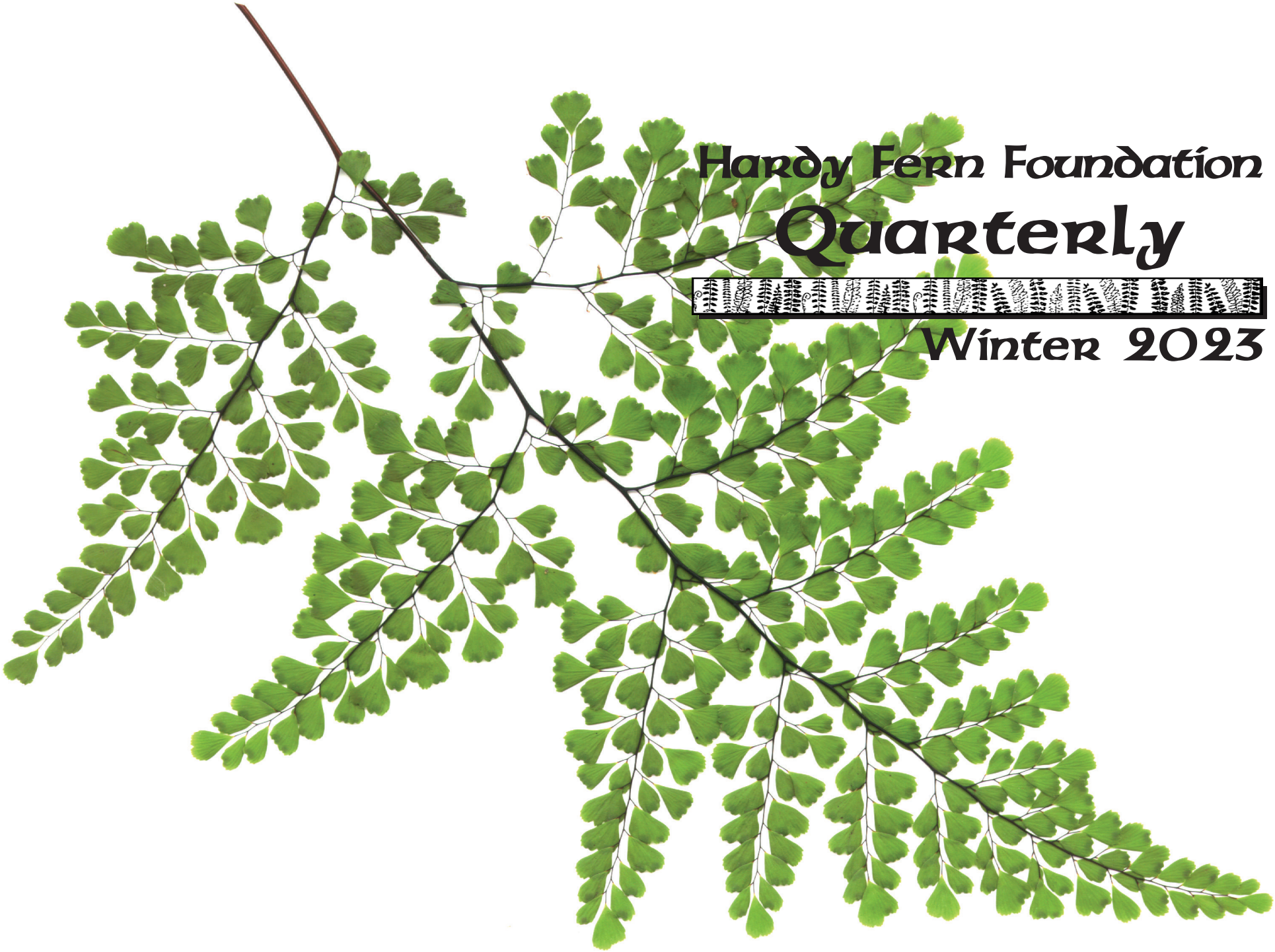


Hardy Fern Foundation Quarterly

Winter 2023

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;
Bartlett Arboretum & Gardens in Stamford, Connecticut;
Bellevue Botanical Garden, Bellevue, Washington;
Birmingham Botanical Gardens, Birmingham, Alabama;
Cornell Botanic Gardens, Ithaca, New York;
Dallas Arboretum, Dallas, Texas;
Denver Botanic Gardens, Denver, Colorado;
Dixon Gallery and Gardens, Memphis, Tennessee;
Ganna Walska Lotusland, Santa Barbara, California;
Georgia State University Perimeter College Native Plant Botanical Garden, Decatur, Georgia;
Heronswood, Kingston, Washington;
Inniswood Metro Gardens, Columbus, Ohio;
Lakewold, Lakewood, Washington;
Lewis Ginter Botanical Garden, Richmond, Virginia;
Powell Gardens, Kingsville, Missouri;
Rotary Gardens, Janesville, Wisconsin;
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)
Lori Gibson
(quarterly design)

Website Administrators
Lori and Dave Gibson

THE HARDY FERN FOUNDATION
QUARTERLY
Volume 33 No. 1 Editor- Sue Olsen
ISSN 1542-5517

President's Message

Greetings from your newly elected HFF President. I am an avid gardener and plantaholic who has learned much on the job as a Miller Garden volunteer, Board member for the Far Reaches Botanical Conservancy, and as a member of the Hardy Fern Foundation. As a retired strategic planning consultant, I hope to help facilitate HFF's next chapter as a pre-eminent horticultural institution. In taking on this role, I am well aware of "standing on the shoulders of giants" Richie Steffen, Sue Olsen, and the hard working Board and staff members who have been responsible for the organization's considerable accomplishments.

I am writing to you in the dwindling days of 2022, on the cusp of the winter solstice and the enticing promise of the year ahead. The past three pandemic years have been a period of growth and advancement for the Hardy Fern Foundation, creating a robust launching point for the organization's new opportunities in 2023. Building on the success of HFF's webinars and our partnership with the British Pteridological Society, we have more Joint HFF/BPS lectures scheduled for winter quarter. These webinars have raised our profile both regionally and internationally, and have helped to double our membership. We are enthusiastic about furthering this collaboration, bringing learning and new knowledge to our members.

We can also be proud of our flourishing fern propagation program, which draws on the resources of the Elisabeth C. Miller Botanical Garden as well as our facility at the Rhododendron Species Botanical Garden. After several years of focused effort, a number of rare and unusual species have grown to the size where we can make them available this year to our Affiliate Gardens and our members. We expect even more uncommon ferns to become available in the future, including cultivars that have gone out of production and would not otherwise be available.

With Board support, in-person events are returning to our HFF calendar, enabling us to gather as a community, learn, and have new experiences. My favorite HFF event, Fern Fest, is scheduled for June 2-3, when we will celebrate the 50th anniversary of fern sales. Along with our September fern sale, we will be bringing together ferns, companion plants, and their growers, creating opportunities to explore our shared passions and add to our collections.

Finally, 2023 will see the return of in-person tours and classes. We will be offering small group opportunities to deepen our knowledge of ferns, and to explore several of our region's exceptional private gardens. After a three-year hiatus, we expect these events will be popular and fully subscribed.

Looking ahead, 2023 promises to be a memorable year of continued discovery, learning and engagement for our community. I look forward to learning more about our members, their preferences, and of course their gardens. For now, I wish you all good health and a winter that is milder than last year!

Yours in gratitude,

Bonnie Berk
HFF President

Growing Dryland Ferns in Humid Climates

Article and Photos by Patrick D. McMillan, PhD – Director of Gardens and Horticulture, Juniper Level Botanic Garden Raleigh, North Carolina

It seems that almost every fern fanatic I talk with has the same opinion of dryland ferns—they're fascinating but frustratingly difficult to grow. In my 30+ years of growing a vast number of the dryland ferns of the world I've found them to be extremely frustrating if grown in the conditions any good gardener would expect them to grow in but relatively easy and care-free if grown in the manner they prefer. When I talk of dryland ferns what I'm referring to are members of the predominantly epilithic (growing on rocks) genera *Aspidotis*, *Astrolepis*, *Bommeria*, *Cheilanthes*, *Myriopteris*, *Pellaea*, and *Woodsia* that grow in droughty crevices and shallow soils around rocks (fig.1). One might expect that these species would be most abundant in truly dry regions such as the American deserts and that is in fact where they are most numerous, but many representatives of these otherwise desert-dwelling ferns have populations throughout most of the United States and in many other regions of the world. The ability of species from the arid environments of places like Arizona and Texas to be grown successfully in more humid climates such as the Southeastern United States is evident in the adventive and disjunct native occurrences in places like Jocassee Gorges of the Blue Ridge escarpment of South Carolina (one of the most humid and highest rainfall regions in the United States). Here I will outline my recipe for success with growing these ferns on both the humid east and winter-humid west coast and give a brief description of the most resilient and desirable species for our rock garden settings.

I generally introduce these plants into the garden in the autumn, once the blazing summer temperatures have moderated. These ferns enjoy the opportunity to establish with less drought-stress though they are capable of tolerating month upon month without rain in the wild and springing back to life once water arrives (true xerophytes). Alternatively, I have had good success introducing them early in the spring but never during the heat of the summer without careful and consistent watering but not overwatering. These plants need extremely well-drained soils and do very well sandwiched between crevices in rock in elevated beds or in raised beds with ample gravel (we use permatil at JLBG) worked into the soil. These plants are excellent for crevice gardens. In such well drained beds, it is critical to note that they seem to all establish and thrive best when planted up against a larger rock. I tend to tuck the rhizomes up underneath the lip of the rocks and install smaller stones on the lower side to really hem them in (see fig. 2). This closely mimics the locations where they grow in the wild and has been critical in my success with these ferns. I also tend to work some organic material right around the rhizomes but only a very small amount which simulates the often-organic duff where they establish in their native habitats. The partially decomposed duff in old logs is perfect for this application. Though they are growing in very dry environments they grow in crevices that tend to maintain more of a boundary layer and thus locally higher humidity and remain perfectly drained.

*Fig 1 Myriopteris parryi growing in situ in Anza Borrego Desert State Park

*Fig 2 Planting process installing Pellaea truncata in the garden

Once planted, make sure the plants do not dry out during their first several weeks of establishment. If your plants have leaves that are curled and folded, they're too dry. I usually water once a day for the first several weeks with a light watering, adjusting as needed (the plants easily show drought stress). Once established, most species rarely, if ever, need supplemental water. Most species are found in very high light situations, but many receive some protection from the direct influence of the sun through the partial shading derived from its partnered rock.

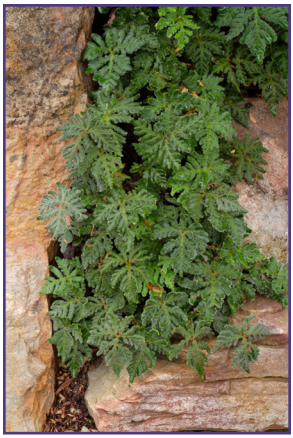
Annual maintenance is mostly confined to removal of old dead leaves. I tend to cut back our *Myriopteris* and *Astrolepis* in the late winter just before new fronds are produced to encourage a tidy and well-groomed appearance to the clumps. I never clip back clumps of *Pellaea* and chose to only remove individual fronds as they die and become unsightly. Winter hardiness is still unknown for many of these species as they appear to be capable of withstanding significantly colder conditions then occur in their native ranges. My estimates of hardiness here are best guesses and we would

love to hear reports from others in colder regions.

We have been successful with most of the species we have trialed in our gardens but I wanted to highlight some of the most interesting and more adaptable species for the home rock garden here.

***Aspidotis densa* – Cliff Brake** – USDA Hardiness Zones 4a – 9b. Though seldom included in gardens, this beautiful little rock-dwelling fern is encountered most commonly in serpentine environments in the Pacific states as well as on outcrops in the northern Rocky Mountain region. The fronds are thick-textured and held upright, giving the impression of an Italian Parsley leaf. We were quite surprised to find that this species thrived under normal rock garden conditions and in the crevice garden at Heronswood Garden in Kingston, Washington. In fact, this turned out to be one of the easiest of the dryland ferns to grow for us. We have not attempted this species at Juniper Level Botanic Garden, nor did we try it at the South Carolina Botanical Garden, but it would not surprise me if it grew under crevice garden conditions in the Southeast. This species was quite forgiving of its location in our trials in Washington and even grew along the base of the gravel bed and into the pathway.

***Astrolepis sinuata* – Wavy Cloakfern** – USDA Hardiness Zones 7a – 9b. This is by far the easiest of the cloakfern species to cultivate and is available from specialty nurseries. It will thrive in almost any well-drained location with full sun, but I've also grown it in partial sun on the fern table at Heronswood. This species does not require high calcium substrate and is generally found growing among acidic rock in its native habitat. Its adaptability is evident in the highly disjunct populations in the escarpment of South Carolina, far from its core habitat in the Chihuahuan desert. In the garden this species quickly forms an 18" wide clump with fronds 12-18" in length. Cutting back the old fronds in late winter is a great way to maintain its attractiveness. It should be divided every 4 years or so to maintain vigor in the garden. Planting with well-established, nursery-grown material is the best road to success with this species and there is no reason to remove it from its native habitat.



***Bommeria hispida* – Bommer's Fern; Dwarf Copper Fern** – USDA Hardiness Zone 7b – 9b. This is an adorable little fern that has left many a gardener scratching their head trying to figure out why they can't seem to grow it. The answer, tuck it under a rock. I've grown this quite well on both coasts in humid climates by starting it in this way. It is a great addition to the crevice garden. It may spread beyond the edge of the rock but appreciates the shelter while establishing. Provide very well drained soils. This species has a single population in the eastern United States in South Carolina but is otherwise most abundant in the Chihuahuan desert.

***Cheilanthes distans* – Bristly Cloak Fern** – USDA Hardiness Zone 7b-10b. A true *Cheilanthes* (at least for now). This cute little fern is easy to grow in well-drained soils and performs particularly well in the rock and crevice garden. The fronds are extremely short and delicate reaching a maximum of 6" in length in our experience. This species grows naturally on outcrops in New Zealand and Australia. Though you would expect a plant from this range to perform well in the Pacific Northwest it also thrives in our gardens, even in partial sun, here in Raleigh, NC.

***Cheilanthes eckloniana* – Ecklon's Lip Fern** – USDA Hardiness Zone 7b – 9b. One of the few *Cheilanthes* that is still in the genus *Cheilanthes* (at least for the time being). This is one of the easiest of the dryland ferns to grow in garden conditions. Any well-drained site works well. It hails from South Africa and one of the cultivars available commercially, 'Naude's Neck' was originally collected at nearly 8000' elevation and has proven reliably hardy to zone 7b.

***Myriopteris alabamensis* – Alabama Lip Fern** – USDA Hardiness Zone 7a – 10b. Though named for the state in which it was discovered, this medium-sized lip fern is more abundant in Texas and southern Arizona. In the eastern portion of its range it is typically associated with limestone. This species is similar to Hairy Lip Fern (*M. lanosa*) but produces darker green and slightly smoother fronds with a more tidy appearance. We have found this species to be fairly easy to cultivate here in the Southeastern United States and it grew well in Washington as well.

***Myriopteris aurea (Cheilanthes bonariensis)* – Golden Lip Fern** – USDA Hardiness Zone 7a – 9b. This is one of the most unique and easily grown of the genus. The graceful clumps produce fronds that reach 18" in height and 2' or more in width and we have been successful growing them in crevice gardens, rock gardens and even well-drained raised beds. This species has a very different appearance from the other *Myriopteris* and provides a very graceful and appealing visual element to the rock garden.

***Myriopteris fendleri (Cheilanthes fendleri)* – Fendler's Lip Fern** – USDA Hardiness Zone 6a – 9b. This small to mid-sized species from the American Southwest generally has dark green fronds that are heavily divided into tiny segments that almost look like beads. It is very similar to Myriopteris wootonii and we have found that both species are among the more successful of the desert species for cultivation in the humid climates of the Southeast. They require excellent drainage and a start under a rock but if kept moist during establishment they fairly quickly form a substantial colony. Juniper Level Botanical Garden has a very-well adapted cultivar that was originally grown from spore collected near Globe, AZ that we have named 'Globe Trotter.'

***Myriopteris gracillima* – Lace Lip Fern** – USDA Hardiness Zone 4a – 8b. This is a tiny version of the larger species. I have found it easy to grow, under the conditions described above, in the Pacific Northwest. The fronds are generally only 4" or so in length and considerably more slender in outline than most other species. This is the only widespread native lip fern in the Pacific Northwest. It is probably not suited for Southeastern gardens but may perform well in the Northeast and Midwest?

***Myriopteris lanosa* – Hairy Lip Fern** – USDA Hardiness Zone 5a – 9b. This wide-ranging species grows from the eastern states west to Texas and proves easy to cultivate under the conditions described above. Great drainage is a must, but so is moisture during the establishment phase. This species has slender rhizomes and spreads to form sizeable patches (1-2' wide) fairly quickly. A very fine, compact form selected at Plant Delights Nursery 'Mighty Tidy', has become fairly widespread in the specialty trade.

***Myriopteris rufa (Cheilanthes eatonii)* – Eaton's Lip Fern** – USDA Hardiness Zone 6a – 8b. This amazing fern wins the prize for having the most awesome colored fronds. The 6 – 12" long fronds are a startling bluish-silver and stand out brilliantly against darker rock. Though it may look fancy, we have found that this fern performs very well in crevice and rock gardens on both coasts if initially placed under a larger rock.

***Myriopteris tomentosa* – Woolly Lip Fern** – USDA Hardiness Zone 5a – 9b. This species is often found growing near or with Hairy Lip Fern but has longer, more upright, and paler fronds. The plants are tightly clumping and easy to grow but not easy to establish. I suggest either raising plants from spore and planting out well-established potted plants or seeking out commercial sources from among specialty nurseries for best results.

***Myriopteris wrightii (Cheilanthes wrightii)* – Wright's Lip Fern** – USDA Hardiness Zone 7a – 9b. This very small lip fern is unique among our American species in producing very short (3") fronds attached to narrow, long-creeping rhizomes that tend to form short carpets of growth when happy. Though they often are found in shallow-soil mats on large outcrops in their native haunts of the desert Southwest, in the garden they also need the shelter of a larger rock for their rhizomes to be tucked under to get their start.

Pellaea ovata – USDA Hardiness Zone 7b – 9b. *Pellaea* present a special challenge to establish. Some widespread species such as the common Purple Cliff Brake (*Pellaea atropurpurea*) have proven extremely difficult to establish from plants. Zig-zag Cliffbrake has broken the mold for us and has established well and long-term in part sun to full sun rock gardens and crevice garden conditions here at Juniper Level. This fern has a zig-zag rachis (stem) to 2' long, and rounded blue-grey pinnae. It is found naturally on outcrops in central and west Texas and seems to benefit from a little shelter from taller plants or growing along the edge of a woodland where it can receive a break from all day sun.

***Pellaea viridis* – Green Cliffbrake** – USDA Hardiness Zone 7a – 9b. Our experience with this Old-world species are from collections made in South Africa. Unlike the many American species, this one is completely forgiving of drainage, light and pretty much anything else you want to throw at it. It easily establishes and thrives on walls, raised beds and rock gardens in partial shade to full sun. If you're feeling frustrated and want to start off with a success, make this the first dryland fern you introduce into your landsape.

***Pellaea wrightiana* – Wright's Cliffbrake** – USDA Hardiness Zone 7b – 9 b. This medium-sized fern forms dense clumps of upright, blue-gray leaves with the texture of plastic. The pinnae are generally ternately compound over most of the length of the frond. This fern is most abundant in the desert Southwest where it is found in association with acidic rock outcrops but occurs as scattered disjunct populations into North and South Carolina. Among the rock-dwelling cliffbrakes, this one is perhaps the easiest to establish as long as the drainage is perfect and the plants are started under the shelter of a larger rock.

***Woodsia obtusa* – Blunt-lobed Cliff Fern** – USDA Hardiness Zone 3a – 10b. If you want to start out with a very easy species that can build your confidence then Woodsia are for you. This small, easy-to-grow American native is found growing in both acidic and alkaline soils on rock ledges and cliffs in the eastern US. It looks great in the rock garden in sun or even in partial shade. It is so adaptable that it can even be a component of a typical woodland garden, provided the drainage is good. The short creeping rhizomes make a nice, compact 3'wide patch in 5 years for filling spaces in the woodland garden. The 6" tall fresh green fronds are deeply cut, presenting a very nice lacy appearance. They make a perfect groundcover that will not grow thick enough to exclude or choke out taller seasonal interest plants. This is an absolute gem that should be much more widely grown.

***Woodsia polystichoides* 'Sakhalin Sweetheart'** – USDA Hardiness Zone 3a – 10b. We have tried and failed many times with different forms of the cute rock garden fern, Woodsia polystichoides. It was not until we received wild collected spores from the sea coasts of the South Sakhalin Islands from our Russian friend Konstantin Cherezov that we found a form that would thrive in our heat and humidity. Imagine our surprise that a plant from Siberia would thrive in the NC piedmont! Each 4" tall x 1' wide cute, winter-deciduous clump of soft green foliage makes a perfect rock garden size plant. This part sun lover also needs good drainage and average soil moisture to succeed. The densely clumping nature results in hundreds of fronds being produced from the same clump within 3 years! Truly stunning and a sweetheart of a fern!

Welcome New Members

Janer Belson
Rose Bonanno
Jay Caddel, Lady Bird Johnson Wildflower Center
Jen Cohoon
Donald Dempsey
Diane Dooley
Esther-Marie Giordano
Zofia Grajski
Rebecca Hoefer
Ken Johnson
Larry Keeney
Barry Leibowtiz
Claire Levy
Nancy Lewis-Williams
Lola Lloyd Horwitz
Kelley Mchenry
Arleta Miller
Merry Priest
Nicola Reynolds
Owen Sarmany
Moira Snover
Dana Weinberg
Julie Weiss
Ellen Williams
Michael Yales

Correction: The spelling of the author's last name in the fall issue Volume 32, No. 4, Page 91 is Heim, not Heims.

Trip Report: An Idiosyncratic Tour of 62 English and Irish Gardens

Article and Photos by Bonnie Berk
Seattle, Washington

It is a truth universally acknowledged, that a passionate plantaholic gardener transplanted to England for four months, must master Google maps and transit the countryside viewing as many gardens and nurseries as possible. Not that I was initially enthusiastic about the project. In February 2020, just weeks before the pandemic began, my researcher husband received word that he'd been awarded a Fulbright grant to collaborate with Cancer Research UK. That award was delayed for a year by the pandemic, providing an opportunity to follow England's record-setting 2021 cold and windy spring, including 33 consecutive days of frost in April and into May. Would I like to miss the entirety of spring in my own garden in exchange for months of freezing, gray London weather?

My mental model shifted into enthusiastic planning mode when we lucked into renting a quirky mews house in west London, a three-minute walk to the Shepard's Bush transit center. Downloading transit apps (GWR and South Western Rail, Citymapper), using social media (gratitude, Instagram), phone calls and old fashioned email, resulted in a series of excursions across the countryside. Also, an automobile was involved on several occasions, and to be honest, is essential for visiting some gardens.

Hodnet Hall House dates to the 16th Century

Wollerton Old Hall Garden in North Shropshire, a four acre garden and nursery

England has thousands of public and private gardens; it was an experience to happen serendipitously upon, say, **Hodnet Hall Gardens** in the Midlands northeast of Birmingham. A lushly landscaped 60-acre garden I did not know, that is part of a much larger estate stewarded by the same family for more than 300 years, it combines rare and native species with lakes, waterfalls, secret spaces and 17th Century buildings, including an elaborate dovecote. The estate is just one of an uncountable

number of large-scale English gardens that are handed down from generation to generation, and from an economic perspective, are integrally entwined with their surrounding villages. *[hodnethallgardens.org]*

What follows is a highly personal synopsis of several memorable garden visits during the winter and spring of 2022, with attention to ferns where possible. Properties in Southeast England (Sussex) and the Southwest (Cornwall) are discussed, with the Cotswolds in between. Another complete article could be devoted to Wales and Ireland, where I also toured many wondrous gardens and nurseries.

Great Dixter House & Gardens

A unique, historic house and garden in East Sussex, Dixter was the family home of Christopher Lloyd, whose exuberant, rule-breaking gardening style created colorful plantings unlike anywhere else. Led by the brilliant Fergus Garrett for more than two decades, Great Dixter has become a destination for students and professionals worldwide, and a leader in encouraging and quantifying biodiversity as a critical component of ornamental horticulture. Amongst Dixter's signature peacock yew topiary, espaliered fig and ancient rose bushes, and high maintenance succession plantings that change seasonally, are several noteworthy fern plantings, growing robustly in the Garden's Zone 8B climate.

Fergus Garrett teaching atop one of several compost hills at Dixter

Ferula, hellebores and Blechnum chilense in the High Garden at Dixter, March 2022

Dryopteris wallichiana is a garden favorite, underplanted for winter interest with many Galanthus cultivars and early spring primroses, followed by *Narcissus Thalia* and later, rodgersia. *Polystichum setiferum* 'Pulcherrimum Bevis,' unfortunately not very available here, is another preferred fern. Others are the semi-evergreen ***Cyrtomium falcatum***, which beautifully offsets early bulbs, and the versatile *Dryopteris erythrosora*. *Blechnum chilense* looks muscular in contrast with fluffy *Ferula communis*, the giant fennel, lending winter and spring interest in several beds. Of these ferns, all but the Blechnum have received the prized Award of Garden Merit (AGM) designation by the Royal Horticultural Society, awarded in the UK to plants with outstanding qualities. Criteria for this seal-of-approval designation are that the plant be "excellent

for ordinary use in appropriate conditions, be stable in form and color, reasonably resistant to pests and diseases, and available for purchase in the UK." Simply put, a plant likely to grow well in the Pacific Northwest as well as in the UK. *[greatdixter.co.uk]*

The Cotswolds and Environs

Buckland Manor in Gloucestershire, a 10-acre manor house dating from 600 AD

"Big Rhody," an Old Cornish Rhododendron, is thought to be England's largest, and the second largest in the world

An especially charming area only a couple of hours by train from London, the Cotswolds encompass nearly 800 square miles and spans five counties: Gloucestershire, Oxfordshire, Warwickshire, Wiltshire and Worcestershire. With mile after mile of honey-colored brick buildings, adorable villages, historic market towns and famous walking trails, the Cotswolds are appealing even without their destination-worthy gardens. While one could visit famous National Trust gardens such as **Hidcote**, or the nearby **Kiftsgate**, a privately owned Italianate Garden designed and nurtured for 100 years by three generations of women, in February the prize is a booking at **Colesbourne Garden,** considered the preeminent Galanthus garden in England. The 2,500-acre Colesbourne estate, which has been in the Elwes family since 1789, is open on selected weekends in February, when villagers turn out to staff the plant sale racks and take shifts tugging the ropes of enormous clock tower bells in Saint James Church, an ancient stone structure within the Garden. Against the soundtrack of pealing bells, one walks along pathways and woodlands carpeted with 350 cultivars of Galanthus, whole fields of them in some places. The botanist, entomologist, and collector Henry John Elwes (1846-1922) traveled widely in the Himalayas and Asia, and planted extensively in the gardens, which are still planted out annually with thousands of new snowdrops each year. A truly unique and memorable garden experience. *[colesbournegardens.org.uk]*

Noteworthy Stumperies

For the garden that has everything, at least in England, a stumpery is essential. We visited three, including one at **Highgrove**, King Charles's Gloucestershire Country house. Highgrove, purchased by then-Prince Charles in 1980 as an overgrown site with only two trees, is a sought after destination garden that been created wholly by the vision of Charles and his teams of advisors, designers, and gardeners. Managed as an organic and pollinator-friendly garden long before it was fashionable, the

garden features large-scale sculptures, the national beech tree collection designated by the English National Plant Collection program, a Southern Hemisphere Garden, an enormous walled kitchen garden, a Woodland Garden with two classical temples crafted from green oak, and the Victorian-inspired stumpery. The stumpery features massive, sculptural stumps covered in moss and lichen, many hostas and very few ferns, at least in mid-May. We were told that the stumpery is transformed in mid-summer, so perhaps it is replanted annually. *[highgrovegardens.com]*

For a fern fan, a more interesting stumpery is located in **John Massey's four-season garden**, adjacent to **Ashwood Nurseries**, his destination West Midlands garden emporium. One of the best gardens anywhere, John's multi-room, seasonally curated garden is an inspiring destination. His hepatica collection from across the world – his life's passion – is worth seeing all by itself. (In 2022 his book, My World of Hepaticas, described as "essential" and "a love letter to a single genus" was published after 10+ years of work.) In February, John's beautifully maintained garden was full of interest: artfully pruned conifers, topiarized evergreen shrubs paired with colorful bulbs, swaths of *Cornus sanguinea elegantissima, C. Midwinter Fire,* and *C. kesselringii* planted to highlight their colorful branches, and a crevice garden showing rare alpine specimens to good effect. In late winter John's stumpery featured ***Polystichum setiferum*** 'Plumoso-multilobum' looking wonderful paired with late-season Galanthus, ruffled *Asplenium scolopendrium* 'Undulatum' mixed with white-flowered *Ypsilandra thibetica, Dryopteris filix-mas* growing amongst large, white-flowered trillium, and a *Polypodium* cultivar, perhaps *Richard Kayse*, punctuating a sea of variegated *Cyclamen heterofolium* with its spiky, chartreuse fronds. *[ashwoodnurseries.com]*

If you're looking for John Massey, look for his ever-present border collies

John's hepatica greenhouse. He's planted each one of these pots, with specimens from across the world

Another stumpery assembled with an eye to impact is at **Malverleys**, a private garden in Newbury, West Berkshires. Located in wealthy horse country and a short drive from Highclere Castle, of Downton Abbey fame, Malverleys is a 200-acre estate gardened to a best-in-class level. Huge moss-covered stumps have been sourced and planted as forest sculptures, beneath a canopy of evergreen magnolias, ***Fatsia polycarpa*** and other small trees, and adjacent to giant trillium, Cypripedium and other seasonal beauties. *[Malverleys.co.uk]*

Part of the Stumpery at Malverleys, a private garden with expertly designed grounds

Travelers note: Seeing these stumperies made me appreciate, from an entirely shifted perspective, the **Hardy Fern Foundation's stumpery** in Federal Way. With dense, mature plantings of ferns ranging in size, texture and other qualities, HFF's stumpery is remarkable for its scale, design, winter interest, and the overall quality of experience. Kudos to all involved!

Specialty Nurseries

If you would like to learn more about UK plants, gardens, and the country's gardening culture, may I suggest tuning into the highly entertaining YouTube program and podcast Get Gardening: Talking Dirty, hosted by Thordis Fridriksson and Alan Gray, founder of one of England's best gardens, East Ruston Old Vicarage, in Essex, Norfolk. As a regular listener, I've learned much about worthy gardens, the head gardener role and its importance, and many lust-worthy plants sadly unavailable here. Also, numerous English rare plant nurseries; the UK seems to have a much more robust specialty nursery industry than here in the U.S. Two nurseries I made special efforts to visit are described below.

Special Plants Nursery, outside Bath, is the home, garden and nursery of Derry Watkins, an American who married a Brit and agreed to stay in England for two years and now, 45 years later, has an acclaimed garden and specialty nursery, specializing in seeds, and all manner of herbaceous perennials that she loves. The nursery made garden designer and historian Penelope Hobhouse's influential list of 25 of the Best English Gardens to Visit, published in Gardens Illustrated; Hobhouse called it "a magical place." The nursery has a busy mail order business, including to the U.S., shipping hundreds of tiny seed packets of choice selections. They also sell unusual ferns such as *Athyrium vidalii, Athyrium minimum* ("Small & neat. Rare. Hardy. Shade or part-shade. N. Taiwan), and *Coniogramme intermedia* (with "particularly elegant, one-meter long evergreen, glossy fronds").

Pan Global Plants. Located in the Severn Valley of Gloucestershire, just across the Severn River from Wales, Pan Global is the creation of Nick Macer, planthunter extraordinaire. Pan Global's one acre walled garden site is a wonderment of rare and one-of-a-kind plants collected from his years of botanizing across the world, as well as some of his own introductions. In addition to shrubs, trees and herbaceous

perennials, many in larger sized containers, Nick sells a multitude of unusual ferns, including: *Acystopteris taiwaniana; Athyrium niponicum* 'Cristatoflabellatum'*; Hypolepis punctata* from Honshu Japan; *Parathelypteris beddomei* (from Korea, a ground-covering fern rarely seen in cultivation that's very hardy and easily grown); and *Coniogramme intermedia* 'Yoroi Musha,' a Pan Global introduction with randomly lobed, glossy and thickly textured fronds that I particularly wanted to stash in my suitcase for the journey home. I would also be happy with *Cyrtomium falcatum var. maritimum*, a dwarf form*; Dennstaedtia glaucia* ("new to cultivation in the UK, an Andean fern uncommon in the wild"); *Deparia petersenii* ("very rarely seen or grown in the UK"); *Drynaria sinica* from China, with polypody-like deciduous fronds; *Dryopteris kuratae* ("a relatively newly described species from Japan that's still unusual in cultivation, yet easy to grow"); *Dryopteris stewartii* ("golden spring foliage up to one meter tall"); and *Gymnocarpium robertianum ex Arunachal Pradesh* ("the Limestone Fern, rarely available for sale"). *[panglobalplants.com]*

Cornwall

For many Brits, particularly gardeners, the county of Cornwall holds a special allure, one without a current day American parallel. The most southerly, westerly and warmest part of England: a Zone 9 climate where tree ferns, bananas, aeoniums and other gorgeous tropicals flourish, growing huge and living outside year-round. A county interlaced with charming waterways and scenic backroads, excellent gardens, swimmable bays, picturesque pubs and beach towns. A place that's been discovered by flocks of affluent "second homers," driving prices to unaffordable levels for many aspiring homebuyers. And also: 55 inches of rain annually, and frequent powerful windstorms that shred plants and overturn unsecured objects. A place where I learned the term "shelter belts," intentional plantings of trees to shield gardens from punishing winds and sea salt. For fern lovers: Mecca. *Dicksonia antarctica* growing taller and wider than I imagined possible, growing on hillsides, in valleys, in front yards, seeding around freely if given the chance. Unusual and tender ferns too, growing beautifully in public and private gardens.

Probably the most desired-to-visit garden in Cornwall is **Tresco Abbey**, a privately owned island 30 miles off the Cornish coast. Part of the Scilly Island chain and reachable by ferry (slow but affordable) or helicopter (20 minute ride, priced accordingly), Tresco is an outpost without cars that immediately feels unplaceable, not part of England at all. Beachy shores, a limited number of bungalows for rent by the Island's owner (which also owns and operates the helicopter service), and dominantly, one of the world's best gardens, with a reported 20,000 plants sourced from 80 countries. Originally created in the early 19th Century, Tresco is listed in England's Register of Historic Parks and Gardens. The unique microclimate that makes the Garden possible is created by stone walls and especially, shelter belts of *Pinus radiata* (Monterey pine) and *Cupressus macrocaroa* (Monterey cypress) trees planted by the hundreds in the 1880's after it was discovered that they best block the cold Atlantic winds, which are constant, and help prevent storm damage.

Importantly, the Garden exists in a frost-free environment, enabling plants to grow

12 months a year. The hillside garden is broadly terraced into three distinct levels, each with their own microclimate and plants appropriate to those conditions. As one ascends the levels, the microclimate becomes warmer and drier, so that on the top level, specimens from South Africa, California, Chile, Argentina and elsewhere are intermingled with banksias, aloes, mimosas and huge proteas blooming in abundance. In contrast, the lowest level, the ground floor if you will, has a similar climate to the Pacific Northwest, but without our winter lows and snow, creating hospitable conditions for huge purple-flowering echium, and mature cordyline trees towering above *Dicksonia antarctica*, stately *Cyathea medullaris* and a few familiar fern species such as *Cyrtomium falcatum* and *Dryopteris sieboldii*.

Tresco Abbey Director Andrew Lawson showing his tattoo and his love for Dicksonia!

Dicksonia medullaris and companion ferns at Tresco

The Echium, Dicksonia, Cordylines and others help tie together the otherwise diverse plantings. The purple-flowered *Geranium maderense* (AGM), also called the Madeira cranesbill, the largest geranium species and perhaps the most impactful, is one of the defining plants of the Garden, promiscuously seeding around and growing up to 4-5 feet tall and wide. *Dicksonia antarctica* are also prevalent throughout the property, some dating back to the Garden's origin. Garden staff related that there is an ongoing, friendly debate: add more because they are fabulous, and a defining feature of this microclimate, or edit out because they are so common? Perhaps a spirited debate that could only happen in Cornwall. *[tresco.co.uk]*

A visiting gardener could easily spend a week or more touring Cornwall's spectacular public gardens. **Trebah Garden** is a 26-acre subtropical garden built along hillsides and valleys, leading to a sandy beach on the Helford River. The garden has, yes, massive *Dicksonia antarctica* throughout the landscape, as well as 100-year old rhododendrons, magnolias and camellias, giant gunnera outcroppings, and extensive drifts of blue and white flowering hydrangeas. In recent years, the Cascade Waterfall Garden was created, together with a stumpery beneath. In all, 30 fern species have been planted around the stumpery, including eight tree ferns species: *Cyathea dealbata* (the Silver Tree Fern), grows at the waterfall's base; along with *Cyathea medullaris* (Black Tree Fern); *Dicksonia antarctica*; *D. fibrosa; D. sellowiana* (considered

as hardy as *D. antarctica*); *D. squarrosa* (Rough Tree Fern, from New Zealand); *C. cooperi* (the fast-growing Australian tree fern); and *C. smithii* (Smith's tree fern, the most southerly tree fern known to exist). *[trebahgarden.co.uk]*

A more recently created garden is **Tremenheere Sculpture Gardens**, a passion project reclaimed from an overgrown hillside and just opened in 2012. Planted by its widely traveled owner, the subtropical garden contains *D. antarctica* in abundance, as well as *D. fibrosa, C. medullaris and C. australis*, growing alongside *Lophosoria quadripinnata* (the Diamondleaf Fern) and *Todea Barbara* (the King Fern), arrayed above swathes of Blechnum and Dryopteris used as a groundcover layer. Traveler's note: as a bonus, the Garden has the best café and gift shop of the very many I have visited. *[tremenheere.co.uk]*

Co-located on Tremenheere's grounds is the fantastic specialty nursery **Surreal Succulents**. Founded by three passionate succulent collectors, the nursery offers a dream collection of rare and unusual Aeoniums, Echevarria, Senecio, Crassula, and other sedum forms, as well as hybrids that have been developed exclusively by the nursery. These one-of-a-kind hybrids have been selected for their hardiness, unique form and color. The nursery has been awarded several consecutive gold medals at the Chelsea and Hampton Court Flower Shows for their stunning displays and has been featured on BBC's Gardeners World prime time television show. In 2022, the nursery's mahogany black intergenera Sempervivum/Aeonium hybrid 'Destiny' was awarded the Royal Horticultural Society's Chelsea Plant of the Year, a significant honor. The nursery offers mail order, including to the U.S. – what an excellent gift for the gardener who has everything. *[surrealsucculents.co.uk]*

A display container at Surreal Succulent's display stand at the Chelsea Flower Show, 2022

Aspirational container at Chelsea — that Aeonium in full bloom!

Finally, **Lamorran House Garden** was one of my favorites. An impeccably maintained private garden, Lamorran is four acres of south-facing terraced hillsides, with scenic sea views from multiple areas. The Garden's owners took inspiration from Giardini La Mortella, a stunning garden overlooking the sea on the Italian island of Ischia, which was designed in the 1950's by Russell Page. La Mortella is also a seaside garden with unique spaces (a grotto, to name one), and thousands of rare and exotic plants.

Lamorran Garden has a collection of mature rhododendrons and evergreen azaleas, a Palm Garden with more than 200 palms encompassing 35 species, a clever ruin, and many Southern hemisphere plants. A gorgeous *Blechnum cycadifolium* was one of many specimens I admired, as well as the large collection of *D. antarctica* and Cyathea species that mark the pathways and contribute to the stately, romantic feel of the garden. An inspiring way to spend a morning or afternoon in Cornwall. *[lamorrangardens.co.uk]*

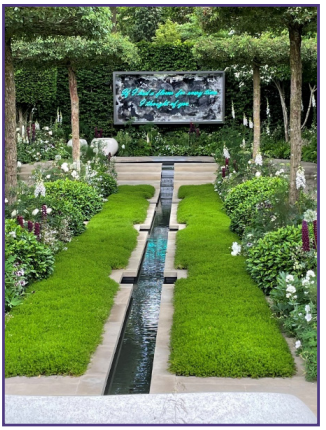
Blechnum cycadifolium flourishing in Cornwall

Elegant Dicksonia antarctica flanking a pathway at Lamorran Garden

Current Tree Fern Regulation and Management

Having seen hundreds of *Dicksonia antartica* of many ages (they reportedly can live for 250 years), sizes and uses, including dead trunks used as path liners, and in plastic containers offered for sale, I feel a responsibility to share a bit of what I've learned about efforts to protect these slow growing, coveted plants. Chunks of *D. antarctica* trunks were famously first brought to England as ballast for cargo ships returning to the home country from Australia. Once unloaded, these "ballast logs" were found to be sprouting: they were planted, noticed and became part of the English Victorian fern mania of the 1860s and 1870s. Fast forward to the 21st Century, when the Guardian newspaper published an essay noting the uncontrolled export of Tasmanian tree ferns, reporting that an estimated 90,000 plants were uprooted from forests for export annually. Environmentalists justly worried that the demand was fueling the unregulated logging of old growth forests. A related concern was that ferns were being marketed in the UK and Australia as having been "saved" from Tasmanian forest.

The politics of Australian forest practices and regulations are complex, controversial and outside the scope of this article. I will simply note that currently, the harvesting of *D. antarctica* is strictly regulated and may occur only with proper permits from the Australian and Tasmanian governments. By law, each plant now offered for sale has a tag affixed to its trunk, ensuring that its origin can be tracked to approved harvesting areas. We saw only tagged plants for sale in nurseries both in England and Ireland.



Designed by Richard Miers, The Perennial Garden 'With Love' was the winner of the BBC/RHS People's Choice Award at Chelsea, 2022

Shops in the Chelsea neighborhood are bedecked with huge flower arrangements during the Chelsea Flower Show week

Closing Thoughts

A lovely dilemma: too many gardens to write about in a single article. I could have mentioned the exquisite jewel garden that is the Barbara Hepworth Sculpture Garden in the seaside town St Mawes, Cornwall, part of the Tate Museum. Or Italianate Ilford Manor, a hillside garden outside Bath, owned and designed by Harold Peto and now beautifully maintained with an eye towards reduced water usage. London's four-acre walled Chelsea Physic Garden, created in 1673, with 100 species of trees, many rare. The Garden has a warmer microclimate within London's already mild Zone 9 environment, enabling England's largest productive grapefruit tree, for example. Or Denman's Garden in Sussex, influential designer John Brookes's home and studio, now brought back to his original vision by an energetic American. And what about the Chelsea Flower Show, an annual spring garden and plant extravaganza sponsored by the Royal Horticulture Society, with mind-bogglingly complex show gardens that take two years to plan and a month to install? At the sprawling show grounds, it was often challenging to know where to look – the over-the-top display gardens, or the throngs of fetching and sometimes outrageous outfits sported by women and men.

The most energizing thought, however, is how many English gardens and nurseries I've yet to explore. Given their widespread locales, perhaps the most daunting work ahead would be to master driving a car on the left. That's an idea to consider during cold winter walks in the months ahead. In the meantime, I'd love to hear our community's ideas and suggestions for future English garden touring, with a focus on ferns, of course.

Bonnieberk2@gmail.com

Ferns at Old Goat Farm

Article and Photos by Greg Graves
Graham, Washington

A group of plants that I have developed a growing appreciation for over the years are ferns. I know many think of ferns as background plants or filler but for others the ferns can be the major focal plant in the garden with other plants being fern companion plants. I learned to use ferns in almost any part of the garden from sun to shade, dry to wet.

When I started to build the garden at Old Goat Farm ferns became a major element particularly in the shadier parts of the garden. I cleared the areas to put in borders leaving some choice natives, one being *Polystichum munitum*, the native sword fern. I developed an appreciation for the sword fern while traveling in England and having a gardener point out one of his prized plants, our sword fern. It was much smaller than ours but looked beautiful in its setting. Now when I see the Pacific Northwest sword fern I remember that and think how fortunate I am to have such amazing specimens. The other native fern I use a lot is *Blechnum spicant*, the deer fern. It looks great in mass.

Polystichum munitum

Blechnum spicant

Ferns can be used as ground cover or as specimen plants. Working at the Elisabeth C. Miller Botanical Garden I learned to use them in a variety of ways. Betty was a big collector as was my co-worker Richie Steffen. Sometimes as a specimen plant I prefer to use groups of them to make more of an impact. I have five soft shield ferns, *Polystichum setiferum* 'Bevis' planted in a group. It is a fine texture form fern resembling the sword fern. I also have three robust male ferns, *Dryopteris x complexa*

'Robusta' which now take up almost a whole bed. Each is about five feet tall and almost as wide. Planted next to a Hosta 'Sum and Substance' they make a real impact. Having these specimens in the garden gets people's attention and generates conversations about ferns.

DRYOPTERIS X COMPLEXA 'ROBUSTA'

I was fortunate to have some wonderful ferns already in the garden when we moved here. There was a beautiful drift of the wheel fern, *Polystichum setiferum* 'Divisilobum Group' that edged a walkway. Over the last seventeen years they have just become larger and more beautiful. There were also a couple of nice sized maidenhair ferns, *Adiantum aleuticum*. The soft delicate texture of this fern always makes you pause. In the sun was a nice size royal fern, *Osmunda regalis*. It did get a little burnt by the end of summer so we moved it to a slightly shadier spot and now it is also almost five feet tall and just as wide.

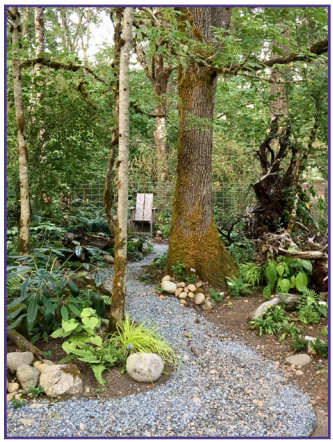
As a ground cover one of my favorites is *Blechnum penna-marina*. I'm not sure of the common name because it isn't that common. It is a southern hemisphere relative of our native deer fern but much smaller in stature. It seems to do well in sun or shade and has wonderful coppery new growth. The chain fern, *Woodwardia areolata*, will also scramble through a bed. I use it in a drier situation to keep it a bit smaller and not so rambunctious. In a moist situation it may get to be a bit too vigorous. Another fern that may be a bit too vigorous is the oak fern, *Gymnocarpium dryopteris*. It piggybacked in on a plant from the Miller Garden and has now spread a bit too far. At the Miller Garden we used it in combination with cyclamen. Since the fern is herbaceous (dies back) we would just cut it back toward the end of August, just about the time the cyclamen come up. The cyclamen would fill the space all fall and winter.

Ferns are not just limited to green. Some stand out in the garden because of their color. The Japanese painted fern, *Athyrium niponicum* 'Pictum' has silvers and reds in the fronds. There are many cultivars with even more dramatic coloration. The autumn fern, *Dryopteris erythrosora*, has bronzy fall color to the new fronds which is how it gets its name. My clump in the garden looks spectacular this time of year. It is also one of the most durable evergreen ferns.

The fact that many ferns are evergreen is also a quality to consider. When I design a garden bed, I like for about one third to one half of it be evergreen. This makes the bed hold up year-round. Our garden looks great even in winter no small thanks to the use of ferns.

I was inspired by the Hardy Fern Foundations Stumpery located at the Rhododendron Species Botanical Garden and built a small one here at the farm, more of a stumpette, with 30 different hardy ferns in it. This is a story for another day. I could go on and on about the different ferns we use in the garden. They truly make the garden. If you would like more information check out the Hardy Fern Foundation, hardyferns.org . I would also recommend the book '*The Plant Lover's Guide To Ferns*' by my friend and former co-worker, Richie Steffen and Sue Olsen who is one of the founders of the Hardy Fern Foundation. This book is a great guide on how to use ferns in your garden. It is a must have reference book for me.

Stumpette



Stumpette

Greg Graves (right) and the late Gary Waller

10 ferns that do well in the central California coastal fog belt

Article and Photos by Daniel Yansura
Pacifica, California

The central California coastal fog belt centered around San Francisco offers a unique environment for growing a special group of ferns. The minimum winter temperature is around 35 F (2 C), with a warming during the days into the 50s F (>10 C). This puts us in USDA zones 10a, 10b. The climate is Mediterranean with wet winters and dry summers, and fog provides some summer moisture and increased humidity. The main concerns for gardeners are the occasional dry warm winds coming from the Central Valley to the east, and of course the drought induced limits of city or utility water.

My garden is about one quarter of a mile (500m) from the coast, and humidity is generally in the 50-70% range. Both summer and winter temps are also moderated by the ocean which averages 57 F (14C). Hot dry winds from the east can last 1-2 days, and can be damaging but are not usually fatal to my ferns. I have constructed a wind block to divert the east winds from the most exposed section of my yard, and use elevated sprinklers when needed. Rain water is very plentiful in the winter, even in a dry year, and I collect around 1,800 gallons (7,200L) to be used in the dry months of the year. Additionally, I collect some fog water in the summer, and we have a gray water system for some sections of the yard.

The moderate temps throughout the year, the humidity, and the summer fog are ideal for growing many tropical mountain and cloud forest ferns. I usually start new ferns in my warmer greenhouse, move them outdoors before it gets cold, and observe them to be sure they overwinter successfully. Most do well in this climate. There are, however, some exceptions amongst the tropical ferns: some seem to need hot temps in the summer months to put out new growth; others seem to prefer warmer winter temps especially when wet; a few ferns need protection from the winter rains (and overhead watering) as rot sets in before they can dry out a bit - these include *Platycerium superbum, P. andinum, and Asplenium antiquum*.

Many of my ferns were grown from spore collected overseas. Purchased or gifted plants came from Monterey Bay Nursery, the late Garry Hammer ferns (collected in Vera Cruz Mexico), Ecuagenera, the Fern Plantation Nursery, Plants Delight, and the UC Berkeley Botanical Garden plant sales or auctions.

These 10 garden ferns are some of my favorites, and were chosen for this article because they still look good enough in December for a photo.

Ratings

1 Didn't survive **2 Poor performance** **3 Good performance**
4 Attractive but not thriving **5 Best performance**

***Dicksonia arborescense* (Rate 5)** This is one of my favorite tree ferns out of more than 20 species in my yard. This is grown in part to full sun.

***Elaphoglossum sartorii* (Rate 5)** Several Elaphoglossum species have more recently been shown to thrive outdoors in this region, planted as epiphytes in baskets and stumperies, or occasionally as rock garden ferns. They are very adaptable to partial sun or light shade.

***Campyloneurum amphostenon* (Rate 5)** This was originally obtained from the UC Berkeley Botanical Gardens, but it now thrives outdoors in baskets or mounted in stumpery wood. It prefers partial sun to partial shade, and always looks good.

Lomariocycas tabularis (Blechnum tabulare) **(Rate 5)** This is a beautiful fern that eventually gets a trunk. It forms pups at the base and likes partial to full sun.

Cheilanthes buchtienii **(Rate 5)** This fern does well in my rock garden and is one of the easier Cheilanthes to grow. It grows in full sun with rocks protecting its southern exposure.

Pteris berteroana **(Rate 5)** This fern was a contaminant from the spores I collected on the Juan Fernandez Islands, but it has turned into a beautiful large bushy plant with 3-4 ft (1m) fronds.

***Platycerium andinum* (Rate 5)** I wanted to include one of my more exotic staghorn ferns. It naturally grows in dry tropical forests, and so my plant gets filtered sun and is protected from the winter rain. The shield frond renews each year.

***Selliguea feei* (Rate 5)** For a fern that naturally grows in Indonesia, this does exceptionally well in this area. It is a beautiful fern with its glossy green fronds and its herringbone sori pattern. It spreads slowly in part sun to part shade. It is from Barbara Joe Hoshizaki's collection.

***Asplenium daucifolium* (Rate 5)** This delightful medium sized fern has finely divided fronds that produce numerous pups on its leaves. It grows well in partial sun to light shade.

***Polypodium cambricum* (Rate 5)** A small piece of rhizome collected in Spain many years ago has resulted in a beautiful spreading fern. It gets partial sun, and renews its fronds in the summer.

A few ferns have struggled or not survived the winter months.

***Platycerium superbum* (Rate 4)** This staghorn does very well on the east side of the SF Bay where it gets warmer in the summer. In my yard it survives the winter with protection from the rain but doesn't thrive in my cooler summer yard.

***Campyloneurum phyllitides* (Rate 1)** This fern grows very well in my only slightly warmer winter greenhouse (min. temps 50F, 10C) but did not survive the winter outside. It may require a better aerated epiphytic mix or winter protection from the rain.

***Diplazium proliferum* (Rate 1)** A very attractive large fern from Malaysia and Indonesia, this does very well in my greenhouse and produces many pups on the fronds. It barely survived one winter outside though, and is now confined to the greenhouse.

***Nephrolepis pendula* (Rate 1)** This would make a beautiful addition to any garden with its up to 12 ft (4m) fronds. It did not survive winter outdoors, and is confined to my greenhouse and a friend's living room with a 10 ft (3m) ceiling.

Fronds in Snow

Photos by Sue Olsen

We Wish to Thank Our Donors for Their Generous Support Over the Past Year

December 2021 through November 2022

Alex LaVilla
Alison Evans
Amy McCune
Anne Albright
Barbara Faurot
Barbara Thanhauser
Brenda Allynn Buras-Elsen
Brian Atkins
Camille Paulsen
Catharine W Guiles
Chance Justbe
Charles D Lamade
Chris Boles
Christine Anderson
Chuck Ogburn
Craig Quirk
Daniel R Rice
Debbie Payton
Debbie Wilson
Diane Elliott
Don H Naylor
Dr. Joseph Bryan
Dr. Logan & Verna Hazen
Edward & Donna Lambert
Faye Greenlee
Ferderick D Gawron
Florence Sheehan
Forest & Rene Campbell
Gary & Jean Steffen
Helen Langer Smith
Jane E Whiteley
Janet McCammon
Jenica Poduje
Jill D Bader
John Van Den Meerendonk
Julia Hofley
Karin Kravitz
Kathryn Crosby
Kay Dye
Kenneth Everding
Kroger Company
Kyra M.E.H. Martin
Leslie Morris-Smith
Leslie Pancratz & Michael Hayman
Linda & Bob Pyles
Lindsay Michimoto
Louise Billings
Maggie Soderstrom
Marie A Spearman
Marie Grant
Mark Leichty
Mark Lyke
Marvin Bame
Mary McCheyne
Maurice & George Soule Horn
Michael Justice
Michelle Bundy
Myrna Ougland
Nancy Strahle
Naud & Wimberley Burnett II
Patricia Campbell
Phillippe Chatelain
Randy & Janice Stone
Richie Steffen & Rick Peterson
Robin Dearling
Rosemary J Read
Roz Horder Williams
Sara Farinelli
Sara Johnston
Sean O'Connor
Stephen Lamphear
Sue Olsen
Susan E Eichhorn
Susan Eggers
Suzanne & Marvin Anderson
Tom Hobson
Toni Doane
Willana Bradner
Amazon.com
Anonymous
501 COMMONS Give Big
Fox Island Sand and Soul Garden Club
Microsoft Corporation
Willowmoor Foundation