Weed swaps swamp weedos

Clayson Howell[1]

During 2006 and 2007 the Department of Conservation's Wellington Conservancy organised five weed swap events throughout the Wellington region. These events are organised to raise awareness of weeds and encourage private landowners to replace weeds with native plants. The concept is simple: members of the public bring in weeds to be identified and disposed of, and in return take home a native plant. Additional information is often provided on control techniques for common weeds suitable for home garden situations. Greater Wellington Regional Council then chases up occurrences of weeds required to be controlled under their Regional Pest Management Strategy (RPMS). The response from the public has been overwhelmingly positive. During these weed swap events I recorded all the plants that were presented as weeds. This paper provides analysis of the taxa that were presented.

The first event in Wellington Conservancy was held in Civic Square, Wellington on 26 November 2005, but no data are available for that event. In 2006, events were held at Te Papa, Wellington (12 August), and at Civic Gardens, Lower Hutt (19 August). In 2007, events were held at the Dowse Museum, Lower Hutt (11 August), Waitangi Park, Wellington (13 October) and Kapiti Uniting Parish, Raumati (14 October).

The Lower Hutt weed swap, 11 August 2007. Photo: Matt Barnett / DOC.

1. Department of Conservation, PO Box 10-420, Wellington. E-mail: chowell@doc.govt.nz.

Each weed was recorded once per person, irrespective of the number of individual plants of the species brought in by that person. In some cases passers-by plucked samples from nearby gardens in order to receive a free plant. Where this was obvious, for example the variegated periwinkle (*Vinca major*) at the Raumati weed swap, these records were excluded from analyses. Occasionally, people arrived with large bundles of mixed weeds. In these cases we quickly worked through the pile to identify the various elements. Some of the most interesting finds were mixed in with what appeared to be a bag-full of common weeds.

Weed swap events ran for between 3 and 4 hours, and during that time staff were kept busy with identification. At each event between 90 and 110 taxa were identified. In total 193 taxa were recorded. This amounted to 1,704 identifications or approximately 100 per hour.

Species in the top ten most frequently presented are generally well known to gardeners (Table 1). Many people knew a name for most of these species. Few people knew the name of red dead-nettle (*Lamium purpureum*) or Canadian fleabane (*Conyza albida*). Approximately half were surprised when informed that the scourge of their gardens was puha (*Sonchus oleraceus*) which was the most frequently presented plant (Fig. 1).

While it was rarely presented on its own, veldt grass (*Ehrharta erecta*) was a common contaminant of weed bags (Fig. 2). This species has spread rapidly in the last 20 years in the Wellington region (Edgar & Connor 2000) and gardeners have almost certainly played a major role in this spread. Many people presented black nightshade (*Solanum nigrum*) and, to a lesser extent, velvety nightshade (*S. chenopodioides*) as deadly nightshade. *Solanum nigrum* is generally considered non-toxic, except for the green berries which may be toxic if eaten in large quantities (Connor & Adams 1951). Deadly nightshade (*Atropa bella-donna*) is extremely rare in New Zealand and has never been recorded in Wellington.

Table 1. The most commonly identified taxa (all weed swap events combined).

Scientific name	Common name	Count of identifications
Sonchus oleraceus	puha	144
Tradescantia fluminensis	wandering willie	125
Stellaria media	chickweed	70
Ehrharta erecta	veldt grass	64
Fumaria officinalis	scrambling fumitory	44
Euphorbia peplus	milkweed	41
Lamium purpureum	red dead-nettle	41
Allium triquetrum	onion weed	40
Conyza albida	Canadian fleabane	37
Solanum nigrum	black nightshade	36

Figure 1 (left). *Sonchus oleraceus* (puha)—the most frequently presented plant at weed swaps. Figure 2 (right). *Ehrharta erecta* (veldt grass)—rapidly spreading throughout the Wellington region. Photos: Jeremy Rolfe.

Perhaps unsurprisingly, Asteraceae dominate the weed listings (Fig. 3). This large family contains many weeds of cultivated places. From dandelion-like plants to thistles, groundsels and fireweeds and shrubs like bone-seed, many exotic species of Asteraceae have made Wellington their home. The other families are again no surprise as, worldwide, they are among the largest plant families (Fig. 3). Commelinaceae was the second most frequently encountered family which is unusual as all records were from one species, wandering willie (*Tradescantia fluminensis*).

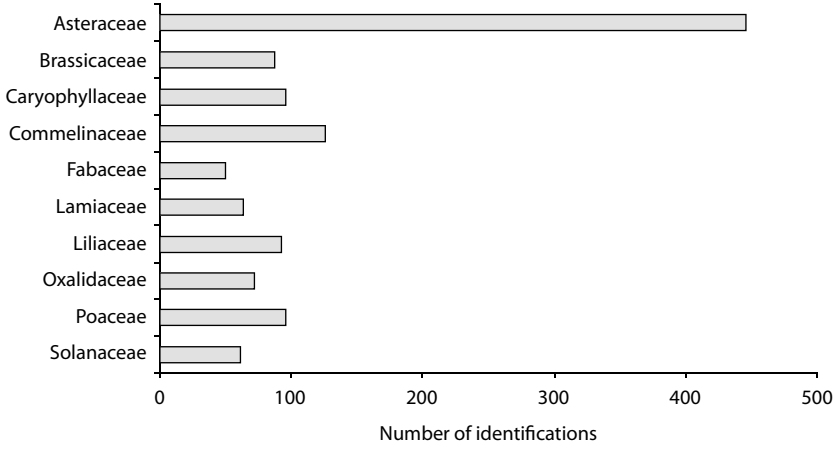

Figure 3. Top ten families of plants identified at weed swaps

There are some clear differences between weeds present at the various weed swap locations. Thirty-eight wild brassicas of 3 species (*Brassica fruticulosa*, *B. oleracea* and *B. rapa*) were presented in Wellington, while only 8 specimens in total were presented in Lower Hutt. Conversely, Cape weed (*Arctotheca calendula*) was presented 18 times in Lower Hutt but only once in Wellington.

The range of taxa presented at weed swaps represents a sample of what the Wellington public consider to be weeds—at least in their back yards. I thought it would be interesting to examine this new list in the context of published weed lists.

The Department of Conservation's "Plant me instead" (PMI) book for the lower North Island (Department of Conservation 2005) specifically targets plants that the Department encourages gardeners not to grow. As the weed swap also gives away native plants, the message embodied in PMI is closely aligned to weed swaps. Of the 96 species listed in PMI, 33 were handed in on at least one occasion. Of the species that were commonly presented, many were unlikely to be deliberately cultivated and thus would not be sensible additions to the PMI. But onion weed (*Allium triquetrum*—40 occurrences), periwinkle (*Vinca major*—8 occurrences) and chocolate vine (*Akebia quinnata*—2 occurrences) could be considered for inclusion in new editions of PMI.

Two volumes of a Pest Plant Atlas for Wellington Conservancy have been published (Howell *et. al.* 2000, McAlpine & Sawyer 2003) that document distributions for a range of weeds. These have not been marketed directly to the public in the same way that PMI has been, but observations of weeds outside the known ranges are extremely valuable. Eleven of the 37 species listed in the two volumes of the atlas were presented but none represented a major range extension from that published in either atlas.

A list of taxa considered environmental weeds throughout New Zealand and published recently by the Department of Conservation (Howell 2008) is the most exhaustive of the lists considered. However, this list lacks a specific Wellington focus. Sixty of the 328 species listed were identified during the weed swaps. The Department generally controls these species where they occur on high value conservation land. In some cases buffer zones around reserves are also cleared but the Department of Conservation has no real interest in controlling these species on private land. However, the Department does provide advice on control techniques to landowners who would like to undertake control. The Department of Conservation runs a national weed-led programme which involves targeting weed species for eradication from an entire district. There is only one active Departmental weed-led control programme for the Kapiti and Wellington region. The species is purple loosestrife (*Lythrum salicaria*) and no specimens of this species were presented at weed swaps.

The National Pest Plant Accord (NPPA) lists a subset of species declared

Unwanted Organisms under the Hazardous Substances and New Organisms (HSNO) Act 1996. It is illegal to knowingly propagate, sell or distribute these species without an exemption. One hundred and ninety specimens of 13 NPPA species were collected and disposed of during weed swaps. It is important to note that members of the public are not committing an offence by bringing these species to the weed swap.

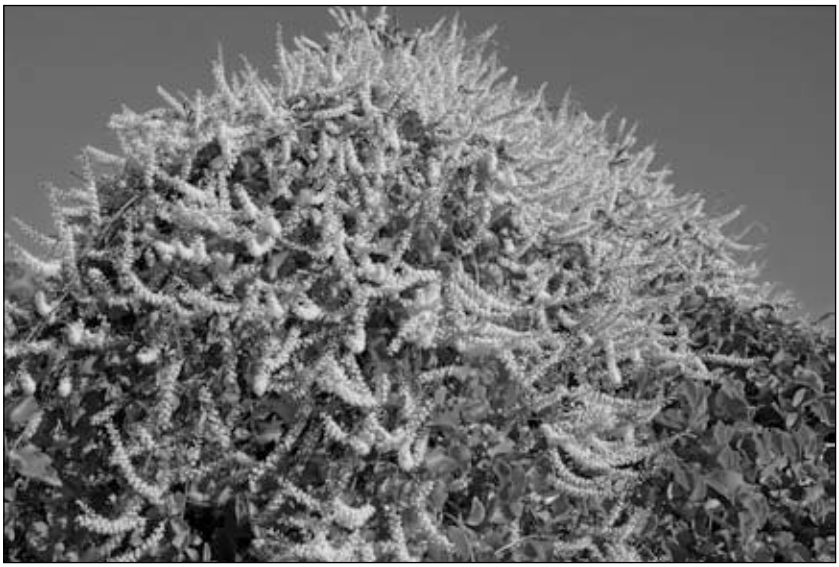

Figure 4. *Anredera cordifolia* (Madeira vine)—a Total Control plant in the Regional Pest Management Strategy of Greater Wellington Regional Council. Photo: Clayson Howell.

As part of its RPMS, Greater Wellington Regional Council has declared a range of plants as 'Total Control'. These include species for which Council undertakes removal of the pest and some species where landowner control on boundaries is required in some areas. Two previously unknown sites for Madeira vine (*Anredera cordifolia*)—a Total Control species—were discovered directly from specimens brought to weed swaps (Fig. 4). These sites are now subject to eradication programmes. In addition to the Madeira vine records, 48 specimens were presented from 8 different species that appear in the current RPMS in some form. However, these records were all outside priority control areas.

Thirty specimens of New Zealand native plants were presented at weed swaps (Table 2). In most cases the people who presented them did not know they were native. Several people brought *Corynocarpus laevigatus* (karaka) and *Pittosporum crassifolium* (karo) to the weed swap recognising that they are not native to Wellington and controlling them as weeds. The most commonly presented native plant was *Cotula australis* or soldier's button (Fig. 5).

Table 2. New Zealand natives presented at weed swaps.

Scientific name	Common name	Count of identifications
Corynocarpus laevigatus	karaka	1
Cotula australis	soldier's button	11
Hebe stricta	koromiko	3
Macropiper excelsus	kawakawa	2
Muehlenbeckia australis	pohuehue	3
Oxalis exilis	oxalis	4
Pittosporum crassifolium	karo	3
Pteridium esculentum	bracken	2
Rubus australis	bush lawyer	1

Figure 5. *Cotula australis* (soldier's button)—the most commonly presented native plant. Photo: Jeremy Rolfe.

Timing of weed swap events affects the weeds presented. For example, events held in October typically feature greater bindweed (*Calystegia silvatica*) while this species is not yet apparent in August. Later still, holly-leaved senecio (*Senecio glastifolius*) becomes a striking feature of roadside verges and waste land. I feel confident that, if events were held in late October to November, this species would feature.

Aquatic weeds comprise around 12% of environmental weeds in New Zealand. Of these more than half are escaped ornamental species (unpublished data). Yet almost no aquatic weeds have been brought to the weed swaps. The exceptions are water celery (*Apium nodiflorum*) and water cress (*Nasturtium officinale*). It may be that aquatic environments in urban areas are contained in fish ponds or man-made wetlands in which weedy taxa are not viewed behaving badly.

Weed swap events are typically well received by the public. From the perspective of the Department of Conservation they are valuable for two major reasons. The uncovering of new sites where Total Control plants occur is valuable to the Regional Council in their programme to implement their regional pest management strategy. Secondly, weed swaps increase awareness of weeds as an issue and provide an opportunity to advocate control methods to the public. Identifying all plants brought in does not add much time to a weed swap event but yields an interesting dataset. Weeds presented at future weed swaps will also be catalogued in this way.

ACKNOWLEDGEMENTS

Many thanks to all those who helped out at weed swaps, especially Matt Barnett, Sue Galbraith, Colin Giddy, Chris Horne, Pedro Jensen, Stacey Moore, John Sawyer and Mike Urlich.

REFERENCES

Connor, H.E.; Adams, N.M. 1951: The poisonous plants in New Zealand. R.E. Owen. Government Printer.

Department of Conservation. 2005: Plant Me Instead. Plants to use in place of common and invasive weeds in the lower North Island. Department of Conservation, Wellington. 165 p.

Edgar, E.; Connor, H.E. 2000: Flora of New Zealand Volume V Grasses. Manaaki Whenua Press, Lincoln, New Zealand.

Howell, C.; Hughes, P.; Sawyer, J.W.D. 2000: Pest plant atlas: Wellington Conservancy excluding the Chatham Islands. Volume 1. Department of Conservation, Wellington, 55 p.

Howell, C. J. 2008: Consolidated list of environmental weeds in New Zealand, *DOC Research & Development Series 292*. Department of Conservation, Wellington. 42 p.

McAlpine, K.; Sawyer, J.W.D. 2003: Pest plant atlas: Wellington Conservancy excluding the Chatham Islands. Volume 2. Department of Conservation, Wellington. 88 p.

Roy, B.; Popay, I.; Champion, P.; James, T.; Rahman, A. 2004: An Illustrated Guide to Common Weeds of New Zealand second edition. New Zealand Plant Protection Society.