

# Did the authors of the Flora of New Zealand Vol. IV get it wrong?

Changes in the adventive  
flora of New Zealand

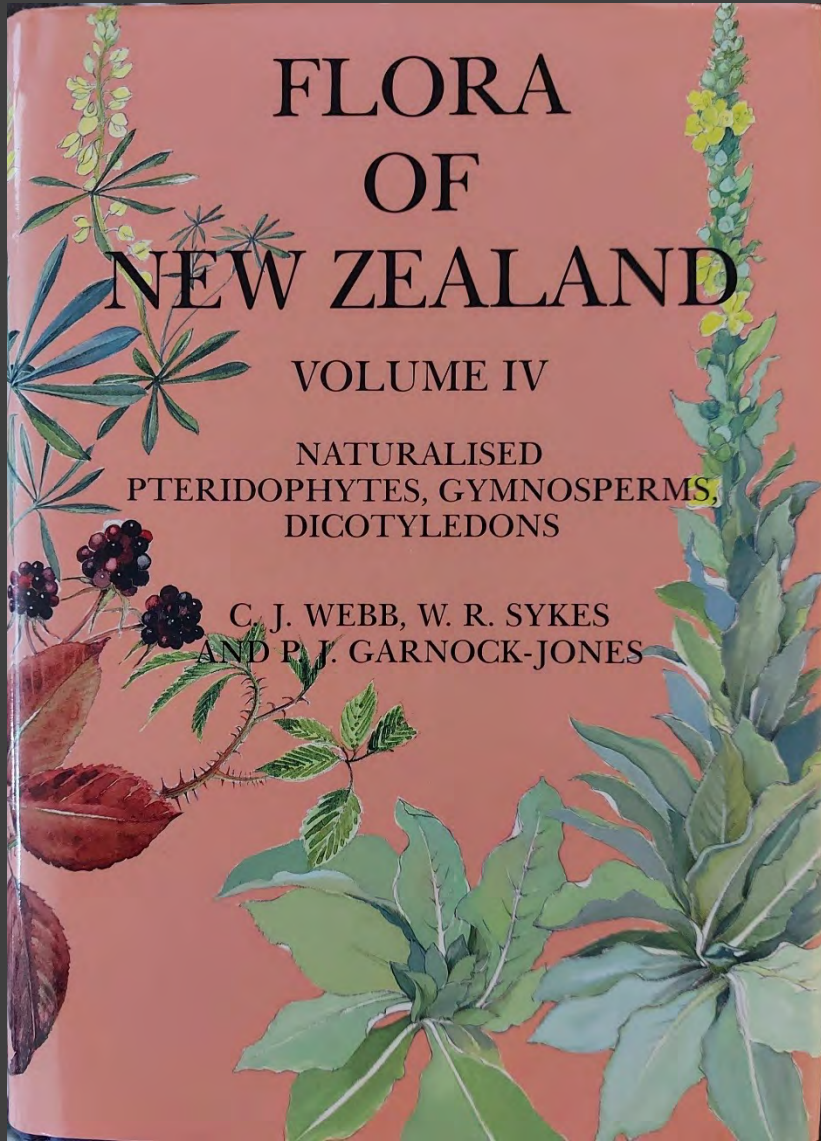


**Manaaki Whenua**  
Landcare Research

**Ines Schönberger**  
Allan Herbarium

NO

Absolutely NOT



Floras are an authoritative summation of taxonomic knowledge for a given region at a given time.



# FLORA OF NEW ZEALAND

VOLUME IV

NATURALISED  
PTERIDOPHYTES, GYMNOSPERMS,  
DICOTYLEDONS

C. J. WEBB, W. R. SYKES  
AND P. J. GARNOCK-JONES

**Adventive Flora:**

**"advena" = stranger, or  
immigrant**

**applied to all non-  
indigenous wild plants in  
New Zealand**

**fully naturalised and  
casual**

pre 1768 – introduced by Polynesian Settlers

*Sigesbeckia orientalis*



*Aleurites molucca*



*Bidens pilosa*



Daniel Solander

Joseph Banks

Captain James Cook





*Raphanus sativus*



*Plantago major*

1832 (Richard, A., Essai  
d'une Flore de la Nouvelle  
Zélande)

---

Hooker, J. D., Fl. N.Z. 2 (1852-1855)  
**49 Adventives**

Hooker, J. D., Handbook N.Z. Fl. (1867)  
**135 Adventives**

Kirk, T. Stud. Fl. N.Z. (1899)  
**454 Adventives**

Allan, H.H., Handbook of the  
Naturalised Flora of New  
Zealand (1940)  
**788 Adventives**







1945 – 1959: A.J. Healy -  
Contributions to a  
Knowledge of the  
Naturalized Flora of New  
Zealand

1980 (Healy & Edgar -Flora 3)



+326

This Flora was the first comprehensive treatment of the naturalised plants in these groups since H. H. Allan's Handbook of the Naturalised Flora of New Zealand (1940).



FLORA  
OF  
NEW ZEALAND

VOLUME IV

NATURALISED  
PTERIDOPHYTES, GYMNOSPERMS,  
DICOTYLEDONS

C. J. WEBB, W. R. SYKES  
AND P. J. GARNOCK-JONES

1470

**Ever growing  
number of  
“new  
adventives”**



Reference		Total number of adventives
1988-1993 (Webb et al. 1995)	+117	1587
1994-1996 (Heenan et al. 1998)	+36	1623
1997-1998 (Heenan et al. 1999)	+37	1660
1999-2000 (Heenan et al. 2002)	+71	1731
2001-2003 (Heenan et al. 2004)	+92	1823
2004-2006 (Heenan et al. 2007)		
2012 (Breitwieser et al. 2012) on Plant Names Database		
<b>+1365</b>		
2016 online Checklist	+161	2632
2017 online Checklist	+110	2742
2018 online Checklist	+7	2749
2019 online Checklist	+26	2775
2020 online Checklist	+12	2793
2021 online Checklist	+42	2835

# New Discoveries





***Euphorbia paralias* – sea spurge (first recorded in 2012)**



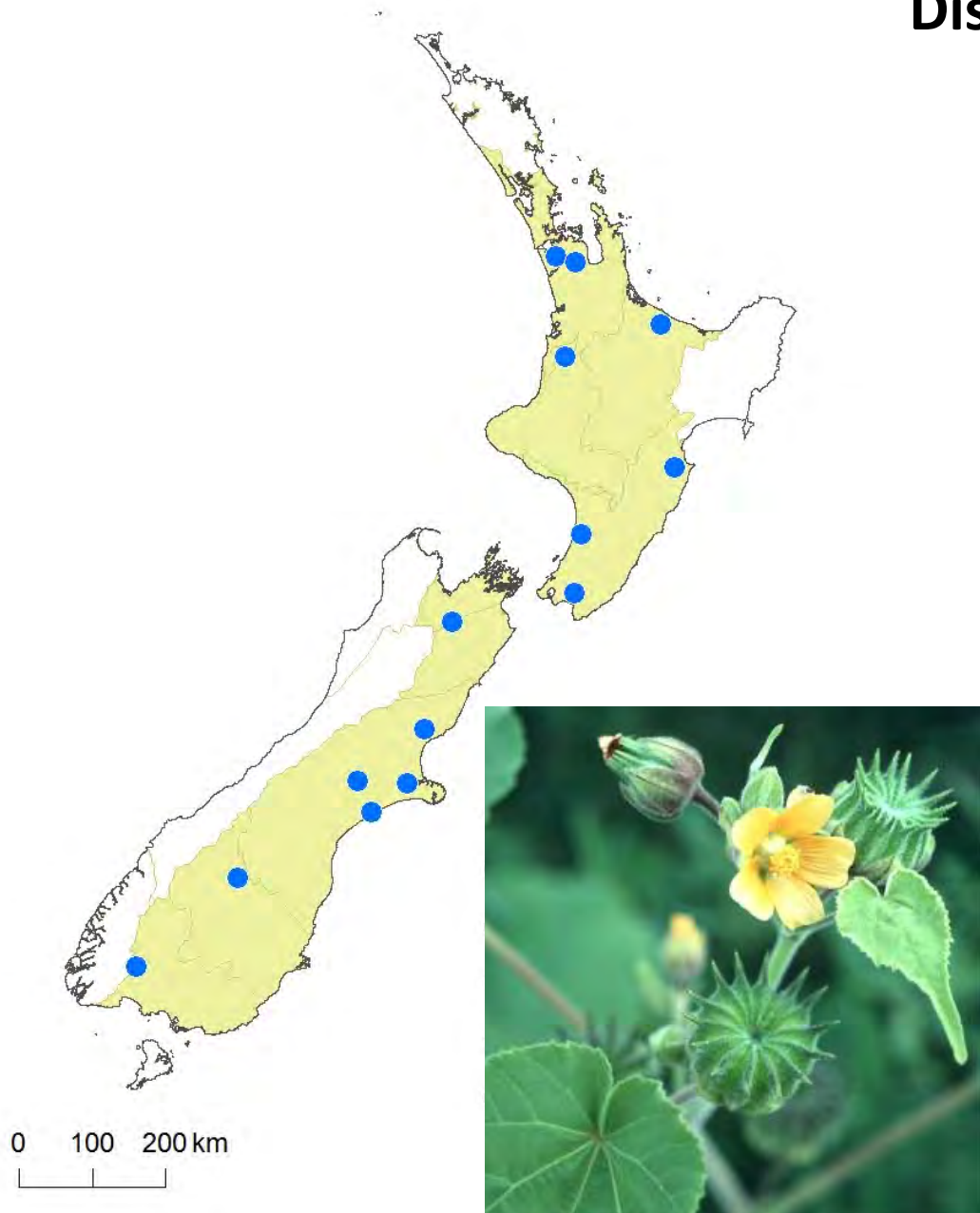
***Epilobium hirsutum* – great willowherb (first recorded in 2018)**



# Re-Discoveries and Re-Introduction



# Distribution Map of *Abutilon theophrasti*



# *Alopecurus myosuroides* (Blackgrass)



First record from 1941



CHR DATABANK  
AUG 2002  
MERCURIC CHLORIDE



Blackgrass in a Barley crop

CHR 589034 Allan Herbarium, Landcare Research, New Zealand  
*Alopecurus myosuroides* Huds.

Det.: K.A. Ford

Date: 2 Dec 2016

## Cultivated

Country: New Zealand

LD: North Auckland Land District

Loc.: Auckland, St Johns, 231 Morrin Road

Hab.: PHEL glasshouse

Coll.: Brian Quinn

Date: 1 Dec 2016

Remarks: Grown on from 3 seeds detected in a NZ grown ryegrass seed consignment

MPI Ref. No.: T16\_01056

S1a1

## Field

Country: New Zealand

LD: Canterbury Land District

Loc.: Ashburton, Eiffelton, Surveyors Road

Hab.: Arable farm

Coll.: Brian Ellis

Date: 3 Mar 2016

Remarks: 3 seeds found.

Molecular Voucher: Leaf material removed for DNA analysis by Ecogene

Author: D. Goeke

Date: 2 Dec 2016

Other reference no.: Plant Identification Number: 2016/0177

Replicates: AK; WELT

In New Zealand for a  
long time, but only  
recently recognised

CHR 123016 Allan Herbarium, Landcare Research, New Zealand

Carex binervis Sm.

Det.: K.A. Ford & P. Jimenez-Mejas

Date: 5 April 2019

Country: [New Zealand]

LD: [Westland Land District]

Loc.: Hokitika - terrace east of Hospital

Lat./Long.: 42.704481 S 170.988749 E

Hab.: Swampy land amongst sedges.

Coll.: AJ Healy 61/130

Date: 2/2/1961

Remarks: Fl. culms tall, with spikelets ± pendant. Resembles inflorescences of *Paspalum dilatatum* at a distance. Established over many acres.

Supplementary Note: Utricles plano-convex, 5 nerved shining, red blotched. Glume, 3- nerved midrib, lacking awn, eroded ♀ spikelet < 19mm, glume exceeding utricule

Author: [unknown]

Replicates: UPOS



Cyperaceae Juss.



CHR 284141 Allan Herbarium, Landcare Research, New Zealand

Carex binervis Sm.

Det.: K.A. Ford & P. Jimenez-Mejas

Date: 5 April 2019

Country: [New Zealand]

LD: [Westland Land District]

Loc.: Hokitika

Lat./Long.: 42.706161 S 170.976729 E

Hab.: Roadside

Coll.: A.E. Esler

Date: 30-12-68



Cyperaceae Juss.

Botanical name *Carex*  
Family *Cyperaceae*  
Common name  
Locality *Hokitika*  
Habitat *Roadside*  
Collector *A.E. Esler 30-12-68*

CHR 284141

BOTANY DIVISION, D.S.I.R., NEW ZEALAND

CHR 284141 BOTANY DIVISION, D.S.I.R., NEW ZEALAND  
*Carex binervis* L.

Loc. *Hokitika*

Hab. *Roadside*

Coll. *A.E. Esler*

Date: 30/12/1968

Det. *K.A. Ford & P. Jimenez-Mejas* Date: *5 April 2019*  
Remarks:

*undetermined adventive*

### Carex binervis - Green-ribbed Sedge

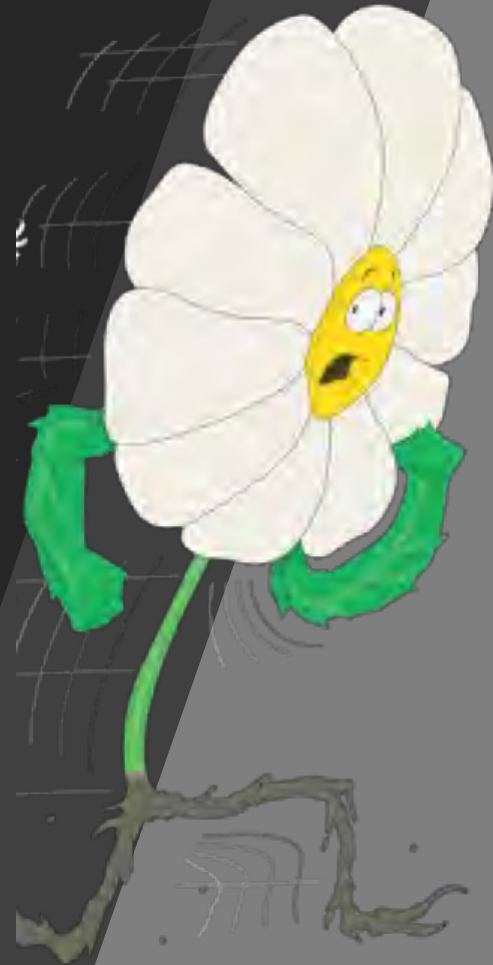
2020

LINK

USED

1977

# Garden Escapes





CHR 621594      Allan Herbarium, Landcare Research, New Zealand  
*Camellia sasanqua* ?  
 Det.: Yvonne Cave      Date: September 2012  
 Det. Note: possibly *C. sasanqua* or a hybrid involving that species.  
 Country: New Zealand      LD: Wellington Land District  
 Loc.: Manawatu, Feilding, 138 West St  
 Alt.: 90 m      NZMS 260: S23 279 068  
 Hab.: Row of planted shrubs on edge of lawn and driveway, gentle slope, heavy clay soil  
 Microhab.: Mixed conifers, Camellia cultivars  
 Keywords: Margin; Open; Sunny; Shaded; Sheltered; Slope; Garden; Lowland; Sand(mud)stone; Shrub; Moist; Rain  
 Abundance: Rare  
 Coll.: C C Ogle 6064      Date: 27 Jun 2012  
 Remarks: 6 seedlings seen in c. 1 m<sup>2</sup>. Under adult Camellia #6063 [CHR 621593].



*Camellia* seedlings





***Beschorneria yuccoides* - Mexican Lily**

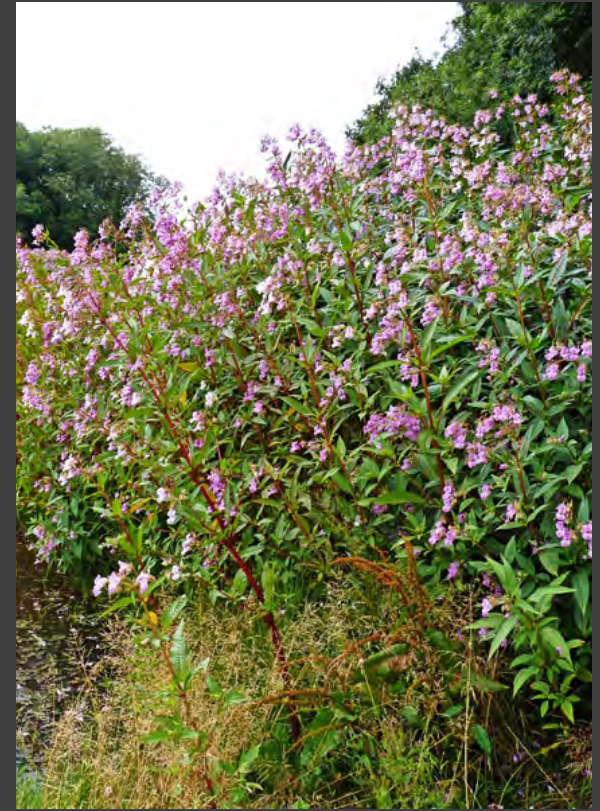




# Range Extensions



***Anthriscus sylvestris***  
**(cow parsley)**




First Record from 1925

Paparoa Ranges

*Impatiens glandulifera* (Himalayan balsam)  
On the move?

# **Misapplications/ Misidentifications**



*Tamarix chinensis* or  
*Tamarix*  
*ramosissima*?

According to Flora IV the  
naturalised *Tamarix* species in  
NZ is *Tamarix chinensis*.

BUT the specimens found in  
NZ match *T. ramosissima*

# *Collomia grandiflora* (Large Flowered Collomia)

Webb, C.J.; Sykes, W.R.; Garnock-Jones, P.J. 1988: *Collomia cavanillesii*

*Collomia cavanillesii* = *C. biflora* is erroneously reported from NZ. NZ plants are correctly referred to *C. grandiflora*.

See Johnson, L.A.; Porter, J.M. 2017: Fates of angiosperm species following long-distance dispersal: Examples from American amphitropical Polemoniaceae. *American Journal of Botany* 104: 1729-1744.



# Taxonomic Changes





Livingstone daisy —

*Dorotheanthus bellidiformis* is now ***Cleretum bellidiforme***

Following Klak, C.; Bruys, P.V. 2012: Phylogeny of the Dorotheantheae (Aizoaceae), a tribe of succulent annuals. *Taxon* 61(2): 293–307.





**yellow fumitory — *Corydalis lutea* is now *Pseudofumaria lutea***

Following Pérez-Gutiérrez, M.A.; Romero-García, A.T. Fernández, M.C.; Blanca, G.; Salinas-Bonillo, M.J.; Suárez-Santiago, V.N. 2015: Evolutionary history of fumitories (subfamily Fumarioideae, Papaveraceae): An old story shaped by the main geological and climatic events in the Northern Hemisphere. *Molecular Phylogenetics and Evolution* 88: 75–92.



**Rosemary — *Rosmarinus officinalis* is now *Salvia rosmarinus***

Following Drew, B.T.; González-Gallegos, J.G.; Xiang, C-L.; Kriebel, R.; Drummond, C.P.; Walker, J.B.; Sytsma, K.J. 2017: *Salvia* united: The greatest good for the greatest number. *Taxon* 66(1): 133–145.

So – how to document and make available

1356 new records

Approx. 900 range extensions

Hundreds of taxonomic changes

?

# Databases

## Plant Names Database

- Scientific names of New Zealand plants
- Seed plants, ferns, mosses, lichens, liverworts and freshwater algae
- over 52 700 records

## Allan Herbarium Specimen Database

- c. 299 445 records
- Records data from specimens

# BIOTA of NEW ZEALAND - Names and classification of bacteria, fungi, land invertebrates and plants

**BIOTA of NEW ZEALAND**  
Names and classification of bacteria, fungi, land invertebrates and plants

Manaaki Whenua  
Landcare Research

Home | About | Terms of use

Search Biota of NZ...

data Associations



## About

An overview of Biota of New Zealand



## Getting started

Get an overview of the information available to help you use Biota of New Zealand portal for the first time

Details  
Biostatus  
Nomenclature  
Classification  
Vernacular names  
Synonymy  
Descriptions  
Taxonomic concepts  
Collections  
Notes  
Metadata

***Tradescantia fluminensis* Vell.**

Copyright:  
© Landcare Research 2014

Large image Image gallery

# Systematics Collections Data

Home

About

Search

My SCD

[Log In](#) | [Sign up](#)

All

[Search help](#)



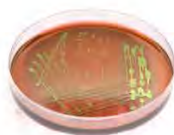
## Allan Herbarium (CHR)

The largest herbarium in New Zealand specialising in plants of the New Zealand region and the South Pacific.

Number of databased records: 277,177

Number of databased specimens: 277,178

[read more...](#)



## International Collection Of Micro-organisms (ICMP)

A major international collection of living cultures of plant associated bacteria, and of fungi from New Zealand and the South Pacific.

Number of databased records: 21,635

[read more...](#)



## National New Zealand Flax Collection (FLAX)

A living collection of over 160 provenances of *Phormium* of cultural, economic and historical interest.

Number of databased records: 84

[read more...](#)



## New Zealand Arthropod Collection (NZAC)

The largest collection of New Zealand land invertebrates, with many specimens also from the South Pacific.

Number of databased records: 120,699

Number of databased specimens: 142,698

[read more...](#)



## New Zealand Fungal and Plant Disease Collection (PDD)

The largest fungal herbarium in New Zealand with specimens from New Zealand and other Pacific countries.

Number of databased records: 101,554

[read more...](#)



# Checklist of the New Zealand Flora

## Seed Plants

2021



**Manaaki Whenua**  
Landcare Research


[Home](#) / [Collections](#) / **Plant Names Database Reports**


## Plant Names Database Reports

Quarterly reports from the Plant Names Database read more

Followers

1

Datasets


45

### Collections

Plant Names Databas... (45)

### Groups

Plant Names Database (45)

 Datasets

 Activity Stream

 About



45 datasets found

Order by:

Relevance



### Plant Names Database Quarterly Changes May 2022

Summary data on changes to data in the Plant Names Database in the following classes: the addition of new names for formal deprecation of duplicate names changes to the status...

[PDF](#) [CSV](#)

### Plant Names Database Quarterly Changes February 2022

Summary data on changes to data in the Plant Names Database in the following classes: the addition of new names for formal deprecation of duplicate names changes to the status...


[PDF](#) [CSV](#)

### Plant Names Database Quarterly Changes November 2021

Summary data on changes to data in the Plant Names Database in the following classes: the addition of new names for formal deprecation of duplicate names changes to the status...

[PDF](#) [CSV](#)





Next  
generation  
of Floras....

---

Up-to-date, based on  
new systematic research

---

Dynamic, electronically  
based

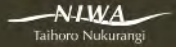
---

Available in variety of  
forms

---

Authoritative

# eFlora




[Home](#) [Search](#) [Browse](#) [Publications](#) [About](#) [Glossary](#) [Contact](#)

## The definitive reference to New Zealand plants

The latest scientific information about indigenous and naturalised plants found in New Zealand.

### Browse

Weed 

Gallery 

Taxon 

[View all](#)

### Search

Find taxa in the Flora

[Search](#)

### Publications

A.J. Fife - Daltoniaceae (Mosses)

A.J. Fife - Tetraphidaceae (Mosses)

A.J. Fife - Pulchrinodaceae (Mosses)

A.J. Fife - Saulomataceae (Mosses)

[View all](#)

[Home](#) [Search](#) [Browse](#) [Publications](#) [About](#) [Glossary](#) [Contact](#)

© Landcare Research 2010-2017

HOSTED BY



LANDCARE RESEARCH  
MANAĀKI WHENUA

# eFlora content



Existing Flora of New  
Zealand volumes



Recently published  
work



New treatments

## Acknowledgement

Allan Herbarium staff

Botanists from  
throughout the county

Biosecurity Officers from  
throughout the county



# Allan Herbarium MWLR Lincoln