Trees and shrubs of Tasmania

In 2018 **SEAMUS O'BRIEN** joined the British-Irish Botanical Expedition to Tasmania (BIBET). Here he writes about the plants they saw there and some of the acquisitions that are now growing at key gardens and arboreta throughout Great Britain and Ireland.

In recent years Kilmacurragh has seen a flood of new, mostly wild-origin trees and shrubs, sourced from across the globe. Some of these plants have arrived through collaborative projects with the Royal Botanic Gardens, Kew and the Royal Botanic Garden, Edinburgh.

I had previously travelled in Tasmania in 2011 with staff from the Royal Tasmanian Botanical Gardens (RTBG) in Hobart. Knowing this, Stephen Herrington, Head Gardener at Nymans in Sussex asked if I might be interested in helping to organise a botanical expedition to Tasmania in 2018. The answer, was of course, a resounding yes, and so once dates were agreed I made contact with James Wood, the Seed Bank coordinator at the Tasmanian Seed Conservation Centre and Natalie Thapson, the RTBG's very enthusiastic Horticultural Taxonomist.

Kilmacurragh has long been famed for its southern hemisphere conifers, particularly *Athrotaxis*, a relict genus that is endemic to Tasmania. Thomas

The BIBET team, on a wet muggy day, at Cradle Mountain National Park in the Central Highlands area of Tasmania, 165 kilometres (103 miles) northwest of Hobart.

From left to right: Seamus O'Brien (NBG, Kilmacurragh), Charlie Bancroft, Stephen Herrington (Nymans), Piers Lunt (NBG, Wales), Neil Porteous (Mount Stewart) and Robert Wilson-Wright (Coolcarrigan).

Acton (1826-1908) was one of the earliest cultivators of both the King Billy pine, *Athrotaxis selaginoides* and the pencil pine, *Athrotaxis cupressoides* and their naturally occurring hybrid, *Athrotaxis* × *laxifolia*.

The passage of time, old age and storms has felled several of our Tasmanian veterans and so I welcomed the opportunity to visit 'Van Diemen's Land' for the purpose of rebuilding our southern hemisphere collections.

The historic National Trust garden at Nymans has equally strong ties with Tasmania. In 1930, Harold Frederick Comber (1897–1969), the son of Head Gardener James Comber, visited Tasmania to collect for a syndicate of wealthy British gardeners arranged by the owner of Nymans, Leonard Messel (1872–1953) and by Lionel de Rothschild (1882–1942), then developing his garden at Exbury House in Hampshire on an extraordinary scale. Comber's collections from Tasmania, and from his earlier Andean Expedition, were also raised at the National Botanic Gardens, Glasnevin during the 1920s and '30s.

Our team therefore consisted of members of staff from Nymans, the National Botanic Gardens of Wales, Mount Stewart in Co. Down, the National Botanic Gardens, Kilmacurragh and Coolcarrigan House and Gardens near Naas, Co. Kildare. On my suggestion the expedition came to be known as the British-Irish Botanical Expedition to Tasmania (BIBET) and just before our departure the Government of Tasmania granted permits for our group to collect seeds and herbarium specimens of non-threatened taxa.

The permits also allowed us to collect material for the International Conifer Conservation Programme at the Royal Botanic Garden, Edinburgh (in which the NBG, Kilmacurragh collaborates) and to collect duplicate sets of herbarium specimens for the Royal Botanic Gardens, Kew and the National Botanic Gardens, Glasnevin. Our seed collections would also help re-stock Kew's newly restored Temperate House.

The BIBET expedition was timed for early January, and, having rung in the New Year, the team met in Melbourne Airport and spent a day gathering equipment and provisions in Hobart. From the island's capital we made our way to the Tasmanian Lake Country, in the Central Highlands, using the small town of Miena as our initial base.

One of our first ports of call was Lake Augusta, where we made an exciting early collection, a prostrate form of *Leptospermum rupestre* (BIBET 003). In Tasmania this showy white-flowered species may be an upright shrub, though in cold alpine habitats it is reduced to a ground-hugging shrub, a habit it retains in cultivation.

Alpine parabolic sand dunes are a rare phenomenon and we devoted much of our time to studying the vegetation on the dunes surrounding the lake shore. The most conspicuous plant at that time of year was *Bellendena montana,* a low growing shrub then covered with spikes of pale pink blossoms. Endemic to the alpine heathlands of Tasmania, phylogenetic studies have placed this relict genus as basal to the rest of the Proteaceae. The *Bellenden*a, commonly known

photograph © Seamus O'Brien

An endemic of high altitude mountain areas in Tasmania, *Bellendena montana* is a multi-stemmed shrub of the Proteaceae. This was collected under the number BIBET 004.

as the mountain rocket, grew in dolerite basalt sand in a desert-like habitat with prostrate plants of *Gaultheria tasmanica*, *Coprosma repens*, *Pimelea pygmaea* and flat cushions of *Pentachondra pumila*, a ground-hugging much branched woody shrub bearing white tubular flowers and large fleshy fruits, of which we made a large collection.

Beyond the lakeshore and the dunes lay extensive fenland colonised by vast swathes of *Richea acerosa*, *Hakea microcarpa* and in damper places *Baloskion australe*, a perennial in the Restoniaceae, with a similar appearance to the South African rope grasses. In damper places great mounds of the cushion-like *Abrotanella forsterioides* dotted the wet fens, in its tightly-knit foliage were diminutive plants of *Plantago tasmanica*.

I can never understand why the Tasmanian pineapple grass, *Astelia alpina*, is so rare in cultivation. In the alpine moorlands of northern Tasmania, its dense tightly-knit rosettes of brilliant silver foliage can cover considerable areas and it is often found growing by lake shores with the pencil pine, *Athrotaxis*

cupressoides and the rare Mount Mawson pine, *Pherosphaera hookeriana*. Another frequent inhabitant of these subalpine boglands is the tiny *Gunnera cordifolia*, rather aptly known as the Tasmanian mudleaf. Though not at all showy it was interesting to meet this tiny perennial in Tasmania, having previously studied species in Chile and South Africa.

The Projection Bluff Escarpment lies to the north of the Great Lake (the largest sheet of water on Tasmania's Central Plateau) and is one of the most dramatic topographical features of the area. At its base is dense temperate rainforest composed of characteristic trees like *Atherosperma moschatum*, *Nothofagus cunninghamii, Pittosporum bicolor, Telopea truncata, Phyllocladus aspleniifolius* and the ubiquitous *Eucalyptus coccifera.* Commonly known as the snow peppermint, Mount Wellington gum or Tasmanian snow gum, this is perhaps the most abundant of all the Tasmanian alpine eucalypts. Kilmacurragh's veteran Mount Wellington gum, a British and Irish champion, had died the previous year, and the collection made here (BIBET 043), one of several made throughout the trip, will provide a suitable replacement.

The summit of the bluff merged on to an expansive subalpine plateau, in

photograph © Seamus O'Brien

Above, the Projection Bluff Escarpment with *Eucalyptus coccifera*. The region harbours a rich flora. **Opposite**, *Richea scoparia* is abundant in Tasmania's subalpine heathlands, photographed here on the summit of the bluff, where we found a rare, white-flowered form, **below**.

places carpeted with dense, prickly thickets of white-flowered *Richea scoparia*. One of the most beautiful of all Van Diemen's Land's wild flowers, the blossom colour of this species varies from white, yellow, to orange, rusty-brown, pink and red. The genus commemorates Claude Antoine Gaspar Riche (1762–1797), the French doctor and botanist who travelled on the *Espérance*, one of two frigates of the d'Entrecasteaux Expedition (1791–1794).

In this region it grew in dwarfed thickets of *Tasmannia lanceolata, Telopea truncata, Cyathodes straminea* and *Gleichenia alpina*, a small suckering fern that might be used to good effect in woodland gardens in Britain and Ireland.

The finest flowering shrub in this region however was a daisy bush, altogether new to me, *Olearia pinifolia*, an erect shrub with pine-like leaves giving it an appearance rather like that of rosemary (*Salvia rosmarinus*). It was covered in snow-white starry blossoms at the time of our visit and proved to be a great favourite with our group.

Athrotaxis cupressoides at the Walls of Jerusalem National Park. Despite appearances, this is not a grove, but a multi-stemmed individual representing one clone.

Not far away lies Pine Lake, named for the many pencil pines, *Athrotaxis cupressoides* that skirt its shores. One of Tasmania's most iconic trees, it is relatively frequent here and in the Walls of Jerusalem National Park, though in many places large groves encountered by visitors are genetically identical and occur as a result of new growths sprouting from the roots of older trees. Viable seeds are released only once every seven years and seedlings are heavily grazed by wallabies and wombats. One of the oldest extant conifers, the pencil pine cannot withstand fire and we were to witness dead, bleached corpses, sadly looking exactly like the fire-ravaged forests of *Fitzroya cupressoides* in south-central Chile. Some of the gnarled old trees in this region are over a thousand years old. Having survived the eons, one wonders will they live to see, and survive, another ice age.

Tasmania's Central Plateau can see major falls of snow, even in summer, and so any plants growing there are undoubtedly hardy in the coastal gardens of Britain and Ireland. One of the most important trees in this area is the Miena cider gum, *Eucalyptus gunnii* subsp. *divaricata*. A tree of about 15 m tall, its habit is quite different from the more commonly encountered *Eucalyptus gunnii* and can be quickly recognised by its heavily divaricated (forked) branch system and its broader juvenile and adult leaves and the greater degree of glaucousness that extends from juvenile and adult leaves onto young stems, flower buds and capsules.

Exceptionally frost tolerant, this striking eucalypt is an extreme local en-

The Miena cider gum, *Eucalyptus gunnii* subsp. *divaricata*, seen here near the hamlet of Miena. The bleached corpses were a rather shocking and sad sight.

demic and only occurs on the southern end of the Great Lake and Tods Corner where it integrates clinally with *Eucalyptus gunnii* and *E. archeri*. The Miena cider gum is a woodland tree that has evolved to grow on the edges of treeless flats in poorly drained frost hollows that are exposed to early morning sun, both of which increase the damaging effects of frost, though in winter these hollows tend to be covered by cloud and mist. It has been used in breeding programmes in Australia and other parts of the world because of its exceptional frost resistance.

Sceptics of global warming might change their opinions on seeing wild populations of this tree. In recent times, this incredibly handsome gum has become endangered as a direct result of climate change (there has been a 1.5 °C increase in the mean daily maximum temperature in this area between 1945 and 1995). It is thought that long-term global warming (combined with decreased rainfall, droughts and reduction of frost) on the Tasmanian eucalypt gene pool will result in the loss of resistance to extreme frost.

Most of the trees we saw were dead, gnarled giants, silhouetted against an intensely blue antipodean sky. Strangely, in death they made an impressive sight, old veterans with heavy horse-chestnut-like limbs, in habit quite unlike any of the other Australian gum trees. The Miena cider gum is also the most palatable species of all the eucalypts. Climate change with associated prolonged drought means it now leafs up earlier and it is quickly stripped by insects and possums which find both its sap and foliage highly edible.

This tree was already well known to Tasmanian aboriginal hunters before the European colonisation of Tasmania. Producing a sweet sap similar to maple syrup, once bottled and capped the sap quickly ferments producing a drink similar to apple cider hence the common name, and this intoxicating sap was popular with the now sadly extinct Tasmanian Aboriginal peoples. This is thought to be the first record of a pre-European use of an alcoholic beverage in Australia. This sweet sap is also a welcome source of food for native marsupials, birds and insects. Following heavy browsing by insects a copious flow of sap covers the ground beneath trees with a carpet of manna pellets. Flocks of parakeets can be seen in a drunken state feeding on the manna and drinking from pools of sap.

Only eight small stands of this tree now remain, covering a few hundred hectares. Twenty years ago only 2,000 trees were setting seeds, the population has plummeted since, mainly due to warming weather, grazing and browsing by sheep, wild deer, brushtail possums, rabbits and insects and the tree's intolerance to drought and frequent fires. The cessation of the possum fur trade has increased browsing pressure beyond what many of the older trees support and increased nesting sites has meant the complete stripping of epicormic growths when re-growth does occur. Humans have had an impact on numbers too, in the past 20 years mature trees were felled when the level of the Great Lake was raised and roadside trees were felled.

Two of the largest populations representing the most extreme forms of the Miena cider gum have fared worst, with trees stressed to such a state that they are no longer setting seeds and with most mature trees now dead; those that re-sprout are quickly eaten by possums. The stands closest to Miena (the type locality) exhibit the greatest degree of extreme morphology within the subspecies; sadly, this forest has also seen the greatest decline with an estimated 60% of mature trees having died in the last ten years. Mature trees have now seen a severe loss in reproductive capacity and seedlings are rare due to increasing severe drought and over-grazing. Left unchecked the forests of Miena cider gums will disappear to be replaced by grassland. It is thought that in our lifetime the Miena cider gum will face definite extinction.

While we travelled with colleagues from the Royal Tasmanian Botanical Gardens we discussed the possibilities of developing *ex situ* populations of the Miena cider gum in British and Irish gardens and it's believed this may be the only means at present of preventing the tree's total extinction.

To reach these endangered gums our journey took us from Hobart to the Central Highlands meeting our first populations on St Patrick's Plains and by the Shannon Lagoon (the latter fed by the Shannon River). Driving past the Liffey Falls led to some suspicion between myself and Robert Wilson-Wright that we were not the first Irishmen to cross these plains. On later travels we drove out the road to Longford, passed Lake Rowallan and resisted the temptation to drive out to the Plains of Dublin.

These places, it seems, were christened by the Irish Land Commissioner Roderic O'Connor (1784–1860), who had previously managed his father's estate at Dangan Castle in Co Meath (the childhood home of the Duke of Wellington). The O'Connors claimed lineal descent from Ruaidrí Ua Conchobair (Roderick O'Connor), the last High King of Ireland, after whom the commissioner was named. Roderick O'Connor emigrated to Van Diemen's Land in 1824, building up an estate of over 70,000 acres. He built a mansion near Cressy, naming it Connorville after another family seat in Co Cork.

At Lake St Clair National Park, we made several important collections, most notably *Banksia marginata* (BIBET 062), of which we gathered a sack of cone-like follicles. Hardy in coastal gardens in Britain and Ireland, it was covered in golden-yellow candle-like blossoms during our visit and grew beneath a canopy of cathedral-like trees of *Eucalyptus amygdalina* and *Acacia dealbata*.

Another common inhabitant of these lower-lying Tasmanian woodlands is the mountain pinkberry, *Leptecophylla juniperina* subsp. *parvifolia,* a prickly heath-like, low growing shrub that bears masses of fleshy berries in autumn. We brought home seed and herbarium collections from a number of colour forms ranging from pearly white, through to flesh pink, red and even darkest crimson. The difficulty associated with the germination of this genus may explain why it is so rare encountered in our gardens.

Some of our best collections came from the rather evocatively named Walls of Jerusalem National Park. This included the strawberry pine, *Microcachrys tetragona* (BIBET 083), which bore prostrate, ground-hugging sprays of deep green foliage decked with fleshy strawberry-like fruits. This sole surviving species belongs to a relict genus that once had broad Gondwanic distribution. Our plant grew on an open slope, above pencil pine forest, where its bed fellows included *Richea acerosa* and *Hakea microcarpa.*

Most of the geographical landmarks within this National Park are named after biblical places and people. The great cliff faces named Herod's Gate formed a majestic portal leading to extensive forests of silver-barked trees of *Eucalyptus coccifera*, and beyond there lay the many shallow alpine lakes that formed a picturesque backdrop for campsites.

Highlights of the British-Irish Botanical Expedition to Tasmania are hard to enumerate, though those that come instantly to mind are the mammoth King Billy pines, *Athrotaxis selaginoides,* named not for King William of Orange, but William Lanne (*ca.* 1835–1869) the last 'full-blooded' Tasmanian Aboriginal man, who in death, met a rather grizzly and irreverent end.

King Billy, the last of his people, came to mind when we reached Cradle Mountain National Park, where on the shores of Dove Lake we encountered mammoth King Billy pines, some estimated to be over a thousand years old. There it grew in wet-temperate forest full of tree ferns, celery-topped pines and golden blossomed banksias.

We also had the great fortune of finding *Blandfordia punicea*, perhaps

photograph © Seamus O'Brien

Eucalyptus coccifera, one of the hardiest of the Tasmanian gums, has beautifully coloured bark.

Tasmania's most spectacular flowering perennial, in full bloom. Named for George Spencer-Churchill (1766–1840), Marquis of Blandford, this lovely endemic produces showy racemes of pendulous red and orange-yellow bell-shaped blossoms. Flowering in December it has earned the colloquial name Christmas bells. Another dramatic and distinctive Tasmanian angiosperm is the triffid-like *Richea pandanifolia*, named by Joseph Hooker in 1844 in his *Flora Antarctica* (*The Botany of the Antarctic Voyage*). It can sometimes reach up to 10 m tall, and its broad, strap-like leaves, often over a metre in length, make this plant look as though it might be better suited to the tropics.

We made the coastal village (and former penal settlement) of Strahan our base while exploring this region and from there travelled to the Montezuma Falls, Tasmania's highest waterfall at 104 m high. To reach it we trekked through a damp, humid temperate rainforest formed by 30 m tall trees of *Atherosperma moschatum*, *Acacia melanoxylon*, *Nothofagus cunninghamii* and enormous trees of the Tasmanian leatherwood, *Eucryphia lucida*. On a previous visit to the falls in 2011, I noted several pink flowered variants of the latter. *Billardiera longiflora*, decked in yellow pendulous blooms, scrambled its way through the surrounding vegetation, including flowering bushes of *Prostanthera lasianthos* with wonderful mint-scented foliage.

On the damp forest floor were carpets of *Oxalis magellanica*, the very charming and Lilliputian *Libertia pulchella* and filmy ferns like *Hymenophyllum* and *Trichomanes* abounded. Tree ferns, *Dicksonia antarctica* grew in tens of thousands, reminiscent of a scene from the gardens of Cornwall and Kerry, and in their crowns and on their trunks grew the kangaroo fern, *Microsorum pustulatum* and *Rumohra adiantiformis*. The latter grows on tree ferns in the private Garinish Island, in Kenmare Bay, Co. Kerry, having arrived presumably as sporelings on the original Tasmanian imported dicksonias planted there by Lord Dunraven in the late nineteenth century.

Perhaps our most important collection from this area was *Cyathea australis* (BIBET 152), a single mature 5 m tall plant, growing close to the waterfall, among tens of thousands of dicksonias. We believe that this particular collec-

photograph © Seamus O'Brien

Nothofagus cunninghamii, a veteran specimen seen here towering above Stephen Herrington on the banks of the Pieman River near Corinna.

tion should prove hardier than previous introductions, perhaps almost as hardy as *Dicksonia antarctica*. Its progeny will certainly be worth trialling in the milder coastal gardens of the UK and Ireland.

We followed Harold Comber's route along the Pieman River and near the pretty hamlet of Corinna, we trekked upriver to find the few remaining trees of the Huon pine, *Lagarostrobus franklinii*. This was once a major logging area, and sadly, none of the original giants survive and it is now a great rarity in the area. By the Twilight Tarn at Mount Field National Park, we were to find the old ski hut, photographed by Harold Comber in 1930, while he explored the area. It looks exactly the same and having stopped to pay our respects to this lesser-known plant hunter, we pushed on to the alpine tarns where the mountain slopes were covered with Tasmania's only deciduous tree, *Nothofagus gunnii*. Discovered in 1847 by Ronald Campbell Gunn (1808–1881), it forms thick wide spreading shrubs to about 2 m tall and while endemic to Tasmania, macrofossil evidence shows it once ranged as far as Antarctica. Commonly known as tanglefoot, it has resisted all efforts in cultivation and so, the best way to see it is to travel to the alpine tarns of Tasmania, where residents of Hobart drive for hours to see its spectacular autumn foliage effects.

On the edge of Hartz Mountain National Park we saw Tasmania's two endemic *Eucryphia* species in full bloom: *E. lucida* and *E. milliganii*, and, not just that, we were to find their progeny, *E.* × *hybrida*, with flowers and foliage intermediate between the parents. This rare hybrid, unknown to our Tasmanian hosts, was discovered by Harold Comber and though virtually unknown in European gardens, there is a good young tree at Castlewellan in Co Down.

Our Van Diemen's Land travels yielded 254 seeds and herbarium specimens, now distributed across Britain and Ireland, and, alongside seeds received from the Royal Tasmanian Botanical Gardens' seed bank, will do much to replenish Kilmacurragh's southern hemisphere collections and those at Coolcarrigan, Mount Stewart, the National Botanic Garden of Wales, Nymans, the RBG, Kew and the RBG, Edinburgh.

References

Clements, N. (2017). *The Black War*. University of Queensland Press, Queensland, Australia.

Howells, C. (ed.) (2012). *Tasmania's Natural Flora*. Australian Plant Society Tasmania Inc., Hobart Group.

Potts, B. M., Potts, W. C. & Kantvilas, G. (2001). The Miena Cider Gum, *Eucalyptus gunnii* subsp. *divaricata* (Myrtaceae): A Taxon in Rapid Decline. *Papers and Proceedings* – Royal Society of Tasmania. Hobart, Tasmania,135: 57-61.

Potts, B., Kantvilas, G. & Jarman, J. (eds) (2006). *Janet Somerville's Botanical History of Tasmania 1642–1820*. University of Tasmania and Tasmanian Museum and Art Gallery, Hobart, Tasmania.

Simmons, M. & H. & Wapstra, A. (eds) (2008). *A Guide to Flowers and Plants of Tasmania*. Reed New Holland, Chatswood, New South Wales, Australia.

Wapstra, M. et al. (2010). *Tasmanian Plant Names Unravelled*. Fullers Bookshop Pty Ltd, Launceston, Tasmania.

Wakefield, N. A. (1975). *Ferns of Victoria and Tasmania*. Field Naturalist Club of Victoria. Victoria, Australia.