Threatened Plants of New Zealand
By Peter de Lange, Peter Heenan, David Norton, Jeremy Rolfe and John Sawyer
Published by Canterbury University Press, Christchurch, 2010
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Reviewed by Murray Dawson

Threatened Plants of New Zealand is a comprehensive and up-to-date account of New Zealand's six extinct and 184 severely threatened native flora.

The front cover illustrates the outstanding flowers of the iconic and popular garden plant Clianthus puricus (kaka beak) and it is a shock to learn (p. 89) that it is so endangered that only one plant is known in the wild. Another 24 species in the book are known in the wild from fewer than 200 plants. We are also told (p. 33) that nearly 8% of our flora is regarded as threatened with extinction.

These facts are not widely known by the public so this new book is a most welcome and much needed reappraisal of New Zealand’s rare and endangered native plants. Earlier books on New Zealand’s threatened plants were authored and co-authored by the late David Given and date back to the 1980s (Given, 1981; Williams and Given, 1981; Wilson and Given, 1989); these are now out of print and outdated.

Botanical, ecological and conservation research during the intervening decades has changed the taxonomic and conservation status of our threatened plants and this is comprehensively captured in the new book.

The layout is excellent and follows much the same format as the field guide Wild Orchids of the Lower North Island (reviewed in the New Zealand Garden Journal, 2008, Vol. 11(1): 32–33). Jeremy Rolfe, John Sawyer and Peter de Lange are the three Department of Conservation authors of both books.

Jeremy Rolfe is a botanist and photographer. He provided the layout concept for Threatened Plants of New Zealand and took most of the close-up and studio photographs. John Sawyer is a plant ecologist and the current secretary of the New Zealand Plant Conservation Network (NZPCN, www.nzpcn.org.nz). John and Peter de Lange promoted the idea of this book back in 2004 and John secured the funding for its production.

Peter de Lange is a threatened plant scientist based in Auckland, and Peter Heenan is a plant taxonomist at Landcare Research, Lincoln. The two Peters are among New Zealand’s most productive botanists and they often collaborate (as evidenced in the book’s reference list). They were responsible for the comprehensive botanical text (pp. 42–429) which is copyrighted to them.

The remaining author, David Norton, is a botanist and ecologist at the New Zealand School of Forestry, University of Canterbury. All five authors are deeply involved with New Zealand’s threatened plants and this combined depth of knowledge is apparent throughout the book.

As explained in the Sponsor’s Foreword (p. 11) MWH is an infrastructure and environmental company that sets aside some of its profits towards conservation projects. This enlightened company should be fully acknowledged for supporting the production of this worthy book.

The main Foreword (pp. 12–13) is suitably crafted by immediate past-President of the NZPCN Ian Spellerberg, and is followed by a Preface (pp. 14–15) and Acknowledgements (pp. 16–17).

The Introduction (pp. 18–37) was written by David Norton, Peter de Lange and John Sawyer, and ably sets the scene for the main body of the book. The only lack here is discussion of the taxonomic and phylogenetic (DNA-based) concepts used (e.g., the classification followed for the family names or mention of debate surrounding use of Hebe versus Veronica).

Under the heading ‘The New Zealand flora and its origins’ it is mentioned that there are some 2370 native vascular plant species of which 82% are endemic (found nowhere else). Biogeography and the age of the New Zealand flora are also touched upon. The heading ‘What is threatening New Zealand’s threatened plants?’ is answered by discussion of habitat loss, predation, competition, reproductive failure, and (sadly) human ignorance. Competition of invasive weed species with threatened native plants is one of the largest problems.

The Introduction usefully explains the New Zealand Threat Classification System, upon which all plants featured in the main body of the book (pp. 42–429) are arranged. We are told that the Threat Classification System is unique to New Zealand and has been developed to be more meaningful to the patterns of rarity encountered here. The system is a distinct departure from the IUCN (International Union for Conservation of Nature) categories followed in the pioneering books by David Given and his co-authors.

The New Zealand Threat Classification System was first developed by Molloy et al. (2002), revised by Townsend et al. (2008) and followed by regular lists of threatened and uncommon plants now published in the New Zealand Journal of Botany. As mentioned in the Introduction, the most recent list (de Lange et al., 2009) provides the following categories and numbers of taxa (e.g., species, subspecies, varieties):

Extinct species have open circles denoting historical records and threatened species have closed (colour-coded) circles showing the extent (current) distributions. In my opinion, addition of open circles to map former distributions of the extant, threatened species would have provided a valuable comparison.

All plants are well illustrated with informative and interesting captions. The more than 600 photographs used in this book are credited to over 70 photographers. While a few of the threatened species are showy and well known in gardens (such as Carmichaelia stevensonii, Clianthus punicus and C. maximus, Hebe speciosa and Myosotidium hortensium), it would be fair to say that most are less photogenic and rather inconspicuous. Nevertheless, the authors have done well to assemble a superb collection of photographs that show them at their best.

The book concludes with References (pp. 430–435), an Appendix with new combinations (new botanical names or ranks; pp. 436–439), an extensive Glossary explaining terms used (pp. 440–454), About the Authors (pp. 455–456), and a combined Index of common and scientific names (pp. 457–471).

The Appendix publishes new combinations for seven new names used in the book. In my view, it would have been better to formally publish these combinations beforehand and elsewhere in a scientific journal. Some of the other botanical names and combinations used in the book are relatively new and may not be familiar to all readers. In some circumstances it would have been useful to add key synonyms – not a whole list, just the earlier name for which a plant was widely known previously (e.g., Carmichaelia stevensonii was previously known as Chordospartium stevensonii).

The text is largely free from errors. Page 4 misspells the plant name depicted on the cover (Clianthus rather than Clianthus). My quibbles are only minor and greatly outweighed by the strengths of this book. The clean presentation and abundant photographs make Threatened Plants of New Zealand work well as a semi-popular, even ‘coffee table’ style book, yet at the same time it contains detailed information. Although not particularly cheap at nearly $100, I consider this book a worthwhile investment considering that it is a hardcover volume approaching 500 pages.

As mentioned in the Introduction, the public still perceive threatened plants to be less sexy than endangered birds and other animals. Threatened Plants of New Zealand should help address that difference in perception by raising the profile of New Zealand’s threatened flora and help the fight to protect our unique plant heritage.

References


This book was launched 25th March 2010 at the Department of Conservation in Wellington.

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2 The extinct species are Lepidium obtsatum, Logania depressa, Myosotis laingii, Myosotis traversii var. cinerascens, Sterculia elatioroides and Trilepidea adamsii.

3 184 in this book rather than 180 in de Lange et al. (2009) because four new threatened species have since been formally described (see Preface). This Preface also acknowledges that there are about 400 informally recognised vascular plant entities, many of which will also be threatened.
An Illustrated Guide to Common Weeds of New Zealand
Third Edition

By Ian Popay, Paul Champion and Trevor James
Published by the New Zealand Plant Protection Society, Christchurch, 2010
Paperback, 448 pages, 170 x 244 mm
$NZ55.00
Reviewed by Murray Dawson

Editions of this guide are the standard popular reference for information on New Zealand’s weeds. The authors have aimed to include all common weeds, comprising garden escapes, naturalised plants and some native species that can become weedy.

The first edition was published in 1998 followed by a second edition in 2004. The second edition recently went out of print so the availability of this extensively revised third edition is most welcome.

As rightly stated in the Foreword (p. ix), each new edition gets bigger and better. This third edition is 448 pages long compared to edition two which had 320 pages. More than 50 new weed species have been added raising the total to some 380 main entries with a further 230 related or similar species mentioned. Some 1800 new photographs were selected to replace many of those used in the previous editions. The layout of the book has also been refined thanks to the Australian design and editing team Fiona and Rob Richardson – who are also weed experts in their own right.

Two authors of the previous editions (Bruce Roy and Anis Rahman) are not authors of this third edition but it is good to see their earlier contributions acknowledged (p. x).

The Introduction (pp. xi–xvi) begins by telling us that (like earlier editions) this book is aimed at a wide audience. It fully succeeds in being a user-friendly and practical guide that should appeal to gardeners, farmers, and others who are interested in weeds. Manaaki Whenua Press (a New Zealand natural history and science bookstore) tells me that these editions are one of their biggest sellers.

As discussed in the Introduction, a weed is a plant growing where it is not wanted and one person’s weed in another’s treasure. This includes introduced species that may be useful pasture plants but weedy elsewhere. The examples are given of red and white clover (Trifolium pratense and T. repens), valuable pasture plants but included in this book because they can be nuisances in the garden or in horticultural crops. Native New Zealand species are listed when they are weed problems of pastoral land in some regions. For example, the native manuka (Leptospermum scoparum) is valued for its honey, medicinal properties and firewood, but included here because it is also a scruffy weed of poorer pastures. The Introduction also mentions the Flora of New Zealand series (Vol. III–V, and especially Vol. IV), technical references that provide the extensive botanical descriptions upon which some of the information in Common Weeds of New Zealand is based.

The authors concede that grasses, sedges and rushes are not covered in detail in the main body of the book, but they do provide a good overview of them within the introductory sections (pp. xiii–xvi).

Acknowledgements (p. xvii) thank those who contributed to this and earlier editions (including my help in checking the botanical names used). Photographers are thanked although Trevor James (one of the authors) has provided the great majority. He is a keen photographer and his outstanding plant images are both diagnostic (showing key characters) and stunning (yes, weeds can be beautiful).

The Guide to Flower Colour and Size (pp. xviii–xxvi) is a handy colour-coded reference that helps broadly identify a plant from information about flower colour and size, the kind of plant it is and the habitat it occupies. Page numbers to the plant descriptions are included within this section.

Next are a useful book list (including some classic out-of-print references on weeds) and websites (pp. xxvii–xxviii), and a Glossary (pp. xxix–xxxii).

The main body of the book (pp. 1–400) contains the Plant Descriptions. Every second page has a full colour plate of photos and looks much tidier than previous editions where the photos were rather scattered. Also new to this edition is the addition of coloured plant names that indicate their status – red for naturalised species (the majority) and green for native (indigenous) species that can also be weeds. This usage at first seems inconsistent until you realise that naturalised species are not coloured within each entry – only the natives are.

Plants are arranged according to four groups: Plants with spores (ferns and fern-like plants), Plants with cones (conifers), Flowering plants (dicotyledons – the majority) and lastly Flowering plants (monocotyledons). Within each group, the plants are then arranged alphabetically by family, genus and species.

Plant names and families follow the most recent treatments. There have been numerous changes in botanical names since the second edition as a result of taxonomic (botanical) revisions and recent molecular-based (phylogenetic) studies. Some of the genus- and species-level changes include (with older names used for the second edition in brackets):

- Acacia spp. (Racosperma spp.)
- Allium neopolitanum (Nothoscordum inodorum)
- Aponogeton distachyos (Aponogeton distachyus)
- Araujia hortorum (Araujia sericifera)
- Brugmansia × candida (Brugmansia candida)
- Carpobrotus chilensis (Carpobrotus aequulentus)
Chamaesyce maculata  
(Euphorbia maculata)
Coryza sumatrensis  
(Coryza albida)
Delairea odorata  
(Senecio mckianoides)
Dipsacus fullonum  
(Dipsacus sylvestris)
Fallopia spp.  
(Reynoutria spp.)
Genista monspessulana  
(Teline monspessulana)
Hypochaeris spp.  
(Hypochoeris spp.)
Jacobaea vulgaris  
(Senecio jacobaea)
Lamium galeobdolon ‘Variegatum’  
(Galeobdolon luteum subsp. luteum ‘Variegatum’)
Landoltia punctata  
(Spirodea punctata)
Lepidium didymum  
(Coronopus didymus)
Lepidium squamatum  
(Coronopus squamatus)
Malva assurgentiflora  
(Lavatera assurgentiflora)
Malva dendromorpha  
(Lavatera arborea)
Malva linnaei  
(Lavatera cretica)
*Passitara* tripartita var. azuayensis  
and *Passitara* tarminiana  
(*Passitara* mixta)
*Passitara* tripartita var. mollissima  
(*Passitara* mollissima)
Persicaria decipiens  
(Polygonum salicifolium)
Persicaria maculosa  
(Persicaria persicaria,  
Polygonum persicaria)
Pilosella aurantiaca  
(Hieracium aurantiacum)
Pilosella officinarum  
(Hieracium pilosella)
*Pilosella* piolesioides subsp.  
praetulsa (Hieracium praetulsa)
Potentilla indica  
(Duchesnea indica)
Potentilla vesca (Fragaria vesca)
Solanan nodiflorum  
(Solanum americanum)
Tetrapanax papyrifera  
(Tetrapanax papyrifera)
Watsonia merana var. bulbilifera  
(Watsonia bulbilifera).

The new names used in *Common Weeds of New Zealand* are largely concordant with those followed in the Landcare Research Ngā Tipu o Aotearoa – New Zealand Plants database (http://nzflora.landcareresearch.co.nz) and the National Pest Plant Accord (NPPA) identification key (www.landcareresearch.co.nz/research/biosystematics/plants/nppakey/).

Each botanical name in *Common Weeds of New Zealand* is usually followed by one common name and sometimes also by a main synonym (an earlier name by which the plant was widely known). Like earlier editions of this book each description is succinct. There is a paragraph on key features (in bold), a short description (usually covering Flowers, Fruit, Leaves, Stems, and Roots), then notes on Habitat, Distribution, Comments, Derivation of botanical name, and Related or similar species. These headings are self-explanatory and the format works well – there is a lot of interesting and useful information packed into a minimum of space. Comments include the usefulness or toxicity of a weed and this section has also been updated to include changes to legislation governing pest plants. A few native and exotic plants that are not weeds are included under Related or similar species when they may be mistaken for weeds that they resemble. Nearly all of the related or similar species are illustrated, which is another improvement over the second edition where few were pictured.

This book concludes with the Plant name index (pp. 401–416) that combines the common and scientific names – previous editions index them separately. Within this index, some green-coloured text makes an accidental appearance (p. 412) for *Reynoutria sachalinensis* (an introduced species).

Editions of this book provide well-proven and comprehensive resources on the weeds of New Zealand and I have no hesitation in recommending this latest edition.

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1. This online identification key is currently being expanded to include the DOC consolidated list of environmental weeds. This key is part-authored by two of the *Common Weeds of New Zealand* authors – Paul Champion and Trevor James.
Wilson made four trips to China, the first two for James Veitch & Sons, the London nursery firm. I find his first trip from 1899 to 1902 to be in many ways the most interesting. There was his meeting with Dr Augustine Henry (that most appealing of early European botanists in China); there was the search for *Davidia* “almost deserving a special mission to Western China”; and there were the trips up the Yangzi Gorges. The accounts he wrote for *The Gardeners' Chronicle* reveal just how wonderful was the array of new and exciting plants and he wrote in a letter published in the *Journal of the Kew Guild* of 1901, “I have had a really glorious time”, a time that was also productive, with many new introductions being made available through the Veitch catalogues.

His second trip to China in 1903 and 1904 had as its main aim the acquisition of the yellow poppy, *Meconopsis integrifolia*. This was an even more arduous trip taking him up into the high mountains on the border with Tibet. A contemporary account of these first two trips to China is given in *Hortus Veitchii* (1906)¹.

Wilson’s third and fourth trips to China were on behalf of C. S. Sargent of the Arnold Arboretum at Boston. The emphasis was now on woody plants, on collecting herbarium samples rather than plants for the nursery trade, and for recording photographically the districts through which he travelled. Wilson became an enthusiastic and skilled photographer, often spending many hours studying a particular plant so that it could be photographed to best effect (Chvany, 1976). Thousands of his glass photographic plates remain in the Arnold Arboretum, and many of them can be viewed on the Arnold Arboretum website (http://arboretum.harvard.edu/library/library.html).

It is Wilson’s photographs that provide the focus for this book. Mark Flanagan and Tony Kirkham had the inspired idea of retracing Wilson’s journeys in western China by using his publications, his field diaries, his correspondence and his photographs. This was no easy task because Wilson’s handwriting is difficult to decipher, his various books conflate experiences from different trips, and his place names are based on Wade-Giles transliterations, sometimes idiosyncratically, and are not always easy to identify. It is a challenge to determine exactly where Wilson was on a certain date (Clausen and Hu, 1980). Fortunately, the labels on his photographs are more accurate and explicit and these, along with the images themselves, allowed Flanagan and Kirkham, usually dependent on their Chinese colleagues, to identify the exact position from which many of Wilson’s photographs had been taken and then take their own corresponding photographs. They start at Leshan (then Kia-ting Fu) with its giant Buddha. There is a pair of photographs of the hills at the junction of the Tung and Ming rivers with a fine pagoda still in existence even if somewhat modified. (The preservation of this pagoda is fortunate, as according to my Chinese colleagues, the hills resemble a recumbent human with the position of the pagoda making it clear that the recumbent form is most definitely male.) Many of the matching photographs show little change over the last century. Some of the trees Wilson photographed are still there and one of the more remarkable pairs of photographs, a century apart, shows a field of maize surrounded by trees in a mountain valley in western Sichuan. Such continuity of cultivation is astonishing. Take away power lines or satellite dishes and villages often appear little different. Urban districts show greater changes, bridges collapse and many of Wilson’s more notable trees have died, remaining as skeletons, or have disappeared. It is this contrast between change and lack of change that is so fascinating.

Mark Flanagan and Tony Kirkham manage to bring some of Wilson’s trips to life. The description of their own travels and their photographs complement well Wilson’s own writings such as in *A naturalist in Western China* (1913). Wilson travelled for more than eight years in China, Flanagan and Kirkham only for some weeks, so inevitably they describe only some of the areas visited by him. Their book is more a travelogue than a detailed analysis of Wilson’s achievements. The authors admit that despite their efforts, Wilson remains something of an enigma. He published many books and papers and at least three biographies have been written, but Wilson the man remains elusive and he reveals little of himself.

In addition, there are some fine photographs of wonderful plants – I was particularly impressed by four *Mecanopsis* species: *M. henrici* var. *henrici* with its purple-blue petals, *M. integrifolia* var. *integrifolia* with its lemon-yellow petals, *M. punicea* with brilliant scarlet flowers and *M. racemosa* with blue flowers. Flanagan and Kirkham also describe what each of them considers the ten best Wilson woody introductions. This emphasises how many of Wilson’s introductions are not yet widely grown, despite their quality. Worse, very few of Wilson’s original introductions of known provenance are still alive or have been propagated. The authors mention almost in passing that the kiwifruit is probably the single most important Wilson introduction (Ferguson, 2004).

*Wilson’s China* is an easy and enjoyable read, even if sometimes rather discursive. It and Roy Lancaster’s *Travels in China: a plantsman’s paradise* (1989) are essential reading for anyone planning a botanical trip to Sichuan. *Wilson’s China* is also a very useful addition to the literature on Wilson and the botanical exploration of China. The illustrations alone make it a book to treasure.

A similar book, entitled *Tracing one hundred years of change*, was recently published (Yin, 2010). This is written by Professor Yin Kaipu, a distinguished botanist and conservationist at the Institute of Biology, Chinese Academy of Sciences, Chengdu, Sichuan. He has also used many of Wilson’s photographs from early last century to record the changes that have since occurred. Although the text is largely in Chinese, a comparison of the old and more recent photographs should be most interesting.

References


Available from Touchwood Books

Erratum


Pip McVicar is sales and marketing manager at Cedar Lodge Nurseries, New Plymouth, not Conifer Grove.