

Care for the rare

Ray Collett
Rare and Extraordinary Plant
Lecture Series
2019

UCSC Arboretum and Botanic Garden



Care for the rare

Royal Botanic Gardens Victoria
and
Botanic Gardens Australia & New Zealand Victoria Project

A multi site *ex situ* conservation
collection for Victorian Regional
Botanic Gardens

John Arnott
Manager Horticulture
Royal Botanic Gardens Victoria
Cranbourne Gardens
and
Rodger Elliot



October 2019



Australia
Centre of the Universe



Victoria



Australia

2,969,907 sq mile; 7,692,024 sq km

Victoria

91,761 sq mile; 237,659 sq km

California

163,696 sq mile; 423,970 sq km

Victoria's Flora

- Native taxa: 5074
- Endemic taxa: 355
- Introduced taxa: 2328

Critically endangered Blue Tinsel Lily,
Calectasia intermedia



Victoria's rare plant 'score card'

- Extinct (x): 43 (0.9%)
- Endangered (e): 280 (5.8%)
- Vulnerable (v): 447 (9.2%)
- Rare (r) : 704 (14.6%)
- Poorly known (k) 168 (3.5%)
- **34% of the states flora*** listed as having conservation significance

- Walsh & Stajsic



Olearia astroloba (Vv)

Is there a role for Victorian regional botanic gardens in plant conservation?

- 34% of the states flora with conservation significance
- 42 Regional Botanic Gardens
- Yes!!!



Bossiaea vombata – Wombat Range *Bossiaea* (E)
Well suited for cultivation and display at the Ballarat Botanical Gardens

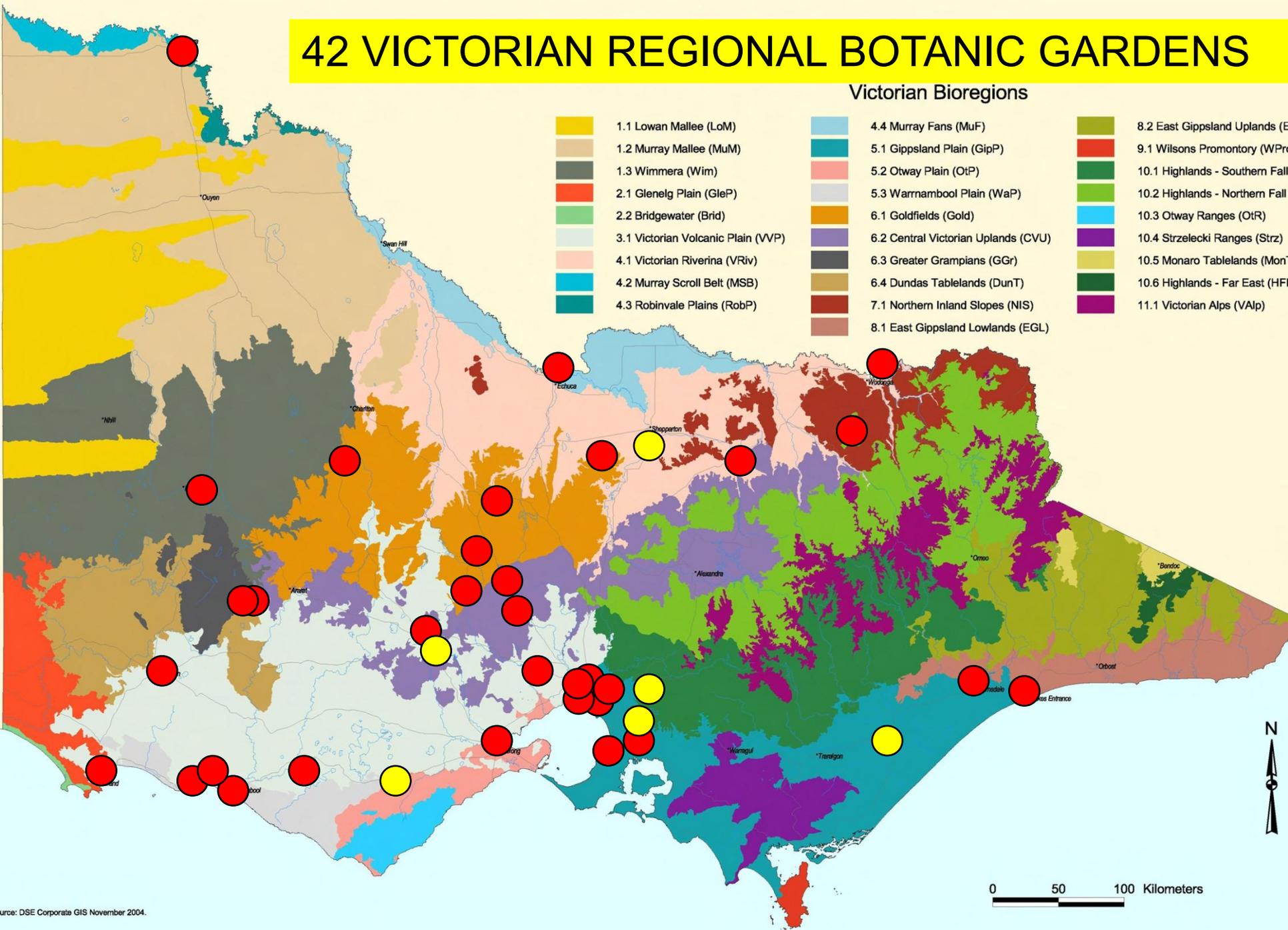
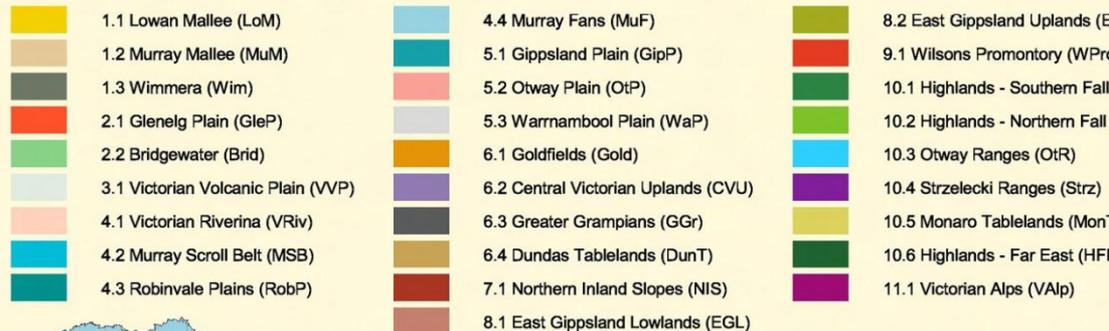
Care for the rare

- Establish a multi *site ex situ* conservation collection of Victorian R&T plants
- Profiling the pilot gardens collections
- Brief background: to plant conservation roles for botanic gardens
- Explore the role of BGANZ in capacity building projects



42 VICTORIAN REGIONAL BOTANIC GARDENS

Victorian Bioregions



Why so few gardens presently involved in plant conservation?

- A sign of the (past) times
- Many gardens established in late 1800's as "pleasure parks"
- (Historically) an emphasis on exotic ornamental collections
- European garden design influences
- Plants from the 'homelands'



Geelong Botanic Gardens – Raddenbury Fernery

Is plant conservation happening in regional Victoria?

A relatively small number of gardens with documented holdings of R&T plants...

More often (but not exclusively) these are exotic heritage listed trees rather than locally significant species



Pinus torreyana - Castlemaine Botanic Gardens and distribution (CA USA)

Is plant conservation happening in regional Victoria?

- Supported by a national survey of regional botanic gardens (Paul Tracey 2016) indicated...
- Indigenous plants or conservation collections/holdings **'not currently a focus'** for regional botanic gardens in Victoria



The rise, fall and rise of Vic Botanic Gardens Gardens

- Throughout much of 20th Century – many regional BG's fell into various levels of 'disrepair'
- 'Botanic' by name but not by nature
- Very few with curatorial continuity over time
- Many managed as high quality public parks



Port Fairy Botanic Garden and Incursion of Caravan Park – Colac Botanic Gardens

- More recent times:
Revitalisation of BG's in Vic
- Victorian Regional Botanic Gardens Network (2000)
- Masterplans and major capital projects
- Active Friends Groups
- Victoria's Botanic Gardens growing in last 10 years
- New Gardens: Shepparton; Echuca (Moama); Melton; Wildlife Art Museum of Australia; Girgarro; Dandenong Ranges Botanic Garden



Geelong Botanic Gardens – 21st Century Garden

Victorian regional botanic gardens and conservation

- BGANZ Vic Committee – made various attempts over a number of years to build conservation capacity
- Collections Planning Toolkit
- Seminars and workshops with focus on plant conservation
- Conservation Working Group established in 2015



BGANZ
Collections
Planning
Toolkit

Handbook

Victorian regional botanic gardens and conservation

- Phone survey (informal)
- Perceived impediments:
 - Challenges in sourcing plant material (access)
 - Lack of information – cultural and cultivation protocols
 - Perceived constraints around dealing with heritage - landscape character



Bendigo Botanic Gardens – Successfully integrating Indigenous Collections in a heritage landscape

Species Conservation

- The conservation of plants that have conservation significance /status in the wild
- “Rare and Threatened” species

Olearia pannosa
var. *pannosa*



Senecio macrocarpus



Conservation Horticulture

- *Care for the rare* program based firmly on “Conservation horticulture”
- Conservation through cultivation
- “Making a garden a *botanic garden*”



Ex situ Conservation Programs

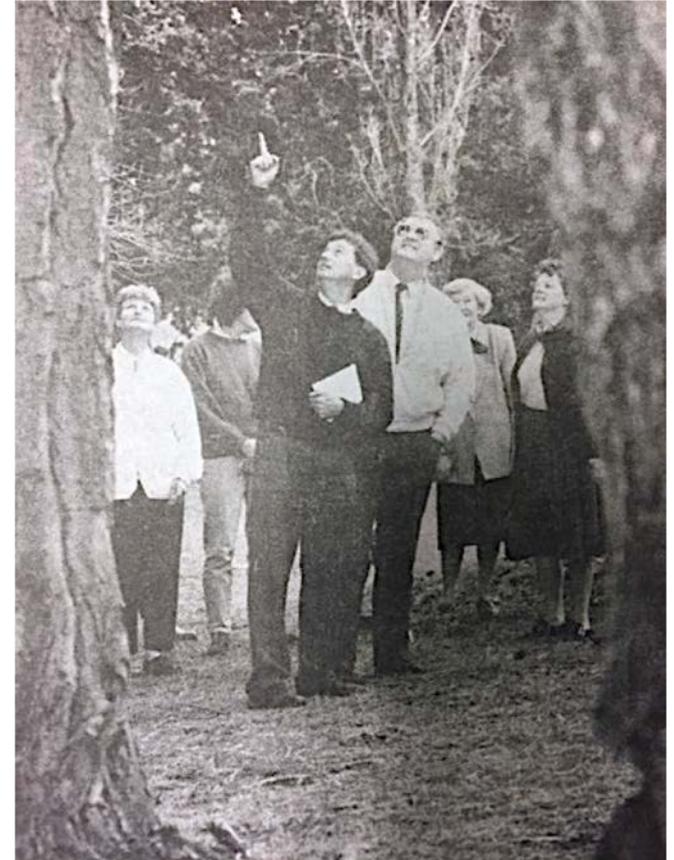
- Are the most likely programs for regional gardens involvement
- Conservation Collections
 - Displays
- Cultivating plants are 'core skills'
- **Care for the rare** provides opportunity and focus



Sophora toromiro

Care for the rare – RBGVictoria- BGANZ Vic project

- Committee reflected on a 1996 RBG Melbourne 150th project
- RBG Melb distributed significant (largely exotic) tree material to regional gardens across the state
- Committee explored the feasibility of something similar – with R&T plants
- Seeded the idea for a multi-site conservation collection facilitated by RBGV & BGANZ Vic



Former RBGM Director
Richard Barley



Care for the rare – RBGVictoria- BGANZ Vic project

Aims

- To work with regional botanic gardens on developing collections of locally significant rare and threatened plant species
- To assist the gardens with technical and curatorial support through developing Conservation Collection Management Plans
- To work closely with key gardens staff to develop a sustainable collection in terms of scope and complexity



Care for the rare – RBG Victoria- BGANZ Vic project

Aims

- To work with key participating gardens staff on the development of plant lists and schedules
- To secure funding to source, propagate and supply a range of R&T Victoria taxa for distribution to participating gardens
- To maximise opportunities for interpretation, and promotion of the project, particularly at regional and local levels



Care for the rare – RBGVictoria- BGANZ Vic project

- Six-staged project
- Assessment (Horticultural) of the Vic R&T flora*
- Expressions of Interest
- Site inspections and collections planning*
- Propagation and production
- Distribution of material to regional BG's
- Ongoing management of collections

*Stages Supported by Maud Gibson Trust – Elisabeth Murdoch Scholarship

Care for the rare

- **Stage One:**
- Assessment of the Victorian threatened flora for inclusion in the project
- Assessment of RorT spreadsheet completed 2016



Prostanthera lasianthos var. *subcoriacea*
from the Grampians, western Victoria

Care for the Rare: Assessment Criteria

- **Cultivation protocols**
- Higher score for taxa with wide range of environmental tolerances
- Lower score for taxa which are exacting in their requirements
- Higher score for long lived taxa



Diuris fragrantissima



Euc pauciflora
ssp. hedraia

- **Propagation protocols**
- Higher score for species with known propagation protocols
- Lower score for taxa that are difficult or requiring significant time/effort



Euphrasia collina subsp. paludosa

Assessment Criteria

- Higher score for plants with availability of known provenance material held in RBGV or other SE Australian living collections.....
- & Victorian Conservation Seedbank holdings



Cranbourne Gardens Horticulture staff smiling after collecting *Eucalyptus pauciflora* subsp. *parvifructa* Mt. William, Grampians, western Victoria

Assessment Criteria

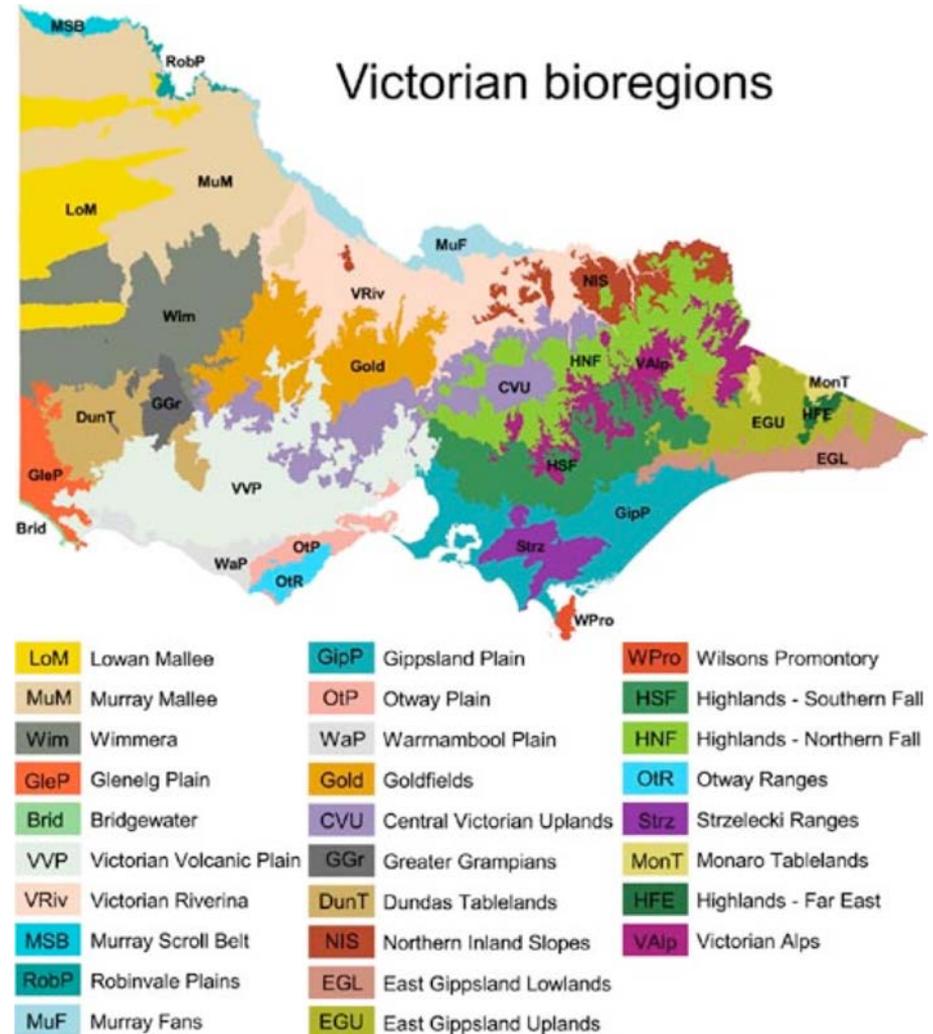
- **Conservation Status**
- Requirement for establishment of seed orchard
- General comments about the taxa...



Olearia astroloba
from eastern Victoria

Assessment Criteria

- **Bioregions (28)** and distribution
- **Proximity to gardens**
- Listing potential botanic gardens for inclusion in the project





Assessment Criteria

- and finally **Ornamental Attributes...**
- A **pragmatic assessment** of taxa for inclusion in the project
- Setting gardens up **to achieve** — not setting gardens up **to fail**
- Tailoring the program commensurate with the capacity for individual gardens to participate

Stage Two: EOI

- Expressions of interest received from regional botanic gardens keen to participate
- EOI Addressed a number of key criteria

Q9 Does your garden/institution/organisation have a Masterplan?	Yes, Please elaborate on your answer Masterplan & Management Strategy - 1995 (John Patrick Pty Ltd & Allom Lovell & Associates Pty, Ltd.)
Q10 Does your garden/institution/organisation have a Conservation Management Plan?	Yes, Please elaborate on your answer Conservation Analysis and Policy - 1994 (John Patrick Pty Ltd & Allom Lovell & Associates Pty, Ltd.)
Q11 Does your garden/institution/organisation have any other key strategic planning documents that guide gardens developments and management?	Yes, If yes, please list Visionary Plan for the Ballarat Botanical Gardens - 2014 (Mark Richardson)
Q12 Does your garden/institution/organisation currently manage collection/s of Australian native or local indigenous species?	No, If yes, please describe the collections and their current status The Australia bed in the Western Walk is presently undergoing renovation to include entirely local indigenous understory plantings (existing Australian native trees to remain). Planting expected to begin in early September, 2017.
Q13 Does your garden/institution/organisation have the capacity to maintain basic plant records?	Yes, Please elaborate Filemaker database, Staff assigned to record keeping(Garden collection officer).
Q14 Can your garden/institution/organisation make a long term (minimum 10 years) commitment to plant conservation and this program, including biennial (every 2 years) reporting on the collection?	Yes
Q15 Please describe your gardens capacity to manage a valuable collection of rare and threatened plants, including likely risks to the collection such as: Continuity of Curatorial (staff) input: Water security and on-going capacity to irrigate the collection (if required): Likelihood of theft or vandalism:	Curatory on site, gardens collection officer, 10 hort qualified staff (nursery & gardens) Secured, good quality, highly monitored water supply from Lake Wendouree. Additional back up supply of potable water Gardens fully fenced, garden access curfew, security lighting at night, security staff checks of site, potential for security cameras if required.

Stage Two: EOI

EOI explored:

- Levels of staffing/volunteers
- Community (Friends and other) support to project
- Strategic intent: documentation/strategies in support of plant conservation
- Native plant curation and expertise
- Plant Records capacity
- Organisational support
- Risk management



Australian Plants Society (Victoria)

Stage Two: EOI

- 24 expressions of interest were received!
- Too many to service in one hit
- 6 Gardens chosen
- Pilot project funded by:
Helen Macpherson
Smith Trust

Helen
Macpherson
Smith
Trust





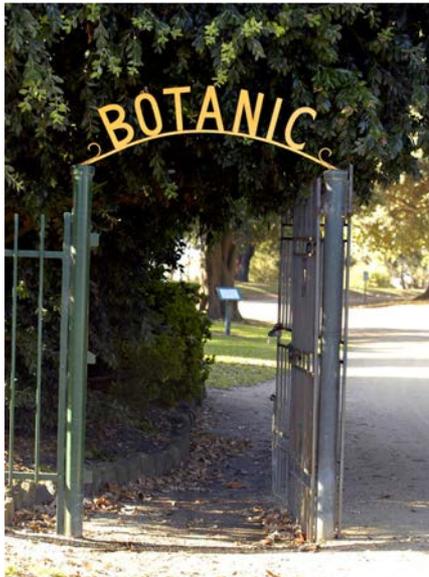
Wilson Botanic Park
Basalt lake entrance:



Dandenong Ranges Botanic Garden



Australian Botanic Garden Shepparton



Colac Botanic Gardens



Ballarat Botanical Gardens



Sale Botanic Gardens

Stage Three: Site inspections and collections planning

- In collaboration with key gardens staff develop living collections plans for each participating garden
- Setting broad objectives and actions
- Determining scope and focus for collections development
- Development of planting lists and schedules



Colac Botanic Gardens – Site Inspection

Stage Four: Plant Production

At Royal Botanic Gardens Victoria, Cranbourne Gardens



Stage Five: Distribution



Ballarat Botanical Gardens Horticulture Staff

The Collections: Dandenong Ranges Botanic Gardens

East of Melbourne

- Focus on Serenity Point area and an existing Victorian Alpine Garden
- Planting schedule is a wonderful selection of subalpine, montane and tall open forest species



Olearia frostii – Bogong Daisy Bush

The Collections: Colac Botanic Gardens

Southern western Victoria

- Focus on VROT's from the Greater Otway NP
- Cool Temperate Rainforest, Open Forest and Heathland species
- Existing rainforest & heathland beds
- Existing Acacia collection



Astelia australiana Tall Astelia (Geoff Jeanes RBGV)

The Collections: Shepparton

North Central Victoria

- The Rare Plants Wall Garden designed by L.A. Melissa Stagg
- An educational 'climate ready garden', using plants from across the region, highlighting rare and threatened plants
- Conservation seed orchard *Sclerolaena napiformis* - Turnip Copperburr



The rare plant wall garden and ABGS planning team

The Collections: Sale

Eastern Victoria

- Integrating VROT's from the Shire of Wellington into existing R&T Gardens
- Sale Gardens might have triggered the **Care for the Rare** project!



Banksia canei

The Collections: Wilson Botanic Park

East of Melbourne

- Building on existing WBP themes/collections
- Locally significant taxa (Casey City)
- VROTs from Gippsland Plains Bioregion
- Rainforest taxa
- VROT's with Gondwanan lineage/origins
- Eucalypts



Nematolepis wilsonii (Shiny Nematolepis)

The Collections: Ballarat Botanical Gardens

West Central Victoria

- Building on existing Ballarat indigenous plant collections
- Currently working on 2 VROTs
- 'doubling' the size of the collection
- Focus for the collection: species growing within 50 kilometres of Ballarat



Bossiaea vombata & *Grevillea bedgoodiana*

Opportunities and Constraints

- **BIG** aim of the project – interpretation and messaging
- Opportunities to work closely with participating gardens
- BGANZ Network meeting 2020 ‘Interpreting Collections’
- Development of communications plan and key messages for each participating garden
- Open to the entire network

Common name
Scientific name

About me: Donec arcu risus diam amet sit. Congue tortor cursus risus vestib commodo nisl, luctus augue amet quis aenean maecenas sit, donec velit. Natoque placerat sed sit hendrent.

Why I'm rare: Donec arcu risus diam amet sit. Natoque placerat sed sit hendrent. Congue tortor cursus risus vestib commodo nisl, luctus augue amet quis aenean maecenas sit, donec velit. Natoque placerat sed sit hendrent.

My story: Donec arcu risus diam amet sit. Natoque placerat sed sit hendrent. Congue tortor cursus risus vestib commodo nisl, luctus augue amet quis aenean maecenas sit, donec velit. Natoque placerat sed sit hendrent.

How you can help: Donec arcu risus diam amet sit. Congue tortor cursus risus vestib commodo nisl, luctus augue amet quis aenean maecenas sit, donec velit. Donec arcu risus diam amet sit. Natoque placerat sed sit hendrent.

 **BGCJ**
Biodiversity for the World

Your Logo Here



PHOTO BY: INSERT NAME HERE

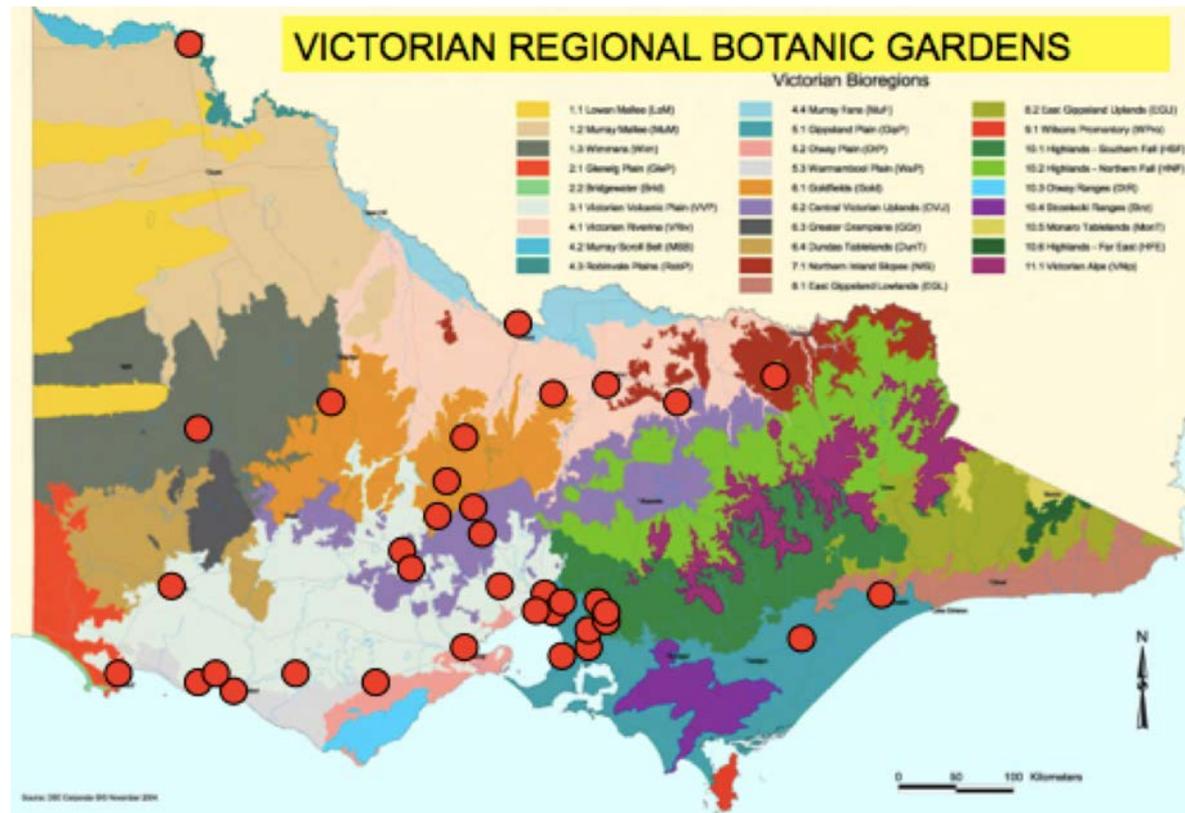
CARE FOR THE RARE

Care for the rare – Time lines

Task	Sept - Dec '17	Jan - June '18	July to Dec '18	Jan - June '19	June - Dec '19	Jan - June '20	June - Dec '20
Evaluation of EOI's	█						
Develop Communications and PR Plan	█						
Promote program at BGANZ Congress Adelaide	█						
Round One: Garden Visits		█					
Round One: Collection Plans: Plant Lists and Planting Schedules		█					
Establish funding model for plant production, distribution, landscaping and interpretation		█					
Raise funds		█					
Round One Production:			█	█	█		
Round Two Garden Visits			█				
Round Two: Collections Plans, Plant Lists and Planting Schedules			█				
Round Two Production				█	█	█	
Round One: Plants delivered to participating Gardens						█	
Round Two: Plant delivered to participating gardens							█
Review of Project							█

Opportunities for the network

- Monitor the effectiveness of the pilot program
- Seek additional funds for further stages
- Over time - huge potential for a state based multi-site conservation collection



Care for the Rare Team

John Arnott – RBGV

Lindy Harris – Karwarra Gardens

Justin Buckley – National Trust

Clare Hart – RBGV

David Roberts – RBGV

Tex Moon – Dandenong Ranges Botanic Gardens

Chris Russell – RBGV

Matthew Henderson – RBGV

Mandy Thompson - RBGV