ACCEPTANCE OF TAXONOMIC CHANGES

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The editorial in the June 2014 Rotorua Botanical Society Newsletter had me thinking about the process of establishing and accepting formal (often called Latin) plant names. The process is by no means clear cut.

Any published plant name does not necessarily have to be accepted immediately (Connor & Edgar 1987). As they say "One accepts a newly published name if one accepts the taxonomic conclusions on which it is based". Thus changes usually have to be accepted by the taxonomic community, so as amateurs, it often does not pay to follow every suggested change as soon as it is published. Rather it may be better to wait until there is some form of consensus among the experts. On the other hand there may no agreement among the experts. In the orchids of Australia, with which we share many genera and species no such consensus exists, although more recent work has indicated that some of the sweeping changes adopted in New Zealand some five years or so ago are not sustainable. In our travels in Europe we have often heard similar debate among our guides, experts in the flora of the area, around what is acceptable (especially in Georgia where Russian and European ideas clashed).

In New Zealand some name changes have been accepted without any published scientific investigation, just on the opinion of a single person such as the late Tony Druce. Landcare has recently moved to drop changes it had previously made (on Druce's advice? cf. Parsons 1996), returning to the last published names often those used in Vol1 of the Flora (Allan, 1961), on the basis that no evidence had been published to support the changes. This does not mean you cannot use other names, but it does mean that you may be required to cite the publication of that name to define its usage. Some herbaria (not wishing to name them) are quite conservative in adopting new names as it takes a lot of work to re-label and shift blocks of specimens (*Hebe* vs *Veronica*).

There is a vast and continuing flow of taxonomic work, some in obscure journals so it is rare that one person has a full grasp of the whole literature. Sometimes individuals in New Zealand have expertise in narrow groups of genera or families and their opinions can be accepted. In the past (and even now) some of the literature has been overlooked or much delayed in being available, perhaps because it needs translation, or simply because the journal is too obscure (cf. Otago Botanical Society Newsletter). The realisation that material exists in some obscure publication often arises only when the original article is later referred to in a more widely published journal.

Individual papers need to be assessed for the significance or reliability of the conclusions. Some conclusions on their own are not definitive but rather indicative. Much published work has a long period of gestation and testing among a group of scientists before publication (as well as referees). So if the changes seems sudden to us, the validity has often already been well tested among colleagues and associates. It is also obviously difficult for one person to keep track of all the scientific literature. Landcare in particular, which has the largest base of researchers, relies on individuals for assessment of literature on particular groups in which they have expertise. Nevertheless some individuals have strong views that influence their assessments. Often we can use international sources to keep up.

There are two major international sources of plant names "IPNI" and "The Plant List". These use experts in many fields and countries. Both sources have their uses. IPNI (International Plant Names Index) is a cooperation between Kew, Harvard University Herbaria and Australian National Herbarium. It attempts to provide the reference source to all plant names ever published, no matter how obscure. The Plant List is an attempt by people working in major World herbaria including Kew, Missouri Botanical Garden, Tropicos etc. to produce a definitive World list of species. The Plant List gives one of three opinions on a name: accepted, synonym (and its accepted name) and unresolved,

i.e. it is published but type has not been identified or the usage of a name cannot clearly separated from that of another.

Some names that have been used in New Zealand may not be found in either database. Both databases are "works in development" so neither of these are fully up to date, as I have found in checking out adventive names used in New Zealand. Some because they are too recent, some because the source is too obscure and some because there has been no recent review of that group or genus (*Sisyrinchium* in South Africa).

Finally, although many changes are a matter opinion, some changes must be accepted (see Connor & Edgar, 1987 for a detailed account). These are ones that result from the International Code of Nomenclature and the oversight committee. A classic case was *Racosperma* /*Acacia*. Here research showed that *Acacia* was comprised of two distinct parts. The type for *Acacia* was a species from South Africa with few related taxa, so a new name for the Australian branch was required. This meant that most of the species (I think all except a few) were transferred to *Racosperma* (several hundred). Understandably the Australians were upset, objected and applied to the ICNU to have the name **conserved** for the Australian *Acacias*, and succeeded. A more recent and perhaps less known one was conservation of *Schedonorus arundinacea* against the prior *S. phoenix*. These names must be accepted.

Other mandatory changes are a matter of spelling (orthographic e.g. *Lagenophera* /*Lagenifera*) and those where the plant (usually adventive) was originally incorrectly identified in New Zealand (often marked *auct.*). Another one is where investigation of a group finds an earlier name and type specimen (e.g. *Polystichum richardii*) mostly because many early New Zealand collections were sent to multiple early botanists so the names and types (and their locations) have only recently been identified. The reverse is also true. Sometimes a name was given to a New Zealand plant in ignorance of an earlier use of the name. For instance *Clematis parviflora* A. Cunn. (1840) cannot be use in for the

native plant without full citation because it was used earlier (twice) for European plants, so a new name was required - *C. cunninghamii* Turcz (1864). Incidentally this was overlooked by Allan in preparation of Flora Vol. 1. In a few, the original type is recognised as a hybrid (*Olearia capillaris* / *O. quinquevulnera*) so a new type and name must be put forward.

Many of the New Zealand native plant name changes are driven by Australian work. The changes in the orchids were driven by Victorian publications but were not accepted by many Australian herbaria or workers. We are now seeing a reversal of those changes as New Zealand opinion changes (much to the relief of amateurs like me). Sometimes the Australians make unilateral changes for their flora and indicate that the New Zealand name is illegitimate, leaving us to sort it out (*e.g. Pomaderris phylicifolia /P. amoena.* This took us nearly a decade!). Others split or lump two species leaving an older name for the NZ taxon, especially in the ferns and orchids (*Hymenophyllum ferrugineum* / *H. frankliniae*).

For me I tend to accept a single source as authoritative for all names in the New Zealand flora as there are many people providing interpretations. There are two such authoritative sources: LandCare and NZPCN. Of the two, the former tends to be more conservative and in the past was often out of date for adventive plant names (not so any longer), the latter often moves quickly (perhaps too quickly) on published work. But of course Landcare also often moves because of an internal source for the work (*Nothofagus, Carmichaelia*).

As to families: that is another ball game. The principal issue here is the change from a morphological basis (Engler, Hutchison etc.) for grouping species to one based on a combination of DNA and morphology. In the last decade or so the DNA has produced tremendous insights into the evolution of plant groups but also the techniques themselves have evolved (different DNA or RNA loci, matching techniques) and the size of the data sets used has greatly enlarged as analysis costs have fallen. Like the plants

themselves, the taxonomic process is still evolving. Some groups of genera are better studied than others, some scarcely at all. In large groups of species often only a selection of species is made with the risks that impose on missing significant variation.

In spite of this, some changes indicated are so large that they tend to remain stable in more recent studies (the split of Scrophulariaceae) while other groups remain hard to place (*Phormium, Hectorella, Ixerba*), and perhaps of little interest outside New Zealand. The best source of the work for angiosperms is APGIII (Angiosperm Phylogeny Group third approximation) from the Missouri Botanical Garden. This provides, as with the Plant List, an indication of the confidence in the placement of a genus or family.

References

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