

# Ups and downs of collecting for the Tauranga ED

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The Tauranga Ecological District (ED) is a long narrow band extending along the coast from the northern end of Waihi Beach almost to Otamarakau. Places in the ED are at most 10 km inland and rarely more than 150 m elevation. The majority of the area is heavily modified by horticulture or intensive farming. As a result of that there are few natural areas. Development of weed killers over the last few decades has greatly "improved" pasture and cleared "waste places". Also, the urban areas were small until a few decades ago so there are few longstanding sources for adventives.

In 2014 Matt Buys persuaded me to collect specimens from the Tauranga ED to provide the National Forestry Herbarium (NZFRI) with a vouchered set for the ED. As a starter, he provided a "Wish list" for the ED. This was converted to a spreadsheet to allow a tracking of my collections.

A quick scan of this initial list revealed many species which were not known as adventives, so the first step was to remove names which were not in national records as adventive. The authority for species being adventive rather than cultivated was records in the Landcare database (Allan Herbarium, CHR) or on the NZPCN web site. This reduced Matt's wish list from 868 to 817:

**Table 1: Establishing Initial Number of Species**

Source	List size	New	Removed	Vouchered	To collect	Total
Wish List	868				868	868
Rejected -cultivated			51		817	817
Vouchered (2006)	338	57		338	479	874
Tauranga ED list	715	132			611	943
Species lists (43)	1006	69			680	1029
<b>Initial values</b>				338	<b>691</b>	<b>1029</b>

The next step was to mark all the species that were already vouchered. Data for the Bay of Plenty list, prepared in 2008 (Beadle et. al., 2009), was used as a source to indicate species for which voucher specimens were required, as I was expecting there to be few collections since.

This starting list seemed to miss a few obvious species so it was back to the BOP list and a list for the ED alone (Beadel, 2005) to check for species not in the "Wish list". Finally, the individual species lists for the ED on a personal database were merged and scanned to add further species. This gave a first checklist of 1029 species.

Over the next 3 years 552 species were vouchered. Then I found out that the ED boundary I had been using had been revised in 2014 and the new boundary excluded several major collecting areas I had used (especially Lindemann Road, near the original boundary and Papamoa Hills Regional Park). These now lay outside the revised ED boundary. 124 species had been collected outside the new ED boundary and had to be found within the newly defined area or rejected. The change also removed many mature natural areas with easy access and led to a renewed search for less accessible small natural areas.

At the same time it was decided to begin a check of vouchered specimens using an output from the NZFRI database to catch those specimens vouchered since 2008. A quick check of the database again revealed several issues. Some species were obviously not collected from the ED. These decisions were based on the known distributions of the species and their ecology. These were usually alpine species, probably from the Kaimai Ranges in the adjacent Otanewainuku ED. The check also revealed some interesting locations. Several were collected in "Nairns Plot" by a former conservator of forests for Rotorua. The location was in Second Avenue Tauranga outside the Ambrosia Café! Other records were grouped in unlikely locations near Tauranga, some even in the middle of the harbour.

All the dubious collections were made before 1950 and suggested that the locations were generated to satisfy the databasing of the herbarium records. This was not unexpected as

it was quite typical for old records to be very imprecise, sometimes with entries such as only "Tauranga" or even "South Is". As a result, a decision was taken to re-collect where records were from before 1970, unless a sufficiently precise location was present. Luckily, one column in the database has been used to indicate the nature of the location information. Three qualifiers are used in order of precision: GPS, MAP, inferred. The map and GPS records were also qualified by whether WGS84, Grid, lat/lon etc. But it was the "inferred" tag that picked up the early unreliable records and indicated a few recent ones which could be rejected.

**Table 2: Current status of Collections (March 2017)**

	Collected	New	Removed	Vouchered	To collect	Total
<b>Initial values</b>				338	691	1029
<b>Collected 2006-2017</b>	550	105		550	354	1134
<b>Outside ED- boundary revised</b>			35	-124	468	1099
<b>Other collections 2006-2017</b>				20	448	1099
<b>Early specimens - location inadequate</b>				-35	483	1099

One source has yet to be investigated - that is other herbaria, especially AK (Auckland Museum Herbarium) but also WELT (Museum of New Zealand Te Papa Tongarewa, Wellington) and possibly CHR (Allan Herbarium, Landcare Research, Lincoln) to get a full species list for the area. On the other hand, most mundane species such as bracken, coxfoot, and foxglove to name a few, were not vouchered for the area but many unusual and rare ones have been.

Printouts from the compiled list allow a quick check to be made in the field on whether to collect - especially for mundane species, and a short list of those not already collected helps focus collecting expeditions. Finally, a list for the ED was created in my database and kept up to date. This allows a list for an area to be quickly prepared highlighting species in that locality that have not already been collected by matching the ED list with a list for the locality.

There are still a lot of species to collect. Many are in specialised localities difficult to locate. Some (e.g. pukatea) have few sites where they are present and are difficult to collect flowering or fruiting specimens from; some present problems in creating a voucher, because they are so small (*Lemna disperma*) or so large (nikau) and for some the habitat may now have been destroyed. On the other hand, each collection trip seems to produce new records. And of course, plants often flower or fruit over a limited season and can easily be missed in season. This means there are many more years collecting to achieve a reasonable level of success in documenting the plants of the Tauranga ED.

## References

- Beadel S.M. 2005: *Tauranga Ecological District Phase 1. Protected Natural Areas Programme Report*. Wildlands. 55p.
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