Flora Europaea. Unfortunately we have no specimens in the herbarium to check against.
>
> However we do have material of E. palustre which has 4-8 very coarse grooves and teeth. Most specimens are branched. The stems are less than 3 mm in diameter. The teeth are distinctly grooved and they have a very broad scarious margin. They do not match your material in any of these characters ...'

I stand corrected, the new adventive Equisetum is Equisetum fluviatile L. and not E. palustre L. The essential differences are summarised thus:

Species	Teeth	Teeth Ribbing	Teeth Margin	Grooving	Cortex	Branching
E.palustre	4 - 8	Coarse teeth	Scarious margin	4 - 8	Hollow	Frequent
E.fluviatile	12 - 14	None	Margins fine	12 - 14	Partially	Rare

ACKNOWLEDGEMENTS

I wish to thank Dr Patrick Brownsey for identifying the Equisetum material and pointing out the differences between E. palustre and E. fluviatile, both closely related species.

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de Lange, P.J. 1988. A new Equisetum species adventive in New Zealand. Auckland Botanical Society Journal **43**(2): 68-72.

Toman, J., Felix, J. 1974. A Field Guide in Colour to Plants and Animals (Illustrations by K. Hisek). Octopus, London.

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FLORA OF GREAT BARRIER ISLAND : ADDITIONS AND CORRECTIONS

R.O. Gardner

p. 5 replace 496 by 511

p. 8 add Asplenium lamprophyllum AK 135861
add Blechnum procerum CHR 367191
add Doodia squarrosa

p. 9 add Hymenophyllum cupressiforme (fide J. Smith Dodsworth)
add Hymenophyllum flexuosum CHR 367148

p. 10 replace A. x quercifolia by A. sp. "Hakarimata"

p. 11 delete Dracophyllum sinclairii

p. 12 add Griselinia lucida
delete Hibiscus trionum