

Consequently, there was some excitement on learning that *Schoenus* collections come from the Hinehopu Swamp at the east end of Lake Rotoiti, where Ewen Cameron found it to be “locally common ... associated with *Schoenus brevifolius* and *Tetraria capillaris*”, and from Ruawai, where Lisa Forester found it in the kahikatea forest. *carsei* had been sighted in the manuka scrub on the northern side of the mouth of the

Puhinui Creek on the Manakau Harbour. But the only AK specimens from here are AK 220742 and a recent one of my own: both are *Tetraria capillaris*. Consequently, the record for *S. carsei* is probably best disregarded, especially since the author of it has written to me to say, modestly, that he would not know the species from a bar of soap.

Tetraria capillaris is not particularly common itself around Auckland, having been decimated over recent years in its habitats around the upper Waitemata Harbour. It is unlikely ever to reach the “official” locally-rare status that *Schoenus carsei* has; some day though it may be worth making a fuss over, and the question remains: having learnt to distinguish them from a bar of soap, what is the best way of telling them apart, particularly of course, if one has “unfortunately” plucked only a wisp or two. Nor does one want to confuse them with the rather more common *Baumea tenax*.

It is possible to tell even sterile “parka pocket” fragments of these three species, using just a razor-blade, good ruler, and a x 10 lens, as follows:

Culms at c. ½ way up usually less than 0.8 mm diam., pith distinctly septate; mucro of basal sheaths usually projecting less than 5 mm beyond sheath apex, minutely setose on the basal margins *Tetraria capillaris*

Culms at c. ½ way up usually 0.8 – 1 mm diam., pith continuous (but liable to compress or break down under the blade in *S. carsei*.); mucro of basal sheaths glabrous. Pith of culms uniformly pale-parenchymatous; mucro sometimes several cm long *Schoenus carsei*

Pith of culms longitudinally traversed by denser plates of living tissue, in longitudinal section, then pale but with one or more darker streaks or lines; mucro rarely exceeding sheath apex by more than 2 mm *Baumea tenax*

***Paspalum orbiculare* - an adventive addition to the Waitakeres?**

E. K. Cameron

On 2 May 1998 G.A. Taylor and I discovered ditch millet (*Paspalum orbiculare*) (previously referred to as *P. scrobiculatum* in New Zealand which is now recognised as a separate Asian species and is unrecorded for New Zealand), on the Cornwallis Peninsula while tramping out to the end of the peninsula to search for grey-faced petrels. Herbarium voucher: AK 235228. I initially thought it was a new record for the Waitakere Ecological District (cf. Gardner 1982). Checking with the WELT herbarium revealed it had been collected at least once before in the Waitakeres by M. Southerland on 17 January 1937 (WELT 69249).

Ditch millet was locally common along the margin of the bulldozed Monument Track, from near the carpark (at the end of Cornwallis Road) nearly up as far as the monument (map Q11 530637, 80 m asl). It was growing by a clay drain amongst paspalum (*P. dilatatum*), ratstail (*Sporobolus africanus*), carpet grass (*Axonopus affinis*) and the occasional clump of Vasey grass (*P. urvillei*). The track goes through a native scrubland with pines (*Pinus* spp.). Along the bush margin, gorse (*Ulex europaeus*), climbing asparagus (*Asparagus scandens*) and mist flower (*Ageratina riparia*) were locally common, and bone-seed (*Chrysanthemoides monillifera*) was local. Ditch millet formed erect tussocks, up to 1 m tall. The leaves were flat and wide (up to 11 mm), the adaxial leaf blade surface was glaucous and the abaxial face was bright shiny green. Of the eight paspalum species recorded in New Zealand, ditch millet is the only one now considered to be indigenous (Edgar & Shand 1987).

Ditch millet is widespread in the Pacific and in Australia. Based on the specimens in AK (47 sheets), AKU (20), CHR (c.20) and WELT (c.10) herbaria, ditch millet occurs in New Zealand from Raoul Island in the Kermadec Islands (*T. Cheeseman*, 1887, AK 1273) south to: Poverty Bay [*T.W. Kirk s.n.*, (1900-1936?), CHR 5788]; and in the Bay of Plenty: Tauranga (*D. Petrie*, 1877, WELT 69248) and Whale Island (*B. Parris*, 1970, AK 126762)

and in the west: Raglan Harbour (*P. de Lange* 814, 1991, CHR 473388). Note - there is an undated specimen from the Christchurch Botanic Gardens (CHR 5450), ex Armstrong Herbarium, which I have interpreted as cultivated because it is so far south of the next known locality and because it was collected in a botanical garden. Ditch millet is particularly common on the northern offshore islands. The earliest New Zealand collection is a Banks and Solander specimen, collected 1769 – 1770 (WELT P63898!). The next collection appears to be by T. Kirk in April 1872 (AK 11130 & WELT 69257) from Auckland. Other undated T. Kirk collections in CHR may have been slightly earlier?

T.F. Cheeseman and D. Petrie collected it separately from the “vicinity of Auckland” in 1897 (AK 1273) and 1910 (CHR 5155) respectively. Other specimens from the Auckland region include:

Rodney Ecological District - Helensville: A. Healy, 1950, CHR 84023; Whangaparaoa Peninsula & Silverdale: C. Classen, 1957, CHR 96189; A. Esler, 1972, CHR 236620; F. Bartlett, 1973, CHR 246586;

Tamaki Ecological District - Remuera: D. Petrie, 1894, WELT 69259; Western Park: D. Petrie, 1901, WELT 69247 (& CHR 5794?); Onehunga: B. Aston, 1908, WELT 69255; Glen Eden (including Waikumete Cemetery): H. Carse, 1922, CHR 333321; H. Carse, 1923, AKU 6922; D. Court, 1975, AK 182018; S. Bowman & A. Esler, 1975, CHR 310714; E. Cameron 6166, 1990, AKU 22458; Domain Drive: J. Ronaldson, 1935, AK 70846; Pupuke Golf Course: G. Harris, 1953, CHR 83386; Craigavon Park: A. Esler & S. Astridge, 1975, CHR 276364; Northcote: A. Wright 1455, 1976, AKU 8190;

Inner Gulf Islands Ecological District - Kawau Island: J. Buchanan s.n., (1875¹), WELT 69256; Tiritiri Matangi: A. Esler, 1970, AK 216862; E. Cameron 509, 1981, AKU 13480 & CHR 407192;

Hunua Ecological District - Howick: K. Woods, 1962, AK 120517;

Little Barrier Ecological District - W. Hamilton, 1956, CHR 9165; A. Esler, 1980, CHR 372546;

Great Barrier Ecological District - many collections from the main island and associated islands, collection dates range from 1949 (*R. Mason*, CHR 69581) to 1995. This is currently the regional stronghold for the species because within the last 21 years there are only 4 collection sites in the Auckland Region (Cornwallis and Waikumete are the only 2 mainland sites) outside Great Barrier Ecological District.

Ditch millet grows in a modified open habitat at Cornwallis (bulldozed track) in a burnt over clay area (gumland scrub) and is likely to have relatively recently established there, possibly from the closest known populations (also in gumland scrub) at Craigavon Park by Green Bay (extant?) or Waikumete Cemetery in Glen Eden. It is a fairly obvious grass and should be noticed by a keen Bot Socer. Because early records are from few localities (and restricted to, or close to, where ships or Maori waka would have visited last century, or earlier: Raoul, Auckland, Kawau, Tauranga) and are not that early, (excluding the Banks and Solander collection), and that it has a rather patchy distribution in New Zealand [e.g. only on Raoul Island (the only inhabited island in the group) and not on the other Kermadec Islands (Sykes 1977: 174), only a single Gillham (1960) record for Burgess Island of the Mokohinau Islands (the only inhabited island in the group), absent from the Three Kings, and Hen and Chickens Islands, and no early records from Great Barrier Island] it is most likely that ditch millet is adventive in New Zealand, a Polynesian introduction – pre-European, and that it has been expanding its range. But its habitat is now being occupied by weeds, especially other exotic grasses such as the ones present at the Cornwallis site (listed above). Ditch millet today appears to be surviving best in the more remote places, such as offshore islands, where the weed competition is reduced. The other possibility is that ditch millet naturally reached New Zealand (unaided by humans - bird dispersed²?) and is therefore indigenous. But this possibility appears to be less likely because of its initial collection sites in New Zealand at places with frequent contact with ships and hence people and its apparent absence from sites rarely visited by humans.

Ditch millet's history in New Zealand appears to be similar to two other early New Zealand adventives: cobbler's pegs (*Bidens pilosa*) and (*Sigesbeckia orientalis*) whose first records in New Zealand were 1832 and 1855 respectively (Webb et al. 1988). Although they have been considered to be native in the past they are now both treated as early Polynesian introductions (see Sykes 1977, Webb et al. 1988). Both of these species

grow in open sites and are today mainly restricted to remote sites where weed competition is reduced.

¹ J. Buchanan collected on Kawau Island in December 1875 (P.J. Brownsey pers. comm. from a comment in the WELT files by Fiona Pitt).

² The seeds become very sticky (P.J. de Lange pers. comm.).

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ABS Trip to Omeru Reserve & Makarau Valley February 1998

Fran Hintz

This trip was led by Maureen Young, with help from Arthur and Val Dunn. Although it was obvious that the drought was breaking, botanists are tough. And we are optimists. About twenty of us drove through rain and mist to meet at the Omeru Reserve, north of Kaukapakapa. We prepared ourselves for a wet trip and followed Maureen through the picnic area, across the bridge (one at a time), and up to the Waitangi Falls. The small patch of bush features mature kauri, kahikatea, and matai, as well as patches of kowhai, and a variety of vines, *Clematis*, *Parsonsia*, *Passiflora*, and one patch of carmine rata. In spite of recent cattle damage, there is plenty of understory and we were able to find many small gems.

The rain disappeared, we found we had good appetites, so the picnic area became our lunch venue. After checking the remains of the kumara pits, we drove in convoy to Haruru Rd at the top end of the Makarau valley to visit a piece of covenanted bush on private property. I noticed with satisfaction that many of the farms we passed still had areas of bush on them, especially the steeper hills. One patch, visible from our carpark, had mature pohutukawa at the crest of the hill, which appear to have grown naturally.

Our second expedition yielded a profusion of small-leaved shrubs and a very rich understory-groundcover. A very good opportunity to see the difference between *Penantia corymbosa*, *Streblus heterophyllus*, *Melicope simplex*, *Coprosma* sp. We were also glad to see the large gymnosperms which had been spared milling in spite of their large size. There is a small stream flowing through this small bush and many damp areas, so ferns grow in profusion. We saw many *Dicksonia fibrosa*, possibly the most northern examples of this species. Unfortunately, because of the small size of this bush, there were exotic species present as well, throughout the area.

Our optimism had been justified, the rain had disappeared (only to recycle as a thunderstorm later in the evening) and we had all enjoyed exercising our eye and brains, not to mention our legs, so we left for home, well satisfied. Thanks to all concerned.
