

FOLLOWING IN HAROLD COMBER'S FOOTSTEPS

A BEGINNER'S GUIDE TO PLANT COLLECTING

CHARLIE BANCROFT, GARDENER, NYMANS NATIONAL TRUST

A report written following attendance in the British & Irish Botanical Expedition to Tasmania (BIBET 2018) sponsors Merlin Trust.

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INTRODUCTION

I have been working as part of the garden team at Nymans National Trust Garden since September 2016, focusing on the rock garden as part of a restoration project. This has been my first experience of looking after a historic garden and in response I have attempted to absorb the history of the estate, as well as the history of the rock garden here at Nymans. In support of this exploration I have gently tipped a horticultural toe into the general history of rock gardens, including the building and maintenance involved in these controlled environments. With this research I have merely scratched the surface of Nymans' history and the creators of the garden, the Messel family, but I have learnt that they were regular patrons of plant hunting expeditions and the recipients of plant introductions. This has resulted in a fascinating collection of plants, grown for their aesthetic appearance and rarity within UK gardens. Similarly the rise of rock gardens within horticultural history was driven with increased foreign travel such as the Grand Tour of Europe and a golden era of plant collecting, introducing botanical novelties to be trialled in UK gardens. As a result, gardens were manipulated to recreate the environments from which these horticultural gems were plucked, to best nurture and display these alien species.



Watercolour of the rock garden at Nymans by Alfred Parsons 1914

Ludwig Messel purchased Nymans in 1890 and with the appointment of head gardener James Comber they created the garden together. The rock garden was an early development, with the renowned construction company James Pulham & Sons, working with natural sandstone to create a unique environment to experiment with plants. Both Ludwig Messel and his son, Leonard, who took ownership of Nymans following his father's death,

were supporters of plant hunting expeditions, which has resulted in a unique garden of beautiful and unusual plants.

The head gardener James Comber's son Harold Comber, was brought up on the Nymans estate and following in his father's footsteps, pursued a career in horticulture. After working in numerous gardens, including Nymans and training in Edinburgh, Harold was lucky enough to embark on his first expedition, visiting Chile in 1925. His second and final expedition to Tasmania took place from 1929 – 1930. With his father James Comber still in post and the Messel family one of the supporters of his trips, Nymans became home for many plant introductions from his travels, and boasts the second largest collection of Chilean plants in the country. A Tasmanian walk was created in the Wild Garden and with numerous alpines listed in his Tasmanian collection book, the rock garden seemed the obvious place to trial these new introductions.



Harold Comber
Nymans NT Archives

Harold writes about the decision to explore Tasmania's flora in a Journal for the Royal Horticultural Society.

Hence it is not really to be wondered at that most people have the idea that Tasmanian plants, as a whole, are tender, this idea having sprung from the knowledge that lowland plants are tender. Tasmania has a mild climate in its lower portions, but it is extremely cold on the mountains.

We know a little more about Tasmanian plants in British gardens through the efforts of Mr. OVERALL, a clever nurseryman from the North of Tasmania. Within the last few years he has made excursions to various mountains in the north-west corner of the Island, and he went to Mount Zeehan and has sent home some very interesting plants. But he has had to carry them all on his back, as everybody has to who collects anywhere off the beaten track in Tasmania. Naturally we have very few of them, and it was partly because these plants had proved so hardy and so good for British gardens that the Tasmanian expedition was launched. A further hope was to get hardier varieties of Australian mainland plants, plants which we had already proved to be too tender for outside.

Comber, H. Plant Collecting in Tasmania. Journal of the Royal Horticultural Society, 1932, Vol LVII, Part 2.

With only two plant hunting expeditions under his horticultural belt Harold isn't an obvious name that rolls off the tongue with the likes of Ernest "Chinese" Wilson, Francis Kingdonward and George Forrest, but he did introduce plants into cultivation within the UK, and has the true badge of honour with plants bearing his name, such as *Archeria comberi*, *Olearia*

phlogopappa 'Combers Pink', *Escallonia x stricta* 'Harold Comber' and *Desfontainia spinosa* 'Harold Comber'.

Stephen Herrington, the head gardener at Nymans, has undertaken the task to learn more about the Harold Comber. The wish to pay respect to this lost plant hunter was stimulated by the aspiration to reintroduce some of the plants that have been lost within the garden, mainly the Tasmanian walk within the wild garden and in the restoration of the rock garden.

I still can't believe how fortunate I have been to join a plant collecting expedition, following in the footsteps of Harold, observing and collecting seed from plants that could one day be planted in the rock garden. In the current standing of horticulture, plant-hunting expeditions are not readily at the disposal of horticulturists and even more scarce outside the realm botanic gardens. Having been on excursions to see plants in the wild, I could already appreciate the benefits that this has to the cultivation of plants, by being able to experience the environments in which they grow – aspect, soil, rainfall, altitude, as well as plant communities. To get this chance again and to observe the habitats of alpines that I hope to grow in the rock garden at Nymans was an unmissable one. Furthermore to learn about the planning and executing of a plant collecting expedition such as this, with regards to collecting, recording and everything in between, has been a highlight within my short horticultural career. Through the means of this report I have chosen to include what I learnt whilst I was away with the BIBET 2018 team – A beginner's guide to plant collecting. I have made reference to photographs and reports that Harold Comber wrote following his expedition.

- INTRODUCING TASMANIA -

Gondwana was a supercontinent formed about 250 million years ago, from the division of a larger supercontinent, Pangea. Gondwana consisted of several landmasses that we know today as Antarctica, Africa, South America, India, Madagascar, Australia and New Zealand. Flowering plants emerged in this supercontinent approximately 100 million years ago, with fossil evidence suggesting that the vegetation was predominately temperate rainforest. Proteaceae is one plant family originating from this period, with genera and common relatives existing in Australia, New Zealand, South Africa and South America. This landmass began separating 165 million years ago, with divergence in plants on these islands leading to a large amount of endemism. Possibly this link and similarity in characteristics of species between Chile and Tasmania led Harold to embark on expeditions in these two continents.

Tasmania, a state of Australia, is a small mountainous island, approximately 64000km², similar to the size of Ireland. The mountain ranges are an existing reminder of Gondwana, risen up through volcanic activity and in the past providing a source of income through the act of mining. Although the highest point is only 1617 metres, what Tasmania might lack in altitude, it makes up for in consistency, with ten peaks at 1500 metres and over thirty peaks sitting above 1000 metres. Hence it is Australia's most mountainous state and home to a unique flora.

The state is positioned in the path of the westerly winds, commonly referred to as the 'Roaring Forties', which bring heavy rain. The west is generally more mountainous, wetter, cloudier and cooler, supporting moorlands, rainforest, wet sclerophyll forest and contains the highest rates of plant species endemism of the island. The east of the island is drier, with a lower average rainfall than that of the west, and warmer, supporting woodlands, dry forests and heathland communities.

Tasmania supports a predominant share of Australia's alpine and subalpine habitats, which are unusual in having a large proportion of woody plants. Through our trip we spent a large amount of time within the Central Highlands, observing the alpine habitats. This allowed me to learn about the alpine flora more and make collections for the rock garden at Nymans.

LESSON ONE

A plant hunting expedition begins way before the flights are even booked.

A thought becomes research, which becomes a plan. In this instance the thought had already been sown in Stephen's mind before I began working at Nymans. Developing the Wild Garden, and the vision of restoring a Tasmanian walk within it, was the impetus for the expedition. This was then followed by research delving into the Tasmanian expedition that Harold Comber undertook and the forgotten horticultural life of the man himself. In 2017 Stephen made a trip to Vancouver to meet Harold's daughter and was given some of his horticultural belongings, which have been gifted to Royal Botanic Gardens, Kew (RGB Kew) and the archives here at Nymans. Among Harold's possessions were his Tasmanian collection books, one complete with handwritten notes, and also lanternslides from his trip to Chile and Tasmania.

Stephen applied to the Tasmanian Government for a permit to collect seed and recruited members from other gardens to join him on the expedition. Introducing the BIBET (British & Irish Expedition to Tasmania) Team, we have; Neil Porteous, head gardener at Mount Stewart, Piers Lunt, horticulturist at National Botanic Garden of Wales, Seamus O'Brien, head gardener at the National Botanic Gardens Kilmacurragh, and Robert Wilson-Wright. Stephen also recruited the help from the horticultural team at the Royal Tasmanian Botanical Gardens.



Left to right; R. Wilson-Wright, P. Lunt, S. O'Brien, C. Bancroft, S. Herrington, & N. Porteous,

Advice from the botanic garden was generously given on sites to visit and a route that would both allow us to follow in the footsteps of Harold, but also give us the best chance of collecting seed. Summer isn't the obvious time to collect seed, but it did allow us the best of both worlds in capturing the plants in flower, as well as collecting seed. We had also been advised by horticulturists at the Royal Tasmanian Botanical Gardens (RTBG) that it had not been a good year for seeding of some plants and with a number of species possessing the tendency to hold on to their seeds we would be able to collect those still remaining on the plant from the previous year. Harold Comber was in Tasmania for one year, whereas we had three and a half weeks. However it should be noted that Harold wouldn't have had the luxury of four-wheel drive cars, normally travelling on foot or horseback. Neither did he have the luxury of accessibility that we are fortunate to possess in this century, through infrastructure for mining, population growth and forestry. Harold describes the extreme wildness of Tasmania that he experienced in the following.

The Island of Tasmania has an area of 26,215 square miles and was colonised as long ago as the year 1803. Although it now supports a population of over 200 000 – about eight persons to the square mile – a large portion of the South West, often known as the 'Lost Province' is still closed to man.

That this should yet be the case is worthy of some explanation, and on a recent botanical expedition the writer was brought into intimate contact with many interesting facts pertaining thereto.

Paucity of reward seems to be a main reason for the lack of exploration of this region, for the equally difficult metal bearing districts more to the North were opened up years ago in many directions by hardy prospectors. In recent years too, the quest of valuable osmiridium has induced the exploration of otherwise untouched regions in the centre.

Such an incentive has never been offered in the South West. Another reason undoubtedly lies in the very low food value of the indigenous vegetation. This to an overwhelming extent precludes the continuous use of horses and mules for transport purposes, even in the more easily traversed country.

*Equally dense mountain forests in the Southern Andes are opened up because of the necessity of recovering the straying cattle which grow fat on the wild herbage. There one can camp in most places and find passable horse feed, and at sufficient intervals purchase sheep or goats for meat. 'Piñones' the wholesome and nutritious nuts of the 'Monkey Puzzle' (*Araucaria araucana*) – mainstay of the Mapuche Indians – are also available as well as a few wild fruits in season.*

Tasmania offers nothing worthy of mention in either vegetables or fruits. The edible wallabies and wombats are shy and crepuscular, if not nocturnal, and hard to come by. Ducks are scarce and wild, even in out of the way districts. Vicious meat flies infest everything to an extent undreamt of in Britain – even new woollen blankets have to be kept covered!.....(Continued)

Given cheap transport such scarcity of food would not matter, but wages are high in Tasmania, and we find that present day exploration is largely conducted by lone prospectors carrying a minimum of clothes and bedding, and maximum of flour and bacon – the most compact foods at their command - and travelling only in favourable seasons. Such men stay out for perhaps a fortnight and difficulties of travel restrict their range to very small areas. Small private parties on holiday occasionally spend similar periods out in the wilds, rarely getting as far, and less frequently accomplishing work of value. A mile a day may be good going!

Dense forest and mountains always present their several problems. When they allied, as Tasmania, the said problems are more than doubled.

Further tremendous limitations on the explorer's range are imposed by the nature of some of the vegetation.

Several plants, 'Horizontal', 'tanglefoot' and 'Cutting-grass' seem to have invoked the ingenuity of the devil himself in an attempt to hinder human progress in their domain.

'Horizontal' (*Anodepetalum biglandulosum*) in early life is a loose erect shrub, composed of several twenty- to thirty-foot vertical, weakly branched stems. These soon get too heavy to stand upright when wet, and they bend over to the ground and root wherever they touch. Similar vigorous erect shoots are produced all along them, and in time also are bent down and root. In the moist gullies and forests where such masses of 'Horizontal' have accumulated for centuries, one has the choice of crawling prone on the soaking moss-covered ground, and dragging the necessarily heavy packs of food etc. through spaces frequently too small for them, or of clambering monkey-fashion among the lithy, slippery upper boughs perhaps thirty or forty feet above, with the ever present likelihood of a weak or rotten branch letting one down.

To this must be added a peculiarity of some of the giant Eucalypts which tower above, of casting innumerable strips of tough bark, twenty or thirty feet long, into already difficult undergrowth.

Then imagine the describable confusion wrought by the crashing to earth of one of these monsters, perhaps more than eight feet in diameter and a hundred and fifty feet long. Never is such a fallen giant easily surmounted.

'Tanglefoot' (*Bauera rubioides*) is another accursed plant, which so ties up Tasmania. It is a loose straggling shrub of two to eight feet in height which grows very freely in most moist places from sea level to 3500ft. Its local name of 'Tanglefoot' the mildest applied to it is well deserved. Picture a steep mountainside covered with large and small boulders, one to six feet in diameter, mostly hidden in a heather-like growth of small rigid shrubs, and then for those shrubs to be interlaced at knee height with numerous strands of what might well be soft tough copper wire. Climbing becomes an extraordinarily hard struggle, while descent is positively dangerous. Walking is impossible; one takes a step, tumbles and rolls, with pack, presses, camera and all, trying meanwhile to avoid the worst projecting rocks. We meet this plant again at lower levels in a dense regrowth of Eucalypts following a forest fire – in itself a difficult problem in some places, since the stout one-inch stems are often so close that one can only squeeze through with much exertion and difficulty, and huge fallen logs are everywhere. Here it is often eight feet high, too slack to cut easily, too tough to break through, too dark and slender to see readily and avoid in the prevalent gloom. One tries to roll, pull, tread it underfoot. It thoroughly merits all the unprintable names bestowed upon it.

'Cutting-grass' (*Gahnia psittacorum*) is another pest of moist country. Its great green Pampas grass-like clumps ten feet or so tall and more through, spread their ten- to twenty-foot long two-edged, razor keen leaves in all manners of curves in the scrub around them. Get one over your ear as you push through the undergrowth, and it cuts most painfully as you move away; grasp it to save yourself falling, and your fingers are gut (cut) to the bone; get your feet caught in it and the wet leather is cut through.

It is very common in the Island, and recovers much too quickly after fire. In combination with the 'Tanglefoot' it provides one of the commonest and most heartily detested types of difficult 'Bush' to traverse.

Seaside "Tea-Tree" scrub, usually composed of *Melaleuca squarrosa*, *M. squamea*, *Leptospermum scoparium* and sundry *Epacrids*, looking from above much like short heather, may be a four- eight-foot mass of rigid upright stems tied together in every direction by an unholy mixture of *Bauera*, *Gahnia*, the long wiry stemmed fern *Geichenia microphylla*, and the equally tough stemmed parasitic *Cassytha pubescens*, knotted wherever it touches. One can't quite walk over the mass as it is scarcely strong enough, to push through is like going through a blackthorn hedge with branches wired together. The most that one can do is to seek the thinner places ahead, and they are always caused by and tenanted by the breaded octopus-like *Gahnia*.

Once up in the North West of the Island, I essayed to cross a hundred yards wide belt of such scrub just before sunset. The compacting influences of the western salt-laden gales had had such an effect on the various shrubs composing it, that only by exerting all my strength and power, was I able to get through before it became pitch dark an hour or so later.

It's if these natural disadvantages were not enough, the European Blackberry was introduced, and rapidly spread unconsciously it is true – by the early pioneers into the most out of the way districts of the North. In that congenial climate one sees masses of it twenty feet or more high, and fifty yards long.

Small wonder then, that for the great majority of Tasmanian people discretion is the better part of valour, and so much of their beautiful little island remains unexplored.
(Unexplored Tasmania, by H. F. Comber, Nymans NT Archives)

Money makes the world go round, and we needed to go all the way round to the other side of the world to get to Tasmania. The Messel family was part of a sponsoring syndicate in support of Harold's trip to Tasmania that would have been reimbursed with plant collections returning to the UK. Nowadays the horticultural world is lucky to have numerous organisations that support the learning of horticulturists. For this expedition we were fortunate to receive sponsorship from RHS (Royal Horticultural Society), Merlin Trust UK and the National Trust. We also received sponsorship from Cotswolds Outdoors in some of the equipment required for the trip.

In the very short run up to the expedition we carried out as much research as we could, booked accommodation, digitised Harold's notes to take with us. I also visited the Herbarium at RBG Kew, to view some of Harold's specimens. I was told that the average time for planning an expedition is approximately two years. This expedition was organised in four months.

ROYAL BOTANIC GARDENS KEW
K000729266



Type Specimen.
HERB. KEW.

X *Eucryphia hybrida* Bancroft
(*E. lucida* (Labill.) Mill. & *E. milliganii* Hook. f.)
Determinavit *J. March* 10.6.1937

FLORA OF Tasmania No. 2186.
Name: *Eucryphia lucida* Baill.
Native Name: ~~Waratah~~
Locality: Hazelwood River, near Waratah
at edge of river
Altitude: 600 ft.
Habit, Colour, Uses, etc.: small erect shrub 8 ft.
high; flowers pure white, pendulous
Collector: H. L. Bomber Date: 3.iii.1930

Herbarium specimen of *Eucryphia lucida* collected by Harold Comber.
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LESSON TWO

White probably isn't the best colour for a car when you're out in the field.

On route to Tasmania Stephen and I met up with the rest of the BIBET team and on arrival in Hobart we collected the WHITE vehicles and travelled to the centre of the city. Here we did our last sliver of preparation for the journey, mainly food shopping and purchasing equipment that could not be transported on the plane, such as a biosecurity kit to clean the vehicles and footwear minimising the risk of transmitting diseases between National Parks and sites, as well as tents and water containers – which we ended up leaving in the shop. Time allowed for a quick visit to the Royal Tasmanian Botanical Gardens (RTBG), where I made a beeline for the native sections, frantically taking photographs of the plants, hoping to build a reference library to help with identification in the field. Other members of the BIBET team stocked up on identification books – namely a EucaFlip, for identifying *Eucalyptus* species.

The next day we drove to Miena where we were to take the lead from Natalie Tapson, Horticultural Botanist and James Wood, Seedbank coordinator at RTBG. On the drive up to Miena, whilst driving passed a forest, we stopped on the side of a road to see if there was anything interesting and possibly worthy of collecting. I followed the group, not knowing what I was looking at and feeling pretty useless in my exploring attempts. All I could conclude was that we were in a sclerophyll forest, but couldn't identify anything apart from some empty beer bottles and *Eucalyptus* trees to genus level only. Cue the EucaFlip with Seamus and Piers attempting to decipher the species that we were within. I have to admit that at this moment in time I felt lost and whilst continuing to follow the group, I didn't know what I should be expecting to encounter and hence collect. Nothing was familiar to me. We found a shrub with vibrant pink berries, resembling features of an Ericaceae plant, which was later identified as *Leptecophylla parvifolia*. Could we collect this? Can we collect something when we don't know what it is? Is it worth collecting? Shortly after we found another plant, a plant we could give a genus to, a *Hakea*, later verified as *Hakea lissosperma*, which would become our first BIBET collection. We decided to collect the pink berries of *L. parvifolia* as well and had BIBET 001 and BIBET 002 collections under our belt. I later learnt that when collecting in the field you might not always know the exact species that you are collecting and that native floras are so important, in the identification of species, after a day of collecting. I also learnt that within these collections we knew that James and Natalie would be able to verify what we had collected from the herbarium specimens and photographs, and

therefore would be able to have told us if the collections were worthy and indeed endangered species and therefore unable to be collected.

I also had my first experience of the physical act of collecting. It is important to firstly establish if there is ripe, viable seed and after deciding to make a collection to restrict the removal of seeds/fruits to up to ten percent of the available seed on that day. This is to ensure that the population of the collected plant is not hindered in anyway. During the trip I further learnt that the importance of knowledge about seed dispersal and germination is just as important as identification for the species targeted for collection. If the plant is dioecious or monoecious and therefore if the fruits have viable seed, the duration to maturity, when the peak flowering will be and also when the peak seeding time will be, as well as dispersal strategies of plants. To remove fruits when the seeds aren't ripe will result in an unsuccessful collection, is wasteful for the collecting trip and indeed the plant, and can hinder future collections. Furthermore this knowledge is required for aftercare, in the storage of the seed to maintain the viability. For example recalcitrant seeds will not survive drying.

Records of the collections were dutifully made throughout the trip and to ensure that on returning to the UK each collection can be identified, hence labelling BIBET 001 and 002. Stephen's optimism was clear from start that we would reach over 100 collections! To aid with verification, success with germination and future cultivation, notes for each collection were made under the following headings.

- Locality
- GPS coordinates
- Altitude
- Habitat (including aspect, slope, soil)
- Associated species
- A description of the plant

A herbarium voucher was taken for each seed collection to identify and verify the plant. Material is taken from the plant to be pressed and dried, which should include as much information about the plant as possible, including the root system, stem, foliage, flowers and/or fruits. A published name for a plant must be associated with a represented sample of the plant being described, commonly referred to as a 'type specimen'. The type specimen can then be referred back to when identifying similar plants and in the developments in genetics and taxonomy of plants. A recent component of taxonomy and not always included in plant expedition recordings, but included in our trip was DNA sampling, which came under the duty of Piers Lunt. A small piece of green material (leaf), approximately 5mm was taken from the plant. This green material is where the mitochondrial DNA resides and can be

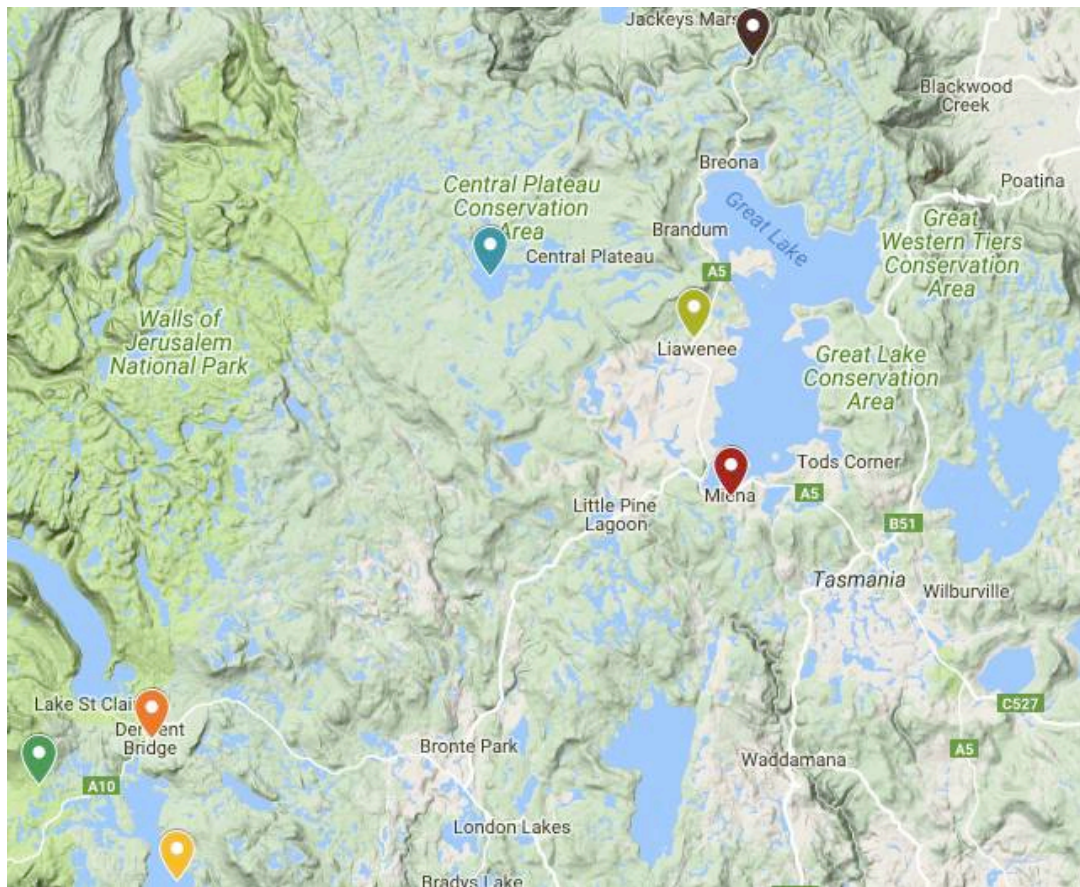
extracted for sequencing. This material must be torn to preserve the cells. Cutting the leaf in a straight line could perforate and damage the cells. The material is dried as quickly as possible to preserve the sample and prevent the live material rotting. To do this it is labelled with the BIBET collection number for identification and wrapped in an empty teabag to allow for porosity. All of the samples were stored in a container of silica granules to absorb moisture. These samples will be sent to RBG Kew, where the DNA will be extracted and sequenced, making it available for research. I have been told that DNA has been extracted from historic herbarium samples as well, which have obviously been preserved in such a way that the DNA is still obtainable hundreds of years later. DNA sequencing plays an important role in learning more about the evolution of plants and the relationships between them, as well in identification and to help with conservation. The ability to extract DNA from historic herbarium specimens is an amazing discovery, given that it could be possible to obtain DNA from plants that are now extinct.



Rob collecting seed and the herbarium press

LESSON THREE

Local guides are essential.



Map of the Central Plateau Conservation Area with areas visited.
www.googlemaps.co.uk, accessed 03.03.18

The map above shows the main sites that we visited whilst in the Central Plateau Conservation Area, but doesn't highlight the multiple stops on the roadside, when James had spotted an interesting plant (perhaps another lesson to be able to identify species whilst travelling at 60 mph, but not easily achievable), or knew of a population just off the road to show us en route to a site.

Spending the next three days with James and Natalie armed us with a crash course in the flora of Tasmania, which proved essential for the rest of the trip and lessened my worries from my first collecting experience the day before. Furthermore, with experience of working in horticulture in Britain, James had knowledge of which plants would grow well in our climate, particularly of those plants not currently grown in gardens, within the UK.

The Central Plateau is the largest area of high ground in Tasmania, with an elevation of approximately 900 metres to over 1400 metres in the peaks. Within the Central Plateau the bedrock is mainly Jurassic dolerite and basalt – igneous, volcanic rock, with a large number of lakes produced by glaciation. This area is also the coldest part of Tasmania, with a great variation in temperature ranging from 30°C during the day to 0°C at night. Similarly although freezing temperatures are common and can be prolonged in winter, the soil does not freeze and snow rarely settles due to the maritime climate of the island.

Throughout the entire trip our days were either on the road stopping at various different sites, observing different plant communities on foot, normally in one site climbing up through a gradually changing habitat, or visiting a location that Harold Comber had visited. One of the many highlights of spending time with James and Natalie (rum and raisin chocolate being another highlight) was that we would drive to various sites that they had previous experience of collecting in, or knew where certain plants were. This therefore allowed for more time to study the vegetation and make collections. Whilst the most enjoyable days on the trip were the hikes for allowing us to be completely immersed in the vegetation and scenery, this didn't allow for as many collections as driving did. By covering a greater distance a larger range of differing vegetation types can be observed in a shorter time and therefore an increased chance for seeing a vaster number of species and making collections.

Walking provided the advantage of reaching places that are inaccessible by car and learning and experiencing the vegetation and the surroundings is the best way to gain knowledge about the plants, to help with their cultivation and to a certain extent in the design and placing of plants in a garden. For example we routinely collected from higher altitude as this allowed for a range of plants that would be best grown in the UK. At lower elevation the same species of plants may not thrive as well with the cooler temperatures that we get in the UK as they are more tender plants.

A walk that we completed with James and Natalie was Projection Bluff, approximately 1147 metres above sea level. Therefore whilst climbing up we were able to see the subtle change in vegetation, from forest dominated by *Eucalyptus* species changing to *Nothofagus cunninghamii* and heathland dominated by *Richea scoparia* as we reached the top.

Walking through habitats allows for teaching about plant communities, which when reading about individual species cannot easily be imagined. Through my studies of plants the onus has always been on single species, learning the key identification features, and cultivation requirements for that single plant. This learning will extend to the country of origin and briefly the habitat, but seldom delves into the plant community that it resides in, which I now feel is an integral part of learning about plants. Plants within a garden are not grown as single,

isolated specimens, but are part of a cultivated habitat, a garden. Whilst growing plants geographically is normally confined to botanic gardens and isn't normally a component of historic gardens, it does allow for an appreciation of how bringing plants together with similar habits and from similar habitats. Thus potentially allowing them to grow together harmoniously and less controlled by the gardener, who is always lending a helping hand to the plant being dominated, or not happy in its growing position. With this I also gained an appreciation for the most amazing gardens created by nature, from vast landscapes dominated by one or two species, or to small clearings in the forest where light allows a hidden rock garden to emerge. Each one surpassing the accolade of a Chelsea best in show and always met with an audible reflex of appreciation. During my short time working in a heritage garden I have found it challenging to maintain a historic garden with an ecological intention of today, for example good soil health, reducing the use of chemicals and encouraging wildlife into the garden. I have found that some garden designers are now creating landscapes with minimal planting inspired by the landscape around it, moving away from formal bedding schemes, to a wilder garden. Perhaps it is the, not so, current shift of right plant right place, in contrast to introducing plants and manipulating the environment to suit them. Many examples could be referenced from the sublime planting combinations of plants happily coexisting, but one such example was a clearing that silenced the entire group (a rare moment!). A gravel clearing was an unexpected opening when climbing Projection Bluff and provided an example of a perfect rock garden. *Nothofagus cunninghamii* provided the backdrop with smaller shrubs, such as flowering *Bellendenia montana* and accents of purple *Stylidium graminifolium* nestled between rocks. The trip also gave me an appreciation for the repetition of planting within a natural environment and how a smaller number of species may make up a habitat, which is so pleasing to the eye to see plants flowering en masse. Although we were too late to see the scale of flowering, we could appreciate how amazing it must have been to see the mass flowering of *Richea scoparia* on the top of Projection Bluff, now a haze of burnt orange.



Projection Bluff – A natural rock garden

LESSON FOUR

It is important to be clear on what you are collecting and the purpose of the collections.

I made the decision early on in the trip that I would concentrate on learning about the process of seed collecting and alpine species. Other members of the group were not as focused on alpine communities, or smaller shrubs and herbs, as they don't possess a rock garden or equivalent to grow them in their respective gardens. For example Piers' focus was to collect tree species for an arboretum at The National Botanic Garden of Wales.

For my first collecting trip and first experience of southern hemisphere flora it would have been too overwhelming to take on board information about every collection and try to learn about every species we encountered. This was evident in the difficulty that comes with the identification of *Eucalyptus* species and I decided I wouldn't burden myself with this task. In order to make an accurate identification of a *Eucalyptus* species you need to take into consideration a stand of trees, not just one, with the fruit, bark and both juvenile and adult foliage. With these components together an educated guess can be made. This taken into consideration with the enormous heights to which these monsters reach, mean that you may not be able to access the juvenile foliage or fruits to aid with the identification. Furthermore during his expedition Harold Comber mainly focused on shrubs and herbs, only collecting three *Eucalyptus* species, one being *E. vernicosa*, which is a subalpine-alpine shrub.

The following is a brief account of each place we visited whilst in the Central Conservation Plateau: -

- Lake Augusta -

One of the many benefits that came with working with James and Natalie was that we were able to visit different and in this case unique habitats that we would have otherwise not have known about. On our first day James and Natalie took us to Lake Augusta to see an alpine parabolic sand dune, a rare habitat and creation of the westerly winds. On the way we stopped at a site to see *Leptospermum rupestre* – a plant of variable habit and this particular plant displaying the most incredible prostrate habit, draped full of flower over a rock, as if someone had tipped the plant off about our mission. This was a special find, as it was a plant collected by Harold Comber during his time in Tasmania, it is an endemic species of Tasmania, but also a plant originally planted on the rockwall at Nymans. The restoration of this rockwall is part of a project currently under the responsibility of our The Historic and Botanic Garden Trainee (HBTP) Clare Silver and this habit would be perfect for growing on a wall. So collecting isn't that difficult at all, not when you are with people that have expert

knowledge of the area! What was I concerned about on my first day? Local experts, who know the flora and where to see it, are a necessity in a collecting trip. At this site we were also introduced to *Hakea microphylla*, *Ozothmanus hookeri* and *Ozothamnus ericifolius*, *Scleranthus biflorus*, *Orites revolutus*, *Blechnum pennamarina*, *Polystichum proliferum*, *Rubus gunnianus*, *Monotoca empetrifolia*, *Pentechondra pumila*, *Empodisma minus*, *Bellenden montana* and *Melicytus dentatus*.



Prostrate form of Leptospermum rupestre

The first day I saw the most incredible landscapes, alpine heathland on a vast scale, sand dunes covered in low growing shrubs, cushion plants and beautiful old, contorted pencil pines, *Athrotaxis cupressoides* on the shore of the lake. The area around Lake Augusta is home to a range of different vegetation types, fen on the shore of the lakes and marsupial lawn among the dunes and heath vegetation occurring further out from the shore in the well-drained dunes. Unfortunately my brain could not connect fast enough to compute the Latin I was hearing to put names to all of these new species, and they looked like nothing I had seen before, new genera and even families to contend with. Luckily, Natalie was kind enough to write the names down for me, so at least I had the correct spelling! We were even fortunate enough to see a beautiful wolf spider, the only one that we saw during our trip. The heath vegetation was made up of *Orites revolutus*, *Richea acerosa* and *Ozothamnus hookeri*. On the shores of the Lake we were able to observe *Hierochloe redolens*, *Pentachondra pumila*, *Cryptandra alpina*, *Astelia alpina* and *Exocarpos humifusus*.



The team in the field



Bellendena montana

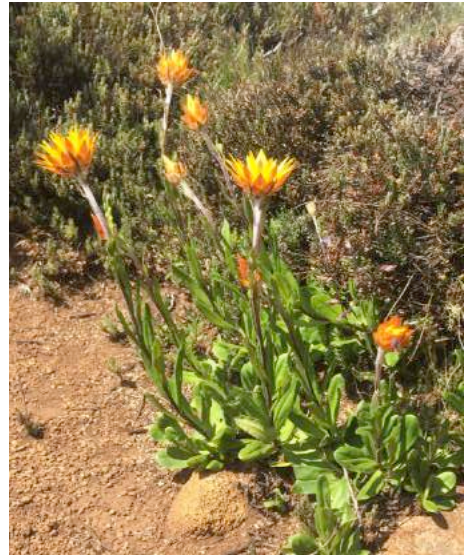


Wolf spider, Tasmanicosa godeffroyi

B. montana is endemic to Tasmania and confined to alpine regions. Commonly known as mountain rocket, it is a slow growing shrub, which when in flower is very striking. However, on research I have found that germination and vegetative propagation has been difficult and may have prevented this plant from being brought into cultivation.



Bellendena montana flowers



Xerochrysum subundulatum



Scleranthus biflorus



Celmisia asteliifolia



Rubus gunnianus



Ozothamnus ericifolius



Pentachondra pumila



Ozothamnus hookeri



Melicytus sp.

- Liawenee Quarry –



Hexagonal basalt columns

This site allowed us the chance to see the hexagonal basalt columns in the Liawenee Quarry and the plants residing there. We were able to see a small *Drymophila cyanocarpa*, which is very similar to *Polygonatum* sp. in habit and commonly referred to as native Solomon's seal, seeking shade under the overhang of a rock. Creeping *Muehlenbeckia axillaris* is a dioecious plant and therefore both male and female plants are required for fruit, but we were lucky in being able to collect fruit from these plants, as well as *Olearia tasmanica* and *Coprosma nitida*.



Landscape at Liawenee Quarry

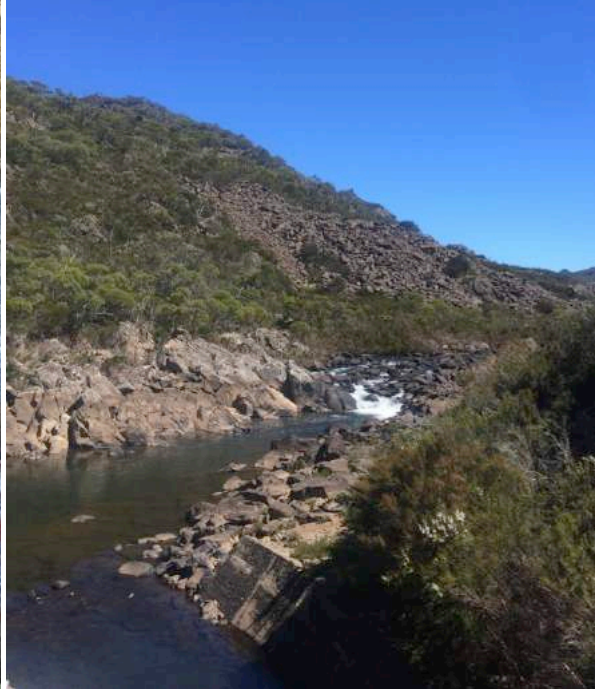


Muehlenbeckia axillaris

During this day we also observed dolerite scree slopes, visible in between *E. coccifera* forest. Perched on the rocks, *Euchiton umbricola* was flowering, as well as *Ozothamnus ericifolius* below the slopes.



Euchiton umbricola



Scree



Euchiton umbricola negative of Harold Comber's lanternslide
Nymans NT Archive

- Miena -

Whilst in the Central Plateau Conservation area our home was Miena, a small town on the edge of the Great Lakes. Each day we visited a different location, but we were lucky to have some interesting flora right on our doorstep. *Hovea montana*, a threatened species, but also a Harold Comber collection, was growing just metres from our accommodation. Although we couldn't make a collection it was exciting nonetheless to see the plant, as well as *Rhodanthe anthemoides*, growing with *Xerochrysum subundulatum* and *Bossiaea riparia*. We were also able to see *Stylidium graminifolium*, which through the trip would become a commonly seen plant. James and Natalie demonstrated the pollination mechanism, which has given this genus its common name, trigger plant. When an insect lands on the flower a floral column is triggered and snaps covering the insect in pollen.



Rhodanthe anthemoides



Stylidium graminifolium



Bossiaea riparia



Hovea montana

We were also shown the Miena Cider gum, *Eucalyptus gunnii* subsp. *divaricata*, and learnt how it has become a victim of climate change and is now critically endangered. On hearing about this plant I learnt about the value for ex-situ conservation. This species is one of the most palatable *Eucalyptus* species and therefore heavily browsed. Tasmania has a large population of herbivores, with no natural predators. This was noticeable in the large amount of animals killed by vehicles on the road, which was a common occurrence throughout the Island. Historically the Tasmanian tiger, *Thylacinus cynocephalus*, would have preyed on herbivores, but was hunted to extinction by European settlers for the protection of sheep introduced to the Island. Through global warming the breeding and survival of herbivores is rising, with no natural predator and increased activity permitted through warmer winters. Additionally *E. gunnii* subsp. *divaricata*, one of the hardiest of the species able to cope with frost, but unfortunately not so well equipped to survive drought is suffering and dying. Whilst the mature species of *E. gunnii* subsp. *divaricata* are being affected by increased temperatures and drought, the younger species are susceptible to increased browsing. Fencing populations can limit the damage of browsing, but a site that is similar to the climate in which these species thrive is required. As stated previously this is the coldest region of Tasmania, therefore the only alternative is to grow a population ex situ. James and the group discussed that the UK or Ireland would be possible sites for the conservation of this species, as our current climate is more similar to the climate previously experienced by the species. Although it is always advantageous to conserve species in the site where they grow, it isn't always possible and therefore ex-situ conservation can be the answer. The following pictures show the dead trees visible on the roadside, almost as if the evidence of fire damage. This sight was so unusual that intrigued tourists were stopping to have a look.

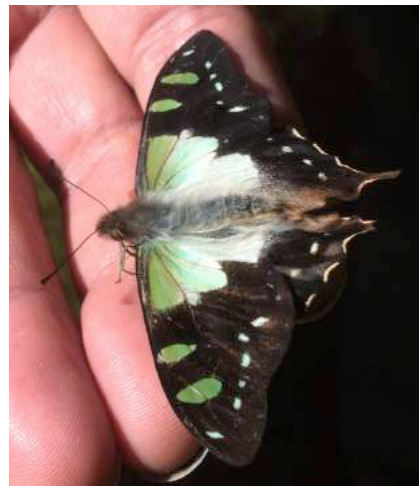


Eucalyptus gunnii subsp. *divaricata*

- Projection bluff -

As stated earlier this was a circular trek, climbing up the dolerite slopes to a plateau of heathland, to see a large variety of montane species. On the roadside before setting off we saw *Geranium brevicaule* growing in a rocky substrate, *Trochocarpa thymifolia*, which I was told takes a year for the fruit to develop, displaying purple fruits and fuchsia pink flowers at the same time. Later on in the trip we were lucky enough to see a flowering specimen. We were also introduced to *Telopea truncata*, and *Phyllocladus aspleniifolius* both species endemic to Tasmania. Commonly known as the Tasmanian waratah, *T. truncata* occurs in wet or dry sclerophyll forest from

midrange to high altitude. With flowering occurring from November to December we suspected that we would be too late to see the vibrant display. Furthermore the seed capsule opens to disperse the seed by wind, so the chances of seed remaining on the plant would be limited. James kept Stephen's seed collecting hopes alive by suggesting that plants in a sheltered location may still be clinging on to seed. *Phyllocladus aspleniifolius* is a Tasmanian endemic conifer, with characteristic foliage, resembling celery, hence the common name celerytop pine. Another newcomer was *Tasmannia lanceolata* (formerly known as *Drimys lanceolata*), commonly called mountain pepper or pepperberry due to the peppery taste of the berries and foliage. Towards the end of the trip whilst processing seed we learnt that the peppery taste of the leaf numbed the tongue slightly and everything thereafter had a strong sweet taste. This discovery came about with a dispute over whether sugar had been put in a cup of tea or not. *Atherosperma moschatum*, another new plant, is the food source for the caterpillar of the Macleay Swallowtail butterfly, *Graphium macleayanum*, which we were also fortunate to see.



Macleay Swallowtail butterfly,
Graphium macleayanum.

During the ascent we climbed through *Nothofagus cunninghamii* forest for the first time, trees becoming smaller and more contorted the higher we climbed. Within this shaded habitat one special plant for me was *Pterostylis* species. As a student at RBG Kew I looked after these orchids in a nursery placement and although I was hopeful to see orchids during the trip, didn't know that I would have the chance to see this plant. *Pterostylis dubia* as shown in the photographs has the alien like iridescent sheen, common to the genus. To be able to see them in the wild was so special, just dotted on the forest floor, along with *Chiloglottis* sp.



P. dubia and chiloglottis species

Reaching the top we were met by a plateau of wet heathland made up of *Richea acerosa* and *R. scoparia*, which was just finishing flowering – leaving a sea of burnt orange speckled with the white of the late bloomers.

Baeckea gunniana was abundant during this walk and would regularly pop up during our trip. I developed a soft spot for this delicate shrub, always a sucker for a plant in flower. It is a low growing shrub, sometimes with long branches, giving an irregular shape, occurring in wet alpine and coniferous heath. The branches would be so covered in flowers that you could rarely see any of the other foliage. Although we weren't able to collect seed during this trip, I think it is definitely a shrub that would work well aesthetically in the development of the rock garden at Nymans

Another plant showing off was the beautiful *Olearia pinifolia*, with, as the name suggests sharp leaves and the cleanest white flowers. During the trip James gave us information about the everlasting flowers, *Xerochrysum* species, formerly named *Helichrysum*. Harold Comber made a collection of *X. subundulatum* and wrote in his collection book, '*A good alpine plant from high pastures. Stems creep underground and produce a rosette of leaves and one large flower on the unbranched stem. Flowers brilliant golden yellow, 1 - 1 1/2 ins. Diameter. "everlasting"*'.

Comber, H. Plant Collecting in Tasmania. Journal of the Royal Horticultural Society, 1932, Vol LVII, Part 2.

James explained that a new species, *X. alpina*,



Olearia pinifolia

has recently been described, which has been mistaken for *X. subundulatum*, as it is very similar. Could it be possible that Harold Comber collected this plant?

Whilst walking through the heath, James would point out plants of interest, new plants for us to see and was constantly checking for viable seed worth collecting. We had also shared Harold Comber's collection notes so that James and Natalie could highlight any plants on the list as we went. One such plant was *Ourisia integrifolia*, pictured in here bud.



Ourisia integrifolia



Oreobolus pumilio subsp. *pumilio* and *Oreobolus distichus*

The Tasmanian alpine regions have been shaped by the strong westerly winds, cold southerly winds and glaciation. Glaciation has inhibited soil development in alpine regions, which is either rocky or consisting of shallow peat. Due to the maritime climate snow that would normally insulate frost tender plants doesn't dwell for long and there appears to be a constant supply of water, either in tarns, or streams. I thought it was unusual to have so much water in an alpine habitat. Cushion plants appear to reside in these boggy areas and in some places where they have spread or reside in culmination can redirect watercourses. We discussed the potential difficulty in growing this type of vegetation and plants that grow in a rocky substrate, where there is a constant supply of running water, providing water and oxygen. To recreate this in cultivation would be difficult and would possibly require a similar method of flood benches that fill and drain with water, so that the plants aren't constantly sat in still water. Here we observed cushion sedges, *Oreobolus pumilio* subsp. *pumilio* and *Oreobolus distichus*, which reside in moist places in alpine regions.

Coming out of the heath to walk along a dried up river and we spotted *Telopea truncata* in flower, as well as *Wahlenbergia stricta*, and *W. saxicola* sheltering under a rock. Harold

Comber wrote his report for the RHS journal about *T. truncata* ‘ One of Tasmania’s best plants is *Telopea truncata*; its flowers are scarlet and very like those of *Embothrium coccineum*.’ Comber, H. Plant Collecting in Tasmania. Journal of the Royal Horticultural Society, 1932, Vol LVII, Part 2.



Wet heathland vegetation at Projection Bluff

The day’s walk concluded at Pine Lake, where we were able to see more *Athrotaxis cupressoides* on the shore of the lake and collect seed from *Abrotanella forsteroides*, another endemic plant and a dominant species within the cushion plants in bolster heath. It is also the home to an epiphytic plantain species, *Plantago gunnii* and *Plantago tasmanica* subsp. *tasmanica* and often has other dwellers such as *Drosera arcturi*.

The bright green, what can only be referred to as blobs, catch your eye in the heath landscape and create beautifully undulating shapes, giving the thought that they could be a creature on the move. Another endemic dominant cushion plant within the alpine regions that we were also able to see was *Pterygopappus lawrencei*, with its tightly knit, hairy hexagonal rosettes.



Wahlenbergia saxicola



Flowers of Telopea truncata



Euphrasia sp.



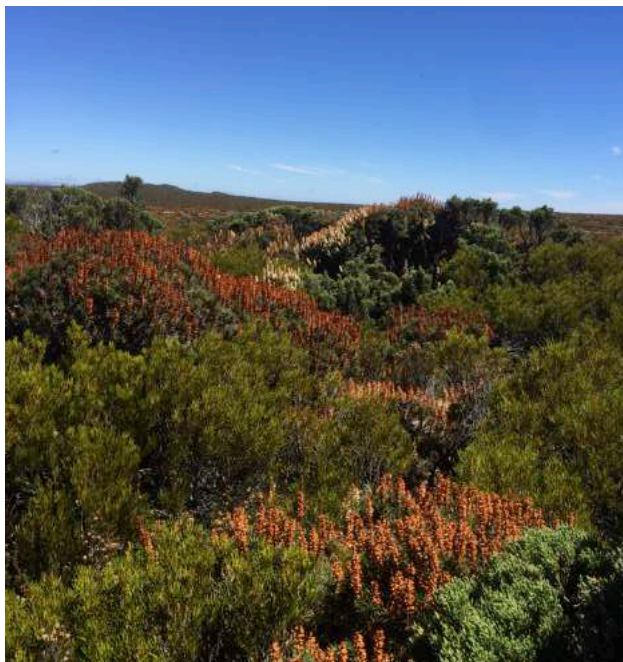
Abrotanella forsteroides



Pterygopappus lawrencei



James and Neil at Projection Bluff



The orange of R. scoparia



R. scoparia flowers



Olearia phlogopappa

- Lake St Clair -

Lake St Clair is the deepest freshwater lake in Australia, carved by glaciation. The lake sits at the southern end of the Cradle Mountain – Lake St Clair National Park and later on in the trip we had the chance to visit Cradle Mountain in the north. This gave us the chance to observe temperate rainforest, but we were already spying plants on the drive there. Making several stops en route we saw *Melaleuca virens*, formerly known as *Callistemon viridiflorus*, which we



Lomatia tinctoria

have in the rock garden at Nymans and a plant collected by Harold Comber. Although I suspect the specimen in the rock garden is a mere youngster and not the original collection. We also observed *Lomatia tinctoria* and *L. polymorpha*, but were unable to make collections throughout the trip, as there was a fungus on the seedpod, which James suggested would mean that the seeds would not be viable.

Entering the rainforest in the National Park we saw the biggest Eucalyptus trees, requiring the flexibility of a yogi to bend backwards in search of the top. To most the idea of a rainforest may conjure the image of tropical regions, full of a plethora of species in flora and fauna. The characterisation of temperate rainforest depends on the species within it, i.e. coniferous or broadleaved rainforest, the amount of annual rainfall and the covering of the canopy. Cool temperate rainforest covers ten percent of Tasmania and contains some of the older plants from the landmass Gondwana, such as *Dicksonia*, *Eucryphia*, *Phyllocladus* and *Nothofagus* species, sharing species with temperate rainforest in Chile and Argentina. Having visited the Redwood forests on the west coast of North America I was struck by how quiet these places are and experienced the same special quiet again in Tasmania, only for a few beautiful and distinctive bird calls, the forest was a dark, cool, damp place. These places and the ancient plants within them command a level of respect and silence whilst in them, making them very special places to be within. Through research I understand that cool temperate rainforest can be found in the Cradle Mountain – Lake St Clair National Park, but I can't confirm if the area in which we visited is such, due to the amount of *Eucalyptus* species present, it could have been a mixed forest, in which rainforest species reside below *Eucalyptus* species.

The forest was made up of *Eucalyptus delegatensis*, with smaller trees and shrubs as an understory, such as *Banksia marginata*, *Acacia dealbata*, *A. mucronata*, *Hakea lissosperma*, *Leptospermum lanigerum*, *Lomatia polymorpha* and *Leptecophylla pogonocalyx*. We have *H. lissosperma* in the rock garden Nymans, which is registered as a champion tree. Whilst writing this report it is currently flowering and the flowers have a delicate scent. I don't remember it flowering last year and I'm sure that it must have done before due to its size and maturity, but I am taking it as a sign of approval that I have visited its motherland. The groundcover was mostly ferns, such as *Blechnum nudum* and *B. wattsi*. Where there was an opening in the forest button grass, *Gymnoschoenus sphaerocephalus* had invaded the moist, open habitat. We soon realised that this environment was where the leeches would be waiting for an unsuspecting seed collector.

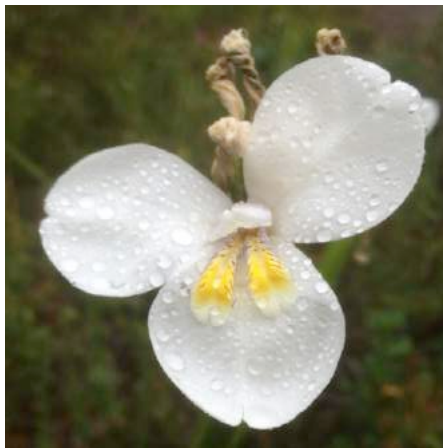


Hakea lissosperma flowering at Nymans



Collection of *Banksia marginata*

Following on from the National Park, James and Natalie took us to various sites within the area, where we were able to see different species. In one site James suggested that we look for sheltered plants of *Telopea truncata*, which possibly could still have seed remaining on them and I was lucky enough to find one. We also observed *Richea procera*, the beautiful white flower of *Diplarrena moraea*, *Eucryphia lucida* and *Leptospermum nitidum*. We were also presented with buttongrass moorland. This moorland is mostly found in the west of Tasmania and is dominant in acidic, peat soils, formed through the slow decomposition of organic matter. It is a manmade habitat, controlled and management through burning areas, created by the indigenous Tasmanians as an open pasture to assist with hunting. If left the area would slowly transition back to forest and then rainforest over three to four hundred years. As well as the previously discussed leeches this habitat supports a number of animals and insects, such as wallabies, crayfish, lizards, grasshoppers, many species only found in this habitat.



Diplarrena moraea



Gymnoschoenus sphaerocephalus



Buttongrass moorland (*Gymnoschoenus sphaerocephalus*)



Lake St Clair



Banksia marginata



Leptecophylla pogonocalyx



Prostanthera lasianthos

LESSON FIVE

Try to process Eucalyptus seed and leave the berries to some other poor soul.

During these first few days of the trip I quickly learnt the routine of plant expeditions, collecting during the day, dinner and then herbarium and seed processing in the evening.

- Seed Cleaning -

The importance of seed cleaning had been highlighted to me before the trip, but I soon realised how little I knew about the physical practice of cleaning seeds. Knowing techniques for cleaning seeds can mean the difference between hours or minutes of attention devoted to one collection. James being well practised in processing seed of Tasmanian flora generously imparted his knowledge on cleaning seeds. Rubbing a muslin bag together in running water to gently abrade the seeds and remove the bulk of the fleshy fruit of *Leptecophylla* seeds, rinsing under water in a sieve and also soaking in water to float off the fleshy fruit, was just one example. Simple suggestions such as using the cloth bags inside out to make sure that small seeds didn't get caught in the seams and making seed trays from newspaper in order to allow the seeds to dry out after cleaning. The seed trays were some sort of beautiful origami masterpiece to ensure no seams on the inside in which seeds could be lost. These trays could also be folded up to be re used multiple times.



Above *Leptecophylla pavifolia* seeds to be processed



Remaining flesh after cleaning *Billardiera longiflora*

As well as seed collecting and cleaning duties I was also armed with the additional task of documenting the expedition both audibly and visually for the National Trust and more instantaneously on social media, specifically Instagram. Trusted with a Dictaphone and video camera I was in the fortunate position of being able get in on the action and ask questions to find out what everyone was doing. Seamus and Rob dutifully pressed the herbarium specimens collected during the day and changed the paper from previous

collections to try and keep the material dry. On some days we did take the press out into the field with us, but whilst on long treks we collected the material in a bag and pressed it once back in the on comfort of our lodgings with a the level surface and out of the wind. Jewellery tags were attached to each specimen, always two collected, one for RBG Kew and one for the National Botanic Gardens of Ireland. For any conifer material a third specimen was taken for the International Conifer Conservation Programme at RBGE.



James on the other side of the Picton river collecting seed

LESSON SIX

Try to get away with carrying a small proportion of the collective food, or at least aim to carry food for the first night of camping.



Rob, Neil, Piers and Stephen in the Walls of Jerusalem National Park

This will ensure a lighter rucksack to carry for the duration of your trek. Following our introduction to the flora of Tasmania we left the comfortable leadership of James and Natalie and travelled west to the Walls of Jerusalem National Park. Along the way we repacked our bags for three days of walking and wild camping, leaving anything unnecessary or unrequired behind at Gowrie Park Wilderness Village. Out went the video camera and Dictaphone! All packed and a little apprehensive about the next few days we found ourselves in the Walls of Jerusalem National Park car park, trying to find the start of the trail.

- Walls of Jerusalem National Park -



The Walls of Jerusalem National Park is located in the Central Highlands, west of the Central Plateau Conservation Area. The mountainous features of the park are thought to resemble the walls of the city of Jerusalem and as such many other biblical names have been given to various sites within the park, including Herod's Gate, Solomon's Jewels and Damascus Gate.

From the car park a small, nondescript track leads to a registration shelter for walkers to sign in. From here the track climbs up to approximately 1200 metres over a 6.5km hike, through dry sclerophyll forest. Along the way we observed *Bedfordia* species, *B. linearis* and *B. salicina*, *Eucalyptus rodwayi* and the beautifully delicate flowering of *Lomatia tinctoria*. The *Eucalyptus* species were monsters, splayed buttresses supporting a perfectly straight trunk, the tops out of sight. The trees gradually diminished as we climbed, giving way to shrubs such as *Leptecophylla* species displaying berries of colours in every shade from white to deep pink.



Bedfordia salicina

We made the sensible decision to make collections on our return trip, selecting and naming our favourite shades of *Leptecophylla* sp., Comber's blush and Comber's white, hoping we would remember them in a couple of days' time.



Our walking route whilst in the Walls of Jerusalem National Park
www.googlemaps.co.uk, accessed 12.03.18

The gradient of the track subsided as we reached the top, rocks started to protrude from underneath the shrubs and on reaching Solomon's Jewels a vast plain of open alpine heathland, beautifully accented with mountain tarns and lined with a boardwalk to lead us into another world. The transition from the enclosed forest to the openness only highlighted the indescribably beautiful scenery and also the calm isolation that the Walls provided. It is so rare to find these notorious beauty spots without hordes of people, or to be in places that haven't been created and/or manipulated by people. This truly magical place with only three campsites, some with only a wooden sign to signal their existence, requires only the commitment of at least a two day trek and the self sufficiency of carrying your own provisions, but provides an empty, seemingly untouched place. Away from civilisation, I felt like a true historic plant hunter, but with a GPS, two-season tent, portable stove and enough snacks to last me for a month, I was still in the lap of luxury. Our goal for the first day was to reach the campsite, Wild Dog Creek, whilst hopefully making collections along the way. This wilderness was to become our favourite place of the trip, originally included in the itinerary because of the reassuringly hardiness of the plants at this altitude, proved by the frost the day before we arrived. However to be completely engulfed by such a wild place, an observer in a community of plants was such a humbling experience. The partnering photographs of the Walls of Jerusalem do not do this historic place justice.



Solomon's Jewels



The approach to Wild Dog Creek

The next day we delved further into the National Park, through Herod's Gate and into the plateau, surrounded by dolerite peaks and a green carpet covering the basin, with bolster plants such as *Poa* sp., *Carpha alpina*, *Donatia novae-zelandiae*, *Dracophyllum minimum*, *Astelia alpina* and *Gunnera cordifolia*, and shrubs such as *Richea scoparia*, interspersed with orange tinged swathes of the coral fern, *Gleichenia alpina*. Bolster plants are very compact shrubs, resembling an undulating bright green cushion, hence the common name cushion plants. The plants spread laterally claiming their territory in a bog/heathland and new growth is built on top of the old growth which remains and decomposes very slowly, over time giving the rounded appearance. Plants may grow and merge together as they expand. The underlying soil is peat based as with other sites we had visited, supporting sedgeland, heathland and bolster communities. Within the water and bogs you could catch tens of *Utricularia dichotoma*, all standing to attention.



Dracophyllum minimum



Utricularia dichotoma



Gleichenia alpina



Rob in the Walls of Jerusalem



Gentianella sp.



Walls of Jerusalem National Park

We made the climb up to Solomon’s Throne at 1410 metres, in search of more alpines and were soon walking on a staircase of a scree slope, with little vegetation in sight. We did spot a *Clemisia* sp. that I unfortunately couldn’t photograph as it was just too far a leap off the path and with the potentially moving momentum of the scree and taking Harold Comber’s advice, I didn’t fancy my chances. ‘One must never attempt to go down those rocks as they are very loose and treacherous. It would be hopeless to attempt to collect in these crevices, and I do not think there are many plants there, or if they are there I do not think they will be collected, or at least not until they naturally come down to the bottom; it would be far too

dangerous to attempt collecting'. (Comber, H. Plant Collecting in Tasmania. Journal of the Royal Horticultural Society, 1932, Vol LVII, Part 2).

At the top we were met by another rock garden of outstanding beauty. As a gardener I often think that I am caring for a group of plants that are always fighting against each other. A parent trying to keep the peace within a large family of children, or at the extreme, a doorman of a nightclub trying to ensure that everyone has a good evening, with no fights break out and no damage done to a single plant. Here in the natural environments I feel the sense of calm within the congruent relationships within the community of plants, whether this is true or not, it appears as if every plant is in its righteous place and is happy and content. Here on the top of the Throne this was overwhelmingly clear, plants that we had observed whilst staying in Miena had come to meet us again, such as *Bellendena montana*.



Looking out from Solomon's Throne

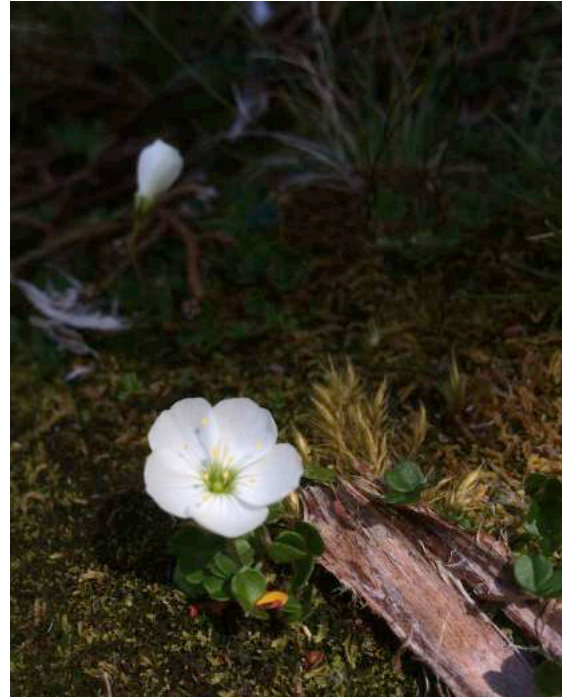


Rock garden on Solomon's Throne



Ewartia catipes

Later in the day we ventured through Dixon's Kingdom to see the *Athrotaxis cupressoides* stands. Neil Porteous highlighted that the trees had followed the direction of water, these plants growing near water. Could this be because this is a desired habitat for them, or that these are the remains following fire, as this historic plant is unable to regenerate after fire. We also discussed the potential of these stands being clones and thus one plant, rather than individual plants. This is because *A. cupressoides* has the ability to propagate vegetatively via root suckering.



Top *A. cupressoides* & *Oxalis magellanica*, **Bottom** *Microcachrys tetragona* & *Pterostylis* sp.

Within this spiritual place I was in awe of my surroundings. I felt and still feel utterly humbled that I have been able to experience this place, for horticultural purposes and selfishly for the mere beauty of this wild, untouched place. Furthermore, maybe I could become a plant hunter after all; I spotted a plant, not just any plant. The first of this species that we had seen in the Walls of Jerusalem, but not only that, I could identify the plant. And not only that, it had seed. Last but not least, it was a plant collected by Harold Comber. BIBET collection 083 is *Microcachrys tetragona*. A herbarium specimen and seed make up this collection and it is the only collection of this species for the BIBET Expedition. It could have been grown on the rock garden at Nymans and hopefully could be making a return. *M. tetragona* is a prostrate alpine – subalpine shrub, endemic to Tasmania. The female cones are bright red when ripe, hence the common name strawberry pine.

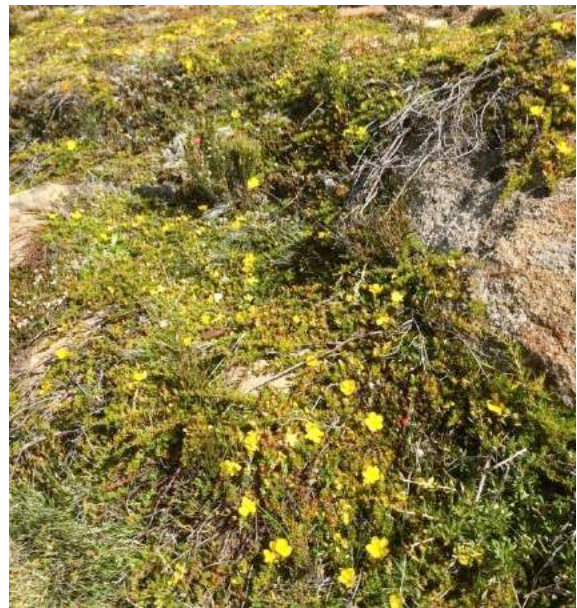
Our second night in the Walls of Jerusalem we had the campsite to ourselves, pitched by the lake, I could certainly get used to the plant collecting life. We headed back to the car on the third day and found ourselves in a stand of *Nothofagus gunnii*, Australia's only cold climate winter-deciduous tree, with beautiful autumn colour. *N. gunnii* is also another old timer in Tasmania, part of the vegetation of Gondwana and supposedly the plant that first suggested the existence of the supercontinent, with similar *Nothofagus* species residing in south America. It has been proposed that the position of the landmass further south meant harsher winters, which explained the dormancy period of the plant and thus its deciduous nature. Following the breakup of Gondwana and as the continent moved north, the winters were less harsh and allowed the emergence of evergreen plants, such as Eucalyptus.



Campsite



Velleia montana



Hibbertia procumbens



Melaleuca squamea



Possibly *Herpolirion novae-zelandiae*

LESSON SEVEN

Seed collecting isn't fun in the rain.

- Dove Lake, Cradle Mountain -

After returning from paradise we re-organised our kit, pressed herbarium specimens and cleaned seed that we had collected in the Walls of Jerusalem National Park, and then prepared for our next site. From the peace and abandonment, definitely a step back to another era, and verging on the otherworldly of the Walls of Jerusalem, we went to Cradle Mountain, one of the prime tourist sites in Tasmania. Returning to the Cradle Mountain-Lake St Clair National Park, where we had visited Lake St Clair, we head north to Cradle Mountain, the fifth highest mountain in Tasmania at 1545 metres. Along with the other sites that we had visited in the central highlands the mountain is composed of dolerite. We only had the day to explore, so took a gentle stroll around Dove Lake, a glacial lake at the base of Cradle Mountain. The circuit is a 6km boardwalk track giving a view of the vegetation around the lake and into the perfectly named Ballroom Forest, consisting of temperate rainforest.

Unfortunately the weather wasn't too kind to us on this day with rain throughout the day, creating note-making hazards and soggy envelopes prone to collapsing and the subsequent freeing of precious seed collections. The weather however didn't make for a quiet day and proved how popular the site was with tourists. We realised how comfortably isolated we had been throughout this first section of our trip, some days not encountering another person outside the BIBET family. The weather may have been a problem, but not a major one. Other people were a problem and we found ourselves immensely grumpy at having to share the lake with them, something we hadn't had to do until now. Although we had collecting permits, which we would dutifully show at National Park centres, we received disapproving looks and comments when we were removing seed. More so, the boardwalk track is a single track to avoid being too imposing on the vegetation and scenery. Therefore a polite squeeze was necessary when passing people travelling in the opposite direction and discouraged us from stopping to look at a plant. Whilst the passing of two people was doable, a group of six people crowded round a plant on the boardwalk was not helpful to those wishing to pass. We were aware of how busy the lake may have been and made sure to get there early, but I think everyone else was following the same master plan.

The vegetation around the lake was mainly alpine and sub-alpine shrubs, such as *Letospermum* sp., *Boronia* sp., *Bauera rubioides*, *Persoonia gunnii*, *Richea scoparia* and giant *R. pandifolia*. With *Nothofagus cunninghamii* and *N. gunnii*, and temperate rainforest. The weather was fitting to the landscape, with an abundance of moss and plants such as

Libertia sp. growing in moss on the branches of trees. The wider vegetation surrounding the lake was Buttongrass (*Gymnoschoenus sphaerocephalus*) moorland.

One of the highlights of the day was seeing *Athrotaxis selaginoides* and *A. x laxifolia*, a natural hybrid between *A. cupressoides* and *A. selaginoides*. The other was *Richea pandanifolia*, growing to mammoth heights, almost unnaturally for its form, as if someone had injected it with a growth hormone and it could topple over at any given moment. Within the landscape of the trees and shrubs of Tasmania, this plant is an oddity and stands out. Even Harold Comber credited its unusual appearance '*Richea pandanifolia* is one of Tasmania's practical jokes. You might think it was a monocotyledonous plant, but it belongs to the family



Athrotaxis selaginoides

Epacridaceae; it is the 'Pandanny' of the bushman, and he is glad of it, because of the quantity of dry dead leaves he is able to find on the lower part of the stem. No matter how much rain has recently fallen, he can always light a fire with them. I ask you to notice the way in which the leaves shelter the lower portion, and the long time they persist; the plant must have taken hundreds of years to grow to that height, and yet these leaves still remain'. (Comber, H. Plant Collecting in Tasmania. Journal of the Royal Horticultural Society, 1932, Vol LVII, Part 2). During the remaining part of the trip we saw *R. pandanifolia* in forest and growing out in the open in alpine and subalpine regions. A beautiful alien plant that can always be spotted, and I hope appreciated, in the landscape. A favourite quality of mine is the way in which the remaining leaves curl at the ends, more so in alpine regions, probably due to the drier, exposed situation.



Cradle Mountain



Dove Lake



Richea pandanifolia negative of Harold Comber's lanternslide



Neil with *Richea pandanifolia*



Richea pandanifolia flower



Richea scoparia



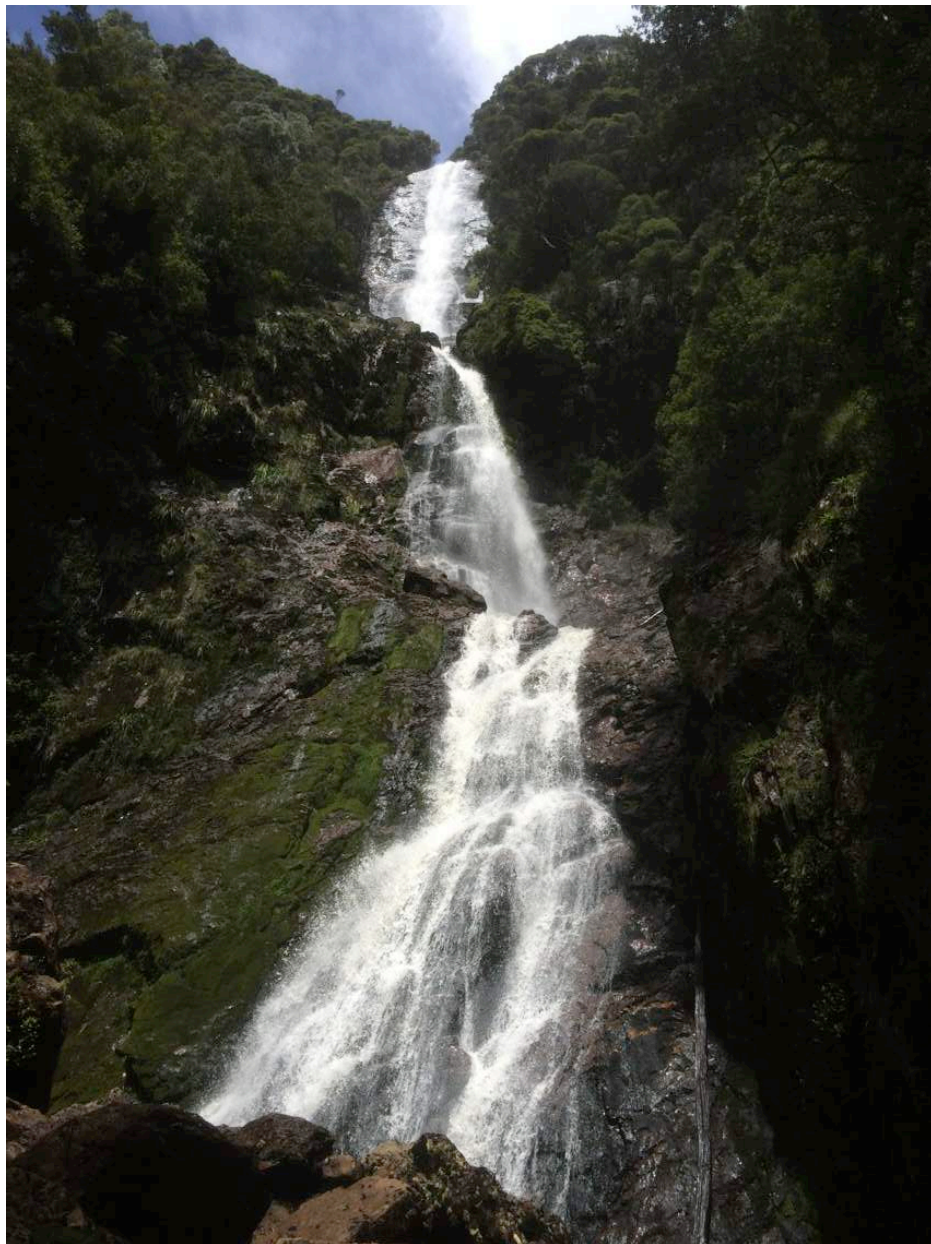
Richea scoparia

LESSON EIGHT

Seize every chance to see something new whilst you can.

After visiting Cradle Mountain we were heading to the west coast. Seamus suggested that we would have time to visit Montezuma Falls on the way and it was such an amazing sight, presenting us the chance to observe plants that we hadn't seen yet on our journey.

- Montezuma Falls -



Montezuma Falls

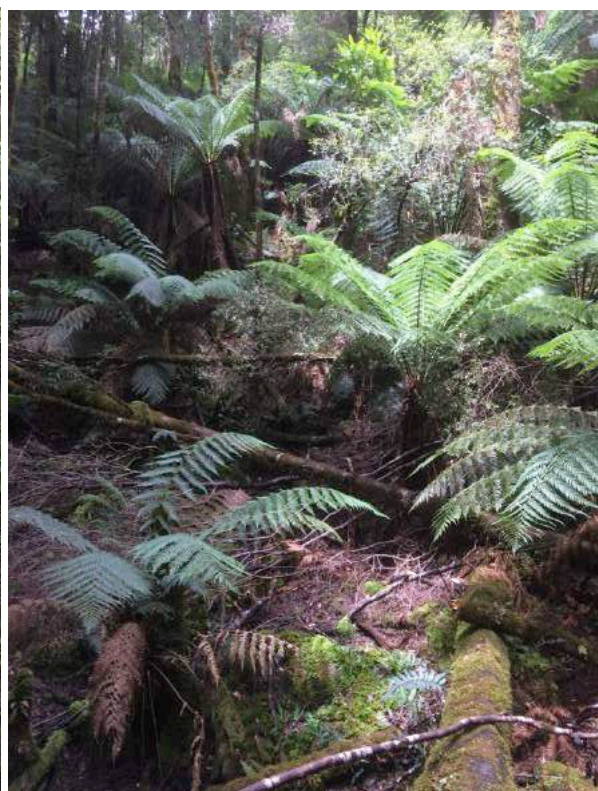
Located near Rosebury in the wet west of the Island, Montezuma Falls, originally named Osbourne Falls, was named after the Montezuma Silver Mining Company and is an example of cool temperate rainforest regeneration, following invasive work in mining and the construction of a railway line. Opened in 1896, the North East Dundas Tramway was used to transport ore from mines in Williamsford to Zeehan, where it would then be transported to Burnie in the North. A narrow track was built and the World's first Garratt articulated steam locomotives used to cope with the challenging terrain. Several wooden bridges were erected for the track, which ran past the base of the 104 metre waterfall, the tallest in Tasmania. The line closed in 1932, but the track



Original trestle bridge across the creek, at the base of the waterfall. Photograph of interpretation sign

now provides a walk to the waterfall. The rainforest was cleared for the tramway and timber used for the building of the tram bridges, sleepers, homes and firewood.

Since this time the rainforest has been left to recover and with an average of 3 metres of rain per year, it is once again a magical place of dripping green foliage and an articulate example of a cool temperature rainforest. The dominant species within the rainforest are *Atherosperma moschatum*, offensively massive *Eucryphia lucida*, *Acacia melanoxylon* and ridiculously steroid induced *Dicksonia antarctica*.

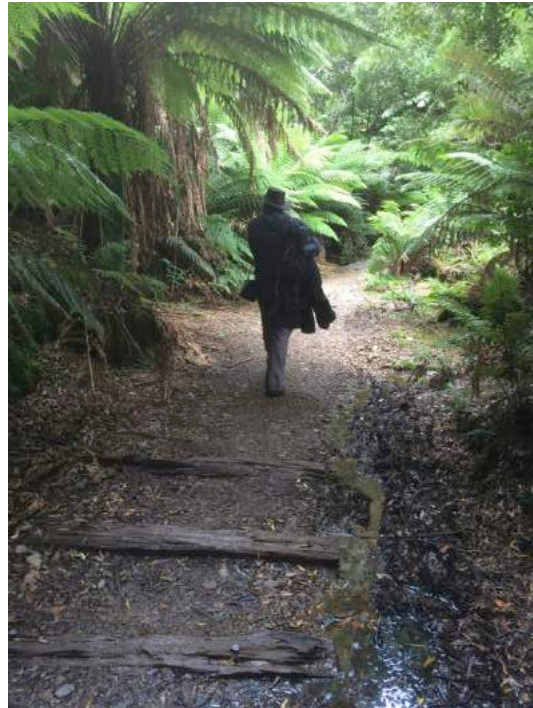


Cool temperate rainforest at Montezuma Falls

Having previously seen rainforest at Lake St. Clair I was reminded of how quiet these places are, coupled with filtered light and constant dripping water I felt that if I was to stay in one place for too long I would be engulfed by the aggressive vegetation and rooted to the spot. The abundance of water within the Montezuma Falls was obvious in the carpets of moss covering everything in sight and the vertical wall gardens of filmy ferns, *Hymenophyllum* sp. dripping with water and the numerous ferns that we saw, such as *Microsorium pustulatum*, *Blechnum wattsii* and *Grammitis billardierei*.

During the walk we made collections of fern spores, which consisted of the removal of fertile fronds placed in envelopes to collect the microscopic spores. *Dicksonia antarctica* were the plant of the day, sturdy giants with epiphytic ferns nestled in the trunks, such as *Rumohra adiantiformis*. and in some cases *Oxalis magellanica*. Some perfectly upright and others waywardly off course, these giant prehistoric plants have a knack of humbling any plant hunter wannabe. Through the track remnants of the tramway were still visible, now incorporated and at home in the rainforest.

Whilst making collections we discussed the hardiness of the plants and the possibility that they could be hardier than current plants of *Dicksonia antarctica* in cultivation within the UK and Ireland.



Remnants of the Tramway

LESSON NINE

Sometimes you need to break up to achieve more.

After a night in Strahan the plan was to visit Emu Valley Rhododendron Garden in the northwest of the Island, near Burnie. We decided that half of the group would continue with this plan and that the other half would explore locations visited by Harold Comber. Piers, Stephen and myself visited areas around Strahan and Queenstown, trying to find plants and search for location with the aid of Harold's lanternslides and collection notes.

Firstly we visited the coast and teased ourselves by the flora that we couldn't collect, as at this low elevation it was doubtful that it would thrive outdoors in the UK. However we did see the second *Banksia* sp. of Tasmania, *B. serrata*, but only in the form of seedlings, *Lepidosperma concavum*, *Coprosma quadrifida* and *Carpobrotus rossii* on the beach, as well as *Rhagodia candolleana*, *Muehlenbeckia gunnii* and *Xyris operculata*. I was most excited to see *Epacris impressa*, which was the first and last time that we saw it during our trip.



Xyris operculata



Muehlenbeckia gunnii



Carpobrotus rossii



Epacris impressa



Billardiera longiflora

The BIBET break off team visited Queenstown on the way to Burnie, in the hope of visiting locations that Harold Comber had visited and collected in. One particular plant that he collected was *Epacris comberi*, now known as *Archeria comberi*, collected on Mount Sedgewick. Harold Comber visited Queenstown at the height of its mining history, the surrounding mountains cleared and leaving behind a moonscape of bare ground. He writes 'Thence I went on to Queenstown, practically supported by the Lyell Mining Co. Here nearly all the surrounding country had been laid waste by sulphur fumes from the works.' (Comber, H. Plant Collecting in Tasmania. Journal of the Royal Horticultural Society, 1932, Vol LVII, Part 2). Although we were unable to access Mt Sedgewick we were able to view the recovering landscape and stand, almost at the point in which his photo was taken.



Harold Comber in Queenstown. Mount Gwen from Mount Lyell
Nymans NT Archive



Recreating Harold Comber's photograph

The following sites that we visited were specific to Harold Comber, such as the Pieman River, the edge of civilisation before the wilderness of the Tarkine. The northwest of the island is home to Australia's largest remaining single tract temperate rainforest and the second largest in the world. Coupled with the coastline and promoted freshest air in the world, this area of Tasmania contains an array of different vegetation, from rainforest, to buttongrass moorland and is home to a large amount of threatened and endangered species. The native people of Tasmania lived in this area, but with limited road access, it is now an undisturbed place. We ventured on the road to nowhere ending at Corinna. A chain ferry took us over the Pieman River to the gold-rush settlement. Now all that remains is a hotel and the wilderness beyond. This was a really special place just knowing that there was no civilisation beyond. We were able to walk around the river through the gallery rainforest, a narrow band of rainforest on the edge of a river. The rainforest was comprised of *Nothofagus cunninghamii*, *Lagarostrobos franklinii*, *Eucryphia lucida*, *Dicksonia antarctica* and *Leptoserium* sp. *Lagarostrobos franklinii*, a slow growing conifer and the longest living tree in Australasia, with trees reaching 2000 years old, and perhaps the oldest with pollen records dating back 135 million years. Endemic to Tasmania and found in the northwest of the island, it was heavily logged and used in shipbuilding and furniture. The trees on the edge of the river were saved from logging by flooding, which deformed their shape and made them less desirable for timber. Another new plant that we saw in the rainforest was *Acradenia frankliniae*. A plant in cultivation in UK, but confined to the western part of Tasmania on the fringes of rivers.



Lagarostrobos franklinii on the Pieman river



Acradenia frankliniae

On the drive from Corinna to Mount Field National Park, later that day, we made several stops to see the vegetation along the road and I was amazed by the size and flowering of *Eucryphia lucida* on the side of the road, just dripping with white flowers and red anthers.



Eucryphia lucida



Eucryphia lucida negative of Harold Comber's lanternslide
Nymans NT Archive

LESSON TEN

Some things stand the test of time.

- Mount Field National Park -

Following on from the other Comber sites, we went on to Mount Field National Park, northwest of Hobart. We knew that Harold Comber visited the National Park and took a photograph of a ski hut on the Tarn Shelf. So we embarked on the circular route, as we had done previously climbing up to the alpine region and round a series of tarns. Looking back through my photographs, in some ways it is difficult to separate them from those taken at the Walls of Jerusalem - rocky screes, bolster heath around the tarn and stands of *Athrotaxis cupressiodes*.

Mount Field National Park is an isolated plateau in southern central Tasmania, the landscape manipulated through glaciations, as we had seen previously. However, within the gradient of precipitation across the island from west to east the National Park marks the most easterly limit of the species we had previously seen. On the way up we were able to make a collection of *Trochocarpa thymifolia*, which was flowering and fruiting at the same time. On the tarn shelf we observed alpine vegetation, such as *Campynema lineare*, *Celmisia* sp., *Astelia alpina*, *Diselma archeri*, *Helichrysum pumilum*. We also saw the evidence of fire in Tasmania. A graveyard of *Athrotaxis cupressoides* was just before we reached the ski hut at Twilight tarn and may even be the grove that Harold Comber talks about in his report below. A walker told us that was the result of controlled fire on another peak that had got out of control and travelled through this area.

We actually approached the ski hut from where Harold Comber had taken his photograph eighty-eight years ago and it was still there, along with much of the vegetation that he would have seen. This was a magical moment for the BIBET team to recreate the photograph and remember the forgotten plant hunter, possibly standing where he had stood and seeing much of what he saw.

As we continued the circuit we descended slightly into stands of *Banksia marginata*, small and contorted at these dizzy heights. Descending further we were also able to see *Blandfordia punicea*, which Harold Comber referenced when he wrote about his time in the Mount Field National Park. He did so with so much more grace that I can, so over to Mr Comber: -

A beautiful mountain and forest area has been reserved by the Tasmanian Government as a National Park, and is still practically in a natural state. It contains the finest waterfall in Tasmania, the Russell falls (fig. 33). There are many tree ferns, large Nothofagus trees, and above them all is the giant swamp Gum, Eucalyptus regnans. I do not like to say how high those trees are, but most of them rise well over 100 feet, and they have large trunks at that. They provide a light shade for other things. Denser shade comes from the overgrowing Nothofagus, and under these tree ferns, and

under these again, there are little orchids, not any very great garden value, but nevertheless very interesting.

The Horseshoe Fall in the same river, a little above Russell Falls, is at the foot of the National Park, and there is a wealth of ferns growing in the moist gullies.

Another waterfall is known as the Lady Barron Falls; it is also at the foot of the National Park.

In the moister districts are some of the best specimens of *Clematis aristata*, which is perhaps even more beautiful when in fruit than in flower.

The tree ferns near the Falls are from 8 to 20 feet high, and are often covered by a very interesting epiphyte, *Tmesipteris tannensis* (*Tmesipteris obliqua*), like *Lycopodium* and *Psilotum*, an ally of the Ferns.

Fig. 34 shows the trunk of one of the giant gums, *Eucalyptus regnans*. I could not get round the corner to give an idea of what the buttress was like, but you could stand a horse on one side of it so that it could not be seen from the other. Like many other species of *Eucalyptus*, the bark peels off, and long strings of it, 20 to 30 feet long, hang down, tying the undergrowth together. These strips are tough, and very awkward to get through, but it is only one of the many things which tie up Tasmania.

Gnaphalium alpigenum (*Euchiton umbricola*) does occur in low moist places, but it is usually found in the mountains. It is the nearest approach to Edelweiss, and is commonly called by that name in Tasmania.

A plant which has been grown for a long time in British gardens, *Ozothamnus thyrsoides*, has the habit of making a more or less horizontal shoot, and flowering on the upper side. Less well known is another of the beautiful leguminous shrubs, which has the merit of growing in moister places; it is *Oxylobium ellipticum*, of a very beautiful apricot colour. Even if the plant is not hardy, it is worth an extended trial in greenhouses.

Bauera rubioides has been in cultivation a number of years, but it is always the pink form which is grown, and which belongs to the mainland Australia. In Tasmania it is usually pure white, and grows at 3,500 feet, making dense mats there. There is every probability that it will prove hardy in this country. It is one of the worst things in the bush; stems are long and wiry, and if I have been tripped up by it once, I have been tripped up a thousand times. It is known in Tasmania by a number of unprintable names, beside the more common one of 'Tanglefoot'..... Further up the mountains in Tasmania the vegetation is scarcer, but near the Twisted Tarn at 4,000 feet you can still find *Eucalyptus coccifera*, a mass chiefly composed of the smaller conifers, which are very interesting plants.



Bauera rubioides

There is a shelf 4,000 feet high, with an escarpment going up another 400 or 500 feet. In the gully there is a mass of *Athrotaxis cupressioides*. As the previous seasons were so bad, I was able to get only a few flowering or seeding plants here.

At the height of 4,000 feet one finds a lighter coloured patch, composed of *Nothofagus gunnii*, the only deciduous tree in Tasmania. It is hardly worth the name of tree because it is rarely over 6 feet in height; it is confined to the Tasmanian mountains.

Nothofagus is found in New Zealand and South America, as well as in Tasmania and the mainland Australia.

On the top of the Tasmanian mountains there are many interesting cushion plants, and they are usually of two habits. In one of them you get the main stem persisting on the ground, and growing at the apex, with little upright flowering branches given off; and in the other there is a rounded hummock, in which all the branches have a similar origin and diverge. *Dracophyllum minimum* is one of them. Another cushion plant is *Mitrasacme Archeri* (*Schizacme archeri*), which belongs to the same family as *Buddleia* and has a honey scent (no longer correct). I was never lucky enough to find a showy specimen of *Pernettya tasmanica* (*Gaultheria tasmanica*), and I have not seen a good one in this country at all comparable to the little *Pernettyas* of the Andes.

From the top of Mt Field West in the National Park one can look down 2,000 feet on to the edge of the forest, and then still further down, probably another 1,000 feet, is the forest in the valley. One must never attempt to go down those rocks, as they are very loose and treacherous. It would be hopeless to attempt to collect in these crevices, and I do not think there are many plants there, or if they are there I do not think they will be collected, or least not until they naturally come down to the bottom; it would be far too dangerous to attempt collecting.'

Comber, H. Plant Collecting in Tasmania. Journal of the Royal Horticultural Society, 1932, Vol LVII, Part 2.



Twilight Tarn



Blandfordia punicea



Senecio pectinatus



Helichrysum pumilum



Tetracarpaea tasmanica



Burnt Athrotaxis cupressoides



Diselma archeri



Cyathodes straminea



Trochocarpa thymifolia





View from the Tarn Shelf



Harold Comber at Tarn Shelf negative from Harold Comber's lanternslide
Nymans NT Archive



Ski hut at Twilight tarn



Ski hut at Twilight tarn negative of Harold Comber's lanternslide
Nymans NT Archive



Russell Falls National Park negative of Harold Comber lanternslide
Nymans NT Archive

LESSON ELEVEN

When taking, you have to give back.

Returning to Hobart the BIBET team had agreed to give lectures to staff and volunteers at the Royal Tasmanian Botanical Gardens, speaking about the gardens, which they are associated to and the reason for the expedition. This also gave us a chance to see the Tasmanian Seed Conservation Centre and where our seed was being stored ready to be sent back to the UK. The main focus of the seed bank, however, isn't to store the BIBET seed collections, it is focused on the native flora of Tasmania.

Harold Comber also gave lectures whilst he was in Tasmania, mainly discussing his Chilean expedition.

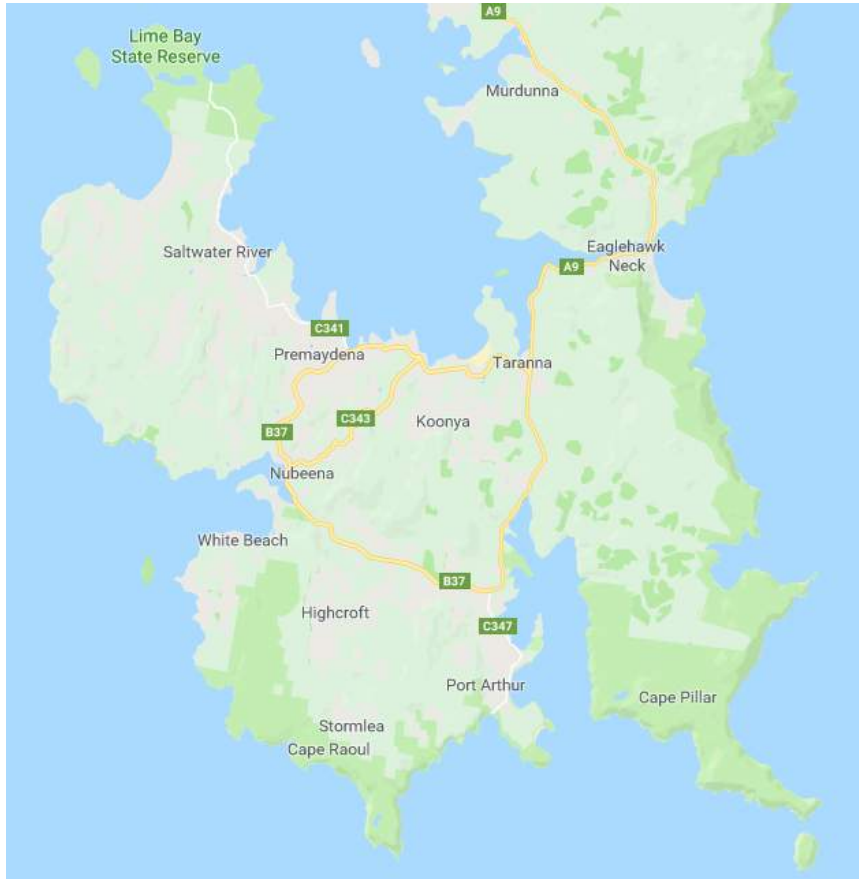
Under the auspices of the northern branch of the Royal Society of Tasmania, Mr. H. F. Comber, of England Who is at present studying botany in Tasmania, lectured in the Public Library classroom last night on "Recent Botanical Exploration in the Andes." The story of Mr. Comber's work in the mountains that form the backbone of the South American continent, illustrated with lanternslides projected by Mr. F. Smithies, held the interest of a large assembly.

Examiner (Launceston, Tas. : 1900 - 1954), Tuesday 20 May 1930, page 3

LESSON TWELVE

If in doubt, just keep driving.

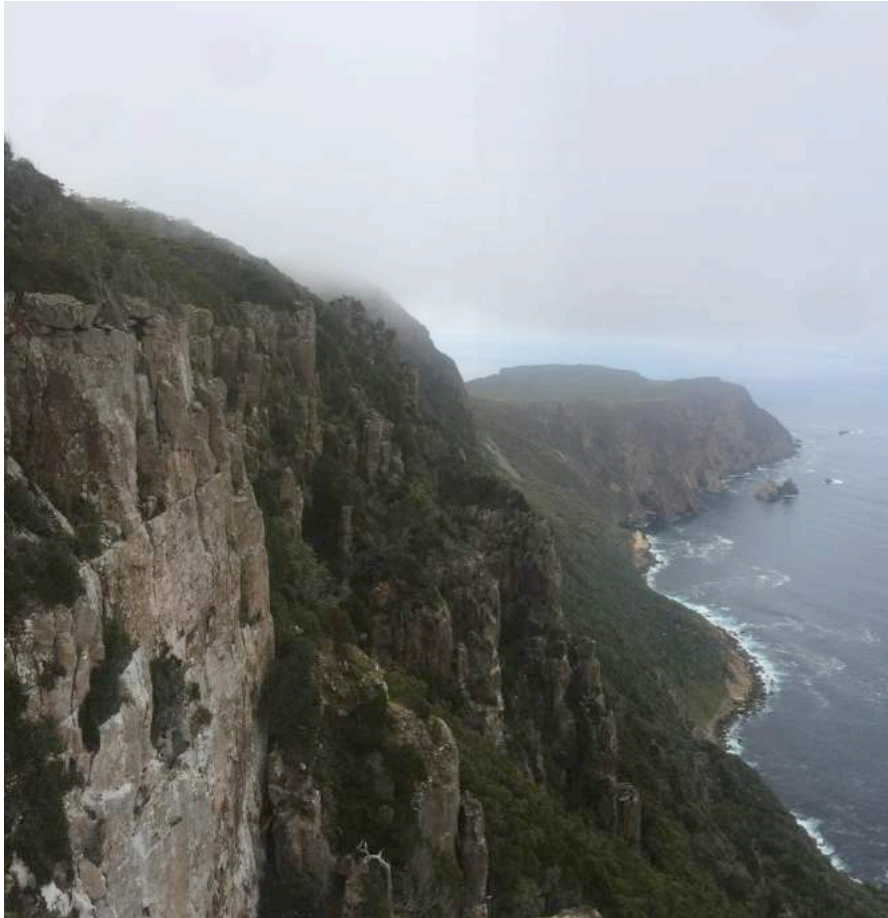
- Tasman Peninsula -



Map of Tasman Peninsula
www.googlemaps.co.uk, accessed 20/04/18

For the following two days we travelled to the Tasman Peninsula. The Peninsula is an interesting place, as it doesn't entirely replicate the alpine vegetation that we had seen throughout the trip thus far, or the wet environments of the west. The vegetation on the Peninsula includes coastal heath, dune vegetation, wetlands, dry and wet sclerophyll forest and a small amount of sub-alpine scrub and rainforest. One plant endemic to the Peninsula is *Cyathodes platystoma*, and in 2008 registered as rare on the Tasmanian Threatened species Protection Act 1995. It is thought that the decline of *C. platystoma* is its susceptibility to *Phytophthora cinnamomi*.

- Cape Raoul –



Cape Raoul

Cape Raoul has extensive heathland and coastal scrub communities. We walked through dry eucalypt forest to the coastal heathland in search of new species. During the walk we found *Olearia viscosa*, *Pimelea drupacea*, *P. nivea*, *Pentachondra involucrata* with beautiful furry white flowers and made collections of *Notelaea ligustrina* and *Bedfordia linearis* at the beginning of the walk. Throughout the trip we saw *Hibbertia* sp., James and Natalie identified *Hibbertia procumbens* when we were with them. *Hibbertia* is a genus of prostrate (*H. procumbens*) and upright shrubs, with yellow flowers. As we walked towards the cape the vegetation became dominated by low forests of *Allocasuarina* species and then a dense heath parted by a path to the headland. The vegetation became more prostrate and sparse as we reached the edge of the cape, with the smallest *Banksia marginata* that we had seen during the trip, wind pruned to small, prostrate shrubs. We were able to see *Disphyma crassifolium* at the edge of the Cape.



Hibbertia sp.



Pentachondra involucrata



Pimelea nivea



Allocasuarina sp.



Prostrate Banksia marginata



The vegetation at the edge of the cape



Carpobrotus rossii



Selliera radicans



Spyridium vexilliferum



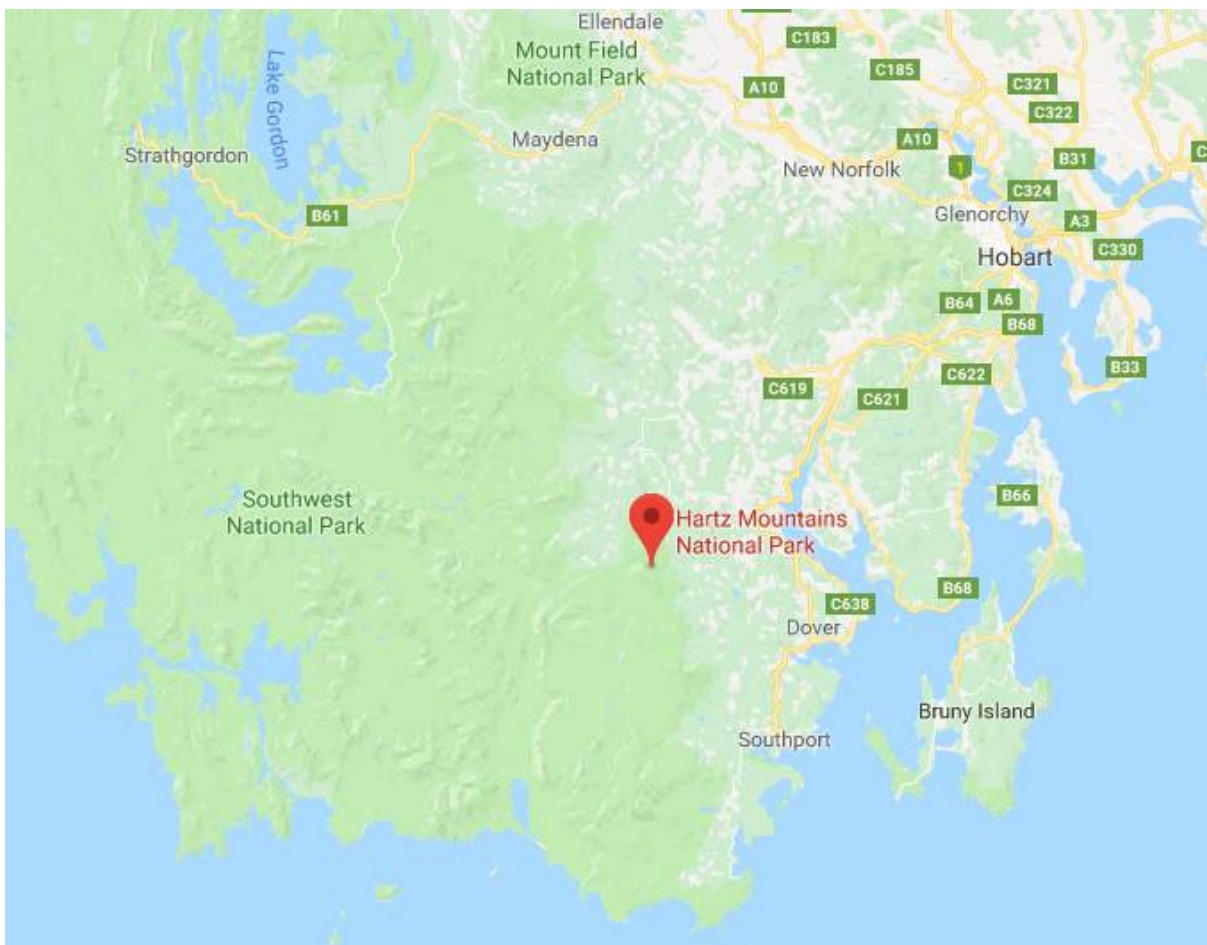
Exocarpos cupressiformis

LESSON THIRTEEN

Always get someone to check your work.

We met up with James and Natalie for the last location of our expedition, which not only gave us the chance to observe plants that we hadn't already seen and make those last final collections, but also to discuss where we had been and what we had seen since the last time we had seen them.

- Hartz Mountains National Park –



Map showing Hartz Mountain National Park
www.google.co.uk, accessed 13/04/18

Situated in the south of the Island the National Park is the gateway to the southwest wilderness. Within the Park are mountain ranges, with Hartz Peak the highest point at 1255 metres and the majority of the park over 600 metres. As with much of Tasmania the underlying rock is dolerite and has been shaped through glaciation.

Driving into the park we made several stops in the mixed forest, where James and Natalie pointed out various plants. We were excited to see *Eucryphia milliganii*, *E. lucida* and

debated the natural hybrid between the two, *E. x hybrida*. The genus *Eucryphia* is native to temperate regions in South America and Australia. The common name is Leatherwood and where the honey, Leatherwood, comes from. There are several specimens of *E. lucida* at Nymans and cultivars, such as *E. x nymansensis* 'Nymansay' and *E. x nymansensis* 'Nymans Silver'. Stephen informed me that *E. x hybrida* was discovered by Harold Comber and is an intermediate between the two parents, *E. lucida* the largest and *E. milliganii*, the smallest. However, this hybrid isn't registered in the census for Tasmanian flora.



Top - Stephen examining *Eucryphia* species. **Bottom** – *E. milliganii*, *E. x hybrida*, *E. lucida*

James and Natalie reinforced Harold Comber's observations on the difficulty of traversing through the forest. One such plant, *Anodopetalum biglandulosum*, commonly known as horizontal, for its habit of growing vertically, falling over and then growing vertically again. People would carry ropes to help those that fell through the matrix of *Anodopetalum biglandulosum*, sometimes falling metres below. Due to the level of forestry throughout the island forestry tracks have made areas accessible, that otherwise wouldn't be. James and Natalie have previously used helicopters for seed collecting in parts that are inaccessible, or would otherwise require days of bushwalking to reach the site.

We were able to see the regulars of *Gahnia grandis*, *Atherosperma moschatum*, *Anopterus glandulosus*, *Phyllocladus aspleniifolius*, *Trochocarpa cunninghamii* and *Leptospermum* species, as well as, *Acacia riceana* with its weeping habit, *Orites diversifolia*, *Lomatia polymorpha*, *Trochocarpa gunnii*, *Leptecophylla pogonocalyx*, *Monotoca elliptica*, *Olearia tasmanica*, Growing on the trunk of *Eucalyptus* sp. was *Prionotes cerinthoides*. Endemic to Tasmania it is a climber or scrambling shrub, which we would probably have walked straight past, if it had not been pointed out to us, as it wasn't in flower. When in flower it is a curtain of bell like flowers, as Harold Comber comments 'One of the real gems of Tasmania ; we have many examples of in the country ; it is *Prionotes cerinthoides*, which takes the places of the *Mitraria* in the Valdivian Forest of Chile and like it, climbs up tree trunks to 40 or 80 feet.' (Comber, H. *Plant Collecting in Tasmania. Journal of the Royal Horticultural Society, 1932, Vol LVII, Part 2*). During our time in the Hartz Mountains National Park, we completed two walks; Adamson's Peak and Hartz Mountain.



Prionotes cerinthoides





Natalie with Richea dracophylla



Lomatia polymorpha



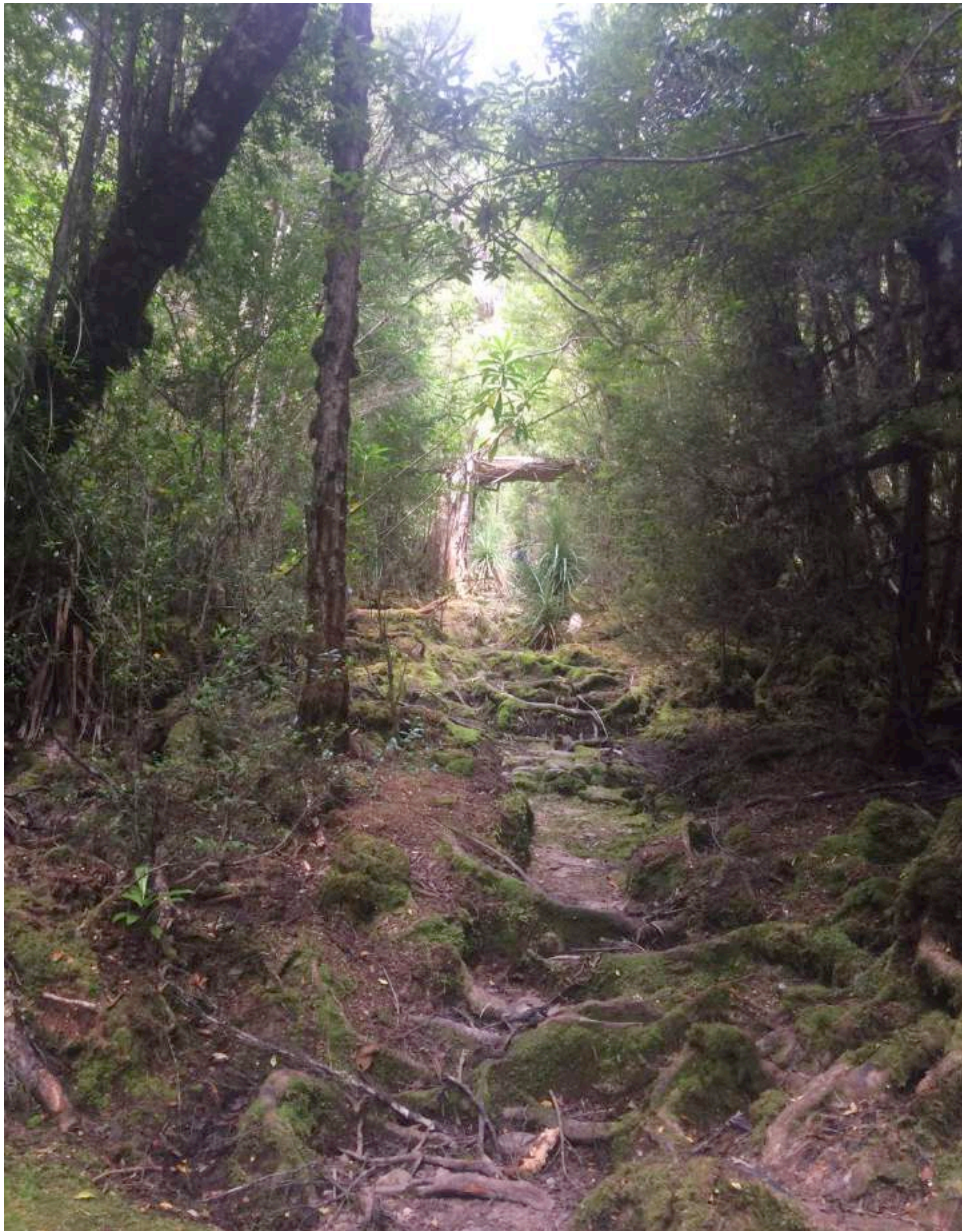
Orites diversifolia



Olearia tasmanica

- Adamson's Peak –

The start of the walk involved climbing up through the forest. There was a track, but at some places a fallen tree obstructed this. We were able to see the remnants of the steps that were inserted into the trunks and stood on when cutting the tree down. The vegetation within the forest gave us the chance to see *Pseudopanax gunnii*, *Trochocarpa gunnii* and *Prionotes cerinthoides* again. As we climbed up the vegetation changed to a mixture of *Gahnia grandis* and shrubs, such as *Bauera* sp. As we reached the top, the mountain was different to others we had climbed in the fact that it had a peak. A plateau just underneath the peak supported alpines and we were able to collect seed of *Richea scoparia*, which was really exciting, as we had been searching during the entire trip for the rugby ball shapes seeds. We were also able to see the beautiful, fragrant flowers of *Agastachys odorata*. We also saw *Tetracarpaea tasmanica* and *Leptomeria glomerata*.



Track climbing up Adamson's Peak



Pseudopanax gunnii



Camouflaged caterpillar



Red fungus



Trochocarpa gunnii



Neil on the walk



Near the peak of Adamson's peak



Persoonia gunnii



Seamus and Stephen



Seed collected from *R. scoparia*



Agastachys odorata

- Hartz Mountain -

Our last walk of the trip was to the top of Hartz Mountain, which consisted of a 400 metre climb to the summit at 1254 metres. The weather was a little blustery, to say the least, and cloud blocked the view at the top, but that didn't stop us from making collections. At the bottom we walked through stands of *Eucalyptus coccifera*, but I was really excited to see *Eucalyptus vernicosa*, higher up. Collected by Harold Comber, *E. vernicosa* is a low growing sub to alpine shrub, endemic to Tasmania. It may be the smallest, but it is the toughest of the gums. We were able to make a collection, but the plants didn't look to be in good health. James and Natalie advised that this could be due to drought.

The vegetation consisted of alpine shrubs, the landscape dotted with *Richea pandanifolia*. With *Eucryphia millganii* spanning the ascent, we observed *Donatia novae-zelandiae* and *Ewartia meredithiae*, as well as *Senecio albogilvus*, throughout the climb. At the summit Natalie pointed out *Anisotome procumbens*, which before the walk James had suggested as a good rock plant and we managed to make a collection.



The vegetation as we climbed up to the peak



*A natural rock garden consisting of *Bellendena montana*, *Astelia alpina* and *Donatia novae-zelandiae**



Eucalyptus vernicosa



At the top of Hartz Mountain



Anisotome procumbens



Donatia novae-zelandiae

LESSON FOURTEEN

The learning continues after the Expedition.

During our time in Tasmania we made 252 collections, which are in the attached document. These collections are made up of herbarium, DNA and seed.

As Harold Comber wrote in his report about Tasmania, I found it fascinating that so much of what we saw isn't grown in the UK and that there is so much still to learn about the flora and fauna of Tasmania. During the trip we constantly debated the value of the plants within horticulture and James suggested that due to the isolation of the island and the minimal research by naturalists in the past, as had been carried out in Europe, there is still much to be discovered.

I am currently designing the first bed in the rock garden restoration and this trip has enabled me to think about the plants that could be grown. Furthermore, on returning to Nymans I am writing a maintenance plan for the Wild Garden, to raise the standard of the area, in preparation for the instalment of the Tasmanian Walk.

During the trip James gave us an identification test, comprised of *Leptospermum* species. I think I was still flora - shocked and was unable to differentiate between the three sprays. However through writing this report I have had the stimulus to continue with my learning of Tasmanian flora.

This trip has also given me with my first experience of seed collecting in the wild. I would like to thank Stephen Herrington and Carolin Göhler, Gardens & Parks Consultant, National Trust London & Southeast region, for the ambition of the expedition and for receiving my application to join the BIBET team. I feel honoured to have been able to visit the places that I did in Tasmania. I would also like to thank Jackie Elliott and Sarah Slevin and the House Team at Nymans, who sorted through Harold Comber's slides and collection book, as well as digitising the images so that we could take them with us. The BIBET team was a real success for me, with my contribution merely the constant attempt of information extraction. To be with so many knowledgeable people I learnt so much more than I imagined, from the detail of a single species, to a plant hunter commemorated by a genus, to the knowledge of head gardeners when looking at how the flora could be grown within gardens in the UK and Ireland. Natalie and James not only took us to some amazing sites, but they were so generous with their time, knowledge and chocolate. I can't explain how fortunate I feel to

have been able to work in the field with them both. It would have not been possible for me to participate in this trip with the support from the Royal Horticultural Society, and personally for me, the Merlin Trust UK.

I hope that this report goes a short way to portray the expedition, but more importantly to capture the learning that I undertook in the three weeks on the Island and the gratitude that I have for being able to embark on a seed collection trip in Tasmania.