

New plant records from Northland, New Zealand*

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Abstract - The recorded distributions are extended northwards for *Metrosideros umbellata* (southern rata), *M. excelsa* × *M. robusta*, *Grammitis billardieri*, and *Lycopodium scariosum*.

Keywords *Metrosideros umbellata*; *Metrosideros excelsa* × *M. robusta*; *Grammitis billardieri*; *Grammitis pseudociliata*; *Lycopodium scariosum*; hybrid; Northland, New Zealand; plant records; plant distribution

1 *Metrosideros umbellata* Cav.

LOCATIONS: (a) near Waoku Road, Mataraua State Forest, Northland. Grid reference N18 : 152132 (NZMS 1 Sheet N18, Waipoua, 3rd edition, 1975). **ALTITUDE:** 670 m. **COLLECTION:** 2.12.1978, CHR 353420†, C. C. Ogle.

The specimen is from a solitary 3-m-tall shrub in an open site, on the edge of regenerating towai (*Weinmannia silvicola*) forest, on the road edge. Three slightly larger southern rata trees were seen subsequently, up to 1 km away: one of 8 cm dbh was epiphytic on a leaning trunk of towai, c. 500 m from the road. *Metrosideros robusta*, both epiphytic and terrestrial, was common throughout the area.

(b) in headwaters of Manukau Stream, Herekino State Forest, Northland. Grid reference N9 : 739546 (NZMS 1 Sheet N9/13, Ahipara and Herekino, 2nd edition, 1975). **ALTITUDE:** 450 m. **COLLECTIONS:** - .9.1978, CHR 281577, 281578, J. K. Bartlett. The specimens are from a solitary 6-m-tall tree on top of an exposed cliff-face above large kauris.

DISCUSSION: Wardle (1971) lists no mainland Northland record confirmed by a voucher specimen, but mentions (p. 658) as a "doubtful record" Cheeseman's (1925) record from Whangarei Heads.

In relation to Whangarei Heads, the two records above lie c. 10' north and 90 km distant, and 30' north and 140 km distant respectively, and give support to Cheeseman's record.

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†All voucher specimens cited in this article are lodged in the Herbarium of Botany Division, DSIR, Lincoln (CHR).

2 *Metrosideros excelsa* Sol. ex Gaertn. × *M. robusta* A. Cunn.

LOCATION: near Pukemoremore, Russell State Forest, Northland. Grid reference N16 : 786362 (NZMS 1 Sheet N16, Whangaruru, 2nd edition, 1970). **ALTITUDE:** 390 m. **COLLECTION:** 5.12.1978, CHR 353414, C.C.O.

This specimen is from a solitary much-branched shrub, 3-m-tall, in an open site on a greywacke ridge-crest. Tanekaha (*Phyllocladus trichomanoides*) and toatoa (*P. glaucus*) dominate the low forest immediately below the ridge-crest.

Northern rata (*M. robusta*) trees are common in forest surrounding this site, but the nearest pohutukawa (*M. excelsa*) is probably near the shore of Whangaruru Harbour, c. 5 km distant.

DISCUSSION: Allan (1961; p. 325) summarises previous occurrences of natural hybrids between northern rata and pohutukawa, listing "Rangitoto Island, Titirangi, Whau Creek (at New Lynn, Auckland), and Lake Taupo". Two Northland collections "... which are very likely to be a result of this cross" (B. H. Macmillan, pers. comm.) are CHR 159045 from Tameterau, Whangarei (E. K. Reynolds, 1965), and CHR 228748 from Tutukaka (W. R. Sykes, 1972). One further specimen is known (CHR 321438) from Great Barrier Island (J. K. B.). This was found 400 m north of Motairehe Stream, north of Port Fitzroy. The habitat was logged kauri forest c. 250 m from the sea where pohutukawa was plentiful on the coastal cliffs. Northern rata was common in the surrounding forest.

There appear to be no other records of hybrid *Metrosideros* north of the Russell State Forest, except in Cooper (1958, pp. 20, 28). He dismissed single collections from the Three Kings Islands and

Rangaunu Harbour as "aberrant", as the former collection had large flowers typical of pohutukawa but small leaves which could be explained by the stunted nature of the plant, and the latter collection was a cultivated plant with yellow flowers.

In the Russell State Forest, the shrub cited above (CHR 353414) was easily distinguished from the neighbouring rata trees by its tomentose lower leaf surfaces, although it had no flowers or fruit, and could be a first generation hybrid. Cooper's linking of hybrid *Metrosideros* with habitat disturbance (Cooper 1958, pp. 28-31) is supported here. The Russell State Forest was first logged in 1877 for large kauri (Lloyd 1960) and some areas were "creamed" up to four times before logging ceased in the late nineteen forties. This would have created open positions for many years, especially in sites such as this very well-drained, exposed ridge-crest. The Great Barrier Island hybrid is in a similarly disturbed situation.

3 *Grammitis billardieri* Willd.

LOCATIONS: (a) near Waoku Road, Mataraua State Forest, Northland. Grid reference N18 : 152132 (ibid.). ALTITUDE: 670 m. COLLECTIONS: 2.12.1978, CHR 353418, 356503, C.C.O.

These specimens are from a *Dicksonia squarrosa* trunk, under low towai forest. Recorded by Parris & Given (1976) only as far north as Little Barrier Island, and Mt Moehau on the mainland, *G. billardieri* was found to be locally common in Mataraua State Forest. *G. pseudociliata* was found on towai trunks nearby, and a specimen intermediate in pubescence between it and *G. billardieri* was also collected (CHR 356501).

(b) On a ridge leading south-west from the summit of Mangamuka Hill, State Highway 1, Raetea State Forest, Northland. Grid reference N10 : 953582 (NZMS 1 Sheet N10, Kaitaia, 3rd edition, 1977). ALTITUDE: 640 m. COLLECTION: 15.1.1979, CHR 353417, C.C.O.

This specimen was growing with *G. pseudociliata* on the base of a towai tree in towai-tawa forest. Common in this forest above 550 m in altitude, *G. billardieri* is usually found closer to ground level than *G. pseudociliata* in the same locality. In the other Northland locations for *G. billardieri* recorded here, there were insufficient plants of both species in close proximity to support this observation of a possible ecological separation between the two species.

(c) Near Maungapohatu, Warawara State Forest, Northland. Grid reference N14 : 828357 (NZMS 1 Sheet N14, Hokianga, 2nd edition, 1972). ALTITUDE: 580 m. COLLECTION: 18.1.1979, CHR 353415, C.C.O.

The specimen is from a fallen tree trunk, c. 0.5 m above ground level in towai forest. *G. billardieri* was

not uncommon in similar sites over the plateau of Warawara State Forest, along with smaller numbers of *G. pseudociliata*.

(d) Headwaters of Waitotoki Stream, Herekino State Forest, Northland. Grid reference N9 : 726560 (ibid.). ALTITUDE: 365 m. COLLECTION: - .9.1978, CHR 281598, J.K.B.

In this location *G. billardieri* is very uncommon, and occurs with locally common *G. pseudociliata* in dense podocarp-hardwood forest.

(e) The late G. B. Rawlings compiled notes, now filed at Botany Division Substation, DSIR, Auckland, concerning the distribution of plants in Northland. Three additional localities are given for *G. billardieri*, viz: Kerikeri, Matauri Bay, and Mangiangina (Puketi), but are unsupported by specimens or habitat notes.

DISCUSSION: *G. billardieri* is generally distributed at higher altitudes in the more western, large forest tracts of Northland but is rare in the east. It was not seen in brief surveys of the more eastern Omahuta, Puketi, and Russell State Forests during the same period that the collections (a) to (c) above were made. A further confirmation of this distribution pattern is from a specimen (CHR 355674) collected by D. Given and J. Bartlett in Waipoua Forest, 19 January 1979. All Northland locations for *G. billardieri* discussed here are likely to receive >1500 mm of rain, and, with the possible exceptions of Rawlings' records from Kerikeri and Matauri Bay, lie >350 m in altitude. It appears to reach its greatest abundance at elevations >550 m and rainfall >2500 mm. (New Zealand Ministry of Works 1964, pp. 40-1).

4 *Lycopodium scariosum* Forest

LOCATIONS: (a) South side of Brynderwyn Hill, Northland, beside State Highway 1. Grid reference N28 : 936514 (NZMS 1 Sheet N18, Maungaturoto, 2nd edition, August 1965, limited revision 1974). ALTITUDE: 210 m. COLLECTION: 29.11.1978, CHR 353446, C.C.O.

Only one patch was found, of several square metres, on a steep clay roadside bank, under *Cyathodes fasciculata* scrub.

(b) Near summit of Mangamuka Hill, Northland, beside State Highway 1. Grid reference N10 : 968603 (ibid.). ALTITUDE: 365 m. COLLECTION: 16.1.1979, CHR 353445, C.C.O.

Two small patches were found on a clay roadside bank, among sparse *Lycopodium volubile* and *L. cernuum*, mosses, and lichens.

DISCUSSION: Allan (1961, p. 7) records this species from 38°S southwards, but in a newsletter of the Auckland Botanical Society (July 1967) it is recorded from Lone Kauri Road, Karekare, by E. D. Hatch. Specimens collected by Hatch are lodged at Botany

Division (CHR 191735, 213800), where there is also the only apparent previous collection made in Northland (CHR 191208), from near Puhipuhi, 26 December 1970 by G. B. Rawlings (1971, p. 772). This is c. 70 km from the Brynderwyn collection to the south and 80 km from the Mangamuka Hill collection to the north-west. The *Lycopodium* must be a recent adventive to all three sites, as each habitat is a roadside cutting. It may be expected to occur elsewhere in Northland in such places, but may not be truly indigenous to the region.

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