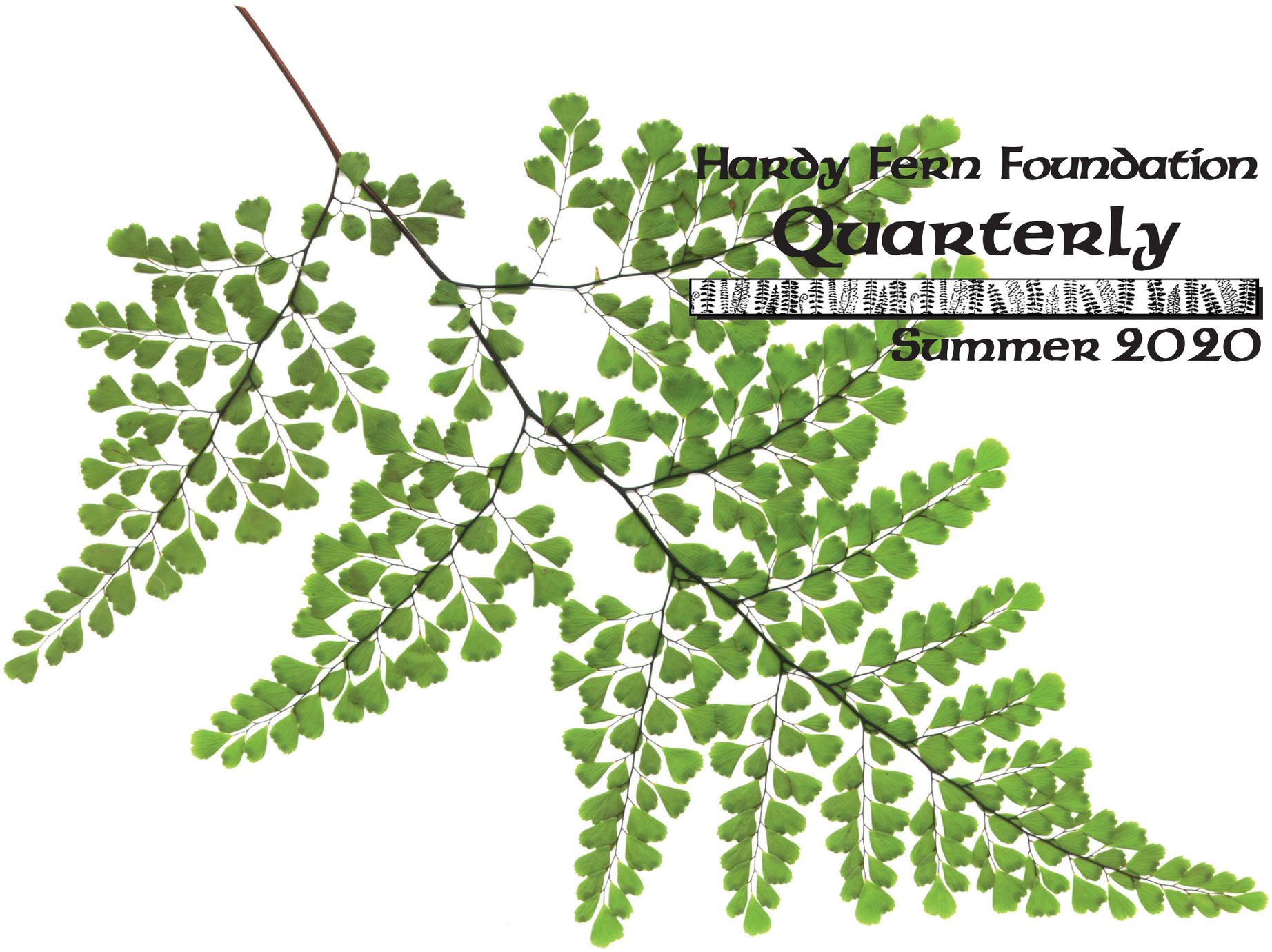


Hardy Fern Foundation Quarterly

Summer 2020

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.

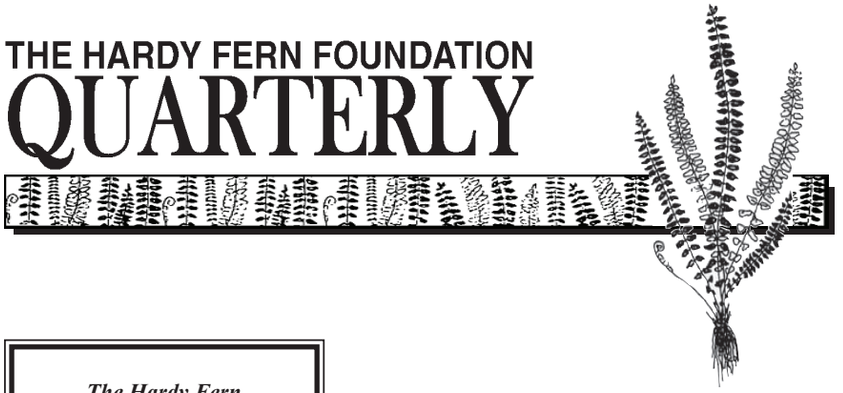
Affiliate fern gardens are at the Bainbridge Island Library, Bainbridge Island, Washington; Bellevue Botanical Garden, Bellevue, Washington; Birmingham Botanical Gardens, Birmingham, Alabama; Coastal Maine Botanical Garden, Boothbay, Maine; Cornell Botanic Gardens, Ithaca, New York; Dallas Arboretum, 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



The Hardy Fern Foundation Quarterly
is published quarterly
by the

Hardy Fern Foundation
P.O. Box 3797
Federal Way, WA
98063-3797
253-838-4646 ext. 111

Articles, photos, fern and gardening questions, letters to the editor, and other contributions are welcomed!

Please send your submissions to:

Sue Olsen
2003 128th Ave SE
Bellevue, WA 98005
foliageg@gmail.com

Editor:
Sue Olsen

Graphics:
Willanna Bradner
(cover design)
Michelle Bundy
(inside design)

Webmasters:
Lori and Dave Gibson

THE HARDY FERN FOUNDATION

Board of Directors

President: Richie Steffen

Vice President: Michelle Bundy

Immediate Past President: John van den Meerendonk

Recording Secretary: Kathryn Crosby

Corresponding Secretary: Pat Riehl

Treasurer: Nancy Strahle

Board Members:

Forrest Campbell
Brian Collins
Susie Egan
David Gibson
Daniel Mount
Charles Ogburn
Rick Peterson
Linda Pyles
Jane Whiteley

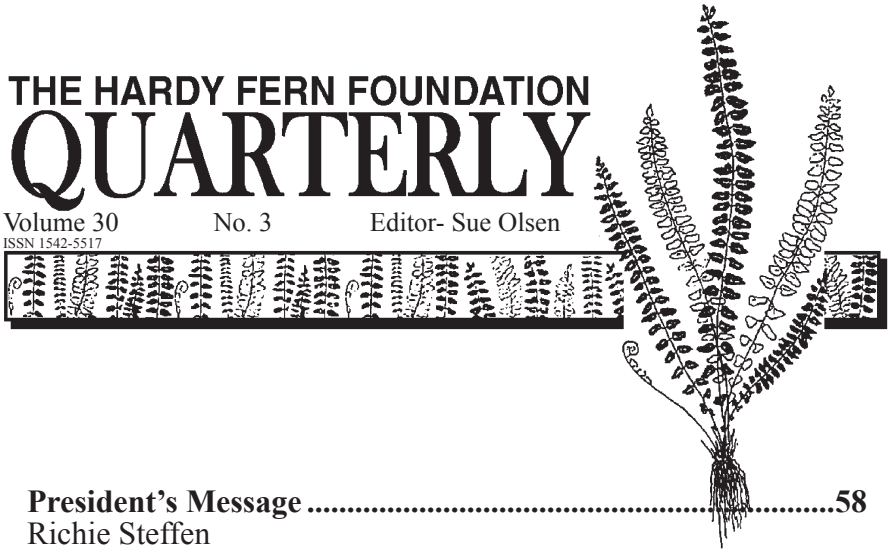
Honorary/Advisory Members:

Naud Burnett
Carolyn Doherty
Jerry Doherty
Nils Sundquist

Members at Large:

Sue Olsen

THE HARDY FERN FOUNDATION
QUARTERLY
Volume 30 No. 3 Editor- Sue Olsen
ISSN 1542-5517



President's Message **58**
Richie Steffen

Welcome Kyra Matin **59**
Richie Steffen

Whitehall House and Gardens **60-63**
Leslie Pancrantz

Japan Tour **64-75**
Intro by Daniel Mount
Journals by various travelers

Lakewold Fern Inventory 2019 ..... **76**
Kristine Dillinger

Osmunda japonica **77**
Reprinted from Volume 22 No. 1 (Winter 2012)
James R. Horrocks

Annual Meeting and Fall Social **78**

A Refreshing of the Signature Bed **79**
Richie Steffen

President's Message

As we settle into the heat and sunshine of summer, it seems like years have passed since the last issue of the Quarterly was mailed out. Spring in the Northwest has been a mix of rain with broken periods of sun and warm weather. The lush growth from this has made our gardens full and it could not be more welcome. The garden is my place to contemplate, recharge and cultivate creativity. As the world around us continually shifts with the ongoing pandemic as well as social unrest spotlighting the racial inequalities of our society, I know that our organization is resilient and supportive, but our work is not done. The HFF is willing and committed to be an inclusive society and is actively working to expound on this goal. Long term plans and activities are being worked on to expand our outreach and work to share our resources and fern knowledge with underserved communities and people from diverse backgrounds.

I am happy to have our new program manager on board. Kyra Matin joined us as our HFF staff person in April and is a wonderful asset to the organization. Kyra is a recent graduate frrom the University of Washington with a Master of Environmental Horticulture degree. She is excited to learn more about ferns and share her enthusiasm with you in future projects. Welcome Kyra, it is great to have you as part of the HFF!

One of Kyra's first projects was to work with me and a few members of the Elisabeth C. Miller Botanical Garden staff to refresh the fern plantings at the Washington Park Arboretum's Signature Bed. The Arboretum established the Signature Bed to highlight the work of a local horticultural organization and the HFF has been maintaining the bed for 15 years. Working at a socially safe distance from each other, we added several new ferns as well as some beautiful and complementary perennials. You will be able to read more about this and about Kyra in two short articles in this issue of the Quarterly. I hope you enjoy this issue and that you have a safe summer.

All the best,
Richie Steffen

Richie Steffen
HFF President

Thank You
Give Big 2020 Donors

Joseph Bryan
Michelle Bundy
Sheila Donley
Susan Eggers
M. Clydene Evans-Wenzel
Charles Ogburn
Ramona Okamoto
Camille Paulsen
Sashi Raghupathy
Margaret Soderstrom
Richie Steffen

Welcome Kyra Matin our new HFF Program Manager

Richie Steffen

Kyra Matin
Photo courtesy of Lucie Oldale

Excitement for plants and an enthusiasm to learn are two qualities we saw immediately while interviewing our new HFF Program Manager, Kyra Matin. A recent graduate from the University of Washington with a Masters of Environmental Horticulture degree, Kyra brings a love of plants, a willingness to share and a strong interest in the public gardening community.

An East Coast transplant, growing up in Connecticut and New York City, Kyra moved to Oregon to study biology at Lewis & Clark College. While in Portland she interned, then worked for the famed Cistus Nursery. This provided exposure to a wealth of unusual and exotic plants. After a brief foray into winemaking in Oregon and New Zealand, Kyra discovered a desire to work more intensely with plants which led her to apply to the University of Washington Environmental Horticulture program. While working on her master's degree, Kyra was the recipient of the Elisabeth Carey Miller Scholarship in Horticulture, the John A. Wott Fellowship and the Garden Club of America Corliss Knapp Engle Scholarship in Horticulture. Her master's thesis focused on the New Zealand Forest ecogeographic garden at the Washington Park Arboretum where she researched plant communities, evaluated themes of the current garden, and compiled useful information for the continued development of the New Zealand Forest display. This led to a unique opportunity to intern at the Dunedin Botanic Garden in New Zealand where she gained valuable experience working with their staff and providing the prospect of collecting seed and fern spore from the wild.

Kyra started working for us in late April and is becoming settled into her position after a bumpy start with the pandemic. I am looking forward to working with her in the future and I am sure for those members who have a chance to meet her, you will like her as much as we do.

Whitehall House and Gardens, Louisville, KY Woodland Garden

Leslie Pancratz
Louisville, KY

The Whitehall mansion, originally a private home, dates back to 1855. In 1992, its last private owner bequeathed the mansion and 10 acres to the Historic Homes Foundation. The Ralph Archer Woodland Garden began in 1998 and was designated a Hardy Fern Foundation display garden in 2002. While constantly growing and evolving since then, the past three years in particular have seen significant improvements.

The stumpery theme has been reinforced by bringing in more stumps and logs to anchor the views and show off the ferns and woodland companion plants. Osage orange, black walnut, mulberry, and eastern red cedar provide longer-lasting natural sculptures than our original fallen oaks and cherries did.

Four established beds in the garden have been renovated, making room for more ferns and better placement of ferns. The redesign with the most immediate impact is the first view from the formal entrance. After losing a critical tree a few years ago, our existing plants suffered from too much sun. Several maturing trees now provide leaf cover, allowing us to plant a wider variety of ferns. We utilized *Dryopteris championii* and *Dryopteris erythrosora* 'Brilliance' as the first view because of their reliability and because they stay upright and green well into winter.

Woodland Entrance
Photos courtesy of Mike Hayman

In August 2019, John Hubbard, a fern garden volunteer both at Whitehall and at Creasey Mahan Nature Preserve in Goshen, KY, coordinated an effort to purchase a large number of ferns from Lundberg Nursery in Niles, Michigan. Lundbergs specialized in hardy ferns and, sadly, were retiring and closing the business. Jean and Scott Lundberg met us in Indianapolis, about half way, where we picked up 95 ferns for Whitehall. This influx of ferns at one time was a wonderful opportunity to expand our fern display.

On April 15 and 16, after a warm, lush early spring this year, we experienced two nights of just below freezing temperatures. Japanese painted ferns, as a group, were hit the hardest. A low-lying 30 x 6 feet swath of them were blackened, looking as though there had been a fire. While late spring frosts are not unusual, we had never seen damage to this extent. We assumed the plants would recover eventually and were pleasantly surprised that it took only a month for them to completely recover.

Other ferns, in various locations, that showed cold damage to fresh fronds were *Athyrium vidalii, Dryopteris pulcherrima*, and *Dryopteris uniformis* 'Gotemba Crested'.

The woodland garden relies on a core group of Jefferson County Master Gardeners. In normal times, the group gathers to work on Monday mornings. With the pandemic this year, the volunteers spread out to other days of the week and staggered times. This is unfortunately less social but everyone has been grateful to spend time outside in a tranquil setting.

Adiantum x mairisii

Over the years we've been able to rely on some valiant workhorses, especially *Dryopteris x australis, Dryopteris erythrosora* 'Brilliance', and *Adiantum pedatum*. The list of other thriving ferns, those passing the test of time, has changed from five years ago.

Ferns thriving

Adiantum x mairisii

A 50% mortality rate might not be considered a success but the several sites where *A. x mairisii* is happy makes it well worth it. Tucked in a cobble in one site and between two logs in another has kept the survivors spectacular.
3 from HFF in 2012 along with 12 acquired in 2013.

Arachniodes standishii

3 from HFF 2016, six others older

Dryopteris championii
The glossy star of the winter garden

Dryopteris crassirhizoma

Dryopteris filix-mas 'Barnesii'

Dryopteris namegatae
3 from HFF in 2010, again in 2018

Dryopteris tokyoensis
First 3 from HFF in 2011. Have added 16 more since.

Arachniodes standishii

Phegopteris hexagonoptera
This and *P. decursive-pinnata* have been reliable groundcovers for 10+ years.

Polystichum x dycei
3 from HHF in 2010, along with several dating back further, are still maintaining size and vigor. Many polystichums, especially the setiferums, require coddling and, ultimately, replacing.

Disappointments

Cheilanthes argentea 3 from HFF in 2015

Cheilanthes eckloniana (z7b) 3 from HFF in 2018

Cheilanthes tomentosa 1 from HFF in 2016
In spite of amending soil for better drainage, cheilanthes do not survive our wet winters. We've had better results with *C. lanosa*.

Dryopteris affinis 'Crispa Gracilis'
5 tries, including 3 from HFF in 2018, with none surviving for any length of time. Other cultivars of *D. affinis* do well, most notably *D. affinis* 'Cristata Angustata'.

Dryopteris bissetiana 3 from HFF in 2010
Only one survives. We hope to try this fern again.

Dryopteris cycadina 3 from HFF in 2012 plus 3 acquired later
Surviving but not thriving.

Polystichum neoloba-tum 3 from HFF in 2014 plus 6 acquired earlier, 3 later
Surviving but not thriving.

JAPAN FERN TOUR NOVEMBER 2019

THURSDAY 31 OCTOBER

Arrival and Introduction
Daniel Mount

With over 726 species of ferns, Japan has a lot to offer pteridologists and gardeners alike. In November of 2019 a group of 14 fern-lovers from England, California and the Pacific Northwest gathered in Japan to travel to the Islands of Shikoku and Amami Oshima to study the ferns there. This was the third and final fern trip organized and lead by Kazuo Tsuchiya of Japan Specialized Group Tours. Tsuchiya dedicated this trip to Tim Pyner who was on the previous two tours and passed away in 2017.

Most everyone on the trip was a gardener of some sort; some affiliated with notable institutions like Alice Taylor, Botanical Horticulturalist at Kew Gardens, and some with notable gardens, or a stumpery to be exact, like Pat Riehl of Seattle. There were avid growers like Dan Yansura and Fernando Orellana from California. And though the trip was not strictly scientific Pat Acock and Paul Ripley were recording the location data of many ferns for the British Museum in London.

There is something freeing about a guided tour. Once again Kazuo Tsuchiya pulled off a remarkable feat by keeping us moving yet making us feel cared for, the whole time exposing us to the comforts, delights and ferns of Japan. Few tourists to Japan get to see what we did. I'm sure plenty of them wouldn't want to stop along the side of the road to stare at a dripping bluff covered with ferns and mosses, anyway. Or skin their knees scrambling up a rocky stream bed in pursuit of a rarity.

Tour Group
Photo courtesy of Kazio Tsuzhiyo

Once again Tsuchiya had enlisted Professor Emeritus Ichiro Yamazumi, an expert on the ferns of his homeland and vice-president of the Nippon Fernist Club. Yamazumi-san reached out to the greater fern-loving community of Japan and created liaisons for just about every location we visited. You will hear more about our many knowledgeable guides as you read on.

Yet none of this could have happened, none of us speak Japanese and none of our guides speak English, without the most excellent translator Asher Ramras connecting us all up.

With everything taken care of we were free, or should I say carefree, to enjoy and

study the ferns and the greater flora of some quite unique locales of these 2 southern islands among the 6852 islands that make up the Japanese archipelago.

The dense forests of both islands, dominated by broadleaf evergreen angiosperms, offered plenty of fern habit; there was plenty of room for flowering plants, too. Both islands are wet places Shikoku with an average of 65 inches of rain a year and Amami with 110 inches. Fortunately for us November is a low rainfall month. Perfect planning, I might add. Our days were near ideal climatically. Our hikes, sometimes casual and meandering and on others a definite rigorous climb up, exposed us to a myriad of geological formations and plant communities.

And, of course, plenty of ferns.

Our lists, prepared by Yamazumi-san, contained 220 ferns which we had the potential to see on the two islands. I'm not sure if we saw them all but I think we took a big bite out of those lists. Many were familiar from other trips, some even familiar from our gardens back home, yet, since we were traveling south to the sub-tropical island of Amami, many were new to us, too.

Read on for the day by day account of our travels and discoveries.

FRIDAY 1 NOVEMBER

Travelling to Shikoku Island
Daniel Yansura

After a great Japanese breakfast at the Nikko Narita Hotel, we took a short bus ride to the train station, and then a rather long commuter ride to the Haneda Airport outside of Tokyo. Our flight to the Ryoma Airport in the Kochi Prefecture on Shikoku Island was short and pleasant, and on arrival we met up with Mr Ichiro Yamazumi whom most of us knew from previous fern tours to Japan. Mr Yamazumi is a wonderful fern expert who accompanied us on our earlier trips to the southern half of Japan; he would share his knowledge with us this trip also.

At the airport we boarded a small coach and set out to spend the afternoon at the Makino Botanical Garden and Herbarium. On the way there, Mr. Yamazumi passed out packages with a list of ferns we would likely see, and topology maps for each day's outing. We all began to study the list for ferns we would be excited to find, while at the same time looking out our window to admire *Dicranopteris pedata, Diplopterygium glaucum* and many other unidentified ferns. At the botanical garden, we met the director who then led us to a large building that housed the herbarium and a number of labs, some of which are involved in plant DNA analysis. There were several ferns that excited us on this short walk to the herbarium, including *Osmunda banksiifolia, O. japonica, Lepisorus thunbergianus, Haplopteris flexuosa, Leptochilus ellipticus, Neolepisorus ensatus, Lemmaphyllum microphyllum, Selliguea hastata,* and *Odontosoria chinensis*.

In the herbarium we were told that there are 500,000 specimens in their collection, of which 300,000 are identified. Two pressed and mounted ferns were sitting on a table for us to observe: *Asplenium coenobiale*, a very un-fern like looking plant; and *Lindsaea simulans*, which looks a lot like an *Adiantum*. We also noticed on a shelf the two volumes of The Standard of Ferns and Lycophytes in Japan by J. Ebihara and F. Kasetani; many of us had purchased these extensive reference books on the 2016 Japan Fern Tour.

With much of the day devoted to traveling, we didn't have enough time to see the whole botanical garden. On the walk to the conservatory, however, we did pass a display of mostly ferns in a sheltered wooden structure fitted with misters to maintain high humidity. We admired *Asplenium ritoense* in this display, along with *Lemmaphyllum microphyllum*, and *Odontosoria chinensis*.

The large conservatory has a beautiful entrance with high rock walls that provide a surface for climbing plants and epiphytes, many of them ferns. On the ground grew a large patch of the simple-leaved *Neolepisorus ensatus*. As the entry opened up into a larger room, an *Angiopteris lygodifolia* with 4-meter fronds became the centerpiece, dwarfing Fernando Orellana standing next to it. Finally we entered a large room with rock walls, a waterfall, and two small ponds. The tree ferns *Cyathea lepifera, C. spinulosa*, and *C. podophylla* grew to several meters tall, and, with the sound of falling water, provided a wonderful scene. On a rock shelf we saw *Phlebodium descurrens* with its large cascading coarsely divided fronds, and near the ground grew a beautiful specimen of *Asplenium wrightii*.

Makino Botanical Garden Conservatory
Photo courtesy of Dan Yansura

With the day quickly fading, we headed back to our coach and then drove into the city of Tosa for our stay at Kanpo no yado Ino Hotel.

SATURDAY 2 NOVEMBER

Yokogurayama National Forest, Museum & Otamu Falls
Paul Ripley

On a cloudless morning, we left our hotel, picking up Dr. Horie from the station in Sakawa and making a brief stop at the Yokogurayama National Forest Museum. We noticed *Botrychium virginianum* by the car/coach park.

Yokogurayama contains the only genuine ancient (oak) forest in Japan, and also contains the oldest limestone in Japan. It was originally under the sea, and the limestone derives from coral reefs. It contains some rare plants such as the cricket orchid and, a bioluminescent fungi. It is of great geological interest, being part of the Gondwana "continent" before its separation. It contains 480 million year-old plant and animal fossils, which are found elsewhere only in South China and Australia (and maybe Antarctica).

We followed a trail up to about 800m and noted *Blechnum niponicum, Plagiogyria euphlebia, P. japonica, Dryopteris hondoensis, D. uniformis, Polystichum tagawanum, Deparia conilii, Hymenophyllum barbatum*, somewhat desiccated and growing with a selaginella and a crepidomanes. Particular ferns that caught my eye were a huperzia,

Polystichum tripteron, Cyrtomium fortunei var. *clivicola,* several athyrium species (*A. iseanum* and *A. wardii* and *A. decurrentialatum*) and the distinctive *Dryopsis maximowicziana* with stiff white hairs on the stipe and rachis. *Lepisorus onoei* (creeping) and *L. thunbergianus* were common on rocks, often with *Lemmaphyllum microphyllum.*

Other ferns of interest were *Davallia mariesii* (seen from a distance growing high in trees), *Thelypteris laxa, T. japonica* and *Acystopteris japonica*. We saw *Diplazium metteneanum*, and possibly the hybrid with *D. deciduum*, since in Mr. Yamazumi's opinion, the hybrid was better able to withstand the dry conditions here. We stopped to admire the view over a deep valley before descending quickly to lunch in a typical Japanese restaurant below the Forest Centre.

Lemmaphyllum microphyllum
Photo courtesy of Fernando Orellana

We returned to the Forest Centre after lunch and had a most interesting guided tour of the varied exhibits dealing with the geological history, natural and social history of the area.

We then had limited time before the light faded for the day, to visit the beautiful Otamu Falls. There were many ferns here, and we would have liked to have spent more time on the trail to the falls. Highlights were *Dryopteris atrata* (one plant kindly found for us by Dr. Horie), *Neocheiropteris ensatus, Leptochilus elliptica, Lepisorus thunbergianus, Coniogramme intermedia, Macrothelypteris torresiana, Hymenophyllum (?barbatum)* and – according to Mr. Yamazumi, *Crepidomanes latealatum* with false veins, at least 2 species of pteris, including one very large, *P. terminalis* var. *fauriei*, and *P.semipinnata*, *Deparia lancea, Microlepia marginata, Asplenium ruprechtii,* and *Diplazium wicherae*, which Pat and I mistook for an asplenium.

A very full and interesting day was rounded off by a visit to the onsen (hot spring), and a superb meal at our traditional Japanese hotel. Sadly, some of us found prolonged sitting at a table on the floor somewhat uncomfortable.

SUNDAY 3 NOVEMBER

Nakatsu Valley
Pat Riehl

On the way to the morning's destination the Nakatsu Valley, we met our guides Uka-san and Hiro-san. The Nakatsu Valley is a limestone gorge carved out over millions of years by the Niyodo River. The goal for some of us and the tourists is to see the Uryu

Falls, which translates in English as the Rain Dragon Falls. A series of paths, walkways and steps led us safely through the gorge where the boulders were mammoth and covered in moss and ferns. The crystal clear water was coloured Niyodo Blue, somewhere between blue and green. It was magical! We were told there are 100 different ferns in this area and many of us recorded over forty. Within a very short distance we saw *Asplenium normale, A. anogrammoides, A. wrightii* and *A. prolongatum*.

The greatest delight for me was seeing filmy ferns again, *Hymenophyllum badium* with close by *H. barbatum*. The latter is probably the easiest to identify because of its rough frond texture. *Vandenboschia kalamocarpa* and the rare *Crepidomanes makinoi*, similar to *C. lateolatum,* were amongst the trichomanes. I was grateful Mr Yamazumi identified for us because there has been so much confusion about identification and renaming in the Hymenophyllaceae recently. The polypodiums were represented by *Goniophlebium niponicum*, out of reach but the fronds are soft to the touch with a trailing silver-blue green rhizome. There was also *G. amamianum* hanging from the side of a bridge as we walked back for lunch. Some of the other notable ferns included *Arachniodes amabilis, Diplopterygium glaucum, Dryopteris uniformis, Anisocampium sheareri, Plagiogyria euphlebia, Deparia unifurcata, Selliguea engleri, S. hastata, Diplazium hachijoensis, Neolepisorus ensatus, Arachniodes standishii* and *Asplenium ritoense.* During lunch Alice noticed that some of the entrees with cooked fish had edible botrychiums.

In the afternoon we went to see a bridge but not just any bridge. This bridge was designed for the water to pass over it without damaging the structure during monsoon season. It is a narrow one-lane bridge, 200-300 feet long and about 20 feet wide with no railings and a slight road kerb with cut outs to allow water to run off. For walkers there are three or four half-circle extensions at the bridge edges to step out of the way of cars. Of course, we also looked for ferns and found *Selaginella involvens* and *Lemmaphyllum microphyllum*; two genera seen everywhere along with *Dryopteris hikonensis, Asplenium anagrammoides* and *Lepisorus onoei*.

After we checked into our hotel, a large group of us decided to go to dinner together. After calling around we ended up at a small family restaurant. We had our own room upstairs, but I think we were more than they could accommodate, so we were asked to leave. I admit we did seem to have a hard time making decisions. It seemed wise to separate and go in smaller groups for dinner after that.

MONDAY 4 NOVEMBER

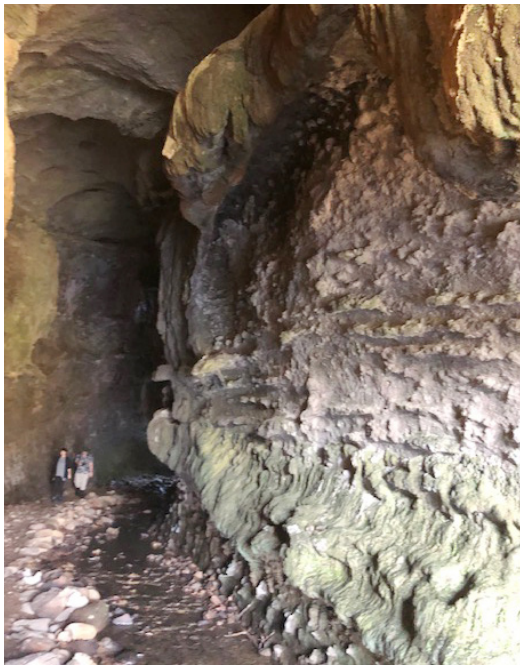
Ioki Cave
Pat Acock

The fourth day of our tour concluded our Kochi Prefecture experience. It was mainly autoferning but we saw many rarities. The first roadside stop was in limestone country where the limestone was in fairly distinct near horizontal layers. Two small beautiful little aspleniums grew here. It was difficult to find mature perfect specimens to photograph. Gradually our eyes adjusted and along the boundary of two layers we saw many immature plants just waiting for wetter weather to take the opportunity of developing. *Asplenium coenobiale* and *A. ruprechtii* were the two little gems.

We did see *Polystichum craspedosorum* at this site, but further down the road we climbed up a river valley and were led onto the riverbed to observe much larger plants of not only *Polystichum craspedosorum* but also *P. deltodon*. Both of these polystichums do not form a crown but are on creeping rhizomes. This was a rich area for ferns, but we were unable to spend much time here since we were on a tight schedule culminating in an evening flight out.

Racing onwards on this busy road we had to park in a small hamlet and walk 600m back up the road where a small layby gave us some protection from the traffic. Here on a rocky cliff with a sturdy wire framework protecting the road and us from falling rocks was a rarity in *Pteris kidoi*. I am sure somewhere along the cliff and on more dangerous parts of the road we might have found more of this plant but with the time restraints we were reduced to pointing our cameras through the mesh at the few plants of *Pteris kidoi* we could see, engage our telephoto lenses and hope we had a picture. Ironically in the hamlet on a house wall were large quantities of the similar fern *Pteris multifida.*

Moving on, our coach driver knew a place where we could eat a late lunch and very good it was too, finished by a chocolate ice-cream. We then made our way to our last stop of the day. We had to borrow some wellington boots from this booth and walk about 100m inland from the sea to the entrance of the Ioki Cave. Being a little bit of a sceptic, I was doubtful as to what to expect along this tunnel with a channel for the water beside the raised path. To my emerging, we were greeted by this deep cavernous gorge simply dripping with water and ferns. Even the interpretation boards named the ferns. The gorge remained deep and very humid, and full of the most luxuriant ferns growing at their very best. Curtains of *Diplazium wichurae* greeted us, and the raised floor and banks alongside the river abounded in *Osmunda banksiifolia, Neolepisorus ensatus, Plagiogyria euphlebia, Leptochilus ellipticus,* and *Asplenium wrightii.* Very large *Asplenium ruprechtii* grew on the ledges and an unrecorded *Trichomanes* and *Hymenophyllum hondoense* grew on the tree trunks. We hurried on to have a view of the terminating waterfall before dashing back to the coach to catch our flight to Itami Airport.



Alice and Jim Herman exiting the Ioki Cave
Photo courtesy of Fernando Orellana

TUESDAY 5 NOVEMBER

From Osaka to Amami
Alice Taylor

Our fifth day in Japan began with a morning flight to Amami Oshima, a large and beautiful island in the volcanically formed Amami archipelago situated in Japan's subtropical south west. Upon arrival at 11:00 am, we were met by our driver and taken to the Oshima Tsumugi textile museum. Tsumugi is a kind of woven silk textile which has a 1200 years old history of production on Amami Oshima. Uniquely, the silk is dyed into patterned strands using Amami mud and pigments from the palm, *Raphiolepis indica* var. *umbellata*. This laborious process takes ten months to produce enough dyed silk to make a kimono. Oshima Tsumugi kimonos are, somewhat unsurprisingly, the most expensive in the world.

Before heading to the Amami nature observation forest (a c.500 year old forest of c.200 plant species), we stopped for lunch and were served a delicious native Amami dish called Keihan; a kind of chicken broth with rice, papaya, mandarin zest, egg and anything else which pleases you. Our guide to the forest, Kawabata-san, was not exclusively interested in ferns and showed us some of the more interesting angiosperms of the island: two rare and over-collected orchids – *Sedirea japonica* and *Vanda falcata;* the huge-leaved *Alocasia odora* (for any fans of the Studio Ghibli films, it is one of these leaves which the forest spirit "Totoro" uses as an umbrella in the famous scene); *Symplocos microcalyx,* the sweet young leaves of which are chewed by children when sweeties are scarce or withheld; *Mitrastemmon yamamotoi*, an eerie looking parasite which makes up half of the Mirastemmonaceae family, the other member of which is endemic to South America; and *Castenopsis sieboldii,* a tree which is the keystone to much of the ecology of the forest – in life, a host and provider for other plants, insects and native pigs; in death, to glow-in-the-dark fungi (and other things, of course).

Among the ferns we saw in this forest were: *Cyathea lepifera* (the "Flying spider-monkey tree fern"), the first of three *Cyathea* species we were to see on the island; the closely related *Asplenium nidus* and *A. antiquum,* the latter of which is endangered and can be distinguished from the former by its having sori which extend almost to the leaf margin and leaves of almost uniform width; and the highly variable *Lindsaea orbiculata* (and a named variety thereof *L. orbiculata* var. *commixta*).

Cyathea lepifera
Photo courtesy of Dan Yansura

Other ferns seen were: *Lemmaphyllum microphyllum* var. *obovata, Microlepia strigosa,*

Leptochilus wrightii, Angiopteris lygodiifolia, Leptochilus neopothifolius, Dryopteris sordidipes, Bolbitis subcordata, Diplazium amamianum, and the fluffy and not-at-all-parasitic *Thelypteris parasitica.* Our day ended with the incredible sight of an entire hillside of wild-growing *Cycas revoluta.*

WEDNESDAY 6 NOVEMBER

Kinsakubaru Primeval Forest
Daniel Yansura

Our destination for the morning would be a primeval subtropical forest high in the mountains. Kinsakubaru Forest is isolated, underdeveloped, and is part of Amamigunto National Park, where all visitors are required to have accompanying guides. Our guides met us near the town and drove us in their vans up into the mountains. We quickly entered rainforest and on the steep slopes saw the usual ferns, the scrambling *Dicranopteris pedata* and *Diplopterygium glaucum*. *Angiopteris lygodifolia* grew on the horizontal surfaces near the road. We finally stopped and parked adjacent to two medium-sized tree ferns, both *Cyathea lepifera*, which were the first tree ferns in the wild we saw close up on this trip. We had to hike a few kilometers on a wide trail bordered with a wonderful variety of ferns to reach the actual gate into the Kinsakubaru Forest.

***Cyathea lepifera* trunk**
Photo courtesy of Fernando Orellano

On the unfortunately brisk walk to the entrance we were only able to identify a number of these ferns. These including *Blechnopsis orientalis* with orange-reddish new growth, *Dryopteris koidzumiana, Odontosoria chinensis, Deparia lancea, Diplazium dilatatum, D. amamianum, D. incomptum, Leptochilus neopothifolius, Thelypteris angustifrons, T. triphylla, Nephrolepis cordifolia*, and the rare and unusual simple-fronded *Cheiropleuria integrifolia*. In the trees we would occasionally see *Asplenium nidus*, easily distinguished from *A. antiquum* by the linear sori that only extend halfway across the fronds. A rare find for us was the trunkless tree fern *Cyathea metteniana* near the side of the trail, and the more abundant *Cyathea spinulosa* was prevalent in the understory and easily identified by its black stipe and rachis. By the time we reached the official entrance to the Kinsakubaru Forest, we

had identified most of the ferns we would see this morning. Our guides led us further uphill to a 150 year-old oak tree, where we stopped for a rest and to hear about the forest. Before we started our return, Mr Yamazumi pointed out *Diplazium donianum*, a small attractive fern with mostly 3-5 large pinnae forming a colony near the oak tree.

We returned, again rather too quickly, along the trail back to our vehicles, stopping occasionally to observe some ferns we were particularly interested in. I personally was hoping to find fertile fronds on *Cyathea lepifera*, and was a bit disappointed to not see any, despite there being a few dozen of the tree ferns along the trail. (The Kinsakubaru Forest is known to have many of these tree ferns, which are also known as Flying Spider-monkey tree ferns.) When I finally reached the parking area, I was relieved to see that the first two tree ferns I had seen near our parked vehicles had several fertile fronds.

After a delicious Japanese lunch, we headed to the Okawa Dam Lake for a more leisurely walk in an area rich in ferns. The welcome slow pace allowed us to spend more time observing individual plants. The trail was actually an unused dirt road with a rather steep incline on one side, with many cascading ferns. *Thelypteris acuminata, T. parasitica,* and a hybrid between them were the first we noticed. *Lindsaea orbiculata, Odontosoria chinensis, Deparia lancea, Nephrolepis biserrata, Selaginella limbata,* and *S. lutchuensis* grew on the steep upward slope, while *Pteris fauriei, P. semipinnata*, the giant fan-shaped fern *P. wallichiana*, *Microlepia strigosa, Angiopteris lygodifolia, Leptochilus neopothifolius, Deparia petersenii, Diplazium amamianum, Blechnopsis orientalis*, and the large elegant *Lycopodiella cernua* grew on the more horizontal surfaces. A rather unusual find was large colonies of an *Ophioglossum* species growing right on the road in an organically poor clay/sand soil. We observed that these plants had underground bulbs that were connected to each other by thick fleshy roots to form the large colonies. Finally, as we approached the dam, we could see tree ferns across the lake, which appeared to be *Cyathea lepifera*, growing in full sun.

With daylight starting to fade, Kazuo herded us back to our bus, and it was dark by the time we reached our hotel.

THURSDAY 7 NOVEMBER

Modama Natural Habitat, Santano Pass Road Stops, Amami Mangrove Park & Funango Waterfall
Pat Riehl

Our first stop this morning was at the edge of the Modama Natural Habitat looking at the natural habitat. We were again warned about snakes and to stay on paths which was always curious because we immediately had to work our way over large boulders and climb through lots of vines.

One vine shown to us by Mr. Yamazumi as we left the coach was *Entada phaseoloides.* Commonly known as St. Thomas Bean, it is a large evergreen woody climber with flattened spiral branches. It uses trees as support to climb into the tree canopy. A member of the legume family it produces one of the largest-seed pods of all often measuring 100cm long by 12cm wide. It is poisonous but also used to wash hair, clean clothes and kill fish.

We spent some time looking at *Coniogramme gracilis,* which we found in great abundance. While *C. gracilis* is available in nurseries in the USA, it was interesting to see it growing in the wild. Also on and around the boulders just off the road were *Angiopteris lygodifolia*, *Microlepia strigosa and Lygodium japonicum.* There was also a splendid *Macrothelypteris torresiana* on a roadside shoulder.

A short distance further along the Santara Pass Road, I was indulged in one of my favourite pleasures, roadside botanising. On a rocky hillside we were shown *Arachniodes yakusimensis*. It was only then that I discovered and was able to assimilate that this was a synonym for *A. amabilis* var. *amabilis.* Another interesting fern was *Diplazium donianum*, a pinnate diplazium with the more usual linear twin sori. At the furthest point of our road walk, we came across a glade of *Cyathea lepifera* amongst which was a *Cyathea spinulosa.* Close by on a flat roadside edge was a lovely colony of *Thelypteris triphylla* var *triphylla.* We were also introduced to *Cyathea metteniana* which rarely has a trunk and then only up to 60-80cm. Before getting on the bus, we had a short lecture looking at *Thelypteris augustifrons, T. cystopteroides* and the hybrid between them.

Cyathea spinulosa
Photo courtesy of Fernando Orellano

We had a delightful lunch in Amami Mangrove Park, the second largest Mangrove swamp in the whole of Japan. It is used both as a scientific resource to study the ecology and a pleasure park to kayak around the small streams filtering into the sea loch. We made our way up to a lookout tower along a boardwalk, and unable to resist ferning, I spotted *Psilotum nudum* on a tree. This is an odd looking fern that does not produce true fronds (leaves). The branching triangular shaped stems do all the photosynthesis work. Small bulbil-like structures along the stem contain the sporangia. I gather *Psilotum nudum* can become a weed very easily in tropical fern houses.

Our final stop of the day was at Funango Waterfall. Here in the gathering gloom of dusk we had to move quickly since our driver was almost out of time, but we were able to see the magnificent *Diplazium amamianum* well enough to photograph. Among the ferns we were becoming accustomed to, we also saw beautiful specimens of *Arachnoides exilis, Selaginella doederleinii, Bolbitis subcordata,* and were introduced to *Leptochilus neopothifolius*.

FRIDAY 8 NOVEMBER

Kakeroma Island
Paul Ripley

Morning clouds disappeared to give us a fantastic sunny day for our trip to Kakeroma Island, to the south of Amami. An hour's drive to Koniya saw us take the ferry across clear deep blue water to Seso.

Our first stop along the road enabled us to see *Woodwardia prolifera,* some with bulbils apparently randomly placed over the upper surface of the frond. This species is diploid, compared with the tetraploid *W. orientalis* we had seen previously. Also here was *Lindsaea orbiculata, Osmunda banksiifolia* (with fertile fronds), a bank of *Lycopodiella cernua*, and *Cyathea metteniana*, among others.

At (N28° 07' 03.1"; E129° 13' 49.9"), we saw *Pteris ensiformis* for the first time, along with *Lygodium japonicum* var. *microstachyum*, and *Cyrtomium falcatum* among others we had seen previously.

We stopped at a viewpoint above the village of Nishiamuro and saw *Odontosoria biflora*. This fern only grows near the sea and is neater and thicker in texture than *O. chinensis*. To my mind, the sori are slightly further from the pinna tips than in *O. chinensis*.

In Nishiamuro we walked through the village, viewing an "open garden" where the owner had for some reason taken the opportunity to plant non-ferns (and even attractively-arranged non-plants). We called in at the village primary school, where the charming children hopefully enjoyed our visit as much as we did before picnicking above the beach. Asher, Dan (M) and I had an extremely brief dip in the clear and warm South China Sea. I obtained some stamps in the Post Office, amazed that this tiny village should have a post office staffed by 2 people.

Around the coast we made a short detour to see a concealed bunker where the kamikaze torpedo boats were hidden during World War II. Here, Mr. Yamazumi pointed out to us the hybrid between *Odontosoria chinensis* and *O. biflora.*

After taking the 14:20 ferry back to Koniya, we drove to a viewpoint above the town with spectacular views of the neighbouring islands. Taking the opportunity to review some of the commoner species, I noted *Deparia petersenii, Thelypteris parasitica, T. acuminata, T. cystopteroides, Nephrolepis cordifolia, Pteridium aquilinum, Pyrrosia lingua, Odontosoria chinensis, Arachniodes sporadosora, Lindsaea orbiculata, Lygodium japonicum, Lepisorus thunbergianus, Osmunda japonica,* with *Cyathea lepifera* and *C. spinulosa* forming a romantic frame to some of the wonderful views.

SATURDAY 9 NOVEMBER

Yuwandaki Mountain, Roadside Stop and Materia Falls
Pat Acock

Expectations were high today as we were to visit Yuwandaki Mountain, reckoned to be the *pièce de résistance* of the whole tour, and so it would turn out to be. Armed with our lunches and plenty of water we reached the car park at the foot of the trail which

surprisingly was not so well trodden for such a beautiful place. The coach journey took nearly two hours through breath-taking scenery and views of the Japan Sea below.

At the very entrance of the forest as if enticing us in was a huge *Asplenium antiquum,* welcoming us into the treasure house that was to follow. I counted over 40 ferns in my records, and having to fight my way forward to Mr Yamazumi, I must have missed almost as many again. When I finally made it to the front, I soon lost my place while taking pictures of all the diagnostic features of the newest fern in view.

Among the newer ferns we saw *Blechnopsis orientalis, Arachniodes sporadosora, A. amabilis, A. yakusimensis, Lindsaea javanensis, Diplopterigium glaucum, Plagiogyria adnata* var. *yakushimensis* and *Diplazium pullingeri.*

Foolishly I thought I had found an arthropteris climbing up a tree only to be told it was *Vandenboschia auriculata*. We were now much higher, and the more common ferns lower down were being replaced by *Dryopteris koidzumiana, Thelypteris cystopteroides, Haplopteris flexuosa* and *Elaphoglossum yoshinagae*. In the trees we saw *Goniophlebium niponicum, Asplenium wilfordii,* and *Davallia mariesii.* We stopped for lunch, and right under our picnic tables down the hill a little, we could see right into the crown of *Cyathea podophylla.* Before the slow eaters could finish their lunch, Mr. Yamazumi appeared from the forest with three ploidy levels of *Deparia petersenii.* These were the allotetraploid/ autotetraploid (depending on how you classify its two diploid parents), a diminutive hexaploid and the pentaploid hybrid.

On our way down we saw *Thelypteris triphylla*, a small beauty, *Loxogramme salicifolia,* and *Diplazium fauriei*.

We now drove around the mountains contours to the NW side, and on a wayside stop on the road we were shown of special interest *Botrychium virginianum* and another *Cyathea podophylla.* With all that good tuition on being allowed to wander freely along the road, I found I could name all twenty ferns along the banks apart from one that Mr Yamazumi told me was *Thelypteris glanduligera.*

We then called in for a brief stop at the Materia Falls. Unfortunately, seeing a photogenic colony of *Cheiropleuria integrifolia,* I was far back again. Along with the constant recording, I was one of the last to reach the falls. We saw a simply splendid *Angiopteris lygodifolia* and all three *Lindsaea* taxa we had been introduced to in Amami. Especially special to me at this twelfth hour of the tour, was the discovery of all three taxa in the *Deparia petersenii* complex on the rough ground at the foot of the falls. Mr. Yamazumi had introduced these to us at the top of Yuwandaki Mountain earlier in the day. Forcing in one last site, I rushed away above the Falls where Daniel Mount had told me there were a number of large colonies of *Cheiropleuria integrifolia*.

Fukurokuju, the Japanese god of Wisdom and Longevity
Photo courtesy of Daniel Mount

Conclusion
Daniel Mount

Though I cannot speak for my fellow travelers from California or England, returning to the cold, dark Pacific Northwest in mid-November was far from pleasant. Those sub-tropical days on Amami seemed so far away. And they were, over 5500 miles away. What had become so familiar so quickly, suddenly felt like a dream.

The dream of a pteridologist.

Ten days of looking at ferns with experts had honed my eyes to the details of ferns. After returning home I wandered my garden and noticed something had changed. Not the typical seasonal changes you might expect in November in a temperate climate. But the way I saw.

At one point during the trip, as I fussed and fumed over the difference between *Athyrium* and *Asplenium*, my partner Michael, who has no interest in ferns, said to me "It's just pattern recognition." This should be easy; it is exactly those patterns that attracted me to ferns in the first place.

It was the beautiful lacey patterns of one particular fern during the trip that had me constantly asking after its name. *Microlepia strigosa* was the oft repeated reply. By the last day its beautiful fronds and name hooked up in my head, and I swore I would seek it out for my garden, when I returned.

Microlepia strigosa
Photo courtesy of Daniel Mount

During that first walk through my garden upon returning I recognized it. It was already in my garden. It was a little worse for wear and certainly not the luxurious specimens we saw on the warm islands of Japan, but growing in that cold damp ground I call a garden anyway.

And I recognized it.

I can only attribute this new ability to the fact that I had the pleasure of traveling with those who know their stuff.

And, better yet, know their ferns.

(You can read about the other 2 Japan tours in the Spring and Summer 2015 and 2017 Quarterlies respectively.)

LAKEWOLD AFFILIATE GARDEN FERN INVENTORY 2019

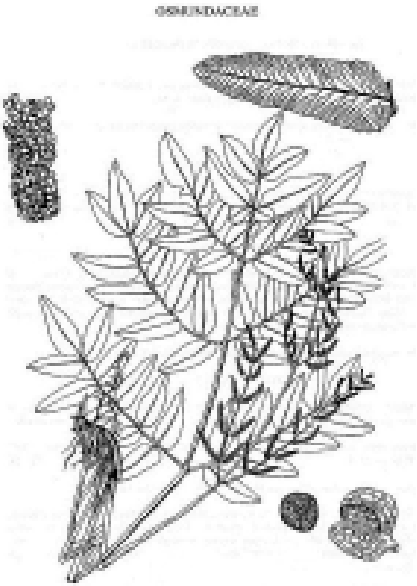
Kristine Dillinger
Lead Horticulturalist, Lakewold Gardens

Blechnum spicant Deer fern
Onoclea sensibilis Sensitive fern, bead fern
Phyllitis scolopendrium Hart's tongue fern
Phyllitis scolopendrium. 'Laceratum Kaye' Kaye's Lacerate Hart's tongue fern
Osmunda regalis Royal fern or flowering fern
Adiantum aleuticum Western maidenhair
Blechnum chilense Chilean hard fern
Polystichum sp.
Polystichum setiferum soft shield fern
Athyrium filix-femina lady fern
Polystichum namegatae Namegatae fern
Dryopteris wallichiana Wallich's wood fern
Adiantum aleuticum Western maidenhair fern
Adiantum venustum Himalayan maidenhair fern
Cyrtomium sp.
Dryopteris sp.
Polystichum setiferum 'Rotundatum' soft shield fern
Polystichum polyblepharum tassel fern, bristle fern
Athyrium niponicum 'Pictum' Japanese painted fern
Cyrtomium caryotideum holly fern
Athyrium otophorum eared lady fern
Matteuccia struthiopteris ostrich fern
Dryopteris erythrosora autumn fern
Polystichum munitum sword fern
Dryopteris affinis 'Cristata the King' King of the Male ferns
Dryopteris filix-mas 'Linearis Polydactyla' male fern
Osmunda regalis 'Cristata' crested royal fern
Osmunda regalis royal fern

Onoclea sensiblis
Photo courtesy of
Lakewold Gardens

Osmunda japonica

James R. Horrocks
Salt Lake City, Utah



This interesting species is found throughout Japan and is also native to Korea, Sakhalin Island, Taiwan, Philippines, Thailand and Indo-China, and China where it ranges to the western Himalaya. Found in wooded areas in moist acid soil and part shade, it bears a striking resemblance to *O. regalis*, but does not seem to relish swampy conditions as does its regal cousin. It is not as hardy as *O. regalis* and is usually less than three feet tall, not attaining the size of *O. regalis*, which can be five feet or more in height. *O. japonica* also differs from *O. regalis* by being completely dimorphic, that is, the fertile and sterile fronds are totally separate, although, in late summer, some fronds may appear that display both fertile and sterile components. In some regions, such as eastern China (Hong Kong) the dimorphism seems to be less so. Two varieties are recorded, *corymbiferum* and *divisa*.

Description: The rhizome is short and ascending, covered with the bases of old fronds. Cinnamon-brown hairs are present, with some darker blackish hairs mixed in, all being deciduous. The fronds are dimorphic, the sterile ones nearly three feet in length and tufted. The stipes, being one-third the length of the fronds, are straw-colored, smooth, and display a parchment-textured wing on each side of the base. The bipinnate fronds are ovate to triangular-ovate, hairless or nearly so. The pinnae are opposite each other, with finely serrate margins, and are oblong-ovate in outline. The lower pinnae are short and stalked. The pinnules are oblong to broadly lanceolate, with obtuse to acute apices and with spreading veinlets. The bases of the pinnules are obliquely truncated to rounded and attached directly to the costa. The shorter fertile fronds arise from the center of the plant, bearing paniculate, cinnamon-brown, dense sporophylls that are held more erect than the rather spreading sterile fronds that form a rather wide loose arrangement. Although this fern is usually strongly dimorphic, some fronds appear in late summer that combine both fertile and sterile attributes and in some areas such as Hong Kong, the plants are less dimorphic than the type. This species is deciduous but the fronds remain green after other *Osmunda* species have gone dormant. Spores are green. *O japonica* is a sexual diploid.

Culture: Although rare in the nursery trade, this fern grows well in moist acidic soil and part shade. Rush remarks that it "seems not to be particularly a waterside plant as

O. regalis generally is." Its hardiness may depend on its place of origin. Plants from northern China, Korea, or certainly Sakhalin Island would probably be hardier than those from more southern climes. It is generally given a hardiness rating of Zone 6. The fiddleheads of this fern are edible but care should be taken to not over-graze, as this could seriously detract from the appearance of this quite attractive plant.

References:

Ohwi, Jisaburo, 1965, *Flora of Japan*, p.32, Smithsonian Institution, Washington D.C.

Edie, Harry, 1978, *Ferns of Hong Kong*, p.59, Hong Kong University Press, Hong Kong

Olsen, Sue, 2007, *Encyclopedia of Garden Ferns*, p.287, Timber Press, Inc., Portland

Hoshizaki, Barbara Joe, and Moran, Robbin C., 2001, *Fern Grower's Manual* (Revised), p.408, Timber Press, Inc., Portland

Khullar, S.P., 1994, *An Illustrated Fern Flora Of The West Himalaya*, Vol. 1, p.39, R.P.S. Gahlot for International Book Distributors, Dehra Dun, India

Rush, Richard, 1984, *A Guide To Hardy Ferns*, p.51, British Pteridological Society, London

ATTENTION MEMBERS:

Due to the ongoing pandemic and in consideration for our members' health and safety,

The Hardy Fern Foundation Annual Meeting and Fall Social

will be held online on

Saturday, October 24th, 2020 at 11 am to 1 pm

More information will be sent by email as the event draws closer. Thank you for your understanding.

– Richie Steffen, HFF President

A Refreshing of the Signature Bed

Richie Steffen

Over the last fifteen years the Hardy Fern Foundation has been partnering with the Washington Park Arboretum on the plantings of the Signature Bed. This prominent display bed outside of the Graham Visitor Center has highlighted a wealth of some of the best ferns for our area with many unusual and uncommon ferns for the Northwest.

When the fern planting was originally installed a temporary wooden lath shade structure was added to protect the fronds from the mid-day hot sun. At that point, the planting was only thought to last for a year or two then be replaced. As luck would have it, the woodland-like planting was well received, and our collaboration continues through today. As the temporary lath structure began to show its age, a new plan was needed to offer shade. Earlier this year (pre-pandemic) the Hardy Fern Foundation decided to remove the old structure and replace it with a living solution. Seven Japanese maples were added including five *Acer palmatum* and *Acer Japonicum* cultivars new to the Arboretum's collections. The cultivars included were selected for the slow growth, interesting foliage and excellent autumn color. One special addition was a beautiful specimen of *Acer palmatum* 'Olsen's Frosted Strawberry', a cultivar originally discovered by maple collector Harry Olsen, late husband of our founding member, Sue Olsen. It is a small grower with

Signature Bed
Photos courtesy of Kyra Matin

striking unusual pinkish-red variegated new growth. This beautiful tree has only recently gained a growing popularity and is rarely available as a larger plant, so I am grateful that we have been able to include it in the planting. As these trees grow, they will provide the shade formerly provided by the old lath structure.

Until these trees establish, the ferns will be exposed to more sun and some may be susceptible to burning during in the summer sun. I added additional fern species and cultivars which will tolerate the increased exposure. These include classic, tough selections such as *Polystichum setifer*um Divisilobum Group, divided soft shield fern, or more commonly known in our region as Alaska fern. The delicate and dainty foliage of this fern creates a feathery appearance, but it is tolerant of a wide range of growing conditions and will thrive in its new home. Another interesting addition is *Dryopteris pulcherrima*, the beautiful wood fern which is a relatively newly available fern with bright mid-green fronds that form a lovely upright vase-shape. It makes a great choice for a small drift which is how we use them in the bed. Along with several other great ferns, we added some choice companion plants that highlight textural differences and add color and depth to the planting over the year. *Epimedium* is a perfect companion for ferns and one cultivar we added is *Epimedium* 'Amber Queen', chosen by the regional plant education program Great Plant Picks as an excellent choice for our area. Golden yellow flowers suffused with amber tones are held high above the foliage on this long bloomer and look great with the red mottled young leaves. We also added a choice lungwort, *Pulmonaria* 'Diana Clare', a lovely UK selection with brilliant reddish purple and blue flowers in late winter and early spring followed by gorgeous silvery foliage resistant to powdery mildew.

Next time you are visiting the Arboretum make sure to stop by the Signature Bed and enjoy the ferns. It is a great place to get ideas for how to use these remarkable plants in your own garden. More information on great ferns for the Northwest can be found at the Hardy Fern Foundations website www.hardyferns.org and at the Great Plant Picks website www.greatplantpicks.org.