

MANAGING LIVING COLLECTIONS AND LANDSCAPES IN A (CLIMATE) CHANGING WORLD

Professor Tim Entwisle

Director and Chief Executive
Royal Botanic Gardens Victoria

Abstract

Botanic gardens maintain collections of living plants for science, conservation, education, beauty and more. These collections change over time – in scope and content – but the predicted impacts of climate change will require a more strategic approach to the succession of plant species and their landscapes. Royal Botanic Gardens Victoria has recently published a ‘Landscape Succession Strategy’ for its Melbourne Gardens, a spectacular botanical landscape established in 1846. The strategy recognizes that with 1.6 million visitors each year, responsibility for a heritage-listed landscape and the need to care for a collection of over 8,000 plant species of conservation and scientific importance, planting and planning must take into account anticipated changes to rainfall and temperature. The trees we plant today must be suitable for the climate of the twenty-second century. Specifically, the Strategy sets out the steps needed over the next twenty years to transition the botanic garden to one resilient to the climate modelled for 2090. The document includes a range of practical measures and achievable (and at times somewhat aspirational) targets. Climate analogues are being used to identify places in Australia and elsewhere with conditions today similar to those predicted for Melbourne in 2090, to help select new species for the collection. Modelling of the natural and cultivated distribution of species will be used to help select suitable growth forms to replace existing species of high value or interest. Improved understanding of temperature gradients within the botanic garden, water holding capacity of soils and plant water use behaviour is already resulting in better targeted planting and irrigation. The goal is to retain a similar diversity of species but transition the collection so that by 2036 at least 75% of the species are suitable for the climate in 2090. At all times there will be a strong focus on assisting the broader community in their response to climate change. An international Climate Change Alliance is being established to further encourage the sharing of knowledge and skills.

FURTHER READING

<http://treenet.org/wp-content/uploads/2020/10/Entwisle-et-al-2017-Adapting-botanic-gardens-landscape-to-climate-change.pdf>