

NEW ZEALAND: GLOBALLY SIGNIFICANT *RHODODENDRON* RESEARCH

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- Teaching: horticulture, conservation horticulture, environmental management (plant focus)
- Research: plant biodiversity and conservation (*ex situ*), botanic garden management
- *Rhododendron*
 - leader of the New Zealand conservation and research programme
 - Vice Chair of the Global Conservation Consortium
- BHortSc(Hons), Massey University
- PhD, Massey University
- Associate of Honour, Royal New Zealand Institute of Horticulture

Context: International Plant Conservation

- Convention for Biological Diversity
- Global Strategy for Plant Conservation – 16 Targets
 - Target 1: An online flora of all known plants
 - Target 2: Assessment of the conservation (Red List) status of plants, to guide conservation action
 - Target 8: At least 75% of Red List taxa to be held in *ex situ* collections
 - Target 7: At least 75% of Red List taxa to be conserved *in situ*, preferably in the country of origin

Rhododendron

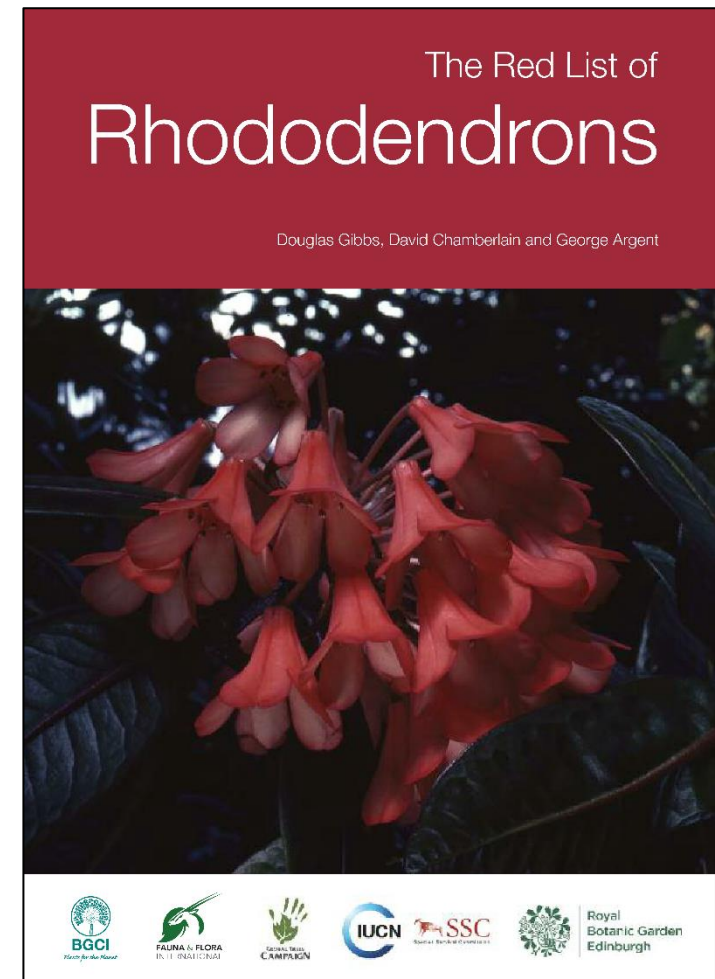
- About 1300 taxa: wide range of forms and niches
 - Forest trees to alpine groundcovers
 - Lowland swamps to alpine tundra
- Key centres of diversity: China, South East Asia
- A range of cultural, economic, ecological and medicinal values
- ‘Big genus’: more than 500 species, in complex groupings, ongoing speciation, complex taxonomy, unclear species boundaries (Frodin 2004)



Rhododendron Conservation: problem

- 730 taxa Red Listed*, including 316 assessed Data Deficient
 - Hundreds of taxa in some Red List categories
 - Which should take priority?
- ‘Big genus’: complex groupings and taxonomy, unclear species boundaries
 - Conservation decisions more difficult

Target 2



*Rated, using IUCN categories (see Gibbs et al. 2011), to one of the categories: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Data Deficient (DD). Least Concern (LC) is assigned to taxa with no conservation issues.

Rhododendron Conservation: action

- International analysis of *ex situ* collections
 - 72% of ‘all taxa’ (Red List + Least Concern) are in *ex situ* collections
 - 60% of Red List taxa are in *ex situ* collections
 - 35% of Data Deficient taxa are in *ex situ* collections
 - New Zealand collections hold 67% of taxa in cultivation

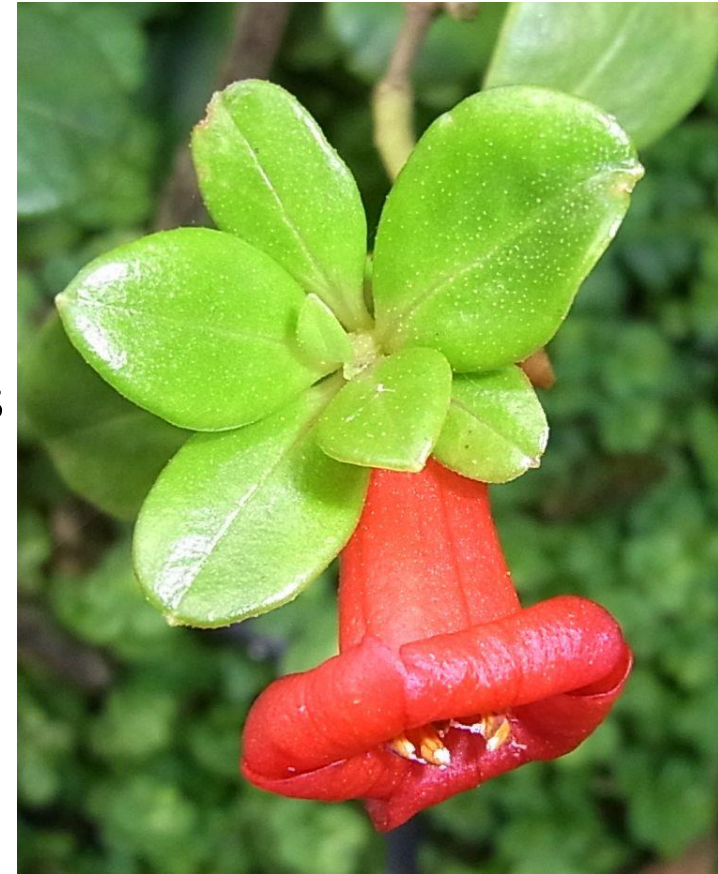
Target 8: 75% of
Red List taxa held in
ex situ collections



Rhododendron Conservation: action

- Identification of *ex situ* conservation issues
 - *Ex situ* priority to subgenera Vireya and Azaleastrum
 - *In situ* priority to subgenera Hymenanthus and Vireya
 - Priority to taxa from China and New Guinea
 - Large numbers of Data Deficient taxa
 - ‘In cultivation’ but insufficient diversity in *ex situ* collections
 - Insufficient wild-sourced material in *ex situ* collections

Target 8



Rhododendron Conservation: action

- Global Conservation Workshop, 2018
 - Organised by Botanic Gardens Conservation International (BGCI), London. Hosted by Oak Spring Garden, Virginia, USA
 - 13 countries represented
 - Examine current status, plan future action
(MacKay et al. 2018, online at <https://www.globalconservationconsortia.org/resources/updated-global-analysis-for-ex-situ-conservation-of-rhododendron-l-ericaceae/>)

Updated global analysis for *ex situ*
conservation of *Rhododendron* L.
(Ericaceae)



Report to Botanic Gardens Conservation International

Marion MacKay, Steve Hootman, Graham Smith,
Doug Thomson, Susan Gardiner, Paul Smith

January 2018

Rhododendron Conservation: action

- Global Conservation Consortium *Rhododendron* 2019
<https://www.globalconservationconsortia.org/gcc/rhododendron/>
 - Chair: Alan Elliott, Edinburgh
 - “to collaboratively develop and implement comprehensive conservation strategies for priority threatened plant groups”



Join as an Affiliate

Find out more



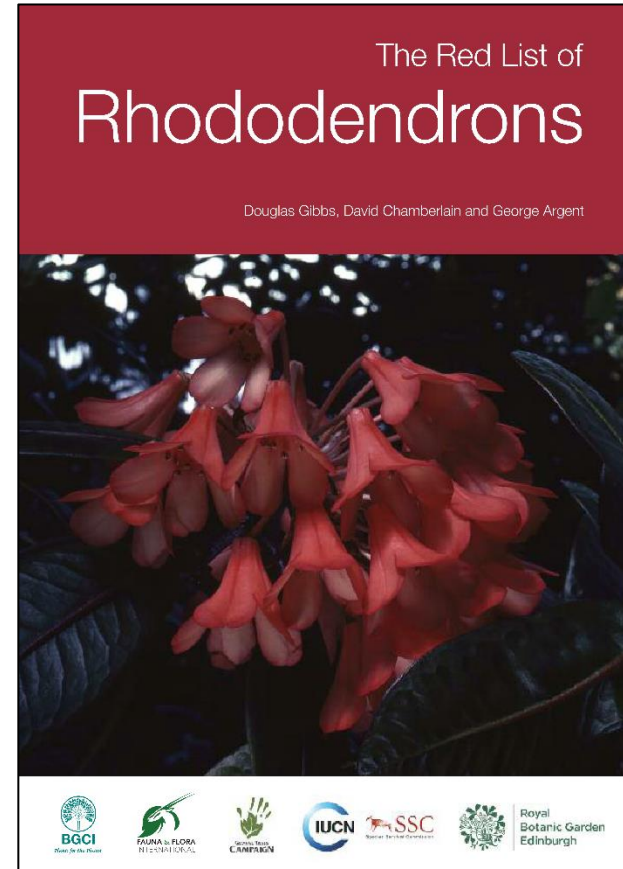
Support the Consortium

Find out more



Rhododendron Conservation: action

- Programme of work: overview activities
 - Clarify the list of *Rhododendron* species, confirm species names and add them to the online flora (Alan Elliott) **Target 1**
 - Hundreds of old synonyms
 - Multiple taxonomic queries and mergers
 - Update the *Rhododendron* Red List (Alan Elliott) **Target 2**
 - First published in 2011
 - Some taxa not assessed
 - New species discovered



Rhododendron Conservation: action



paving-the-road-to-recovery-for-the-critically-endangered-rhododendron-liboense/<https://globaltrees.org/projects/>

- Programme of work: *in situ* examples
 - Field work reveals two new populations of Critically Endangered *Rhododendron liboense* (China) <https://www.cambridge.org/core/journals/oryx/article/discovery-of-two-new-populations-of-the-rare-endemic-rhododendron-liboense-in-guizhou-china/7E36EE9B6F10EFCF562BC1340E756B0F>
 - Joint project between BGCI and Guizhou Minzu University to collect and grow seed of *R. liboense* <https://globaltrees.org/projects/paving-the-road-to-recovery-for-the-critically-endangered-rhododendron-liboense/>
 - Collecting seed from the wild for conservation of Critically Endangered *Rhododendron monkoboense* (Malaysia: Borneo) <https://www.globalconservationconsortia.org/2021/09/02/collecting-seed-of-rhododendron-monkoboense/>

Target 7

Rhododendron Conservation: action



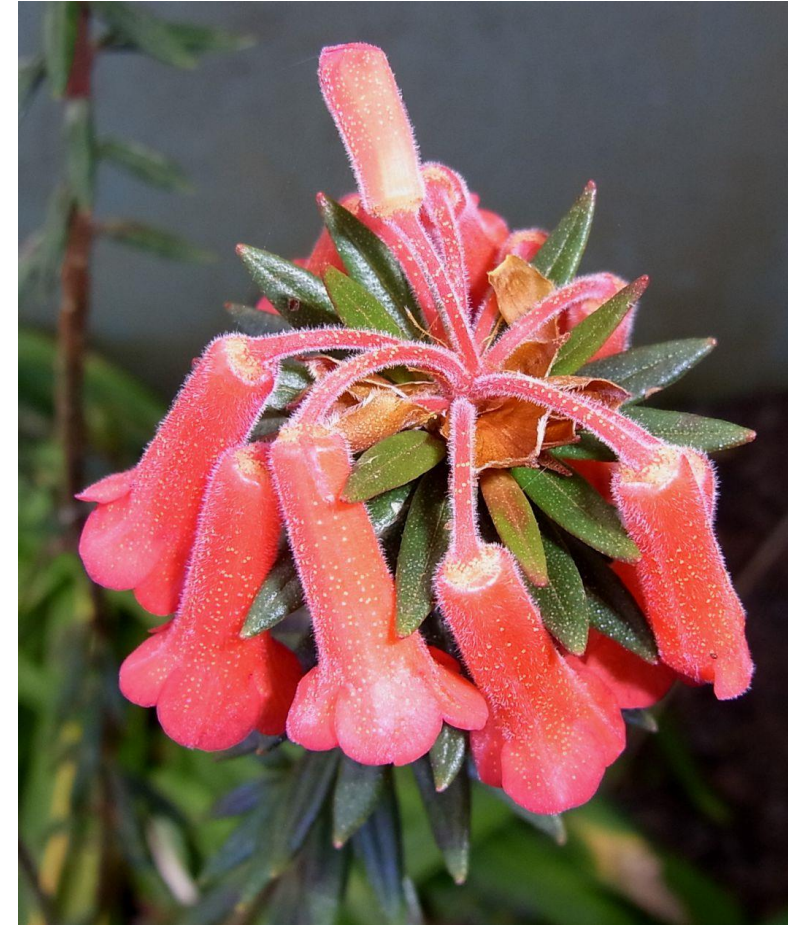
- Programme of work: *ex situ* examples
 - Molecular research confirms there are two species in Australia (Gardiner et al. 2019): revision of the Australian Plant Census
 - Confirms the Red List assessment of *R. lochiaie* (VU)
 - Analyse the largest global *ex situ* collections (MacKay & Hootman 2017)
 - Species Foundation (USA), Edinburgh Botanic Garden (Scotland)
 - Examine the diversity and taxonomy of *ex situ* collections
 - PhD research, Ling Hu

Target 2

Target 8

Summary

- *Rhododendron* has a conservation problem
- Conservation action based on analysis
- Global Consortium is a multi-country group with many opportunities to contribute to *in situ* or *ex situ* conservation



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