**BGANZ - NZ 14th October 2021 Seminar**

**Climate change induced changes to plant behaviours?**

**Observations of Collection Curator David Barwick, Christchurch Botanic Gardens.**

Milder winters of the last 2 decades appear to have allowed a much wider range of half hardy and tender trees, shrubs and perennials to be grown in Christchurch. Earlier or extended growth periods and also range extension of some weeds, pests and diseases is mentioned.

-Tender perennials such Dahlias, Canna and Salvias no longer need to be stored in sheds, they overwinter outside, with or without mulches. Some species/cultivars are selfseeding.

-Palms. Washingtonia robusta, Butia capitata and Rhopalostylis sapida have become more visible as specimens, especially around buildings in the CBD, Botanic Gardens and the University Ilam Campus since about 2000. Phoenix roebellinii and Syagrus romanzoffianum are occaisionally met with in the hill suburbs. Specialist collections of palms featuring many species such as Livistonia decora and Parajubea torallyi can be seen in the Chch Botanic Gardens.

-Bougainvillea, Jasminum polyanthum, Climbing Plumbago, Ficus pumila, and Black Passionfruit, unheard of outside before the 1980s, do well on sheltered walls and eaves.

-Olives, Feijoas and Citrus (mostly Meyer Lemon, Limes and Grapefruit) are prolific, common and widespread, against houses and fences. Few are protected with frost cloth these days. Healthy, but non fruiting, Avocado trees springing up from old discarded fruit are sometimes seen around the suburbs along with the occasional tattered Banana.

-Ex houseplants such as Philodendron selloum, Clivia miniata, Cymbidium Orchids, Ficus elastica “Decora’, Parlour Palms, Cyclamens and Radermechera “Canton Lace” are surviving outside under eaves or under large trees. Monstera deliciosa and Schefflera actinophylla are occaisionally seen in the hill suburbs. Yucca gigantea (Y. elephantipes) and Aeonium ‘Swharzcof’ the “must have” houseplants of the 90s, are now so common in suburban gardens from planted cuttings, that nobody would consider buying them.

-Tree Dahlias and Magnolia campbellii flower reliably every winter with little or no frost damage (Chch Botanic Gardens, Hill suburbs)

-Metrosideros excelsa, (formerly a Hill Suburbs and Banks Peninsula speciality) are now surviving along warm, sheltered buildings in the CBD, Ilam Campus, New Brighton and the Botanic Gardens. The same applies to other trees including Araucaria heterophylla, Grevillea robusta, Griselinia lucida, Hymenosporum flavum, Knightia excelsa, Lagunaria patersonii, Corymbia ficifolia, C. grandis, Michelia/Magnolia figo, Schinus molle and Tristaniopsis laurina. A flowering Jacaranda (about ten or fifteen years old) was spotted flowering in a garden in South Christchurch last summer.

-Many Australian/South African shrubs and groundcovers are proving their worth in the hotter, windier summers and sunnier winters ie Protea, Grevillea, Leucadendron, Callistemon, Dianella and Gazania, while Mediterranean shrubs such as Cistus, Lavender and Rosemary are common fillers.

Indigenous trees/shrubs exhibiting late Autumn growth flushes:

-Hebe ‘Wiri Hybrids’, H diosmifolia and H. salicifolia. Pittosporum eugenioides, P. tenuifolium, Metrosideros excels and M. x ‘Maungapiko’, Melicytus ramiflorus, Pseudopanax arboreus, Coprosma robusta and C. repens, Lophomyrtus x ralphii hybrids, Hoheria populnea and Griselinia littoralis. Most of the soft, tender secondary flushes have been injured by frosts of July 2021.

Exotic Ormamentals

with early or out of season flowering:

-Spring flowering Azaleas with indica parentage, esp ‘Kirin’, Palestrina’, Rosa Belton’, ‘Mrs Kint’ and ‘Fielder’s White’, ‘Bayou’ have a main display in May, with sparse leftover blooms in Spring. A small number of Deciduous Azaleas throw flowers in late April/May, but these are malformed and pale.

-Rhododendron arboreum selections and cultivars, beginning in early June, or July.

-Magnolia stellata and M. grandiflora ‘Little Gem’, sporadic all winter.

-Narcissus, esp Jonquils/Sol d’Or, in sunny locations, are flowering in May.

-Helleborus x hybridus commence sparse flowering in late May, the rest in July.

-Callistemon viminalis and ‘Citrinus’ had good autumn and winter flowering, on top of already prolific summer flowering.

-Grevillea cultivars already well known for their autumn flowering, carried on through the Winter.

-Meyer Lemons, late autumn water shoots and even a few flowers.

- Dahlia imperialis, flowers routinely frosted in the late 90s, now has reliable displays every autumn.

-Prunus x ’Accolade’, which was strictly spring flowering, now throws out a sprinkling of blossoms at intervals throughout winter.

-Bradford Pear (Pyrus calleryana cultivars) have sporadic blossom beginning at leafdrop in autumn.

-Forsythia suspensa, flowers in early winter.

-Camellia japonica cultivars and hybrids, esp ‘Cornish Snow’, ‘Donation, ‘JC Williams’ are regu;larly coinciding flowering times with the Sasanqua/Hiemalis cultivars (early Winter)

-Buddleja salvifolia flowers almost unbroken throughout the year.

-Lavander and Rosemary increasingly throw odd blooms through the winter.

-Strangely, in the winter of 2021, wintersweet (Chimonanthus fragrans) and Magnolia campbellii held off from early/mid winter, to late July/early August!

-All of the above listed plants are warm temperate/maritime in origin, with short chilling requirements and opportunistic flowering if conditions are sunny and mild, but this has become more common in the last decade. Related species from more continental regions remain unmoved.

Range Expansion/Increases of frost tender seedlings:

-Solanum chenopodioides, becoming a very common weed, and large overwintering plants can assume woody shrub proportions.

-Praserianthes lophantha, becoming more weedy on the Port Hills and sheltered areas in the city.

-Phytolacca octandra, increasing on Banks Peninsula, sheltered areas of Botanic Gardens, Fendalton.

-Coprosma repens, increasing in coastal hill suburbs and under trees elsewhere

-Solanum laciniatum, becoming more common in dry shaded areas under trees.

-Corynocarpus laevigatus, seedlings prolific under fruiting trees in the Botanic Gardens, Lyttelton Basin, Akaroa.

-Cortaderia selloana, recently becoming problematic along railway sidings and earthquake debris.

-Olea europea, sporadic seedlings seen around Botanic Gardens in last 5 years or so.

-Macropiper excelsum, large increases of seedlings under trees in NZ Section of Botanic Gardens.

-Tradescantia fluminensis, mass clonal expansion along Avon/Heathcote riverbanks, post Earthquake

-Bay Laurel, seedling common under and near fruiting trees in older suburbs.

-Agapanthus seedlings are becoming abundant in shaded areas of the suburban Port hills as well as driveways and footpaths elsewhere across the city.

-Annual and ephemeral weeds of cultivated soil,footpaths and waste places are persisting through the winter and turf/lawns are being mowed more frequently in the cooler months.

-Pests and diseases; most notably, Thrips has taken off around the city in the last 15 years, accelerating in the last five –with Rhododendrons and evergreen Viburnums particularly affected, many ferns and Epimediums were badly hit over the last couple of summers.

-Camellia Blight is appearing earlier than it used to, with Sasanquas now being infected as well as Japonicas and Hybrids.

There are a number of factors that could cause these changes such as increased planting/importation of plants from the north island and better plant placement, but a combination of milder winters, hotter summers and possibly the heat island affect are all contributing these new observations.