

<i>Parmotrema reticulatum</i>	common		<i>Ramalina celastri</i> #	frequent	(Fig. 1)
<i>Pertusaria thiospoda</i> #	local	(Fig. 5)	Cf. <i>Scytinium kauaiense</i> (syn. <i>Collema kauaiense</i>) #	occasional	
<i>Phaeophyscia hispidula</i>	local		<i>Strigula fossulicola</i> #	rare on tree privet leaves	(Fig. 9)
<i>Phyllopsora</i> sp.			<i>Teloschistes</i> <i>chrysophthalmus</i> #	rare	
<i>Physcia adscendens</i> #	rare		<i>Usnea cornuta</i>	local	
<i>Physcia poncinsii</i>	common	(Fig. 4)	<i>Xanthoria parietina</i>	occasional	
<i>Phlyctis uncinata</i> #	occasional	(Fig. 6)			
<i>Protoblastenia rupestris</i> #	local on concrete foot path				
<i>Punctelia borreri</i>	rare				

The kikuyu dilemma

Maureen Young

The African grass, kikuyu (*Cenchrus clandestinus*) is named for the Kikuyu Tribe of Kenya. It has adapted to allow high rates of photosynthesis at higher temperatures, and thus in New Zealand it mainly grows in the warmer north of the North Island. It can become a rampant weed and has poor feed values unless managed properly. However, if kept grazed and combined with ryegrass and clover it can be an adequate food source for farm stock. It becomes mostly dormant in winter, especially where there are frosts. It is an exceptionally good coloniser of raw sand country as it increases the moisture retained in the top layer of sand, assisting the survival of other

grasses and clover. Ray Seymour, a farmer from Motutangi in the Far North, told me that farming on the sandy tombolo of the Aupouri Peninsula would be impossible in the dry summers without kikuyu, and the same would apply to the sandy soils of the Poutu Peninsula, North Kaipara.

For the last fifteen years I have had the good fortune to be included as a volunteer with the annual Lakes Survey Team from the National Institute of Water and Atmospheric Research (NIWA) and the Northland Regional Council (NRC), which records the health of the many lakes in the Far North. Most of



Fig. 1. Lake Rototuna, Poutu Peninsula with kikuyu and raupo. Photo by Brooke Hartigan, April 2021.



Fig. 2. *Sparganium subglobosum* at Te Werahi Swamp. Photo by John Braggins from NZPCN website.

these are dune lakes on the sandy soils of Aupouri and Pouto, and a number of the smaller lakes are on private land. Over the years, and with encouragement from the NRC, many farmers have fenced the lakes on their property, as keeping stock from pugging the lakes' edges and defaecating in the water is seen as desirable.

There is only one drawback to this scheme – kikuyu! Once the lake edge is fenced the kikuyu so contained takes off, smothering everything in its path (Fig. 1). The growth can be almost waist-deep, with a tangled mass of dead foliage beneath the green surface. The most vulnerable to this invasion are the tiny turf plants (including *Limosella lineata*, *Glossostigma elatinoides*, *Lilaeopsis novae-zelandiae*, *Gratiola sexdentata*, *Triglochin striata*, *Centipeda aotearoana* and *C. minima*) which cannot thrive when shaded out by taller plants. The long stolons of kikuyu can grow out through the edge plants, such as raupo (*Typha orientalis*) and jointed sedge (*Machaerina articulata*) on to the surface of the water, where they can form a floating raft. Struggling there are several plants that grow on the landward side of the edge plants and among the tall vegetation of raupo and sedges. One of these is *Sparganium subglobosum* (Fig. 2), this genus being the only member in the Sparganiaceae. Of the 95 lakes that have been surveyed in the years that I have been with the team we have recorded sparganium at 11 sites. The Australasian Virtual Herbarium (AVH) distribution map for *Sparganium* (Fig. 3A) shows that it is found mainly in the north, with roughly the same

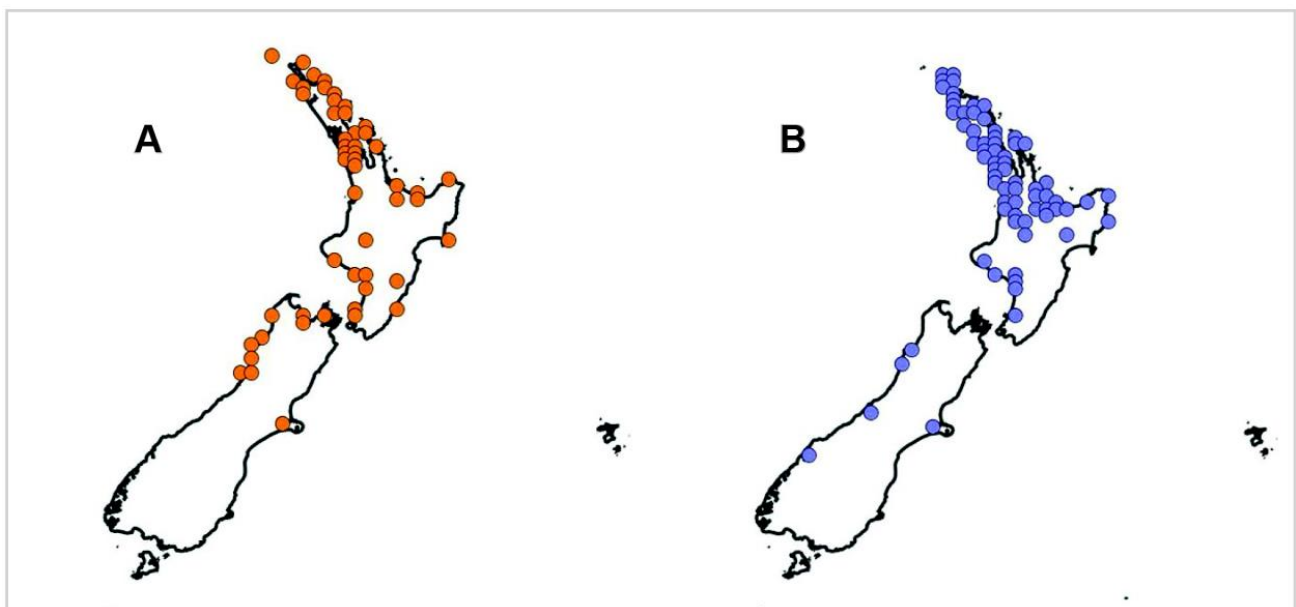


Fig. 3. Australasian Virtual Herbarium (AVH) distribution maps showing the New Zealand distribution of **A:** sparganium records; **B:** kikuyu records. Printed 11 Sept 2021.

distribution as kikuyu (Fig. 3B). It is a very distinctive plant, growing to about 70 cm tall, and with fleshy leaves that are more or less rhomboid-shaped in cross-section. The inflorescence can be 50–70 cm tall, with globose female flower heads near the base, and similar male flower heads above. When in flower the white stigmas and stamens are eye-catching. The crowded fruits then develop, also in a spherical form. Obviously, this is not a common plant and it is struggling to hold its own.

This then, is the kikuyu dilemma (Fig. 1). Is it better to fence the lakes, or leave them grazed, to give these, and other wetland plants, a chance to thrive? When recording the terrestrial flora of the Awhitu dune lakes Cameron & Aspin (2011) discussed the same dilemma regarding grazing to control kikuyu and the semiaquatic exotic Mercer grass (*Paspalum distichum*).

Acknowledgement

I thank the Editors for organising Figure 3 A & B).

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Thomas Kirk in Auckland: geographical, botanical and biographical notes

Rhys Gardner

Introduction

This article clarifies some of the place names used by botanist Thomas Kirk (1828–98) in the first part of his residence in New Zealand, when he lived in Auckland, from 1863 to January 1874. He then moved to Wellington, established himself as a teacher, scientist and forestry administrator, and hardly ever came north again (Hamlin 1965; Moore 1973; McKelvey 1991; Macleod 1993; Note 1).

Some of these place names appear on Kirk's collections, the others in a comprehensive article on the botany of the Auckland region (Kirk 1871). I have not been able to pinpoint them all—along the way, however, several facts about the Kirk family in Auckland have been rediscovered (Note 2).

Kirk's itinerary

Thomas Kirk was already a very good field botanist when he arrived in New Zealand in February 1863 (Godley 1999). During the next decade—essentially, until he published his 1871 article—a fair proportion of his collecting was done close to Auckland (with the notable exception of the Waitakere Ranges (Notes 3, 4). From then until January 1874, when he and his family left for Wellington, he ranged further afield (Rotorua and various South Island

localities, etc.), and made relatively few collections from the Auckland region.

It was nearly unknown for mid-19th C. collectors to use a consecutive numbering system (except when packeting up specimens for consignment overseas) but fortunately Kirk's specimens often have an exact date and locality. In this way Hamlin (1965) was able to prepare an itinerary of Kirk's collecting in New Zealand. Hamlin said that he had collated the label data from "about 85 per cent of Kirk's herbarium", that is, of the Kirk collections at WELT (National Museum of New Zealand); he did not investigate other herbaria, such as AK (Auckland War Memorial Museum), which has just under 1600 Kirk collections (all vascular plants).

The WELT specimens, including some apparently not seen by Hamlin, have now been data-based, so we are now able to follow Kirk in his collecting around Auckland. Most of these collections are of ferns and fern-allies, gymnosperms, or flowering plants. Kirk in 1871 also treated just these groups, although he did note in the article's first paragraph that "the lower Acrogens [mosses, etc.] and the Thallogens [fungi, algae and lichens] will, it is hoped, form the subject of a subsequent paper" (Kirk 1871: 148) – as it did, see