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## **The usefulness of students' herbarium labels**

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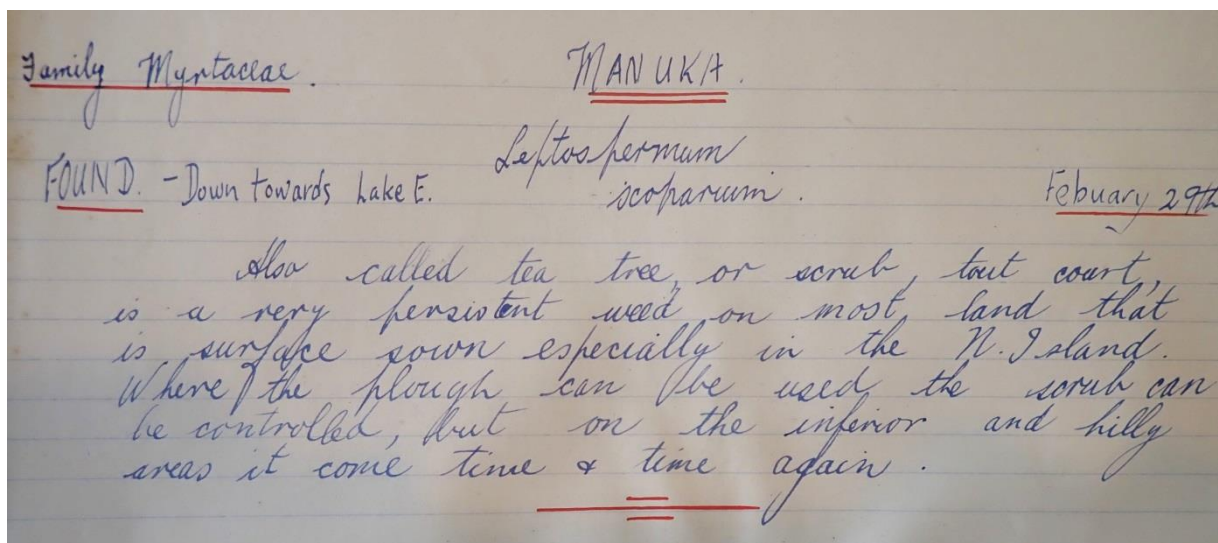
As a research technician at the Allan Herbarium the main part of my job is entering the historical data from specimens' labels. Most of this is basic, sometimes including only the species name, with limited or no location information let alone who collected or determined it, or even when it was collected. Then there are collections made by students of a bygone era, often specific to course papers that have been repeated for years, if not decades. These are more fulsome and can be revealing.

It was a requirement for each second year Bachelor of Agricultural Science student at Canterbury Agriculture College to make a herbarium collection of 50 grasses and legumes, 50 weeds, 50 native plants, and seeds of 50 plants (pers. comm. R Lucas, Lecturer and Alumnus, Lincoln University / Canterbury Agriculture College). Many of these collections show that the students

completing the assignment had an interest in certain plants, the uses for the plants, or simply enjoyed going to places where the plants grew.

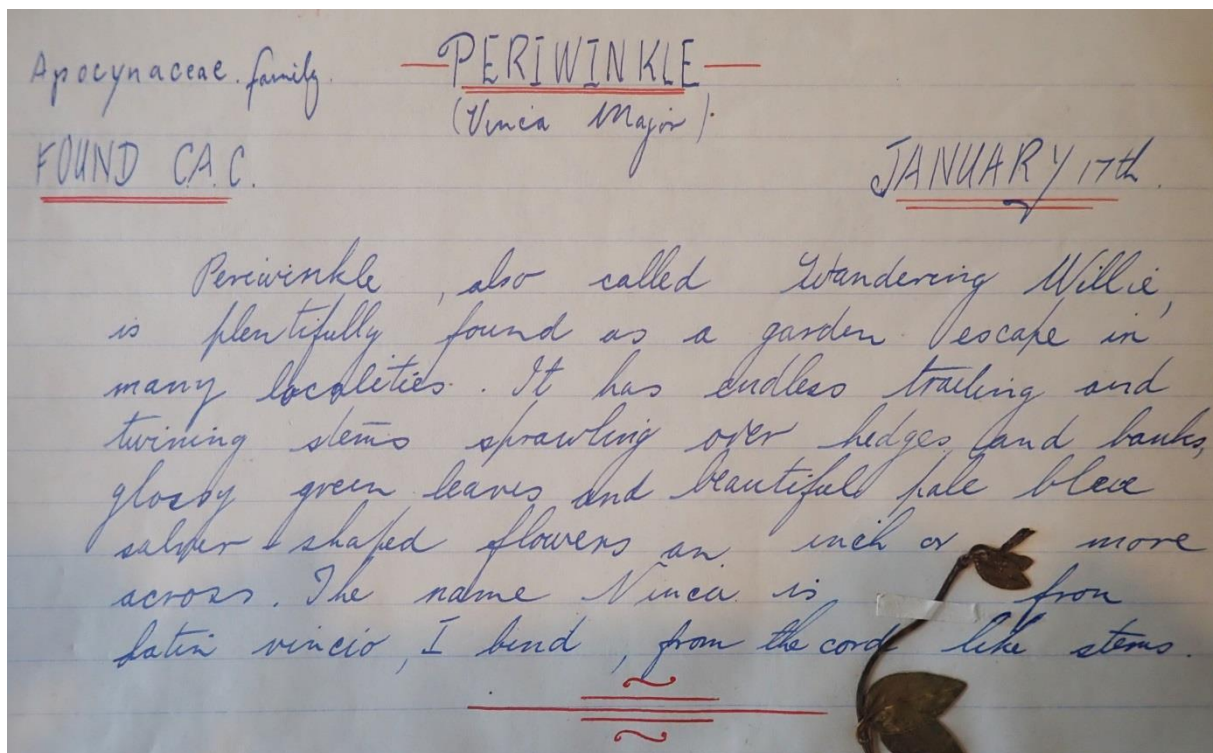
One of these university student collections dating from 1948 came to light during the Covid-19 Level 3 lockdown. Although this collection did not have the full complement of the above categories it was surprisingly close in some areas, with 63 weeds mainly from Canterbury Agricultural College (CAC), 13 grasses (Lake Ellesmere and CAC), 24 waterway species (Lake Ellesmere and surrounds), and 45 native species from Riccarton Bush and Mt Torlesse.

Now you might be wondering what this has to do with labels. As part of this assignment it would appear that the students had to write notes about each plant, either in relation to its ability to affect pasture, or how to remove it from pastures. This in itself makes typing up these labels interesting as it shows how attitudes have changed, and in some labels you notice changes in language, and even what may have been considered a normal use of French or Latin. For example, one label uses the French phrase “tout court” as if the reader would understand its meaning (Fig. 1). I remember *tout* (= all) from my school days learning French, but with “court” the phrase threw me. After the use of Google I learnt that it means “with no addition or qualification; simply”, extending my language range.



**Figure 1.** Tout court, referring to the word “scrub”, which requires no qualification.

In contrast, another student was kind enough to translate the Latin for me, explaining how the genus name related to the habit of the plant: the genus *Vinca* comes from the Latin *vincio*, to bind (Fig. 2, p. 87). This is fairly straightforward when you work in taxonomy and the names become more familiar as they are repeated, or you deal with variations of Latin words on a regular basis.



**Figure 2.** A note of explanation on the meaning of *Vinca*, from the Latin *vincio* (= I bind) from the cord-like stems.

Beyond languages you get to learn how to identify plants; those little tips that some might assume you already know about because they already do. When it comes to identifying grasses, I am a beginner. A specimen of tall oat grass had useful tips of how to hold a leaf blade to help with its identification:

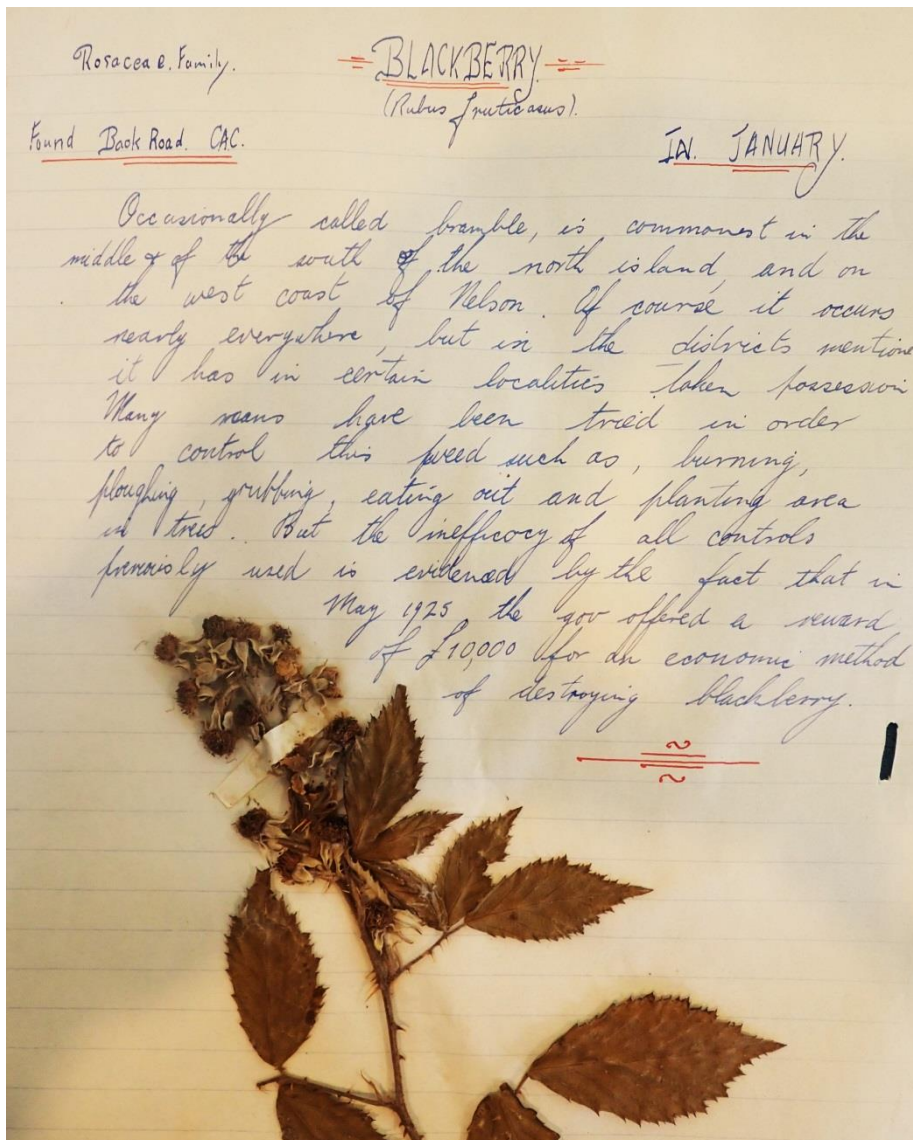
*Tall oat grass (Arrhenatherum elatius).* A tall-growing, dark-green grass with long and wide but thin and papery leaves. On the upper surface of the leaves the hairs are disposed in lines, as can be seen if the leaves are held with an end in each hand and then looked at lengthways with one eye closed and the other at a level with the blade.

Collections would have been made with the Agriculture sector in mind with many mentions of “sour soil”, grubbing, and cultivation to get rid of unwanted species. Much of this has not changed. However, one thing that has changed is the use of poisons, or herbicides as they are now referred to. In the notes accompanying a specimen of the weed false pennyroyal, or heal all, (*Prunella vulgaris*), the student has added:

*This is another weed of somewhat sour land that can be reduced by cultivation & liming. On lawns it can be removed by spraying with arsenic pentoxide.*

Arsenic pentoxide has the formula  $As_2O_5$  and is highly toxic. From the National Library of Medicine I learnt that there have been experiments on dairy cows studying the transference of toxic arsenic into milk and edible tissues, as well as a variety of uses for arsenic outside the agriculture sector, from the automotive industry to surface treatments.

Then you take note of the reward the Government of 1925 offered to pay for the discovery of an economic method for the removing some plants, like blackberry. For those of you with a favourite blackberry patch, would you use it to test for an effective method for its eradication for £10,000? (Fig. 3).



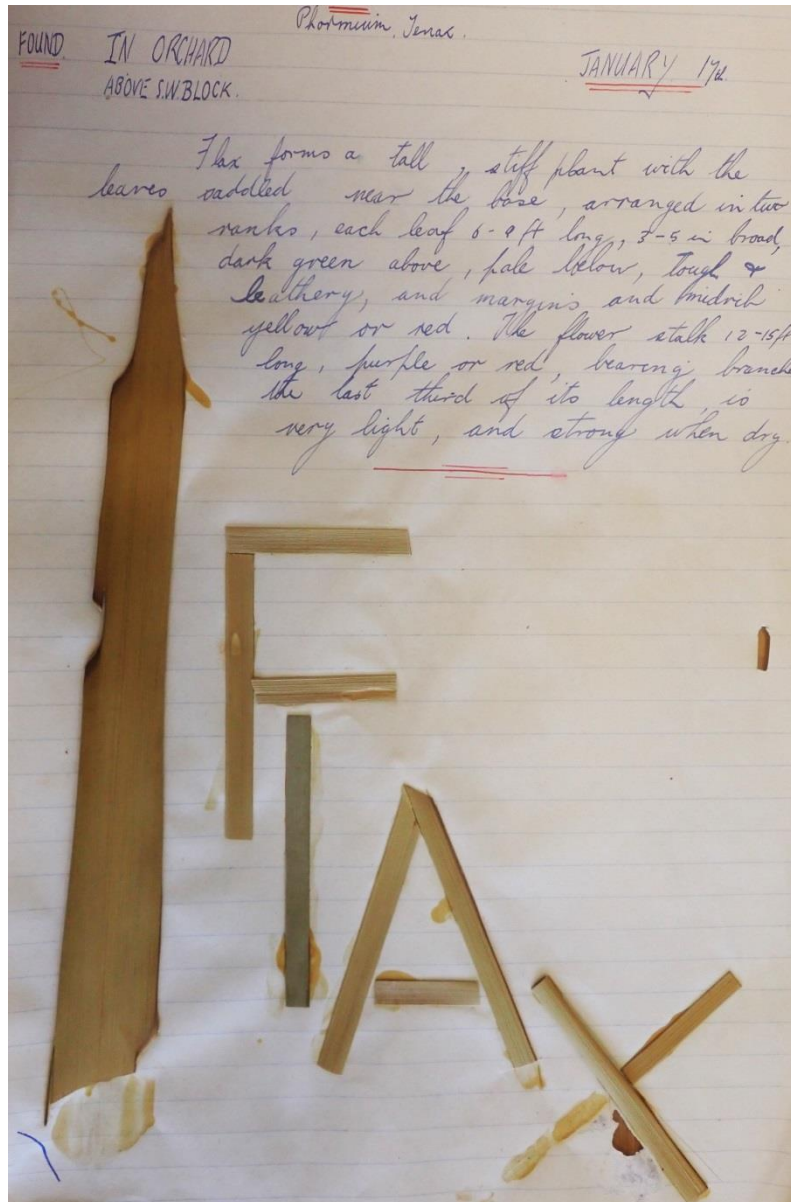
**Figure 3.** A Government reward for an effective and economical method of blackberry control.

Another interesting label mentions the apparent loss in the space of 40 years of highly scented forms of musk (*Mimulus moschatus*, preferred name *Erythranthe moschata*) that were grown for their perfume. "It is said to have disappeared."

The discussion of vernacular or common names is also interesting. I will admit I have grown up calling plants by names that others do not recognise, or they have a different species for that particular common name. Change region or country and it is surprising how one plant can have so many different names. The student gives some good examples for *Agropyron repens* (now known as *Elytrigia repens*):

*Long twitch. Also called couch, and blue, English, white or old man, twitch or couch. It is one of the worst twitches of arable land and gardens.*

Lastly, there comes the specimen that in many ways is self-explanatory and reminds us of those times when the assignment is nearly over, or not interesting enough, or just appealed to the student's creativity! (Fig. 4).



**Figure 4.** Waning level of student interest or creative licence with a flax specimen.

***Seeds of New Zealand monocotyledons* by Colin J Webb,  
Manuka Press, 2019**

Reviewed by

**Bryony Macmillan**

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This book is a companion to *Seeds of New Zealand Gymnosperms and Dicotyledons* by Colin J Webb and Margaret JA Simpson, Manuka Press, 2001. Together they complete the illustration of the seeds and disseminules of all the native plants.

These are beautiful and necessary picture books. Just as we have bird books, and illustrated catalogues of postage stamps, so we botanists need atlases of skilfully photographed plant parts accompanied by detailed descriptions to enable us to identify one from another, and to marvel at their seemingly perfect adaption for dispersal of their regenerative material.

To produce this volume has been a tremendous work requiring access to vouchered seed collections and to the skill of several laboratories in both light microscopy, and scanning electronic microscopy. Later in his career the skills of Colin Webb in science management took him from Landcare Research, Lincoln, to Wellington to work. So it fell to the proven skills of Debby Redmond in the Allan Herbarium, Lincoln, to select suitable seed material for despatch to Colin in Wellington. Her work is warmly acknowledged. Similarly the photographic skills of workers in several Landcare Research laboratories is individually highlighted.

The term seed here includes those parts which surround the ripened fertilised ovule and may be dispersed with it, or cause its dispersal. It is these parts which give the species their distinguishing shapes and patterns. From here the whole structure may be called disseminule.

The families of indigenous Monocotyledons are arranged in alphabetical order and the seeds of each species are described and keyed out on characters illustrated in the adjacent photographs. In total 577 species in 25 families are treated.

Aids to identification are cleverly explicit: the glossary of some 95 nouns with numerous tantalising adjectives; charts of shapes, of seed wall patterns, and colours - which range from light yellow to dark henna.

The index distinguishes text pages from plate numbers in bold type. Full details are given for voucher specimens examined, plate number, herbarium accession number, locality, collector, and date of collection.

In recognition that the user may be restricted to a hand lens x10 or at most a stereoscope microscope, the actual magnification is given with every