

- Cameron, E.K. 1992: *Pomaderris hamiltonii* – a new locality. *New Zealand Botanical Society Newsletter* 30: 11.
- Cameron, E.K. 1993: *Asplenium pauperequitum* – a new locality. *New Zealand Botanical Society Newsletter* 34: 7-8.
- Cameron, E.K. 2001: Hunua ferns: one addition, one subtraction. *Auckland Botanical Society Journal* 56(2): 65.
- Cameron, E.K. 2004a: A new record for the Auckland Region: *Schizeilema trifoliatum* (Apiaceae). *Auckland Botanical Society Journal* 59(2): 148-150.
- Cameron, E.K. 2004b: Chapter Five: Flora. In: Armitage, D. *Great Barrier Island. 2nd edition*. Canterbury University Press.
- Cameron, E.K.; Bellingham, P.J. 2002: Vascular flora of the fringes of Waionui Inlet, Kaipara South Head. *Auckland Botanical Society Journal* 57(1): 88-96.
- Cameron, E.K.; Taylor, G.A.; Beever, J.E. 1995: Flora and vegetation of Taitomo Island and Nun Rock, south Piha, west Auckland. *Auckland Botanical Society Journal* 50(1): 14-21.
- Cheeseman, T.F. 1906: Manual of the New Zealand Flora. Government Printer, Wellington.
- Cranwell, L.M. 1981: The botany of Auckland. Auckland Institute and War Museum, Auckland.
- de Lange, P.J. 1996: *Hebe bishopiana* (Scrophulariaceae) – an endemic species of the Waitakere Ranges, west Auckland, New Zealand. *New Zealand Journal of Botany* 34: 187-194.
- de Lange, P.J. 1998: A new northern limit for *Senecio sterquilinus* (Asteraceae). *New Zealand Botanical Society Newsletter* 52: 8-10.
- de Lange, P.J.; Cameron, E.K. 1997: Auckland Regional Threatened Plant List. *Auckland Botanical Society Journal* 52(1): 1-4.
- de Lange, P.J.; Murray, B.G. 1998: *Senecio repangae* (Asteraceae): a new endemic species from north-eastern North Island, New Zealand. *New Zealand Journal of Botany* 36: 509-519.
- de Lange, P.J.; Murray, B.G.; Datson, P.M. 2004: Contributions to a chromosome atlas of the New Zealand flora – 38. Counts for 50 families. *New Zealand Journal of Botany* 42: 873-904.
- de Lange, P.J.; Cameron, E.K.; Stanley, R. 1999: Threatened and uncommon plants of the Auckland Region and Kermadec Islands (2). *Auckland Botanical Society Journal* 54(1): 37-41.
- de Lange, P.J.; Norton, D.A.; Heenan, P.B.; Courtney, S.P.; Molloy, B.P.J.; Ogle, O.O.; Rance, B.D.; Johnson, P.N.; Hitchmough, R.D. 2004: Threatened and uncommon plants of New Zealand. *New Zealand Journal of Botany* 42: 45-76.
- de Lange, P.J.; Gardner, R.O.; Crowcroft, G.M.; Stalker, F.; Cameron, E.K.; Braggins, J.E.; Christian, M.L. 2005: New records and additions to the flora of Norfolk Island, South Pacific. *New Zealand Journal of Botany* 43: 563-596.
- Druce, A.P. 1980 (revised edit.): Trees, shrubs, & lianes of New Zealand. Unpublished, held by Botany Department, Auckland Museum. 88p.
- Edgar, E.; Connor, H.E. 2000: *Flora of New Zealand, vol. V. The Grasses*. Manaaki Whenua Press, Lincoln.
- Esler, A.E. 2004: Wild plants in Auckland. Auckland University Press, Auckland.
- Gardner, R.O. 2000: Notes towards an Excursion Flora: *Amphibromus fluitans*. *Auckland Botanical Society Journal* 55(1): 54-55.
- Gardner, R.O. 2004: *Stenostachys gracilis*, a native grass in northern New Zealand. *Auckland Botanical Society Journal* 59(2): 146-147.
- Gardner, R.O.; Dakin, A.J. 1989: Native vascular Flora of the Hunua Ranges, Auckland. *Auckland Botanical Society Bulletin* 18.
- Gardner, R.O.; Smith-Dodsworth, J. 1984: Native vascular plants of Moehau. *Auckland Botanical Society Newsletter* 39(1): 6-9.
- Goulding, J.H. 1983: Fanny Osbourne's flower paintings. Auckland, Heinemann.
- Hair, J.B. 1967: Contributions to a chromosome atlas of the New Zealand flora – 10. *New Zealand Journal of Botany* 5: 322-352.
- Heenan, P.B. 2000: *Clianthus* (Fabaceae) in New Zealand: a reappraisal of Colenso's taxonomy. *New Zealand Journal of Botany* 38: 361-371.
- Heenan, P.B.; de Lange, P.J.; Wilton, A.D. 2001: *Sophora* (Fabaceae) in New Zealand: taxonomy, distribution, and biogeography. *New Zealand Journal of Botany* 39: 17-53.
- Jane, G.T. 2005: An examination of *Coprosma ciliata* and *C. parviflora* complex. *New Zealand Journal of Botany* 43: 735-752.
- Macmillan, B.H. 1995: *Nertera villosa* B.H. Macmill. et Mason (Rubiaceae), a new species from New Zealand. *New Zealand Journal of Botany* 33: 435-438.
- McEwen, W.M. 1987: Ecological Regions and districts of New Zealand. 3rd Edition. Wellington, Department of Conservation.
- Millener, L.H. 1965: Forest, scrub and freshwater communities. In: Kermodie, L.O. (ed.). Science in Auckland. Handbook prepared for the 11th New Zealand Science Congress held in Auckland. *Royal Society of New Zealand*: 36-48.
- Moore, L.B. 1973: Botanical notes on three high peaks overlooking the Hauraki Gulf. *Tane* 19: 213-220.
- Moore, L.B. 1986: *Pomaderris* revisited. *Tane* 31: 139-143.
- Moore, L.B.; Edgar, E. 1970: *Flora of New Zealand, vol II*. Government Printer, Wellington.
- Moore, P. 2004: Chapter Three: Geology. In: Armitage, D. *Great Barrier Island. 2nd edition*. Canterbury University Press.
- Raven, P.H.; Engelhorn, T. 1971: A plea for the collection of common plants. *N.Z. Journal of Botany* 9: 217-222.
- Raven, P.H.; Raven, T.E. 1976: The genus *Epilobium* (Onagraceae) in Australasia: a systemic and evolutionary study. Government Printer, Wellington.
- St George, I.; Irwin, B.; Hatch, D.; Scanlen, E. 2001: Field guide to the New Zealand orchids. The NZ Native Orchid Group, Wellington.
- Taylor, G.A.; Cameron, E.K. 1990: Kauwahaia Island – Te Henga, west Auckland. *Auckland Botanical Society Journal* 55(2): 71-77.
- Webb, C.J.; Sykes, W.R.; Garnock-Jones, P.J. 1988: *Flora of New Zealand, vol. IV*. Botany Division, DSIR, Christchurch.
- Wilcox, M.D. 2004: Black beech (*Nothofagus solandri* var. *solandri*) outlier on Little Barrier Island and cultivated trees in Auckland. *Auckland Botanical Society Journal* 59(1): 65-66.
- Wilcox, M.D. 2005: Bartlett's Forest, Bankside Road, Silverdale. *Auckland Botanical Society Journal* 60(2): 56-63.

Kakabeak under attack

C J Green & G Atkins

During August - September 2004 an area of the threatened plant *Clianthus maximus* (kakabeak) was being monitored (by GA) near Te Puia Springs on the East Coast. Increasing levels of damage were recorded and there was concern for the plants survival so samples were sent to CG for identification. Initially it was presumed the culprit was the well known kowhai moth (*Uresiphita polygonalis maoralis*) (Lepidoptera: Pyralidae) which is a well known native

defoliator of various Fabaceae, particularly kowhai (*Sophora* species) and broom (*Carmichaelia* species) and is known from kakabeak.

On receipt of the caterpillar sample it was clear that two species were involved and neither of them being kowhai moth. Caterpillars were reared through to adult on the foliage sample to reveal one native and one exotic species. The majority were the native *Pasiphila melochlora* (Lepidoptera: Geometridae), a

somewhat uncommon looper species - see Fig. 1. The second species represented by just a few individuals, was a well known Australian leafroller pest, the light brown apple moth (*Epiphyas postvittana*) (Lepidoptera: Tortricidae).

P. melochlora is widely distributed from mid-North Island to West Coast - Otago and is usually associated with native broom (*Carmichaelia* species). Thus it is perhaps not unexpected to see it on kakabeak but despite that the present record is the first known from this host. It is of some entomological, not to mention botanical interest that the caterpillars clearly took to the host with some vigour. The site consisted of about 20 six year old kakabeak planted on a roadside area of about 0.25 ha. Every plant was infested and damage progressed to near defoliation thus requiring an insecticide application to save the plants.

The second caterpillar species, the light brown apple moth, was somewhat incidental compared to *P. melochlora*. It is an Australian leafroller which has a very wide host range of both New Zealand native and exotic plants. The leafroller is well known to the horticulture and nursery industries with some crops,

e.g. apples, requiring regular insecticide applications to produce blemish-free fruit. Thus it is no surprise to see a few of these on kakabeak.



Fig 1. *Pasiphila melochlora*

Larval and adult *P. meochlora* material has been lodged with the New Zealand Arthropod Collection, Landcare Research Ltd, Tamaki, Auckland.

New exotic plant records, and range extensions for naturalised plants, in the northern North Island, New Zealand

P J de Lange, T J P de Lange & F J T de Lange

Introduction

This article reports the naturalisation of 32 new exotic taxa from the northern portion of the North Island of New Zealand (that area roughly north of latitude 38°S). Three families (Blechnaceae, Ginkgoaceae, Dilleniaceae), and ten genera are additions to the New Zealand Naturalised Flora (see Webb et al. 1988, Webb et al. 1995; Heenan et al. 1998; Heenan et al. 1991; Heenan et al. 2002; Heenan et al. 2004; Sykes 1992, Sykes 2005). Of these 32 additions, only two species of *Oxalis* are regarded as fully naturalised.

We also provide range extensions for a further 24 vascular plant taxa that have been recorded as partially established in past weed listings (*ibid.*). Most of these records stem from urban habitats where they have arisen as garden escapes. Previously the distinction between naturalised species, casuals, garden escapes and discards has never been precisely defined in New Zealand literature. Some may not see a need to do this but we suggest that it is vital first-step toward understanding the processes of exotic plant establishment, and also to help provide some guide to determine whether control measures are needed. In our view the New Zealand flora is already well endowed with exotic plants which, had steps been taken to control them during their initial phase of establishment, they would not be the problem they are

now. We have found that a useful guide toward the development of such a classification is the work of Clement & Foster (1994). We borrowed two of their terms, "Established" and "Casual", in more or less the sense they used them.

Proposed Classification

Established

These are, in our view anyway, taxa which are now as a rule, a permanent part of our day to day landscape. They have achieved this status through successful spread by sexual, asexual or a combination of both reproductive pathways, and their complete eradication now seems unlikely. There are many examples of plants which fit this definition, here we choose two, pampas grass *Cortaderia selloana*, and monkey apple (*Acmena smithii*). Both species are abundant, self reproducing, and are now fully integrated into the New Zealand landscape. The notable exception to this definition are those species with bird dispersed fruit which, while spatially uncommon, have the ability to spread rapidly, and often undetected for considerable lengths of time. A good example of this would be the Mickey Mouse plant (*Ochna serrulata*) which was regarded as "fully naturalised" by Heenan et al (1999), though at that time the authors noted that it was never common. Whilst still uncommon, it has now