

A Basis for Change – a novel way to evaluate and re-align living collections to meet the changing focus of a botanic garden in the modern world

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Abstract

Living collections in older Botanical Gardens often develop idiosyncratically, governed by fashion or driven by individuals. The Royal Tasmanian Botanical Gardens (RTBG) is an older colonial era botanical gardens (est. 1818) with collections dating from the early 1800s. In 2008 the RTBG developed a suite of 5 linked plans. The plans refocus the Gardens: key strategic directions, major interpretive themes, conservation targets and heritage values and 're-brand' the RTBG to be more regionally and globally relevant. To both evaluate and realign the living collections with the Garden's new directions a unique method of assessing each collections status and value was developed. Living collections have a range of attributes that can be used for evaluation. These attributes were clustered into three principle attribute classes: Defining attributes, Use attributes and Managerial attributes. Collections were evaluated against each attribute via a formula and a simple table. The table provides an easy means of assessing how aligned the collections are with the organisation's strategic directions and also indicates where improvements can be made. This paper analyses the method from development through to delivery of a whole collection review and demonstrates how this rigorous approach gives clarity and authority to the decision making process.

Keywords

Botanic Gardens Horticulture, Collections Management, Evaluation, Living Collections, Strategic Planning

Background

Established in 1818 the Royal Tasmanian Botanical Gardens (RTBG) is Australia's second oldest botanic garden. The heritage landscape at the core of the Gardens holds a collection of nationally significant trees. The RTBG is also home to the unique Sub-Antarctic Plant House, The Tasmanian Seed Conservation Centre, collections of Tasmanian flora, conservation collections, southern hemisphere and ornamental conifers, taxonomic collections including the southern heaths and the Tasmanian ferns as well as ornamental and horticultural collections.

Our planning process

As part of a long term strategic planning process in 2008 the RTBG developed five critical plans in parallel to ensure a strong connection between all the plans. Each plan provided key information toward the development of the other plans and was in turn influenced and directed by the companion plans. At the core of the planning process the Strategic Master Plan (SMP) redefined the Garden's vision, mission, objectives and strategic directions.

The Living Collections Plan provided significant direction towards the SMP's redefined objectives. An important aim of the Living Collections Plan was to establish how well aligned the living collections were with the RTBG's new directions and further to develop an evaluation process and a methodology to enable staff to actively improve the collections to ensure better alignment.

The Plans

The Strategic Master Plan serves the Gardens as a strategic management and decision making tool. It responds to and connects the information provided by 4 ancillary plans and provides a full complement of functional management strategies.

The Interpretation Plan delivers a range of broad thematic foci, a media matrix linking the themes to audience via a range of potential methodologies, an upper level implementation plan and an interpretation policy.

The Living Collections Plan evaluates all aspects of the Gardens living collections, providing: an overview of current issues affecting the living collections before setting out a policy framework and a series of recommendations to facilitate decision making and the management of the Gardens living collections over the next 20 years.

(The two other plans were a (Heritage) Conservation Management Plan and a Community and Visitor Report)

Three Key Goals:

Three key goals were developed to forge the RTBG's new directions. These goals in turn support a range of specific strategies established to achieve each goal. The RTBG's goals are:

Goal 1. To sustainably manage the core values of the RTBG as Tasmania's botanical garden.

This goal addresses the definition of the RTBG as a 'Tasmanian botanical garden' and recognises the significant values embodied in the Gardens (this could be regarded as our 'point of difference' or 'brand') and determines that these values must be managed in a sustainable manner if the SMP is to be considered successful.

Goal 1. also addresses a principle requirement to maintain the integrity of the RTBG as a true botanical gardens through appropriate curation of living collections, involvement in the conservation of the world's flora and the conduct of targeted research.

Goal 2. To promote and manage the Gardens to ensure its users have the opportunity to attain a quality experience of the place and its values.

This goal addresses the use value of the Garden and the benefits to be derived from the successful management of the RTBG as an education and training centre, a community asset and a tourism destination.

The management of the visitor experience is directly related to people's expectations for the Gardens as a destination for daily life and/or for tourism.

Goal 3. To ensure there is sufficient capacity to sustainably manage the RTBG.

This goal addresses the core operational activities of the Gardens.

Why Evaluate?

Living collections are the *raison d'être* for botanic gardens, in older botanic gardens the genesis of collections is sometimes obscure and not well documented. In some cases collections are opportunistic or driven by the interests of a staff member or Director. Often the value and purpose of each collection in relation to a botanic garden's broader aims and objectives is either not considered or poorly understood.

Living collections are generally managed over extended periods of time, with the inherent potential for a gradual erosion of focus and quality.

RTBG staff developed the evaluation process initially to ensure that the decisions and directions proposed in the Living Collections Plan were:

- based on quantifiable information and a reasoned process, and further
- To establish how well aligned the collections were with global policies and the RTBG's Strategic Directions.

Understanding the living collections

As part of the development process for the Living Collections Plan, RTBG staff and the project consultants reviewed the living collections. To do this staff used the Living Collections Situational Analysis a document established in 2003 and regularly updated which provides background information and reviews the current status of the RTBG's collections and their associated infrastructure. Staff also researched the historical context of the living collections.

Our evaluation process

Step 1. Categorising the Collections -

Today there are over 40 discrete living collections at the RTBG including: in-ground, potted nursery and seed bank collections comprised of over 6,000 species, varieties and cultivars.

The collections can be broadly divided into four major categories of collections: Tasmanian Collections, Conservation and Research Collections, Southern Hemisphere Collections: and Cultural Heritage and Ornamental Collections.

Step 2

Sorting Collections by focus (see Table 2.)

Within these categories and in common with other botanic gardens, collections can be sub-grouped based on principle focus, that is, whether they have a geographical basis – a collection of plants based on a defined geographical area or biome; taxonomic basis - a collection of plants that demonstrates principles of plant classification; demonstration purpose - a collection that displays specialised areas of botanical or horticultural interest or horticultural techniques; heritage basis - a collection that exhibits a linkage with historic periods, cultural events, people or horticultural practices or periods; or horticultural basis - a collection that is based on horticultural selections of species or display principles.

Providing more definition

Step 3. Sorting by attribute

Living collections have a range of attributes that can be used to distinguish one collection from another and determine value. These attributes can be clustered into three principle attribute classes. In the RTBG's case these are aligned with the SMP's three key goals:

Defining attributes: These define what it means to be the Royal Tasmanian Botanical Gardens i.e. the relevance to the region's flora and those collections with historical significance to the Gardens and/or those attributes that more generally define a botanic garden including plants having conservation or botanical attributes of interest.

The RTBG's Defining attributes are:

- Regional
- Conservation
- Botanical
- Historical

Use attributes: These attributes relate to the ways that a collection is interpreted and used by both the public and the RTBG itself.

The Use attributes are:

- Interpretational
- Educational
- Tourism
- Recreational
- Commercial
- Spiritual (Social wellbeing)

Managerial attributes: Are those that relate to the amenity aspects of a collection and the suitability of local conditions for the collection. These are seen to include horticultural management and site suitability considerations.

The Managerial attributes are:

- Horticultural
- Site suitability
- Management

Establishing values

Step 4. Developing Assessment Criteria

To determine how well the collections performed against each attribute class a set of specific assessment criteria were developed. In some cases the criteria are prescriptive and enable clear evaluation (for example, Conservation) in others they function as guides to assist evaluation.

Table 2. - Shows each of the attribute classes, their distinguishing attributes and the assessment criteria for each attribute.

Scoring against attributes

Step 5. Rating and Weighting

Each attribute was then scored on a scale from 1 to 5 using the criteria with a score of 1 representing collections that did not meet or poorly met the listed criteria for that attribute and 5 for those that met the criteria well.

The scores were then weighted by multiplying the Defining Attributes x 3, Use Attributes x 1.5 and Managerial Attributes x 1. The weighting gives:

An emphasis to the defining values as these represent the principle reason for the continued existence of the Gardens (as opposed to say, converting the area to a park); a lesser emphasis to the use benefits, in part to balance the effect of the total tally of benefits, given the number of attributes grouped in this class; and a base rating to the managerial attributes as these are a fundamental to any botanic garden.

Results:

Table 3. Provides an opportunity for an overview of the RTBG's collection and clearly indicates each collections strengths and weaknesses.

Analysing the Results:

A high level analysis of the collections indicated a disconnection between many of the existing collections and the mission, objectives, goals and interpretation themes that are stated in the SMP. By contrast the assessment also shows the great benefits to be gained by bringing the collections into alignment with the strategic direction of the SMP.

At the individual collection level the table provides an easy visual method of assessing each collections strengths and weaknesses and clearly highlights areas for improvement.

Issues Identified by the Evaluation of the Collections:

At the broad level, the analysis of the collections shows the relatively low total scores achieved by any one collection, the highest rating collections amassing only slightly more than half of the available score – While there is no suggestion that all collections should rate highly across all attribute classes, the results suggest room for improvement in even the most highly valued of the collections.

More specifically this demonstrated a need to:

- strengthen the defining attributes in each of the collections if the Gardens is to clearly differentiate itself from other botanic gardens;
- gain greater return from the collections in terms of their use benefits, and
- better interpret the collections as the principle means of deriving greater benefit from them.

Direct outcomes of the Living Collections plan:

- The establishment of 3 Curators positions (Curator Tasmanian Flora, Curator Rare and Threatened and Subantarctic Flora and Curator Arbor) to manage key collections -
- The development of a Whole of Collections review (with the intention of making clear decisions about each collection and its future development).
- A Plant Conservation Policy - Guidelines to establish the RTBG's conservation role.

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Table 1. The RTBG Collections

Category	Focus	Collection
Tasmanian	Geographical Focus	Subantarctic
		Greater Hobart
		East Coast
		Tasmanian
		Foreshore
	Taxonomic Focus	Remnant Grassland
		Epacridaceae
		Tasmanian Ferns
		WSUD Garden
		French Memorial
	Demonstration Focus	Visitor Centre Beds
	Heritage Focus	
	Horticultural Focus	
Conservation and Research	Geographical Focus	Tasmanian Seed
		Conservation Centre
		Conservation Collections
		(Potted)
Southern Hemisphere	Geographical Focus	New Zealand
		Gondwana Terraces
		Southern Hemisphere
		(Potted)
	Taxonomic Focus	Southern Hemisphere
		Conifers (Potted)
	Horticultural Focus	Protea
Cultural and Ornamental	Horticultural Focus	Bedding plants - including
		Floral Clock
		Conservatory
		Deciduous Trees – (incl.
		Oak Woodland)
		Conifer Cultivars
		Mixed Border (Friends
		Border, Rills, Lily Pond, Iris)
		Rhododendrons &
		Camellias
		Fuchsia House
		Palm Collection
		Asian Woodland
		Salvia Collection
		Magnoliaceae
		Grey Foliage plants

Cultural and Ornamental (cont.)	Taxonomic Focus	Eucalypt Lawn Conifer Species Herb Garden Pete's Patch/Economic Easy Access Garden Cacti & Succulents
	Demonstration Focus	
	Heritage Focus	Heritage Apples Significant Trees Cottage Garden Japanese Garden
	Geographical Focus	Chinese Australian

Table 2. Attribute Assessment Criteria

Class of Attributes	Attribute	Assessment Criteria
Defining	Regional	collections with valid connections to our region; collections that are Tasmanian in origin (including Macquarie island); collections that are Australian in origin; collections that have a southern hemisphere distribution; and collections with Gondwana origins.
	Conservation	viable potted and seed <i>ex-situ</i> collections; collections of Tasmanian species that are listed on the IUCN Red List and/or under the Tasmanian <i>Threatened Species Protection Act 1955</i> and/or the Federal <i>Environmental Protection and Biodiversity Act 1999</i> ; <i>ex-situ</i> potted and seed collections with a representative number of genotypes from within or between population/s; and collections of listed species in DPWI Threatened Species Recovery Plans.
	Botanical	collections with scientific integrity; collections of known wild provenance; collections with detailed field collection records; collections with herbarium voucher specimens; and collections based on taxonomic principles with a comprehensive representation of taxa.
	Historical	collections originating from or representing the heritage fabric of the Gardens or elements of Tasmania's botanical history; the mature canopy of trees originating from Victorian plantings; the Gardenesque Victorian elements in the landscape such as the palms; plantings based on records of early plant lists from the RTBG; and collections relating to Tasmania's botanical history.
Use	Interpretive	collections currently covered by interpretive media other than plant labels; collections with in-ground interpretive signage; collections with associated pamphlets; collections interpreted in RTBG displays; and collections interpreted on the RTBG web site.
	Educational	collections currently used for education purposes; collections used for the schools program; collections used for the community garden program; and collections used for Green Thumbs and Explore programs.
	Tourism	collections that specifically draw tourists to the RTBG; collections that are unique to the RTBG such as the Subantarctic Plant House and Tasmanian collections; collections of high ornamental value such as the Conservatory; and collections centred on events such as the Tulip Festival.
	Commercial	income generating collections; collections used as sites to for income generating activities such as weddings, naming ceremonies and memorials and other functions; and collections providing material for income generating activities such as plant sales.
	Spiritual	collections that have spiritual associations (Note: this attribute was not

Class of Attributes	Attribute	Assessment Criteria
		assessed due to the difficulty and costs of gaining information about reliable indicators).
Managerial	Horticultural	collections with high amenity value; collections with strong visual appeal; collections displaying a range of horticultural selections; and collections that display current trends in horticulture.
	Site Suitability ¹	local environmental and artificial factors which influence the cultivation of collections; soil type and drainage; water availability and type of irrigation; slope and aspect; local climate; adjacent plants; and adjoining infrastructure.

Table 3: The values of the individual collections

	Defining Attributes					Use Attributes							Managerial Attributes				
Collection	Regional	Conservation	Botanical	Historical	Sub-Total (weighted by 3, highest possible score 60)	Interpretation	Educational	Tourism	Recreational	Commercial	Spiritual	Sub-Total (weighted by 1.5, highest possible score 37.5)	Horticultural	Site Suitability	Management	Sub-Total (unweighted, highest possible score 10)	Overall Scores (out of 107.5)
TASMANIAN																	
Geographical Focus																	
Subantarctic	5	1	5	1	36	5	5	5	1	1		25.5	4	3		7	68.5
Greater Hobart	5	2	5	1	39	3	1	1	1	1		10.5	3	3		6	55.5
East Coast	5	2	5	1	39	1	1	1	1	1		7.5	3	3		6	52.5
Tasmanian	5	1	5	1	36	3	5	5	1	1		22.5	3	3		6	64.5
Foreshore	5	2	3	1	33	1	1	1	1	1		7.5	1	4		5	45.5
Remnant Grassland	3	2	3	1	27	1	1	1	1	1		7.5	1	4		5	39.5
Taxonomic Focus																	
Epacridaceae	5	1	5	1	36	1	1	1	1	1		7.5	2	1		3	46.5
Tasmanian Ferns	5	1	5	1	36	1	3	2	1	1		12	4	3		7	55
Demonstration Focus																	
WSUD Garden	5	1	1	1	24	3	2	1	1	1		12	2	1		3	39
Heritage Focus																	
French Memorial	4	1	3	1	27	3	1	1	2	1		12	3	3		6	45
Horticultural Focus																	
Visitor Centre Beds	5	1	3	1	30	1	1	1	1	1		7.5	3	3		6	43.5
CONSERVATION & RESEARCH																	
Geographical Focus																	
Tasmanian Seed Conservation Centre	5	5	5	1	48	2	3	1	1	1		12	1	5		6	66
Conservation Collections (Potted)	5	5	5	1	48	1	2	2	1	1		10.5	1	3		4	62.5

SOUTHERN HEMISPHERE																	
Geographical Focus																	
New Zealand	4	1	1	4	30	1	2	1	1	1		9	2	3		5	44
Gondwana Terraces	4	1	3	1	27	1	1	1	1	1		7.5	3	3		6	40.5
Southern Hemisphere (Potted)	4	3	4	1	36	1	1	1	1	1		7.5	2	1		3	46.5
Taxonomic Focus																	
Southern Hemisphere Conifers (Potted)	4	3	3	1	33	1	1	1	1	1		7.5	2	1		3	43.5
Horticultural Focus																	
Protea	1	1	1	1	12	1	1	1	1	1		7.5	1	3		4	23.5
CULTURAL & ORNAMENTAL																	
Horticultural Focus																	
Bedding plants - including Floral Clock	1	1	1	4	21	1	1	5	1	5		19.5	5	3		8	48.5
Conservatory	1	1	1	3	18	2	3	5	5	5		30	5	4		9	57
Deciduous Trees – (incl. Oak Woodland)	1	1	1	2	15	1	3	4	3	3		21	3	3		6	42
Conifer Cultivars	1	1	1	1	12	1	1	1	1	1		7.5	2	3		5	24.5
Mixed Border (Friends Border, Rills, Lily Pond, Iris)	1	1	1	1	12	3	2	3	2	1		16.5	5	4		9	37.5
Rhododendrons & Camellias	1	1	2	1	15	1	1	2	1	1		9	3	2		5	29
Fuchsia House	1	1	3	2	21	1	1	3	1	1		10.5	3	4		7	38.5
Palm Collection	1	1	2	4	24	1	1	1	2	1		9	3	4		7	40
Asian Woodland	1	1	1	1	12	1	1	1	1	1		7.5	3	3		6	25.5
Salvia Collection	1	1	3	1	18	1	2	2	1	1		10.5	4	4		8	36.5
Magnoliaceae	1	1	2	1	15	1	1	1	1	3		10.5	3	3		6	31.5
Grey Foliage plants	1	1	1	1	12	1	2	1	1	1		9	4	4		8	29
Taxonomic Focus																	
Eucalypt Lawn	5	1	1	1	24	1	1	1	3	1		10.5	3	3		6	40.5
Conifer Species	1	1	4	5	33	1	4	3	3	3		21	4	4		8	62
Demonstration Focus																	
Herb Garden	1	1	1	1	12	3	3	3	2	1		18	3	4		7	37
Pete's Patch/Economic	1	1	1	1	12	3	5	5	2	3		27	4	4		8	47
Easy Access Garden	1	1	1	1	12	1	5	1	4	5		24	2	2		4	40
Cacti & Succulents	1	1	3	1	18	2	5	1	1	1		15	3	1		4	37

Heritage Focus																	
Heritage Apples	3	1	1	1	18	1	2	1	1	1		9	2	2		4	31
Significant Trees	1	1	1	3	18	3	3	2	3	1		18	4	4		8	44
Cottage Garden	1	1	1	5	24	2	1	1	1	1		9	4	4		8	41
Geographical Focus																	
Japanese Garden	1	1	1	1	12	2	3	5	4	4		27	4	3		7	46
Chinese	1	1	4	1	21	2	2	3	2	1		15	4	4		8	44
Australian	4	1	1	1	21	1	1	1	1	1		7.5	1	2		3	31.5
Sub-Total	112	58	104	65		68	87	84	66	65			122	128			
Possible Total	210	210	210	210	60	210	210	210	210	210		37.5	210	210		10	107.5