

Hardy Fern Foundation
Quarterly



Summer 2019

THE HARDY FERN FOUNDATION

P.O. Box 3797

Federal Way, WA 98063-3797

Web site: www.hardyferns.org

The Hardy Fern Foundation was founded in 1989 to establish a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community. Many rare and unusual species, hybrids and varieties are being propagated from spores and tested in selected environments for their different degrees of hardiness and ornamental garden value.

The primary fern display and test garden is located at, and in conjunction with, The Rhododendron Species Botanical Garden at the Weyerhaeuser Corporate Headquarters, in Federal Way, Washington.

Affiliate fern gardens are at the Bainbridge Island Library, Bainbridge Island, Washington; Bellevue Botanical Garden, Bellevue, Washington; Birmingham Botanical Gardens, Birmingham, Alabama; Coastal Maine Botanical Garden, Boothbay, Maine; Cornell Botanic Gardens, Ithaca, New York; Dallas Arboretum, Dallas, Texas; Denver Botanic Gardens, Denver, Colorado; Dixon Gallery and Gardens, Memphis, Tennessee; Georgia State University Perimeter College Native Plant Botanical Garden, Decatur, Georgia; Inniswood Metro Gardens, Columbus, Ohio; Lakewold, Tacoma, Washington; Lotusland, Santa Barbara, California; Rotary Gardens, Janesville, Wisconsin; and Whitehall Historic Home and Garden, Louisville, Kentucky.

Hardy Fern Foundation members participate in a spore exchange, receive a quarterly newsletter and have first access to ferns as they are ready for distribution.

Cover design by Willanna Bradner

HARDY FERN FOUNDATION QUARTERLY

**THE HARDY FERN FOUNDATION
QUARTERLY**

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Thank you to our 2019 GIVE BIG DONORS!

**Joe & Lydia Bryan, Diana Dundore, Susan Eggers,
Sheila Forette, Keith Maw, Niko Okamoto, Sue Olsen
and Camille Paulsen.**

President's Message

Spring has come to an end with a bang for the HFF. This year we hosted the 46th annual Fern Fest, our fern and rare plant sale, to a record breaking response. Thank you to HFF board member Rick Peterson for chairing a most successful event which, of course, could not have happened without the help of many volunteers. Thanks to this dedicated crew the sale went smoothly and I extend my appreciation to all of the members and friends of the HFF who stopped by to acquire some great plants for their gardens!

Early June also saw the first of our 30th Anniversary Garden Tours. This sold-out event toured the HFF headquarters in Federal Way, Washington along with 2 other beautiful gardens in the South Puget Sound area. This tour was led by our very busy board member Rick Peterson and finished with a champagne toast graciously provided by Camille and Dirk Paulsen in their stunning garden which is perched on a ridge offering beautiful views of Mount Rainier and set into a lovely, well-designed collection of plants. Our next tour will be led by board member John van den Meerendonk on Bainbridge Island, Washington. Highlights of this tour will feature a tour of our HFF affiliate garden at Bainbridge Island Public Library and an extensive tour of the famed Bloedel Reserve as well as lunch at John's home and garden.

As I write this message, I will soon be visiting our new affiliate garden, the Dixon Gallery & Gardens in Memphis, Tennessee. The institution is a fine art museum with 17 acres of garden. I am excited to visit and look forward to sharing more about the Dixon Gallery & Gardens in the future.

In closing, I hope to see many of you at our future 30th anniversary events. Be sure to check your emails and our website for future tours, celebrations, sales and lectures. In particular we will have our Fall Fern Social and Annual Meeting at Bellevue Botanical Garden on October 19th. I will be giving a lecture that afternoon on my travels in New Zealand and will be showcasing some of the many and wonderful ferns from this remarkable country.

We will also be holding our last celebratory event for our anniversary on Monday, October 28th. This event will be an evening to remember and will be held inside the stunning Amazon Spheres in downtown Seattle. This catered event will be a fantastic way to bring the celebrations to a close. We will have limited seating at this event so be sure to watch for notices to go out in late summer.

All the best ~

Richie Steffen
HFF President

HFF Welcomes Cornell Botanic Gardens as newest Affiliate Garden!

Cornell Botanic Gardens oversees three distinct areas: cultivated gardens; arboretum; and natural areas. Together these comprise one-third of the Ithaca, New York, campus, and with off-campus natural areas, a total of 3,600 acres.



Cornell Botanic Gardens
© Jay Potter

Our mission is to inspire people – through cultivation, conservation, and education – to understand, appreciate, and nurture plants and the cultures they sustain.

These three pillars are depicted in our logo as a weave to represent our vision: a world in which the interdependence of biological and cultural diversity is respected, sustained, and celebrated. They also serve to remind us of the interrelationships of our physical spaces – gardens, natural areas, and an arboretum.

The 35-acre cultivated gardens include specialty gardens of herbs, flowers, vegetables, perennials, ornamental grasses, groundcovers, and rhododendrons, among others.

The 100-acre ER. Newman Arboretum is home to collections of nut trees, crabapples, maples, urban trees, and shrubs. The arboretum offers a pastoral setting and panoramic views, amidst a living museum of trees, shrubs, and woodland plants.

The most beloved natural areas on and around the Cornell campus are stewarded by the Cornell Botanic Gardens. These include the Cascadilla and Fall Creek Gorges, Beebe Lake, and an additional 30 miles of public trails. In addition to maintaining these treasures for the enjoyment of the public, the Botanic Gardens protects rare and endangered native plants and collaborates with scientists in many domains of research and conservancy.



Cascadilla Gorge
© Brian Maley

KEY FACTS

Established in 1935 as the Cornell Arboretum; later renamed Cornell Plantations, and in 2016, became Cornell Botanic Gardens by vote of the university board of trustees.

70,000 visitors a year, 40 staff members

Current holdings of 3,600 acres of natural and constructed landscape, and natural history collections

- 40,000 plants, including 7,062 unique species of woody plants 3,515 unique herbaceous species
- 1,016 taxa of trees
- 44 taxa of herbs
- 276 taxa of rhododendrons
- 37 taxa of azalea
- 641 species of wildflowers in the Mundy Wildflower Garden
- 44 miles of trails
- 15 waterfalls
- 2,169 Hemlocks saved from hemlock woolly adelgid

Collected and preserved nearly 7,000 seeds from 300 individual plants across four populations to help safeguard the American Globeflower (*Trollius laxus* ssp. *laxus*), one of our region's rarest species, sequesters enough carbon each year to save 136,000 square feet of Arctic sea ice from melting.



F.R. Newman Arboretum
© Jay Potter



CORNELL
BOTANIC
GARDENS



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cornellbotanicgardens.org

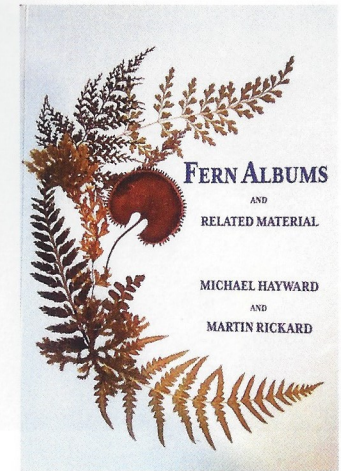
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Book Review

Fern Albums and Related Material
Michael Haywood and Martin Rickard
The British Pteridological Society, 2019

Pat Riehl

Seattle, WA



As someone who has collected Victorian fern albums on a very small scale the albums are overwhelming both in their construction and information. This book changed my perspective. It is a wealth of information for an album collector and a fern enthusiast. Without the photography an understanding of the processes of making albums would be limited so the photography helped tremendously. I especially focused on the introduction, chapter one and chapter eight. The introduction clearly lays out the difficulty of analyzing and dating a fern album based on the purpose for collecting, ie. for ones' own use or to sell, amateur, professional, evolution of labeling, mounting and naming and migratory patterns of collectors. Collecting could often be a family affair from generation to generation so knowing the bits and pieces gave valuable information about the collector.

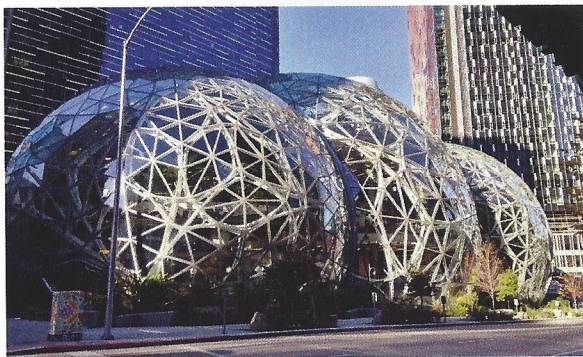
Chapter one focuses on the features of album making and the history of changes in how fern samples were mounted, labeled and named, or not. The issue on naming is still a puzzle today but fern names have changed so much since Victorian times following the fern name to the present day is a feat of perseverance. Again photos of all the album components give so much information that words alone cannot.

Chapter eight focuses on the care and preservation of these old albums. Many albums have stains, insect damage, lose plates, mountings and specimens making them difficult to study. While I would never consider a do it yourself repair there are suggestions made for how to correct some problems such as soot damage and the tools to use.

The chapters between one and eight are separated by country according to where the specimens were collected. The largest chapters are on Great Britain, India, New Zealand, Australia and the Pacific Islands with smaller chapters on the West Indies. All are areas colonized by Great Britain. There are also smaller chapters on other parts of the world.

I look at my Victorian fern albums with new appreciation now thanks to this very informative book and to the hard work of these two authors.

It's a Jungle In There

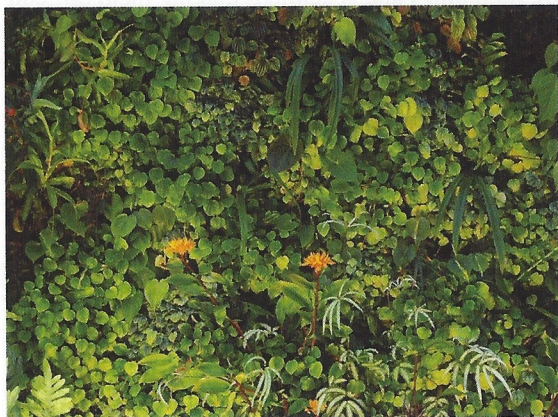


Daniel Mount
Carnation, WA

On November 3, 2018 {18} members of the HFF went to the Amazon Spheres in downtown Seattle. (a second group went on November 14th) It was a typical mid-Fall day. Low clouds and high humidity signaled the threat of

coming rain. And there was a decided chill to the air as we stood outside waiting for our tour to begin. The Spheres look like a futuristic space colony crashed among the new and glistening skyscrapers all around. The surrounding gardens, too, had a strange other-worldly look, not your typical ultra-urban landscape with clipped Japanese holly, swatches of Persian cyclamen and ornamental kale. In the exterior gardens, designed by Dan Hinkley, there were hardy gingers still in bloom, lush and hardy scheffleras, and, of course, a preponderance of dramatic ferns. Colonies of Chilean hard fern (*Blechnum chilense*) and Shearer's felt fern (*Pyrrosia shearereri*) were embedded in the ground layer. And Tasmanian tree ferns (*Dicksonia antarctica*) towered over the rest of the plantings. Without a sword fern or creeping Oregon grape in sight, we felt as if we were no longer in the Pacific Northwest.

But the real excitement began when we entered the 3 linked geodesic domes. The Spheres have limited accessibility and we were fortunate to get in early and avoid the crowds on that busy Saturday. We were also fortunate to have two excellent guides Brian Collins, our newest HFF board member and horticulturist at the Spheres' Woodinville greenhouses, and Ben Eiben, Horticultural Program Manager of the downtown location. Their expertise and enthusiasm for their work, and for ferns, made it an exceptional tour.



Our camera lenses fogged over as we entered the artificial tropical environment. The Spheres are kept at 72-75 degrees with humidity at 65% during the day. The nighttime temperature plummets to a cool 58 degrees with the humidity going up to 80-90%. This flux imitates the tropical cloud forests around the world where most of the plants in the collection are native.

Planning for the Spheres began in 2010. The design was executed by NBBJ, an American global architecture firm, and the landscape firm Site Workshop. They took cues from biophilic design, the idea of connecting occupants with the natural world. The Spheres, which opened on January 30, 2018, were designed as a lounge and workspace for Amazon employees. It is also open on a limited basis to the public. Check out their website for more information.



The three overlapping spheres range in height from 80 to 95 feet and take up half a city block. Nearly 40,000 plants grow there from 50 countries around the world. The western sphere focuses on Old World plants and the eastern sphere New World plants. The central and largest sphere is where you can find meeting places, the lounging area and the now famous green wall. (Photo above courtesy of Ben Eiben)



As our camera lenses cleared we could not help but take endless digital images as we moved deeper into this wholly beautiful environment. We stopped for every detail and any plant, especially if it was a fern. There were terrariums and aquariums like miniature jungles

within the greater complex. And they all included ferns.

The centerpiece of the first sphere we visited is a 49-year old ficus tree from California. At 45,000 pounds it needed to be lowered into place with cranes through a hole in the roof. Interesting and magnificent as it is, it was the understory that captured our attentions, bizarre begonias, weird aroids, and, of course the abundant ferns. There are 30 genera of ferns in the collection represented by over 50 species Collins informed me. Deer tongue fern (*Elaphoglossum*), the largest genus of ferns with nearly 600 pantropical species, is represented by 4 species in the collection. *E. decoratum* and



E. crinitum (photo bottom right page 43) were of particular interest in the group. The ideally grown dwarf Brazilian tree fern (*Blechnum brasiliense*) (photo right) and the dwarf tree fern hailing from New Zealand (*B. gibbum*) were impressive. We were certainly happy to see ferns being used as extensively in the interior as they were in the exterior gardens. Actually the first plant to be planted in the Spheres was an Australian tree fern (*Cyathea cooperi*) which came from the recently demolished University of Washington greenhouses. The Spheres house the university's collection at their Woodinville greenhouse, while their new greenhouses are being built, creating a strong bond between the two institutions.



Certainly the showstopper of the Spheres is the 55- by 66-foot living wall in the central sphere. Composed of nearly 25,000 plants it had our jaws dropping at the sheer size and beauty. With a slower and closer inspection, and our mouths firmly closed again, we began to see an incredibly diverse matrix and, of course, more ferns. Three-foot long fronds of oriental chain fern (*Woodwardia orientalis* var. *formosana*) drooped laden with {plantlets}, (photo left, courtesy of Sue Olsen) Cretan brake fern (*Pteris cretica* var. *albineata*) and *Phlebodium aureum* 'Blue Star' shimmered through the darker greens of philodendrons, orchids and the startlingly bizarre Asian pitcher plant (*Nepenthes* sp.).

The high level of design ran through all aspects of the space, the furnishings, planters and lighting all echoed off the larger design of the space. There were exquisite wall hung terrariums for miniature plants. Vertically planted and hung like pictures they wowed and inspired the group.

By the end of the tour we hardy fern enthusiasts were discussing moving our fern mania indoors and starting terrariums ourselves. We could hardly leave the place and lingered to take pictures and wander, trying to get a few last questions answered from our hosts. Certainly we left satisfied and invigorated into the chilly November day. And we were, also, all very happy to see the concrete jungle becoming just a little bit greener. Photos courtesy of Daniel Mount unless otherwise noted.

Amazon Spheres, behind the scenes....

Beneath the Greenery

Underneath all of the foliage, is a sophisticated irrigation system that efficiently recirculates nutrients and water. Irrigation supply is pumped to the very top of the walls and slowly percolates to the bottom, fertilizing and watering plants as it moves downwards. The wall is made of a Surface Mesh that spreads nutrients to all of plants that need it. Catch basins collect excess water, as it makes its way back to a central reservoir so the process can begin again. As a result, irrigation is simple and sustainable.



Living Wall in Spheres

Prior to being assembled into a 60-foot living wall, plants were grown in a greenhouse on three-foot-long panels.

Putting It All Together

How do you grow a 4,000 square foot green wall? One piece at a time. These walls are the brainchild of

Horticulture Program Manager Ben Eiben. Ben and the team assembled the living walls, first by growing plants on three-foot-long panels at the greenhouse. When the panels were ready, they were transported and attached to the growing surface at The Spheres. With this careful preparation, the team assembled The Spheres' tallest living wall, which stands at 60 feet, in only two weeks.

In addition to being a creative way to display plants, green walls also provide many benefits including reducing urban heat islands, cleaning interior airspace, and providing natural cooling and insulation for buildings. These walls are just one of many natural spaces employees and visitors can look forward to seeing inside The Spheres.

Courtesy of the Amazon Spheres Blog



Ferns of the Amazon Spheres

<i>Adiantum caudatum</i>	<i>Elaphoglossum apodum</i>
<i>Adiantum hispidulum</i>	<i>Elaphoglossum crinitum</i>
<i>Adiantum peruvianum</i>	<i>Elaphoglossum decoratum</i>
<i>Adiantum trapeziforme</i>	<i>Elaphoglossum eximium</i>
<i>Angiopteris evecta</i>	<i>Elaphoglossum lanceolata</i>
<i>Asplenium antiquum</i> 'Victoria'	<i>Elaphoglossum metallicum</i>
<i>Asplenium dimorphum</i> x <i>difforme</i>	<i>Elaphoglossum paleaceum</i>
<i>Asplenium kenzoii</i>	<i>Hypolepsis dicksonoides</i>
<i>Asplenium nidus</i>	<i>Lemmophyllum microphyllum</i>
<i>Asplenium nidus</i> 'Cobra'	<i>Lemmophyllum</i> sp
<i>Asplenium parvati</i>	<i>Microsorium musifolium</i>
<i>Asplenium prolongatum</i>	<i>Microsorium steerei</i>
<i>Blechnum brasiliense</i>	<i>Microsorium thailandicum</i>
<i>Blechnum occidentale</i>	<i>Neolepisorus phyllomanis</i>
<i>Campyloneurum muscifolium</i>	<i>Polypodium bombycinum</i>
<i>Coniogramme emeiensis</i> 'Golden Zebra'	<i>Polypodium levigatum</i>
<i>Coniogramme gracilis</i>	<i>Polystichum proliferum</i>
<i>Coniogramme japonica</i>	<i>Pyrrosia hastata</i>
<i>Davalia heterophylla</i>	<i>Pyrrosia lingua</i>
<i>Davalia sessifolia</i>	<i>Pyrrosia longifolium</i>
<i>Davallia black</i>	<i>Pyrrosia nummularifolia</i>
<i>Davallia parvula</i>	<i>Pyrrosia</i> sp 16-222
<i>Davallia white</i>	<i>Pyrrosia subfurfuracea</i>
<i>Dicksonia antarctica</i>	<i>Serpocaulon levigatum</i>
<i>Doryopteris pedata</i>	<i>Woodwardia orientalis</i>
<i>Egenolfia appendicular</i>	



Back Row L-R: tour leader; Walt & Pat Riehl, Chuck Ogburn, Jane & John Whiteley, Jerry Dougherty, Kevin Egan, Carolyn Dougherty; Front Row: Kathryn Crosby, Jo Laskowsky, Susie Egan. *Photo courtesy of Susie Egan*



Back Row L-R: Bob & Linda Pyles, Karen Klein, John van den Meerendonk, Buz & Helen Smith, Daniel Mount, Sue Olsen, Ben Eiben, David Strahle, Forrest Campbell, Kristen Sundquist; Front Row: Nancy Strahle, Brian Collins, Michelle Bundy, Mark Leichty, Nils Sundquist, Rene Campbell. *Photo courtesy of Michael Boudreaux*

Ferns Downunder

Lindy-Anne Fitzpatrick ~ Australia

Australian Rainforests – Wild and Wonderful

Australian Rainforests – where shade, shelter and an abundance of moisture have given rise to great colonies of luxuriant fern species. Along the mossy banks of the creeks and in the mists of shadowy mountainsides, giant tree ferns unfurl their feather-like leaves. Filmy ferns decorate the puddles and ponds dotted along the streams. High in the forest canopy, clinging to trees, the air feeders, Giant Staghorns and Elkhorns renew their nest-leaves year after year, releasing their spores to drift in the breeze.

Australia has more than thirty families of ferns, more than one hundred genera and in excess of three hundred and fifty species. Some species are found in temperate bushland but the majority are found in the rainforests, hosts to aquatic, epiphytic and terrestrial ferns including spectacular colonies of Cyathea and Dicksonia tree ferns.

A snapshot of some of our forests – Starting with TASMANIA.

Hellyer Gorge

Rainforest in Tasmania's Hellyer Gorge, a magical place full of tree ferns, tall primitive myrtle beech trees encrusted with mosses and fungi.

Credit: By anyaka – Flickr, CC BY-SA 2.0, <https://commons.wikimedia.org/w/index.php?curid=987468>



West Coast Wilderness Railway

A popular tourist attraction in Tasmania. A steam train chugs for more than thirty kilometres over rivers, through ancient rainforest and high above deep plunging gorges.

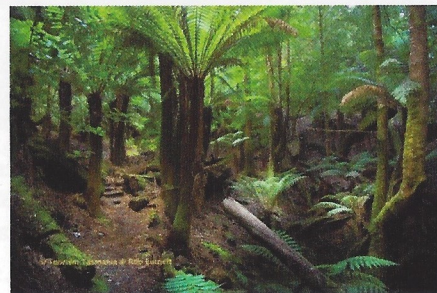
Credit: Tourism Tasmania & Rob Burnett



Trowatta Arch

Trowatta Arch Track is an easy 500 metre walk through a tall temperate rainforest the understory littered with layers of leaves and fungi. The track leads to Trowatta Arch – a huge jagged wall of limestone, a cave system millions of years ago.

Credit: Tourism Tasmania & Rob Burnett



Moving across to the mainland and into the Deep Fern Gullies of VICTORIA.

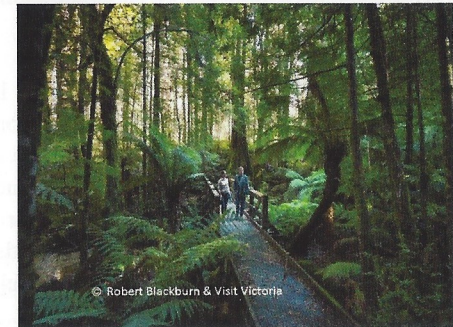
In 1877 Government Botanist to the State of Victoria wrote of the Treefern Valleys clothed in towering specimens of *Dicksonia antarctica*. He observed that several species of Polypodiums could be seen clinging to their trunks along the moist forest tracks. He wrote of other species, Cheilanthes, Davallia, Adiantum, Pteris, Lomaria, Blechnum, Doodia and Asplenium comfortably secluded in the damp dark forests. These are forests full of ancient plants that we must protect.

Fern Gully at the Royal Botanic Gardens, Melbourne, was originally designed in 1873. It has been a popular destination for visitors for more than a century. A bubbling stream meanders through a recently revitalised landscape of ferns, palms and rainforest trees.

Tarra-Bulga National Park

Tarra-Bulga National Park in South Gippsland is home to a cool temperate rainforest. Giant Mountain Ash Trees, Beautiful Fern Gullies and Ancient Myrtle Beeches fill the gullies. Tarra Valley Rainforest Walk meanders through a rainforest gully and trickling mountain stream. The ancient trees provide a protective canopy for an understory of tree ferns, lichens and moss.

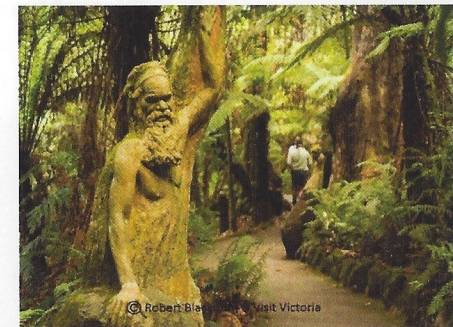
Credit: Josie Withers & Visit Victoria



William Ricketts Sanctuary

William Ricketts, born 1898, was an Australian naturalist, environmentalist and sculptor. He was inspired by the traditions and culture of the Aboriginal people from Central Australia. His works, close to 100 sculptures, are scattered throughout the Mountain Ash trees and tree ferns in his Sanctuary at Mount Dandenong, Victoria. These priceless sculptures depict indigenous Australians and their relationship with nature.

Credit: Robert Blackburn & Visit Victoria



Cumberland Walk

Cumberland Walk in the Yarra Ranges National Park is a circular walk of about 4 km through a rainforest gully, past two fern fringed waterfalls and The Big Tree, the tallest known living tree in Victoria.



Credit lower right: By Thomas Schoch - Thomas Schoch at <http://www.retas.de/thomas/travel/-australia2005/index.html>, CC BY-SA 2.5, <https://commons.wikimedia.org/w/index.php?curid=674039>

One of many bushwalks in the area, there are others with craggy peaks and rugged escarpments that offer stunning scenery and secluded secrets hidden in the forests of the magnificent National Parks of Victoria. Credit: Robert Blackburn & Visit Victoria

Over the border and into New South Wales and its Capital, Sydney, where heritage buildings juggle for a space where they can get a glimpse of the most beautiful harbour in the World. A City that rose from the ashes of a colonial convict settlement.

Approximately 100 kilometres west of Sydney City the Blue Mountains Botanic Gardens at Mount Tomah has a history steeped in European discovery and settlement. In 1830 the first land grant saw the area being used for dairying and cattle resting paddocks. In 1934 the property changed hands and operated as a cut flower farm supplying Sydney florists. Those owners later donated the land as an annexe of the Royal Botanic Gardens in Sydney.

Lush temperate rainforest dominates the Blue Mountains National Park. A century or more ago a settlement close to Mount Tomah, Mount Wilson, was covered with huge tree fern forests. Narrow dirt roads were carved out of the forest as trails for bullock teams to cart bricks and timber. Today much of this forest remains untouched and down in deep valleys creeks run continuously providing moisture for a plethora of cold hardy terrestrial ferns. *Cyathea australis* leads the list along with eight species of *Blechnum*, *Lasteopsis*, *Polystichum*, *Rumohra*, *Gleicheia*, *Sticherus* and *Todea Barbara*.

Blue Mountains Botanic Garden – Mount Tomah



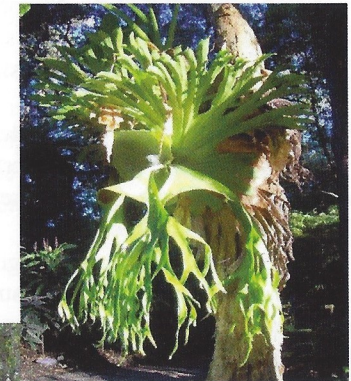
Credit: Lwalsh(https://commons.wikimedia.org/wiki/File:Mt_Tomah_Botanical_Gardens_-_Garden_5_Proteaceae.JPG), "Mt Tomah Botanical Gardens - Garden 5 Proteaceae", <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

Bushwalking in the Blue Mountains

There are more than 70 walking tracks and trails in the Blue Mountains National Park. Entry is usually free and offers waterfalls, creeks and spectacular views. Along the way a visitor may spot a brush-tailed rock wallaby, a spotted-tailed quoll or a squirrel glider. Something in the canopy has taken the interest of this couple. Could it be our famous mammal the Koala? This one is being watched keenly by our native Yellow Robin – another treasure that likes to frequent the forest.



LEAVING SYDNEY and TRAVELLING 500 KLMS NORTH we can't go past Dorrig National Park. Enjoy guided tours, walks, scenic drives, and accommodation surrounded by Gondwana Rainforests and ancient landscapes. Here we find our first regular glimpses of *Platycerium superbum* clinging to the trunks of trees in the forest.



Just a short drive down Dorrig Mountain and across to the COAST we find Coffs Harbour. Here at the Coffs Harbour Botanic Gardens we find a Stumpy decorated with Bromeliads waiting and hoping for some ferns to fill the gaps.

Coffs Harbour is verging on sub-tropical. It is home to the tourist spot – The Big Banana – and is a vibrant banana, avocado and blueberry growing area.

Nightcap National Park

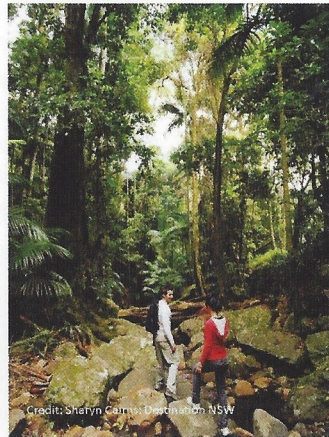
Protesters Falls

Located in the Terania Creek Basin. Terania Creek was the site for a famous Three year Rainforest War in 1979 when anti-logging protesters formed a human shield against bulldozers and pro-loggers to protect the rainforest. This ongoing environmental confrontation resulted in the remaining rainforest in New South Wales being gazetted as National Parks by the Government authorities. Nightcap National Park's rainforests are part of the Gondwana Rainforests of Australia World Heritage Area, the largest area of sub-tropical rainforest in the world. Credit: Destination NSW



Lyrebird Track – Wollumbin National Park

A short 0.6 km track through lush sub-tropical rainforest. Crossing Breakfast Creek then wandering through a palm forest to a scenic viewing platform. A huge diversity of animals, birds and plants exist here. Brush turkeys forage through leaf litter for insects and seeds.



Asplenium harmonii, an unusual Bird's Nest Fern amongst our Australian species, can be found in the forest along Lyrebird Track. It has also been recorded at Green Mountain – just over the New South Wales – Queensland State Border.

So *Asplenium harmonii* takes us north to Tropical North Queensland.



Tropical North Queensland – Over the New South Wales border and into Queensland. We could stop off at many places. We could visit with known fern collectors – their shadehouses filled with amazing tropical Adiantums, rare crested Polypodiums, ferns with highly variegated and tasselled fronds some of which may have been brought into Australia from Asian countries when import restrictions were not so strict. Each

one carefully guarded and nurtured by their owners. Instead we are heading 1,822 kilometres north to Cairns, the launching pad for the Daintree Rainforest and the delightful tourist attractions that draw millions of visitors from home and abroad each year. Sir David Attenborough needs no introduction. He has described North Queensland as his favourite place in the world other than his home in the United Kingdom. "It's got mountains, it's got tropical rainforest, it's got the Barrier Reef. It's got wonderful creatures that occur nowhere else." So we will take a quick look at some of



tropical North Queensland.

Ferns love shady places – places where they can creep and crawl.

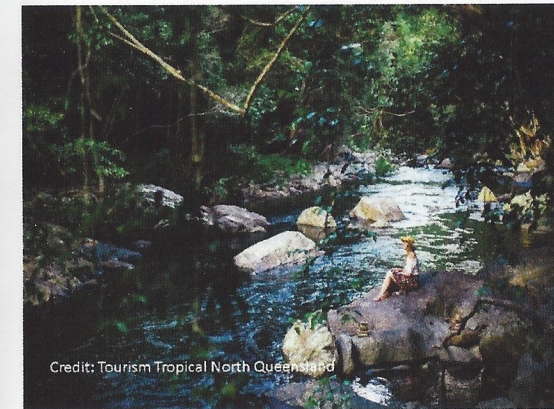
Damp, gravelly spots, slippery rocks, where they can turn up their fronds and shed their spores.

Where the sunlight filters to the forest floor and the puffballs proliferate – marching side by side through the litter and across fallen timber.



Fern fanciers know these places. They have tramped through the forests and mountainsides where filmy ferns thrive in the mist of waterfalls.

I hope you have enjoyed this visit to Australian Rainforests.



Some amazing dreams

Jo Laskowski ~Seattle, WA

Fern Fest, 2019, HFF's annual blow-out fern sale. We stuff in a guest speaker the evening between the two sale days. This year, Dan Hinkley was it. Hinkley is a plant hunter, whose many trips to India, Myanmar, Vietnam, and China have rewarded him with some marvelous finds. Trees, shrubs, perennials—almost nothing has escaped his assessment. Hard-won cuttings and seeds come back to be grown on and trialed, carefully monitored for thuggish behavior and horticultural worthiness, then introduced to an eager market. Hinkley has a good eye and a good track record.

7PM. The room stilled and the presentation began. He launched with, "I know absolutely NOTHING about ferns." Okay... Does this man know he's addressing a room full of fern-ophiles? And then a slurry of images and anecdotes came fast from the man with a rapier wit and self-deprecating delivery.

Hinkley did pay lip-service to our neediness for ferns. He and his partner purchased a new property in 2000, sited in full sun on top of a cliff. And indeed, he has managed to get a few ferns worked in. He knows the effect of 93 *Dryopteris crassirhizoma* planted en masse, and appreciates the acid-green presence of *Arachniodes standishii* in the gardens. BUT—the regions of India and Myanmar and Vietnam and parts of China boast incredible biodiversity. Everything from alpine to bamboo to pine to temperate forests are home to a mesmerizing range of plants. You just have to find them.

Smilacina, in Myanmar

Smilacina are perennials of the Lily family, whose genus name has been revised to *Maianthemum*. In the Pacific Northwest you might be familiar with our native *M. dilatatum*, or false lily-of-the-valley, a neat little groundcover that produces frothy white flowers then disappears in the winter. Unfortunately, it has the nasty habit of overwhelming anything near it, despite its deceptively delicate demeanor.

Ah, but the *Maianthemum oleraceum* that Dan found. Reddish curving stems hold racemes of white to sometimes lilac-colored flowers, followed by fruit that change from red to purple as they ripen. Heart-breakingly slow to grow, it is now available in commerce.

Gibbons, in Myanmar

Gibbons are a food source for local populations and eaten with relish. The plant-hunting group was aware that they were being followed by a group of gibbons, unseen, as they advanced up the ridges. Turn-about is fair play?



Dichroa, in Myanmar

Dichroa are perennials in the Hydrangea family. *Dichroa febrifuga* is one of the 50 Fundamental Herbs in Chinese medicine, and among its many applications is that of fever reduction. "Febrifuga" comes from Latin: *febris*, meaning fever and *fugare*, meaning to expel. *D. febrifuga* produces a stunning, metallic blue fruit. *Dichroa* may be crossed with *Hydrangea*, producing x *Didrangea* offspring. As the group departed from camp one morning, they noticed a *Dichroa*, previously undescribed. It sported knock-your-socks-off metallic blue petioles—and there it was, right on the doorstep! When the group returned to camp that evening, the shrubs were nowhere to be seen—it took a while to understand that the porters had cut the patch down to spread under the tents. So up came the tents, and the crushed branches were retrieved for cuttings and seed.

Dipteris chinensis, in Myanmar

A formidably large fern, it was seen frequently in a narrow horizontal band at an 8,500 foot elevation. Its very specific needs confine it to such a sharply-delineated realm.

Moth, in northern India

A moth on Dan's bedpost looked like a skeletonized leaf, three-dimensional in detail, in dissolute shades of brown and gray.

Arunachal Pradesh / northeastern India, where "Pradesh" is a word meaning area, region, or location. This area shares borders with Bhutan, China, and Myanmar, and has long been contested. Increasing military access has brought good roads to areas previously difficult to access.

Rhododendron, in Arunachal Pradesh

The botanical melee in this area comes from its location in the eastern Himalayas. Here the collision of continental plates has pushed up vertical ridges and made steep valley walls. It has a temperate climate and receives a lot of rainfall. Rhododendrons are plentiful, and it was here that Dan saw a *R. arboreum* he calculated to be 125' tall. As the specific epithet implies, this rhododendron is known to achieve magnificent heights.

Primula, In Arunachal Pradesh

Perennials in the Primulaceae family, early spring-blooming, and familiar to most people. They dazzle with the tiered flower clusters of the Candelabra primroses, and the delicate bouquets of the Polyanthus primroses. And then there's *Primula polonensis*, declared extinct in 1958. Found again and documented by an incredulous Dan Hinkley.

Hydrangea, in Arunachal Pradesh

Hydrangeas are diverse in this area. *Hydrangea aspera* carries fertile flowers that are borne in large flat heads, in variable shades of pale blue and pink, fringed by white or pale pink sterile florets. This is already an exuberant display, but imagine seeing a triple-sepaled form—as did Dan. Thereafter the driver began shouting "High Danger! High Danger!" a lot. Having noticed Dan's keen interest in this *Hydrangea*, the driver was announcing to him that that there was another of the High Danger he was after.

Begonia, in Arunachal Pradesh

There be a begonia with gunnera-sized leaves. The dissemination of its seeds is taken care of by the rodents, the plentiful rodents. *Begonia silhetensis*.

Helwingia, in Arunachal Pradesh

Helwingia is a little-known genus, and the only one in the family *Helwingiaceae*. It provides meritorious garden shrubs, but usually pulls attention for its unusual flowers and fruit. Their location is in the center of the leaf, the result of the fusion of the leaf and flower stems at the midpoint on the midrib. *Helwingia chinensis*.

North Vietnam, 2016

This was a joint trip with the University of British Columbia and the Vietnamese Academy of Science and Technology. The target plants were rhododendrons and magnolias, but undoubtedly there would be other finds.

Rhodoleia, in north Vietnam

Rhodoleia belong to the *Hamamelidaceae*, whence come many of our beloved garden plants like corylopsis and witch-hazels. *Rhodoleia parvipetala* is both evergreen and hardy, with catchy reddish flowers striped white at the base.

Magnolia, in north Vietnam

Magnolias belong to an ancient order of plants, and interest many people because of the “primitive” characteristics they exhibit. Evolving long before warm-blooded pollinators were around, beetles provided this essential function for them, known as cantharophily (can thar OFF ill e). One *Magnolia* of interest was nyctigamous (nick TIG uh muss), opening its flowers at night, contrarily responsive to darkness. At 8PM on the first night the flowers were observed to open as females, and on the second night as males. Oh, really? Perhaps gender identity has a longer history than we thought.

Holboellia, in north Vietnam

Holboellia will bear edible, sausage-shaped fruit if pollinated. And much like gibbons, they’re a hugely relished food item. The fruit of a new species was collected and brought back to the camp at days’ end, but diplomacy was necessary to both accommodate the porters and their appetites, and guarantee the plant’s introduction into cultivation. At the end of a weary day, everyone sat down and enjoyed the juicy find, spitting the seeds into a plastic bag for collection. *Holboellia brachyandra*.

Macaques, in PRC (People’s Republic of China)

Carrying any plastic or paper bags can make you a target for the local monkey gangs. I repeat, GANGS. Macaques are highly social, and function in well-organized groups. They can exhibit aggressive behavior and are persistent. I suspect this was knowledge learned through hard experience.

The show was over. The flash of images and colors was embedded in my eyeballs. Dan Hinkley has some amazing memories. I bet Dan Hinkley has some amazing dreams.

HFF 30th Anniversary South Sound Tour

Rick Peterson

Poulsbo, WA

The Hardy Fern Foundation (HFF) came to fruition as an official non-profit organization in 1989 and, to celebrate the 30th anniversary this year, the board of director’s decided to host three events, the first being a tour in south Puget Sound, Washington. Arrangements were made to visit the private garden of Camille and Dirk Paulsen in Puyallup, Old Goat Farm in Orting, and the Rhododendron Species Botanical Garden (RSBG) in Federal Way where the HFF is headquartered.

With blues skies overhead on the morning of Sunday, June 9th, I greeted tour participants in the parking area of the RSBG with a gift bag to welcome them on the tour. Steve Hootman, RSBG Executive Director, graciously led the group through the 24-acre garden drawing attention to the history, species rhododendrons, and, of course, the fern collection!



Steve Hootman
Photo courtesy of Forrest Campbell



RSBG Pond Garden
Photo courtesy of Forrest Campbell

The highlight of the visit was the Victorian Stumpery created through the efforts of the HFF & RSBG in 2009. In the past ten years the ferns have flourished and the Stumpery is a verdant and lush sight to behold.

The next stop was Old Goat Farm, located between the hamlets of Orting and Graham. Greg Graves, retired head gardener at the Elisabeth C. Miller Botanical Garden in Seattle, and his partner, Gary Waller, a retired florist purchased the property in 2006. They have created a destination with a woodland garden and sunny perennial border, a menagerie of animals, gift shop and plant sales area. Greg led the tour and had prepared a delightful seating

area for lunch under their old apple trees. Afterwards, folks shopped amidst a wide array of plants in the nursery.



Old Goat Farm
Photos courtesy of Forrest Campbell



The tour concluded at the spectacular Camille and Dirk Paulsen garden which is located in the South Hill area of Puyallup. The property is on a high ridge facing east with a stunning view of Mt. Rainier; however, that was actually secondary to the garden where Camille has thoughtfully, and with much labor, woven a myriad of choice conifers, Japanese maples, and many other noteworthy plants through well-constructed garden features such as small streams and ponds, gazebos, archways, and lovely, restful seating areas.

Camille kindly and generously offered to have a champagne toast to celebrate 30 years of the HFF and she provided bubbly of various sorts to the group so everyone could raise a glass and acknowledge those whose efforts launched the Hardy Fern Foundation and those who continue to encourage enthusiasm and excitement for the vast array of hardy ferns.



Paulsen Garden
Photo courtesy of Linda Pyles



View from the Paulsen Garden
Photo courtesy of Forrest Campbell

A sincere thank you to all of our garden hosts: Steve Hootman, Greg Graves and Gary Waller, and Camille and Dirk Paulsen. We appreciate their time and efforts to make this tour special and to celebrate our organization.

Welcome New Members!!!

Christine Anderson	Mary James
Evan Bean	Jason Jorgensen
Caroline Brown	Suzanne Keel-Eckmann
Jammie Chang	Erica McGillivray
Sue Chenault	Vanessa Gardner Nagel
Frank Cooper	Jacko Obels
Peggy S Fox	Camille Paulsen
Jacob Gifford	Stefan Salomonsson
William Good	Florence Sheehan
Tor Gullholm	Lynn Sires
Bryan Harvey	Ed Starling
Lawrence Hilgers	Susan Taylor
	Brent Tucker

HFF Fall Social 2019

Members and their guests are invited to our annual Social and Potluck Lunch!

Saturday, October 19, 2019

11:00AM – 3:00PM at the Bellevue Botanical Garden
12001 Main Street, Bellevue, WA 98005

Featuring:

- Guest speaker Richie Steffen, Director/Curator of the Elisabeth C. Miller Botanical Garden
- A Fern Frond Showcase by Richie Steffen
- Fern Sale with experts on hand to answer your questions
- Book sales and signings of *The Plant Lover's Guide to Ferns* by Sue Olsen and Richie Steffen
- Potluck Lunch, please bring a favorite main dish, salad, or dessert to share

RSVP to Jo Laskowski at hff@rhodygarden.org with the number of guests and the type of dish you plan to bring.



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*Please send your
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