

Douglasia



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WASHINGTON NATIVE PLANT SOCIETY

To promote the appreciation and conservation of Washington's native plants and their habitats through study, education, and advocacy.



About this Issue

by Alaina Kowitz

How fitting it is that I'm writing this editor's note for the summer issue of *Douglasia* on the first day of summer. It's a lovely time of year here in northeast Washington, with the mock oranges in full, fragrant bloom and the grass—still green, for now—waving in the breeze. It's a feeling of promise and new beginnings, which I'm sure we're all ready for after a long, difficult year.

It's certainly a new beginning for me as I join the *Douglasia* team as managing editor. Already I've learned much about Washington's fascinating plants as well as the equally fascinating people who care about them. Eight of these folks have been nominated as this year's Arthur R. Kruckeberg Honorary Fellows due to their lasting dedication to native flora, enthusiastic engagement with WNPS, and other native plant efforts throughout the state. We owe them our deepest gratitude for their work. We also announce the WNPS Outstanding Partner Award and the WNPS Mentzelia Award winners, who have similarly made significant contributions to native plant conservation, education, and advocacy.



We also have a fascinating read about carnivorous plants at Summer Lake, as well as an investigation of a highly unusual bog on the Olympic Peninsula. Speaking of the Peninsula, Kathy Darrow graces us with a photo essay about Point Wilson's native coastal strand. Mark Egger and Walter Fertig discuss the status of Scouler's monkeyflower and Bradshaw's lomatium, respectively, and we get an inside look at David Douglas' journal as he pilfers Indigenous-cultivated *Nicotiana* crops in 1825. David Giblin suggests some summer hiking routes, and Becky Chaney thanks a committee member for 30 years of service. We also welcome a new WNPS staffer, Lorraine Sawicki, who joins as Volunteer Coordinator. (Please note that Part 2 of Ron Bockelman's report on *Pediocactus nigrispinus* will appear in the upcoming Fall issue.)

I can't end without thanking Walter Fertig and Denise Mahnke for their support and for trusting me with *Douglasia*, as well as the entire production team and those who helped with proofreading and technical edits. I would also like to thank my father, Todd, for my inherited love of plants and for showing me that a good life is one surrounded by vegetation, preferably native and/or variegated.

I hope you have a wonderful summer exploring our beautiful state's native flora, both on and off these pages.



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* The WNPS Arthur R. Kruckeberg Fellow is the highest honor given to a member by our society. This title is given to those who have made outstanding contributions to the understanding and/or preservation of Washington's flora, or to the success of WNPS.

** Deceased

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On the cover: Spotted saxifrage (*Saxifraga austromontana*) and pale agoseris (*Agoseris glauca*) among drying grasses near the summit of Slate Peak on the Okanogan-Wenatchee National Forest in late July. PHOTO: MARK TURNER

President's Message: The View from Here

by Keyna Bugner

Dear WNPS Members,

We successfully completed another great Native Plant Appreciation Month in April. This year WNPS supported the expansion to National Native Plant Appreciation Month that was celebrated throughout the country. Native plants are popular, and it shows in the support that we had for our online programs and in-person field trips. Our mission—to promote the appreciation of native plants and their habitats—was evident in each of these events. We had presentations about gardening with native plants and the special interaction between pollinators and plants. For those that couldn't get out on a hike, we even had some virtual field trips. Some presenters gave us a glimpse into their own backyards to show what they do to promote native plants and pollinators.

I got to thinking about my own backyard as I was listening to Doug Tallamy's talk titled "A Guide to Restoring the Little Things that Run the World." Doug Tallamy is a professor in the Department of Entomology and Wildlife Ecology at the University of Delaware, where he has authored 104 research publications and has taught insect related courses for 41 years. His research focus is to better understand the many ways insects interact with plants and how these interactions determine the diversity of animal communities.



When I first moved into my home in Ellensburg, my backyard was entirely grass with a few lilac shrubs and an apricot tree along the fence. That first year I removed half of the lawn by solarizing the grass with black plastic. Since then I have slowly been adding flowers and native bunchgrasses, as well as several raised beds for vegetables. Without realizing it I was following several of the steps Doug lays out for restoring biodiversity and native flora to our yards (see below for all ten of his tips).

Most of my plants are drought tolerant, requiring less water than a grass lawn, and no chemicals are needed for their maintenance. Biodiversity is key, and I have plants that flower at different times of the year to ensure food for all insects when they need it. While most of the plants are native, I do have a few nonnative flowering plants that are great for pollinators. The human benefits also can't be overlooked. This area has been a wonderful escape this past year when I need a break from working in my home office.

One new thing I learned from Doug's talk was to not clean up the old stalks in the fall, but to leave them over the winter until the following spring. I think we all have a tendency to want to clean the yard before winter, but leaving the large stalks and leaves for insects protects their larvae from the winter elements.

I love the opportunity to show this area to my neighbors and friends. As my plants have expanded within their area I can share plant starts with others to get them interested in incorporating more native plants into their own spaces.

The role of WNPS members—to share our knowledge and resources about native plants—fits nicely with this idea. Whenever I help with a WNPS informational booth, the number one question I get is, "What native plants can I plant in my yard?" People see the benefit of incorporating native plants in their lives and are looking for guidance on where to start. WNPS can help with that.

Another great resource for folks looking to expand native plantings is the WNPS native plant sale. The plant sales were online this year and reached even more people than previous, in-person events. Working with conservation districts, land trusts and other conservation organizations is also a great way to spread the goodness of native plants to the public.

I want to especially thank all the presenters who shared their time and knowledge for these events. Many of the presentations were recorded and are still available on the WNPS website. I look forward to a great summer exploring native plants with you.

Information for Contributors

Members and others are invited to submit material for publication in *Douglasia*. We now accept scientific manuscript submissions that will be peer-reviewed. Other articles, book reviews, poetry, photography, or illustrations are welcome. All materials submitted should relate to the study of Washington's native plants. Acceptance will be based on space and appropriateness, and materials are subject to copyediting (substantive editing with author's permission). Contributors are reminded that the *Douglasia* audience ranges from the professional botanist to the interested enthusiast. For more information about how to contribute, see: www.wnps.org/publications/douglasia/douglasia_contributors.html.

Email submissions to Douglasia@wnps.org.

Doug Tallamy's 10 Steps to Make HOMEGROWN NATIONAL PARK a Successful Reality

(excerpts from *Nature's Best Hope: A New Approach to Conservation that Starts in Your Yard*, by Doug Tallamy')

HOMEGROWN NATIONAL PARK™: A grassroots call-to-action to restore biodiversity and ecosystem function by planting native plants and creating new ecological networks.

1. SHRINK THE LAWN

Every square foot dedicated to lawn is a square foot that degrades local ecosystems. Turfgrass offers no ecological benefits but is nice to walk on. Doug suggests that we reduce our lawns by half for walkways and paths that define beds and tree groves.



Keyna's yard in 2021. PHOTO: KEYNA BUGNER

2. REMOVE INVASIVE SPECIES

Invasive plants are ecological tumors that spread unchecked into our local ecosystems, castrating the ecosystem's ability to function. If every property owner removed the most egregious invasive species, the goal of ridding the US of these troublemakers—or at least reducing their seed rain to manageable levels—would be largely realized.

3. PLANT KEYSTONE GENERA

Doug's research at the University of Delaware has shown that a few genera of native plants, or keystone genera, form the backbone of local ecosystems, particularly in terms of producing the food that fuels insects. Landscapes that do not contain one or more species from keystone genera will have failed food webs, even if the diversity of other plants is very high.

4. BE GENEROUS WITH YOUR PLANTINGS

To realize the ecological potential of our landscapes, most of us have to increase the abundance and diversity of our plantings. If you have one tree in your yard, consider adding two more. The idea is to plant groves of trees at the same density at which they occur naturally in a forest.

5. PLANT FOR SPECIALIST POLLINATORS

Because so many of our native bee species specialize on particular plant groups when gathering pollen for their larvae, it is essential that we meet their needs in our pollinator gardens. Some of the best plants for specialists in most parts of the country include: perennial sunflowers, various goldenrods, native willows, asters, and blueberries.

6. NETWORK WITH NEIGHBORS

As you “light yourself up” planting native, it is likely your neighbors will light up too. Whatever your property size, adding your neighbor's yard begins the process of building ecological networks.

7. BUILD A CONSERVATION HARDSCAPE (you don't have to be a gardener!)

Each year millions of toads, frogs, and other small creatures become trapped in our window wells where they slowly starve to death. Installing cheap window well covers can reduce these needless deaths to zero.

Use motion sensor security lights that light up only when an intruder enters your yard. Blazing security lights kill thousands of moths each year.

Set your mower height no lower than three inches. This will give you healthier greener grass that requires less watering but also mows safely over a box turtle! Try not to mow in the evening when many nocturnal species leave their hiding places.

Install a bubbler. Small water features with gentle gurgling sounds are irresistible to migrating and resident birds.

8. CREATE CATERPILLAR PUPATION SITES UNDER YOUR TREES

More than 90% of the caterpillars that develop on plants drop to the ground and pupate in duff on the ground or within chambers they form underground. It is best to replace lawn under trees with well-planted beds with groundcover appropriate to your area. It's easy—you can leave leaf litter under your trees, rocks and old tree stumps.

9. DO NOT SPRAY OR FERTILIZE

Insecticides and herbicides are antithetical to the goals of HOMEGROWN NATIONAL PARK. Less evident is that fertilizers are also unnecessary. Creating soils rich in organic matter is entirely sufficient for healthy plants.

10. EDUCATE YOUR NEIGHBORHOOD CIVIC ASSOCIATION

Many homeowners believe they cannot use more native plants in their landscape because of rules developed and enforced by their township, civic association or homeowner association. These rules are likely dated, as they were created when we didn't know then what we do now.



Wild, Tame, and Feral: A Brief History of Point Wilson's Coastal Strand

by Katherine Darrow

From storms and tsunamis to bulldozers and tourism, the deep-rooted native plants of Point Wilson's coastal strand have survived and thrived through many episodes of intense disturbance.



Abronia latifolia flowers and fruit. PHOTO: KATHERINE DARROW

One of the rarest and most dynamic plant communities around Puget Sound is the American Dunegrass-Coastal Sand-verbena (*Leymus mollis-Abronia latifolia*) Grassland, listed as globally imperiled (G2) in 1993 by NatureServe. Since the listing, members of the Olympic Peninsula Chapter of WNPS have focused their energy on restoring this native vegetation complex along Point Wilson beach at Fort Worden State Park. This photo essay illustrates the environment and history of this extraordinary landscape over the past 200+ years.

Native American Gathering



Salish Coast Tribal Canoe Journey, July 25, 2018. PHOTO: KATHERINE DARROW

Before 1792, when the Vancouver expedition cruised along this coastline in search of a Northwest Passage, the primary vessels that landed on this beach were western red cedar (*Thuja plicata*) canoes made by Coast Salish people. Indigenous people have lived along the Olympic coast for thousands of years and continue to visit this beach during their annual Tribal Canoe Journey. Among the many medicinal and edible plants that may have been harvested here are the fleshy tubers of yellow sand verbena.

Early Colonization



Framed print of McAdams painting at Puget Sound Coast Artillery Museum, Fort Worden State Park.

A pre-1870s painting by Louis C. McAdams is the only known pictorial record of what Point Wilson spit and the adjacent dunes may have looked like before the Quimper Peninsula was colonized. Remains of a log fort appear on the sand spit near where a parking lot now exists, bookending the date as post-1855. A lagoon had formed near the area now dominated by a concrete-padded RV campground. The snowy slopes of Mt. Baker still shine on the northeastern skyline.

Lighthouse



Point Wilson lighthouse, 2010. PHOTO: PATRICK SULLIVAN, COURTESY OF PORT TOWNSEND LEADER

The Point Wilson fog signal, lighthouse, and access road were built in 1879 to guide ships around the difficult passage into Admiralty Inlet from the Strait of San Juan de Fuca. As early as 1886, efforts began to shore up the lighthouse grounds from chronic wave-induced sediment erosion and deposition during storms and high tides. The lighthouse was improved in 1913, when several accessory buildings were added. The lighthouse keepers cultivated a vegetable garden at the spit in 1917, introducing potatoes (*Solanum tuberosum*), parsnips (*Pastinaca sativa*), carrots (*Daucus carota*), garlic (*Allium sativum*), and several other plants that do not persist today. In 2005, the US

Army Corps of Engineers installed massive riprap armoring around the tip of the spit to preserve the historic lighthouse.

Military occupation



Amphibious landing craft on beach, 1950. PHOTO: JEFFERSON COUNTY HISTORICAL SOCIETY

Beginning in 1897, the US Army claimed the territory at the strategic northeastern tip of the Quimper Peninsula. Among the many facilities accessory to the Fort Worden infrastructure during the early 1900s, a brickyard and a shooting range were active along the beach. Although the beach area was less affected by infrastructure than the uplands, the lagoon was filled and pile-supported piers were built at the ends of the beach, one of which remains today. The remaining pier, in addition to riprap armoring at the point, has altered the process of longshore drift along the beach. Between 1947 and 1953, the Army conducted amphibious landing training. The amphibious assault involved hundreds of landing craft and preparation required repeated grading of the beach with heavy equipment, obliterating above-ground vegetation far above the high tideline.

Dune grass planting and armoring



Dune grass planting at Point Wilson Beach. PHOTO: WOLF BAUER, CA. 1987

In 1972, the Shoreline Management Act (SMA) was approved by Washington voters. In response to the SMA, the northern side of Point Wilson spit was one of dozens of sites around Puget Sound where European dune grass (*Ammophila arenaria*) was intentionally introduced in the late 1980s to stabilize and build sand dunes (Bauer, 2012). Today, most of the

dune enhancement project installed at the spit has eroded, but thick stands of *Ammophila* remain near the lighthouse. Small patches have grown along the beach from windblown and sea-borne seeds of this dunegrass population, providing long-term volunteer opportunities for native vegetation restorationists.

Scotch broom removal



Dune swale full of Scotch broom, April 2021. PHOTO: KATHERINE DARROW

After the Army decommissioned Fort Worden, the area was designated the Fort Worden State Park and National Historic Landmark in the early 1970s. Scotch broom (*Cytisus scoparius*), which had been introduced for “beautification” and erosion control in the Pacific Northwest, grew rampant throughout the park. Removal of this non-native shrub began in earnest in 1993, when volunteers with the newly formed Friends of Fort Worden teamed up with the Olympic Peninsula Chapter and the EarthStewards Network to tackle thick broom patches that dominated the coastal strand. In 2020, Friends of Fort Worden developed a five-year Nix-the-Nox Campaign and garnered more than \$25,000 in grants and donations to tackle broom and other invasive non-native species throughout the state park. On April 17 of this year, the largest broom removal event since 1993 harnessed the energy of more than 20 volunteers to export more than a ton of weedy biomass to the county landfill.

Native plant restoration



Point Wilson Beach trail restoration plan, 2007. PHOTO: DIXIE LLEWELLIN

The quality and diversity of native species at Point Wilson wasn't recognized until the 1990s, when local botanist Nelsa Buckingham inventoried plants along the strand. By then, so much of the coastline around Puget Sound had been developed or altered that the American Dunegrass-Coastal Sand-verbena Grassland habitat type had become rare and globally imperiled. In 2006, the Olympic Peninsula Chapter formed the Point Wilson Conservation Workgroup to mitigate the impacts of recreational visitors who flock to campgrounds and beaches year-round (Espey, 2007). A three-point Conservation Strategy was approved by Washington State Parks and granted funding from WNPS and Friends of Fort Worden. Dedicated volunteer crews began the long-term process of vegetation management, restoration, and public education. Decommissioning numerous trails, delineating others with cable fencing, controlling invasive non-native plant species, and augmenting some areas with native seeds are aspects of the plan that continues to be one of Olympic Peninsula Chapter's prime directives. Hundreds of volunteers have worked thousands of hours over the past 25 years to execute the Conservation Strategy to protect this rare and beautiful plant community.

Coastal vegetation at Point Wilson beach today



New trail sign, May 2021. PHOTO: DIXIE LLEWELLIN

Point Wilson beach got a short respite from visitors during the summer of 2020 due to Covid restrictions, but end-of-year reports show record numbers of visitors during the pandemic.

In April 2021, OPC member Dixie Llewellyn designed and orchestrated the fabrication and installation of ten aluminum signs to help educate visitors about the resilient, but vulnerable, native plants that live on the Point Wilson coastal strand. The project was jointly funded by Friends of Fort Worden and a grant from the WNPS Conservation Committee.

Future of Our Coastal Strand

These aspects about the long-term future of native plants on our coastal strands are certain: There will continue to be wave action from storms and king tides, episodic tsunamis, and human impacts. Fortunately, these plants will likely continue to survive and reproduce at Point Wilson for at least a few more centuries, hanging on by their deepest roots and buried seeds, because the coastal vegetation has adapted to dramatic natural forces. As long as the Olympic Peninsula Chapter continues, there will also be a passionate group of people dedicated to stewardship of this special plant community.

Learn more about Point Wilson on the Olympic Peninsula Chapter webpage at WNPS.org. A list of 164 vascular plant species for the area is available online in the WNPS Plant List archives.

Special thanks to Forest Shomer, who first showed me photos that inspired this essay; Greg Hagge of the Puget Sound Coast Artillery Museum at Fort Worden for research assistance; and Hugh Shipman for solving the mystery of the source for the *Ammophila* photo.

Additional Resources

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Find the WNPS Recorded Webinars Since April 2020

<https://www.wnps.org/wnps-annual-events/virtual-events>

Status of Scouler's Monkeyflower in Washington

by Mark Egger

After 183 years, Scouler's Monkeyflower finally gets some respect.

Scouler's monkeyflower (*Erythranthe scouleri*), in the plant family Phrymaceae, was first described as *Mimulus scouleri* nearly 200 years ago in one of the first attempts to catalogue the flora of North America (Hooker 1838), based on a specimen collected in 1825 from an unspecified location on the Oregon side of the lower Columbia River, probably in Clatsop County (Nesom 2012, 2019).

The specimen was collected by Dr. John Scouler, an associate of both William Jackson Hooker and David Douglas. While treated as a species in an early regional flora (Howell 1903), decades later it was reduced to subspecies status within the seep monkeyflower (*Mimulus guttatus*) by Pennell (1947) and treated as such in the *Illustrated Flora of the Pacific States* (Pennell 1951). Following Pennell's treatment, this form was essentially forgotten, reduced to synonymy in the regional floras of the last half of the 20th century (e.g., Vickery 1959, Hitchcock and Cronquist 1973).

All this changed starting with Guy Nesom's exhaustive revision of the Phrymaceae in general (Barker et al. 2012) and of *Erythranthe* Sect. *Simiola* in particular (Nesom 2012). In these papers, *Mimulus scouleri* was transferred to the resurrected genus *Erythranthe* and treated at the species level as endemic to Oregon, with its range including the Columbia River in Clatsop County and the tributaries of the John Day River in four counties in eastern Oregon. However, Nesom soon realized that the John Day records actually applied to a location in Clatsop County, and he revised the accepted range to include only Clatsop County (Nesom 2013). In the *Flora of the Pacific Northwest*, 2nd Edition, *E. scouleri* is treated at the rank of species, and its range is described as, "...lower Columbia River of nw Oregon, possibly adjacent sw Washington" (Legler 2018).

In 2019, Frank Lomer, a botanist from British Columbia, recognized that a number of previously anomalous records of plants similar to *E. guttata* from salt marsh habitats in the Fraser River delta in the vicinity of Vancouver, British Columbia were identical to the specimens from the lower Columbia River in Oregon. Lomer assembled these records and formally extended the range of *E. scouleri* to include the Fraser River populations (Lomer 2019).

That same year, the treatment for *Erythranthe* in Volume 17 of the *Flora of North America* was published (Nesom and Fraga 2019). The already-accepted manuscript was set for publication prior to the publication of the Lomer paper, so British Columbia was not included in the range of *E. scouleri*. However, Nesom and Fraga did observe photos of *E. scouleri* posted in 2016 by Kathleen Sayce on the iNaturalist website. These photos from the tidal marshes of the Julia Butler Hansen Refuge for Columbian White-tailed Deer in Wahkiakum County, WA, across the Columbia River from Clatsop County, OR, provided the basis on which Washington was included within the accepted range of the species in the *Flora of North America*. Apparently, the photos posted by Sayce represent the first verified record of the species in Washington.

In 2020, I visited the shores of the Columbia River in Cowlitz County, not far west of Longview, WA, to look for a population of the likely introduced blue-flowered species, Allegheny monkeyflower (*Mimulus ringens*), one of the two species of the genus remaining for North America following the revision of Barker et al. (2012). Peter Zika had previously lo-



Holotype specimen of *Mimulus scouleri* Hook. from the KEW Herbarium, collected by John Scouler in 1825 from Clatsop County, OR, just two decades after Lewis and Clark wintered there. Note the distinctive, narrowly oblanceolate leaves with shallowly dentate margins. PHOTO: KEW BOTANICAL GARDEN



Inflorescence of *Mimulus ringens* var. *ringens* from the same location and habitat as *Erythranthe scouleri*. PHOTO: MARK EGGER

cated and documented this population, and I hoped to relocate and photograph the plants. When I arrived on August 25, I found the blue-flowered *M. ringens* plants in full flower almost immediately. But as I looked around, I also found a smaller number of yellowed-flowered *Erythranthe* growing in the same habitat on the muddy outer margins of the river. Most of the plants were past flowering, but I was able to find a few still in late flower. Zika probably missed the *Erythranthe* because he visited the spot in September, when the *Erythranthe* was likely long gone to seed.



First physical collection of *Erythranthe scouleri* for Washington, M. Egger 1676, WTU. PHOTO: MARK EGGER

Being aware of the existence of *E. scouleri* and the possibility it might be found in that area, I examined the characteristic leaves and other features of the plants and established that they were indeed *E. scouleri*. I made a single collection of one of the flowering specimens to document its occurrence in Washington (M. Egger 1676), which is now housed at the University of Washington Herbarium (WTU) in Seattle. Realizing the importance of this discovery, I surveyed as much of the adjacent shoreline as was accessible at the time. I counted about 20 plants along approximately 200 meters of shoreline, with the plants distributed in irregular clusters of a few plants each. Further surveying was limited by the nature of the shoreline, as well as by private property.

Identification

The plants of Scouler's monkeyflower are similar to *E. guttata* and to the showy monkeyflower (*E. decora*), but they are readily distinguished by their relatively narrow, oblanceolate medial and proximal leaves that gradually taper to a conspicuous petiole, shallowly dentate leaf margins, mostly glabrous leaves and stems, and specialized estuarine habitat. In addition to the key by Legler (2018), Nesom (2019) provides a full description of *E. scouleri*, and Lomer (2019) also gives useful insights on identification, as well as several full-size images of plants recently collected from the Fraser River populations. As an aid to identification, an album of photos from my visit with the Cowlitz County population can be found at: https://www.flickr.com/photos/mark_egger_castilleja/albums/72157715757267206.



Proximal stem and leaves of *Erythranthe scouleri*. Note the essentially glabrous stem and leaves and the oblanceolate leaves tapering to the petioles, as well as the very shallowly dentate leaf margins. PHOTO: MARK EGGER

Conservation Status

The conservation status of *E. scouleri* has not received much attention in any jurisdiction as yet, but it certainly deserves timely evaluation in that regard. Both the Oregon and Washington populations are apparently very small in numbers and increasingly limited in area due to shoreline development for industry, recreation, human housing, etc., and the species will likely qualify for listing as threatened or endangered in both



Corolla and calyx detail of *Erythranthe scouleri*. Note the mostly unspotted calyces the sparse occurrence of minute, gland-tipped hairs on some calyces and on the emerging corolla. PHOTO: MARK EGGER



Corolla and calyx detail of *Erythranthe scouleri*. Note the sparse occurrence of minute, gland-tipped hairs on the calyces and the more densely ranked glandular hairs of the floral pedicels and the lower surfaces of the bracts. PHOTO: MARK EGGER

states. Likewise in British Columbia; while more populations are known, their total area is still very limited, and their presence in an increasingly urbanized area is a source of concern.

The last decade has brought a much greater understanding of the ecology and distribution of *E. scouleri* than at any time since it was described 183 years ago. Plants of this species are apparently limited to the outer margins of tidally influenced riverbanks and marshes in the lower reaches of the two great rivers of the Pacific Northwest, the Columbia and Fraser. While there are few records in either Washington or Oregon to date, additional populations are likely to be located when the appropriate—and hopefully still existing—habitats are surveyed more extensively, especially along the shores of the lower Columbia River.

Mark Egger is a retired science educator, research associate at the WTU Herbarium, and past WNPS President (1987-1990). While his primary research interests are ever focused on Castilleja and related genera, he readily admits an abiding love for everything connected to the “Scrophs” sensu lato, as well as the Lamiales in general and selected dalliances in other plant families on occasion.

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Washington

Carnivorous Plant Update: Summer Lake and Beyond

by Fred Weinmann

More and more frequently field botanists are encountering plants growing not in their original or “native” location, but rather in areas where they have been purposely or inadvertently introduced through anthropogenic activities. Often these plants thrive most vigorously where the environment has been disturbed, such as by eradication of native species or by changes in soils, hydrology or nutrient regime. Introduced (i.e. exotic, adventive or non-native) species are much less likely to populate undisturbed habitats. For example, the noxious weed *Geranium robertianum* can dominate disturbed margins of trails but does not typically penetrate deeply into a natural forest habitat. As a consequence, the presence of introduced species within our natural, undisturbed areas is much less common. This article updates our discussion begun over 20 years ago (Weinmann 1998, 2000) about non-native carnivorous plants in minimally disturbed habitats. Our focus is Summer Lake in Skagit County with brief notes of occurrences in other areas.

Summer Lake is a small lake located about 15 miles south of Mt. Vernon along Lake Cavanaugh Road. The lake was wholly owned by the WA State Department of Natural Resources until 2010, when 20 acres of the lake and surrounding wetlands were purchased by the Skagit Land Trust. Summer Lake can be found on the McMurray USGS topo map, GPS coordinates are 48.3332045 (latitude), -122.1681513 (longitude) and the approximate elevation is 558 feet (170 meters) above sea level. It is about eight acres in size with an unrecorded depth. The lake has clearly been used for recreation (i.e. fishing) as evidenced by the presence of nylon fishing line and an occasional fishing lure left behind. In August 2020 there was also a small skiff left at the north end of the lake. We queried a person using the skiff when we visited the lake on August 19, 2020, who told us that the primary targets of fisherpeople at the lake are sunfish and bass. A curious feature of Summer Lake is the presence of a floating island. This has been created by cabling large logs together in the form of a rectangle. A thriving community of western hemlock (*Tsuga heterophylla*), salal (*Gaultheria shallon*), and other shrubs and forbs is present on the island. I have no idea how the soils of the island came to be; however, it is still floating as it turns up at different locations in the lake depending on prevailing winds. We were reminded of its mobility when Peter Zika and I landed our canoe on the island and then proceeded to botanize the adjacent shoreline. On return to the island, our canoe was floating away aboard the mobile island.

The open water of the lake is surrounded by extensive wetlands which more than double the size of the lake/wetland complex. These surrounding wetlands consist partially of a floating peat mat. Landward of the floating mat are emergent wetlands growing on continuously saturated and/or inundated

peat soils. Adjacent to the wetlands on three sides are forest lands with the Lake Cavanaugh Road running along the east side of the habitat complex. In these wetlands there are several populations of introduced carnivorous plants.

Native Flora

Most of the plants of Summer Lake are species one would expect in any bog/fen in western Washington—that is, a shrub dominance of bog Labrador tea (*Rhododendron groenlandicum*) and bog laurel (*Kalmia microphylla*) with widespread occurrence of salal (*Gaultheria shallon*) on raised, drier hummocks. Several populations of cattail (*Typha latifolia*) occur on the margins of the open water. Groundcover on the peat soils is dominated by multiple sedges (*Carex* spp.), white beakrush (*Rhynchospora alba*) and several grasses (Poaceae spp.). The habitat also hosts robust populations of sundew (*Drosera rotundifolia*) and cranberries (*Vaccinium oxycoccus*), which beg for a trip in the fall to harvest enough for a batch of muffins) and a variety of non-native species as described below. A list of over 90 plant species identified at Summer Lake can be found on the plant lists at the WNPS website (www.wnps.org/plant-lists/list?Summer_Lake).

My first awareness of the pitcher plants at Summer Lake was in September 1997 on a field trip with wetland ecologist Klaus Richter. After being awed by the presence of four species of pitcher plants at the lake and having exposed multiple frames of film, as we were prepared to exit the wetlands, I noticed an overly large apparent sundew plant. This was our initial discovery of the Venus flytraps (*Dionaea muscipula*) at the lake. This observation catalyzed multiple future trips to the site including leading field trips sponsored by the WNPS and wetland botany classes from the University of Washington.



Dionaea muscipula, Venus flytrap. PHOTO: ANN AND FRED WEINMANN

In 2000 we reported on the species occurrence and extent of non-native carnivorous plants in Washington, including at Summer Lake. This report was based on several field excursions between 1997-1999. I provide here a non-quantitative update of our observations based primarily on a field trip in October 2009 with WNPS and with Ann Weinmann on August 20, 2020.

***Sarracenia purpurea*, purple pitcher plant**

The native distribution of *S. purpurea* includes most of Canada, including northern British Columbia, and the eastern third of the United States. The nearest native populations to Washington are in southeast Alberta. This species was first documented at Summer Lake in 1990 (*Elroy Burnett 214*, WTU 317617). In 2000 we reported a population of over 40 individual plants (clumps with multiple leaves) extending for about 60 meters along the east side of the lake. In 2020 this population appeared similar; however, there were frequent



Sarracenia purpurea, purple pitcher plant. PHOTO: Ann and Fred Weinmann

seedlings among the mature flowering plants. In addition, we saw many individual clumps, sometimes in flower, on the south and southwest side of the lake. In other words, there has been some migration to other parts of the lake via seed dispersal. We also revisited a site at Swamp Lake in Kittitas County on August 31, 2020 where we had documented the presence of *S. purpurea* in years past (WTU *P.F Zika 14429*, 1999). Here the *S. purpurea* plants were thriving but had not migrated far from their original location. We counted 17 large clumps, some in flower, plus several seedlings. Exotic plants of *S. purpurea* have also been documented at Cranberry Lake in Skagit County, Fish Lake Natural Research Area in Chelan County and a few locations in British Columbia.

***Sarracenia flava*, yellow pitcher plant**

Sarracenia flava is native to the US along the coastal plain from New Jersey to Alabama. At Summer Lake we reported only a single plant of *S. flava* in 2000. A casual visit to the lake with a WNPS group in 2009 was dramatically different. The species had dispersed widely around the lake with populations of 50-100 plants at two locations, and many individual plants



Sarracenia flava, yellow pitcher plant. PHOTO: ANN AND FRED WEINMANN

scattered along the southern and southwest sides of the lake. Many of the plants were flowering. Apparently the greatly expanded population was the result of the spread of the floating seeds. These populations remained in 2020. We estimated about 200 plants (each plant a clump with several leaves and frequently a flowering stem) of *S. flava*, mostly on the south and southwest sides of the lake. I reported seeing *S. flava* in Kittitas County at Swamp Lake in 1997; however, those plants were not relocated in 1999. *S. flava* has also been reported from Cranberry Lake in Skagit County as recently as 2013.

***Sarracenia leucophylla* white pitcher plant**

Sarracenia leucophylla is native to the southeastern US coastal plain. A small population, originally seen in 1997, has persisted at Summer Lake.



Sarracenia leucophylla, white pitcher plant. PHOTO: ANN AND FRED WEINMANN

***Darlingtonia californica* cobra plant**

Darlingtonia californica is native in coastal bogs and serpentine influenced seeps from central Oregon to northern California. This has apparently not persisted at Summer Lake. This is consistent with previous reports indicating that the species does not persist in western Washington.

***Dionaea muscipula* Venus flytrap**

Dionaea muscipula is native to portions of South and North Carolina and Florida. It is so threatened and so sought after in these locations that inventories have been conducted of the total plants in existence. The most recent census estimates there

are about 300,000 plants remaining compared to nearly four million 40 years ago, a decrease of over 90%. At Summer Lake in 1999, 10 plants were censused, including flowering individuals, on the east side of the lake. In 2020, we counted over 100 plants, many of them flowering, on the southwest side of the lake. The small population on the east side of the lake was reduced to a single plant.

Other non-native species at Summer Lake

In 2000 we noted seven small sub-populations of *Eriophorum virginicum* (tawny cottongrass), which is native to eastern North America. This species was similarly distributed in 2020 and remains the only record of this species in Washington. *Juncus canadensis*, native to central and eastern North America, was widespread in the wetlands at Summer Lake in both 2000 and 2020. This species has been reported at numerous sites in western Washington, most commonly associated with commercial cranberry bogs. These species are likely to have arrived at Summer Lake inadvertently as stowaways along with more exotic carnivorous species, either as seeds or vegetative propagules. In the far reaches of the bog another purposely imported species was noted, a few plants of marijuana (*Cannabis sativa*).

Conclusions and Speculation

Nearly 30 years after the original documentation of *S. purpurea* at Summer Lake, we do not know how or when these several carnivorous species were originally introduced. In 2000 I mused that perhaps there is a Johnny Appleseed of carnivorous plants committing serial introductions; or perhaps

a commercial nursery is using Summer Lake as an experimental garden. Either scenario is possible, since these species are readily available at retail nurseries and were maintained historically at the University of Washington greenhouse collections.

There is no evidence that any of these carnivorous species will spread, without human assist, beyond the margins of Summer Lake. The population of *D. muscipula* has moved across the lake and expanded, presumably without human aid. *Sarracenia leucophylla* is simply surviving; *S. purpurea*, while clearly reproducing, has remained largely within the confines of the area inventoried in 2000; *S. flava* has responded quite differently. The population has exploded to occupy much of the shoreline on the south and southwest margins of the lake.

The open question is: Do these pitcher plants pose a problem which should be addressed, or are they curiosities which pique our interest? After leading many field trips to the site, the feedback from participants has been very positive; the plants are fascinating novelties well worth the effort to see. Even so, the species do occupy a portion of an otherwise largely unimpacted habitat. That stated, I do not believe they pose a threat to the existence of the native plants of the lake. There has, however, been a suggestion that *S. purpurea* and *S. flava* have become so numerous that their insectivorous habit poses a threat to insect pollinators. This would be difficult to document. An attempt to remove these curious introductions would require massive excavation within the wetland. Any other form of control should not be considered.

The botanizing at Summer Lake is well worth the trip, whether seeking to see non-native carnivorous plants or not. For example, we have seen the interesting species butterwort (*Pinguicula vulgaris*) and scheuchzeria (*Scheuchzeria palustris*) at the lake. *Pinguicula vulgaris* at this elevation is not common in Washington, and the widespread occurrence of *S. palustris* is unusual. The lake is also a fine place to see multiple species of Cyperaceae (sedges) and many other species that will only be found in fen/bog habitats. If you choose to visit, wear good boots or go when the water is warm, tread lightly and be very careful as you access the lake.

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Eriophorum virginicum, tawny cottongrass. PHOTO: ANN AND FRED WEINMANN



David Douglas and the Magic Seeds

by Roger George

Through the Royal Horticultural Society's 1914 transcription, *Journal Kept by David Douglas During his Travels in North America 1823-1827*, we join our intrepid botanizer for the collection of his 447th specimen since arriving on the Columbia River April 7, 1825.

August 21 [1825], Multnomah River [Willamette River]

(447) *Nicotiana pulverulenta*¹ (?) of Pursh, correctly supposed by Nuttall to exist on the Columbia; whether its original habitat is here in the Rocky Mountains, or on the Missouri, I am unable to say, but am inclined to think it must be in the mountains. I am informed by the hunters it is more abundant towards them and particularly so among the Snake Indians, who frequently visit the Indians inhabiting the head-waters of the Missouri by whom it might be carried in both directions. I have seen only one plant before, in the hand of an Indian two months since at the Great Falls of the Columbia, and although I offered him 2 ozs. of manufactured tobacco he would on no consideration part with it. The natives cultivate it here, and although I made diligent search for it, it never came under my notice until now. They do not cultivate it near their camps or lodges, lest it should be taken for use before maturity. An open place in the wood is chosen where there is dead wood, which they burn, and sow the seed in the ashes. Fortunately I met with one of the little plantations and supplied myself with seeds and specimens without delay. On my way home I met the owner, who, seeing it under my arm, appeared to be much displeased, but by presenting him with two finger-lengths of tobacco from Europe his wrath was appeased and we became good friends. He then gave me the above description of cultivating it. He told me that wood ashes made it grow very large. I was much pleased with the idea of using wood ashes. Thus we see that even the savages on the Columbia know the good effects produced on vegetation by the use of carbon. His knowledge of plants and their uses gained him another finger-length. When we smoked we were all in all. S

[The S appending the entry is David's notation that he collected seeds as well as vegetative parts.]

A note on the species: I cannot be sure of the species Douglas found on the occasion described above; however, if what Douglas found was *Nicotiana attenuata*, it may be of interest that this species is now extant in eastern Washington.

This is a remarkable passage on many accounts, not the least of which is that it is the only instance of an Indigenous seed crop that David reports on from his years botanizing in the Columbia District. David's words show his excitement and the length of the entry reflects it. The excitement is contagious,

¹ This must be a slip of Douglas's, as the only specific name in *Nicotiana* for which Pursh is the authority is *quadrivalvis*, Pursh, Fl. Am. Sept 1 pg. 141.



David Douglas as depicted in his published 1823-1827 journal.

and this informal and anecdotal look at contexts surrounding entry 447 is spurred by the apparent lack of seed crops in the pre-contact Pacific Northwest. It is particularly striking when contrasted with the Three Sisters and other maize cultures found elsewhere in the Americas at the time.

We join with David who has just regaled us with a brazen theft. He is 25 years old and under contract with the Royal Horticultural Society to collect and preserve plants, seeds and animals, and to keep a detailed journal. Our intrepid botanizer arrived on the Columbia several months earlier and since has conducted excursions around his base at Fort Vancouver and up and down the Columbia from there. On these trips he travelled with French-Canadian engagees of the Hudson's Bay Company (HBC), local Indigenous people, and freemen voyageurs. David has picked up some Chinook Jargon and signing, learned local customs, shown his skill with a gun, traded for all manner of goods and artifacts, befriended chiefs, and hired local guides and porters. With the Hudson's Bay Company elites he has developed the reputation of a diligent and intelligent gentleman, with the Canadians et al. a reputation of hardiness if not a bit of oddness, and with the Indigenous people he has a reputation for fair trade, hardiness, and unusual abilities accorded to magic. Adding an effervescent powder to his tea while encamped earlier in June, and lighting his pipe with a magnifying glass, earned him the name Olla-piska that he says in the Chinook tongue means fire. He relates that his companions thought he was drinking boiling water and so he was a

bad (dangerous) spirit. David goes on to say that on the same occasion, putting on his spectacles caused his audience to gasp and cover their mouths, and thereafter he plays his magic reputation to advantage when it suits him. Equipped with the best technology of his age, David lets us know in bits throughout his journal that, among other things, he carried on his person a large caliber smooth-bore flintlock long-gun, one or two large caliber flintlock pistols in his belt, steel knives, knapsack, oilcloth, a blanket, spectacles, powder flask, patch box, a mix of birdshot and full balls, a notebook, pencils, a magnifying glass, a compass, a pipe, rope tobacco and other trade items as beads, knives, etc., a watch (possibly chronometer), a tinderbox, string, a thermometer, effervescent powder, a lancet for bleeding, a small pot, tea, biscuits, and sugar. A God-fearing capitalist magician, David is a force of note, he knows it, and he's having a grand time.

Next to expand on, we have the hunters that David mentions, and these consist principally of the French-Canadian and Metis engagees and freemen voyageurs. Accomplishing the hard labor of the fur trade, they hunt, trap, trade for furs and food, they paddle the canoes, blaze trails, carry pieces, build and repair canoes, set up and break down the camps, tend the horses and stock, and whatever chores are put to them by the HBC. While it's not clear if these working folk directly participated in securing David's magic Wild Tobacco seeds and plants, their wide travels and cultural contacts set them as reliable sources of information.

While David gives us scarce little for sketching the full character of his new friend, when drawn under a wider context we can infer that he too is a person of note and knows it. Likely Kalapuya, his economic system is the potlatch which shares some aspects of capitalism insomuch as it fosters the acquisi-

tion and exchange of property, knowledge, power, and prestige both for the benefit of individuals and the group. The potlatch differs considerably from corporations however, in that under the potlatch system much of the prestige—and per se power—is rooted in giving away wealth rather than simply amassing it. The Chinookan culture of the Columbia District also shares a social hierarchy with the Europeans in that Chinookans have an elite class—marked out visibly by cranial deformation in infancy, a class of commoners, and a class of slaves. Theft in the Chinookan world of the time is a respectable practice for acquiring power, with the caveat that it is equally respectable for the victim of a theft to exact retribution on the thief. These rough outlines varied in their practice among specific groups, but represent a commonality of general principles sufficient for our purposes. Given that David's new friend guards a hidden farm of sacred and valuable plants with medicinal properties, it suggests he belongs to an elite class and may hold a position as a healer and/or shaman. Adding to that, the fellow shows a warrior's bent when he goes right to chastising an imposing David in all his glory and in doing so shows himself also a person of power engaged in great adventure.

So with our contexts laid, we return to David's account to fashion a view toward explaining the apparent lack of seed crops in the Columbia District. The following citation from *Ethnobotany of Western Washington* by Erna Gunther helps to round things out. Here she gives a contemporary example of secret magic knowledge as a commodity in her entry for *Prunella vulgaris*. She says the "Quileute use the plant for boils but my informant did not know the exact way of preparing it because the knowledge had to be bought." (pg.45) (Perhaps Erna's informant was subtly hinting that if Erna paid her, then she'd give the knowledge, rather than that she didn't possess it.)

David had been looking for Wild Tobacco for months since he saw it up the Columbia. Whether he simply stumbled on the little Willamette Valley plantation by luck or on a tip from an informant, as a person of power David felt justified in his theft and was prepared for the consequences. Just so, the plantation owner considered himself a person of power and whether he just happened by or followed David, he was prepared to defend his property. David doesn't say if his new friend was armed, but it seems likely under the circumstances. Moreover, if the plantation owner carried a bow and arrows there is fair possibility that the arrows were poisoned as people in the region were wont to do and something someone knowledgeable of local plants might know how to do. In the best nature of both their cultures, they reached an agreement and restitution was paid. Furthermore, perceiving themselves as like minds they chatted up their common botanical interests and David may have in essence bought the secret knowledge of planting Wild Tobacco seeds with the extra finger-length of European tobacco. In smoking to come all in all, they sealed their deal while making things right with the spirit world in the local fashion.

All this then to suggest that planting any number of crops from seed in the Pacific Northwest may have gone on, but that



Nicotiana attenuata, now extant in eastern Washington, may have been what Douglas found in 1825. PHOTO: THAYNE TUASON

it was secret and magical knowledge not to be shared outside of an elite group. If a person in a potlatch economy could grow considerably more of a local crop than others, and/or grow crops from outside the area that others did not or could not grow, then that person is not going to share the knowledge outside of a very select group. Such activity would also suggest living nearby a plantation year round both to protect the plantation and do the constant work that farming requires. Not long after David left Fort Vancouver to cross the mountains for the east, a malaria epidemic struck the region and by some estimates killed 90% or more of the Indigenous people of the Columbia District in fairly short order. It is not a stretch to suppose the knowledge of how to plant seeds may still survive among Indigenous folk and, while no longer of practical value, has power by virtue of remaining secret. We may never know. Neither is it unreasonable to speculate that the secrets of seed planting were simply lost with the passing of the knowledgeable few that held them. All in all, David Douglas Esq. and his Kalapuya friend have magically travelled through time to impart their knowledge for the amusement of we plant lovers at home.

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Grasshopper Pass or Tatie Peak, or Both?

by David Giblin, Ph.D., University of Washington Herbarium, Burke Museum

Washington's Cascades Range and Olympic Mountains offer a wealth of alpine hiking destinations with some of the best displays of our native flora. In a typical year the season begins in late June (eastern edge of the Cascades in south-central Washington) and lasts into early September (in the North Cascades). If you are fortunate to have the time and energy to explore the higher elevation hikes, then a few iconic destinations should be on one's list of musts: Burnt Mountain near Rimrock Lake, Lillian Ridge/Obstruction Point and Mount Townsend in the Olympics, Naches Loop and Burroughs Mountain at Mount Rainier, Ingalls Lake and Bean Creek Basin in the Wenatchees, the Artist Point area at Mount Baker, and Maple/Heather Pass Loop in the North Cascades. Another that I would add to that list is the Hart's Pass/Slate Peak area outside of Mazama in Okanogan County. If going there, then in my mind there are no better hikes than those to Grasshopper Pass and/or Tatie Peak.



Looking west on the Pacific Crest Trail with Grasshopper Pass in the upper left, Mt. Ballard in the background, and the PCT passing below Tatie Peak on the right. PHOTO: DAVID GIBLIN

The road to Hart's Pass reaches the highest elevation of any maintained road in Washington—about 7,000 feet when you reach the parking area for Slate Peak. By maintained I do not mean paved—the paved section of the road ends in the Methow River valley several miles west of Mazama. It is maintained in that it is repaired and graded as needed each season. Any discussion about driving to Hart's Pass requires a note of caution regarding a 0.25-mile section of the road about seven miles from the top. It is wide enough for one car, lacks guard rails, and has a very long, steep drop. If driving on a narrow gravel road with steep drops is not for you then you may want to avoid this destination. I have never had any problems in the half a dozen times I have been up there—traffic is generally light and drivers are generally courteous and cautious.

At Hart's Pass you want to go left for a mile or so to the Brown Bear Trailhead for the Pacific Crest Trail (PCT) and

park (Northwest Forest Pass required). From there you start out under subalpine fir and Engelmann spruce to begin the ten-mile roundtrip walk to Grasshopper Pass (only 1200 feet elevation gain!). The trail is in excellent shape and provides sweeping views of the rugged North Cascades in all directions, with Mount Ballard often in view in the distance. At Grasshopper Pass it almost seems like you could touch Azurite Peak.

Or you can just make Tatí Peak your destination. After only two miles there is a junction with a faint but well-worn trail to your right that follows the ridgeline to the summit (7400 feet). This option is only a five-mile roundtrip walk with even less elevation gain, so quite doable. The views from Tatí are incredible, allowing you to see well into Canada (just 30 miles away on the PCT!) and a long way south that will challenge you to pick out familiar peaks.

So, what will you see? Just about every subalpine and alpine plant that you know and love, and maybe even some that you don't recognize: dwarf mountain butterweed (*Senecio fremontii*), lance-leaved stonecrop (*Sedum lanceolatum*) and spreading stonecrop (*S. divergens*), small-flowered penstemon (*Penstemon procerus*) and Davidson's penstemon (*Penstemon davidsonii*), Payson's whitlow-grass (*Draba novolympica*), northern holly fern (*Polystichum lonchitis*), Merten's moss-heather (*Cassiope mertensiana*), several species of paintbrush (*Castilleja*), diffuse phlox (*Phlox diffusa*), elegant Jacob's ladder (*Polemonium elegans*), masses of longleaf arnica (*Arnica longifolia*), sulphur buckwheat (*Eriogonum umbellatum*) and cushion buckwheat (*E. ovalifolium*), and so much more. If you go up to Tatí Peak keep an eye out for Olympic larkspur (*Delphinium glareosum*) and low hawksbeard (*Askellia pygmaea*). The latter species is scattered throughout the loose, rocky, and gravelly slopes in the Hart's Pass area (and also in the Olympic Mountains, but I haven't seen it there).

As for when to go, I suggest the last two weeks of August or even the first week of September (a little past usual peak bloom, but perhaps not this year given the snowpack). Going mid-week would reduce hiking traffic, but my wife and I have been on Labor Day weekend a few times and it was not terribly

crowded (but that was before the pandemic-spike in hiking popularity). Definitely go on a clear day—I have been snowed on there twice in late August/early September. You'll be sure to see a number of PCT through-hikers along the way who are finishing their trek (you cannot believe how fast they make the switchback-filled climb up to Grasshopper Pass from the valley to the south!).

A full description of the hike and directions to the trailhead can be found here: (www.wta.org/go-hiking/hikes/grasshopper-pass). If you combine Grasshopper Pass and Tatí Peak then it is a 11-mile day. I do not recommend taking the steep path on the southwest side of Tatí Peak to get back to the PCT unless you are comfortable with and enjoy loose, rocky descents (I'm okay with them, but I still don't recommend this one). Which-ever route you choose, you will not be disappointed!



Bradshaw's Lomatium Recovered and Removed from Endangered Species List

by Walter Fertig

Bradshaw's lomatium (*Lomatium bradshawii*) is a yellow-flowered member of the celery family (Apiaceae) known only from the Willamette Valley of north-central Oregon and adjacent southwestern Washington. It was first discovered in 1921 by Robert Vernon Bradshaw, a botany student at the University of Oregon, who was collecting plants in Eugene. Bradshaw's plant resembled fine-leaved desert parsley (*L. utriculatum*), a common prairie species of western Oregon, in having finely divided, ternately compound leaves and broad, toothed involucre bracts at the base of the inflorescence, but differed in having mostly leafless stems and mature fruits with corky raised margins, resembling a life preserver. Botanists puzzled over the identity of Bradshaw's specimen until it was recognized as a distinct species by umbel experts Frank Rose and Mildred Mathias in 1934. For the next 40 years the species was rarely collected and was even thought to be extinct.

Several populations of Bradshaw's lomatium were documented in Oregon in the late 1970s and early 1980s through the work of Jimmy Kagan as a graduate student at the University of Oregon. These populations were mostly small and highly threatened due to draining or conversion of its wet prairie habitat to pastures, farmland, or urban development. The species was also vulnerable to herbicides, loss of pollinators, and loss of habitat due to the encroachment of woody shrubs in the absence of periodic wildfire. These threats and low population numbers prompted the US Fish and Wildlife Service (USFWS) to list Bradshaw's lomatium as Endangered under the US Endangered Species Act (ESA) in 1988.



Low hawksbeard (*Askellia pygmaea*) with its characteristic low-growing habit, cluster of basal leaves, and yellow-orange flowers.

PHOTO: DAVID GIBLIN



Bradshaw's lomatium at Lacamas Prairie Natural Area Preserve. PHOTO: WALTER FERTIG

For over 30 years USFWS and its partners have been working to recover Bradshaw's lomatium across its range. In 1988, this species was known from only 11 populations (all in Oregon) and fewer than 30,000 individuals. Over a dozen new occurrences have been discovered since, including an extensive population in Clark County, WA, in 1994. A portion of the Washington population is now protected within the Lacamas Prairie Natural Area Preserve, managed by the Washington Department of Natural Resources. Several other populations in Oregon are also formally protected. The total population of the species is now estimated at nearly 11 million individuals.

While some long-term threats remain (primarily from climate change), USFWS determined that Bradshaw's lomatium had exceeded the goals for recovery and formally proposed the species be removed from the Endangered Species list in November 2019. Following a period of public comment, the de-listing became official on April 7, 2021.

Although Bradshaw's lomatium will no longer be formally protected under the ESA, management actions will still be undertaken to ensure its long-term persistence in Washington. David Wilderman, program ecologist with the Washington Natural Areas Program, notes that "we plan to continue conservation efforts at Lacamas Prairie and are pleased to have contributed to the recovery of this species and to show the Endangered Species Act can be successful."

Walter Fertig is the state botanist for the Washington Natural Heritage Program, based in Olympia.



Crowberry Bog: A Step Above the Rest

by F. Joseph Rocchio¹ with David J. Cooper², Edward Gage², Tynan Ramm-Granberg¹, and Andrea K. Borkenhagen^{2,3}

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A primary responsibility I had as a Washington Natural Heritage Program ecologist was to identify the best examples of Washington's ecosystems. Over the years, I visited countless occurrences of rare and high-quality plant communities. But on a quiet August morning in 2011, I walked into an ecosystem I never expected to find in this state.

As part of an effort to survey biologically significant wetlands on the western Olympic peninsula, Crowberry Bog was

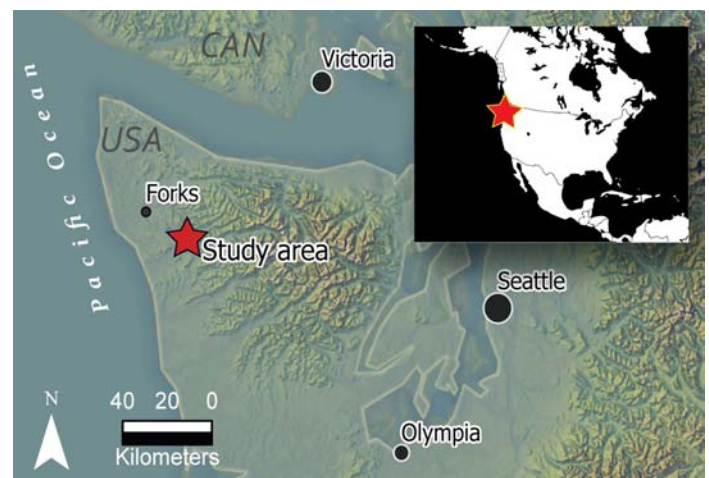


Figure 1. Crowberry Bog and location

on my list of sites to visit (Figure 1). A few rare bog plant communities were documented in the Washington Natural Heritage Program database as occurring in Crowberry Bog, and my job was to assess whether the ecological quality of those plant communities had changed since the site was last visited by Natural Heritage staff in the 1990's. On the morning of my visit, I stood on the bog's edge planning my trek and noticed what appeared to be a tall thicket of shrubs. Yet when I got closer to them, it became clear that I had been fooled: Those shrubs were knee-high, dwarf versions of the shrubs I had just walked through. How was that possible? What optical illusion had my eyes played on me? As I looked back toward where I started, it hit me—no, floored me: I had just walked uphill!

It seemed I had just stepped onto a raised, ombrotrophic (precipitation-fed) bog (Text Box 1). If true, it would be a significant find because no raised bogs are known to exist in the conterminous western US.

When I got back to the office, I checked the topographic maps generated from the Washington State Department of Natural Resources' (DNR) remote sensing data. The maps suggested the bog was indeed raised.

I immediately contacted Dr. David Cooper at Colorado State University to share my observations. David is a peatland expert and I knew he would share my enthusiasm. When I told him I thought I had found a raised bog, he was understandably skeptical—raised, ombrotrophic bogs were not *supposed* to be here! However, after sending David the LiDAR map, I received an email from him with a simple message, "I need to see this site."

Text Box 1. Peatlands, Bogs, and Fens

Peatlands are wetlands that accumulate peat (dead plant material).

Bogs are peatlands solely dependent on precipitation (**ombrotrophic**), resulting in distinct hydrologic patterns and very low ion concentrations (being precipitation-fed, water in the bog is acidic and low in nutrients). This definition is used by peatland experts and is narrower than the definition commonly applied to Washington wetlands.

In a raised bog, peat accumulation over thousands of years elevates the surface above the surrounding landscape and the influence of ground and surface water. Surface peat in **flat bogs** is also above the influence of ground and surface water but their surface is slightly or not raised above the surrounding landscape.

Fens are peatlands supported by surface and groundwater (**minerotrophic**), resulting in different hydrological patterns and higher concentration of ions relative to bogs. Water is alkaline to acidic and has higher levels of dissolved minerals due to groundwater contact with bedrock, surface deposits, and local soils.

In April of 2016, Dr. Cooper and his colleagues joined DNR staff to examine Crowberry Bog. We agreed that the site seemed raised; however, many indicators of ombrotrophy can be misleading on their own. For example, the bog could be raised due to underlying topography rather than peat accumulation, and many bog vegetation species also occur in related peatland types called acidic fens (Text Box 1).

In short, determining if this is a raised bog would require multiple lines of evidence. So we designed a three-year study to gather it. The study began in April 2016 and was completed in partnership with Colorado State University.

Study Design

Our study focused on whether Crowberry Bog has the following indicators of ombrotrophy: (1) a distinctly raised surface; (2) water table levels that fluctuate with daily and seasonal precipitation; (3) downward and lateral movement of ground-water (indicating that water filters through the peat and drains out the sides of the bog); (4) very low calcium concentrations, similar to rainfall; and (5) vegetation patterns and composition indicative of ombrotrophic bogs. We also estimated moss growth and short-term peat accumulation (40 to 70 years) as a gauge of the bog's ecological integrity.

To determine the peatland's topography, we used LiDAR data. (LiDAR is technology that uses pulses of light from aircraft to generate extremely accurate topographic data.) To measure water table dynamics, we installed 15 well nests along a transect bisecting the site. Each nest consisted of a single, slotted well with data loggers to measure hourly water table depth, as well as three or four piezometers to measure water movement. We collected water samples from all slotted wells and sent them to the University of Washington for chemical analysis. Vegetation patterns were characterized by establishing 100-square-meter plots around each well nest. Within the plots, all vascular plants and bryophytes (non-vascular plants such as mosses and liverworts) were identified and their areal cover and height estimated. We also measured moss growth seasonally at three of the wells using vertical, stainless steel wires.

To estimate short-term peat accumulation, we excavated five shore pine trees (*Pinus contorta* ssp. *contorta*) and measured peat thickness from their germination point to the top of the moss surface on the tree bole. We then divided the peat depth by the tree's stem age to determine the peat accumulation rate.

What Did we Learn?

We concluded that the bog was raised, and that the cause was not underlying topography. Why? First, LiDAR data showed that the bog is elevated nearly three meters above the surrounding landscape, confirming what seemed conspicuous in the field (figures 2 and 3). Second, a peat core from a pollen study in 1970 by Carl Heusser showed that the depth of peat from the bog surface was nearly four meters, followed by another two meters of organic-rich lake sediments. Heusser concluded the site was formed in a lake basin that was nearly 16,000 years old.

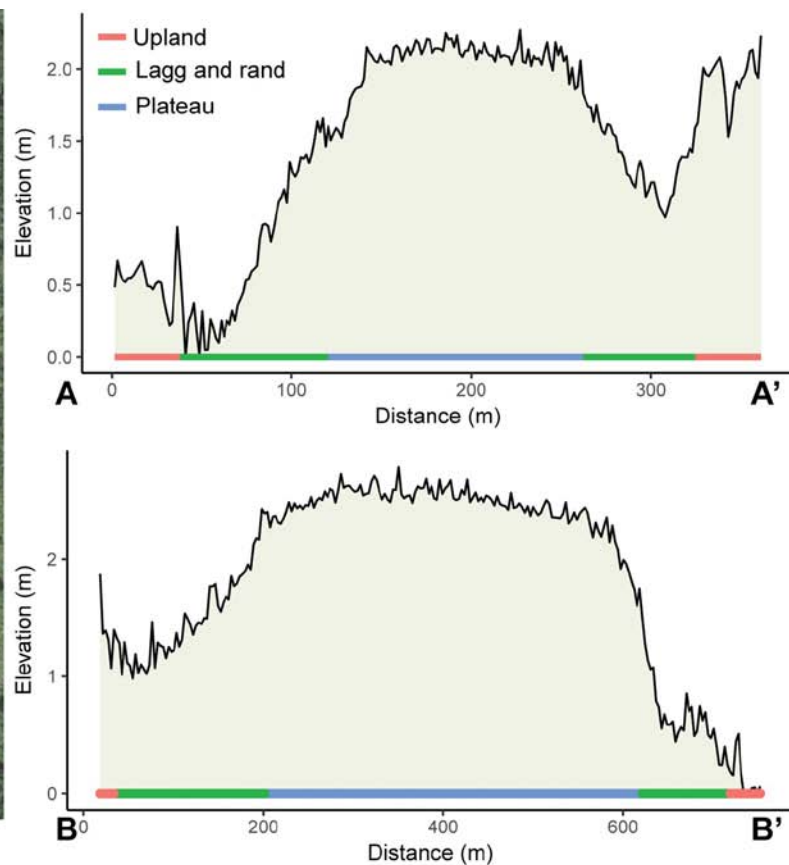
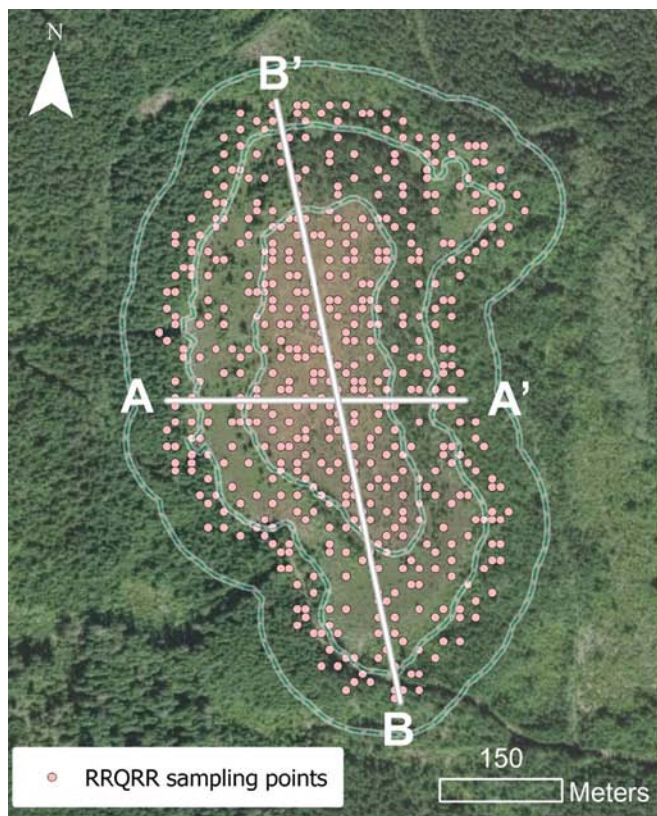


Figure 2. Sampling points and cross-sections used in analysis of LiDAR data. Elevation cross-sections A-A' and B-B' were extracted from a LiDAR-derived, digital terrain model of the bog. The cross-sections show the plateau, which is the flat-topped expanse; the rand, which is the upward-sloping bog margin; and the lagg, which is the wetland perimeter. RRQRR stands for reverse randomized quadrant-recursive raster, which is an algorithm used to generate sample points.

Third, we used an avalanche probe to determine peat depth across the bog, and found that peat depth decreased toward the bog edge. All of this information suggests that a lake basin slowly filled with sediment and decaying plant material that built up layers of peat. Because of the very wet local climate, peat accumulation was able to continue even when the surface of the bog was above the influence of groundwater.



Figure 3. Oblique view of an aerial image that was draped over a LiDAR-derived, digital terrain model of Crowberry Bog. Note the abrupt change in tree height where the plateau begins. The plateau surface is approximately 450 meters long in the north-to-south direction.

Our hydrologic investigations show that the bog is supported solely by precipitation. Water tables in all three land-forms were near the surface during wet months but dropped to over 40 cm deep during dry summer months (Figure 4). In addition, water tables rose immediately following precipitation events and declined sharply if precipitation did not occur for more than a few days (Figure 4). Hydraulic gradients indi-

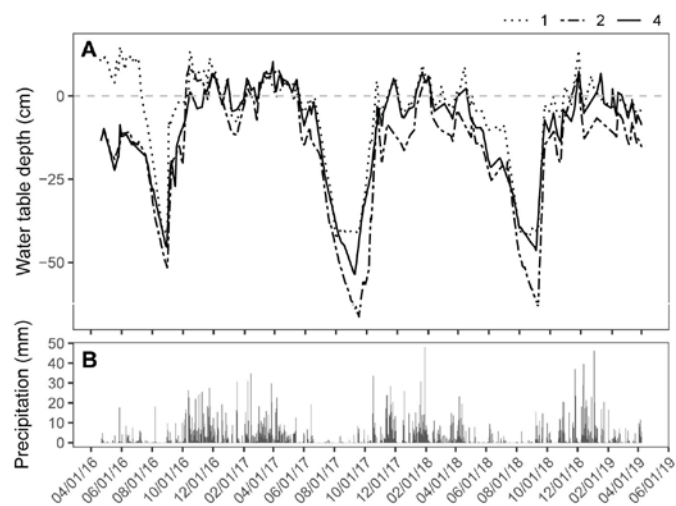


Figure 4. (A) Continuous depth-to-groundwater in wells 1 (lagg), 2 (rand), and 4 (plateau) for the entire study period (April 2016 to April 2019). (B) Daily precipitation from Forks, WA. Note the correspondence of water table depth to periods of low precipitation.

cated that for most of the year, water percolated vertically into deeper peat layers in the plateau and then drained horizontally through the rand to the lagg, indicating that precipitation was the primary source of water into the bog.

Chemical analysis showed that like precipitation, the groundwater at Crowberry Bog has very low concentrations of calcium and magnesium ions (0.1-0.2 mg./L). Sodium and chloride concentrations were high and indicated the importance of precipitation recharged by Pacific Ocean salt spray. Like the hydrological data, these results suggest that precipitation is the primary input of ions into the bog.

Regarding vegetation, the plateau was dominated by species common in ombrotrophic settings, especially short-statured Labrador-tea (*Rhododendron groenlandicum*) and western bog laurel (*Kalmia microphylla*), rusty peat moss (*Sphagnum fuscum*), red peat moss (*S. rubellum*), cranberry (*Vaccinium oxycoccos*), and crowberry (*Empetrum nigrum*) (Figure 5). Stunted shore pine (*Pinus contorta* var. *contorta*) and western hemlock (*Tsuga heterophylla*) were common in portions of the plateau. The rand included many of the same species, except their height and abundance conspicuously increased. The degree to which the rand dries out in the summer, resulting in more soil aeration and increased nutrients from peat decomposition, may explain the shift in vegetation structure. Vegetation in the lagg, which is minerotrophic, includes species more common in forested and shrub swamps, such as western red cedar (*Thuja plicata*), western crabapple (*Malus fusca*), and coastal rush (*Juncus hesperius*).

Moss growth, which was highest on the plateau (average of 1 cm per year), was concentrated in the winter and spring months while growth stagnation or height loss occurred during dry summer months. Estimates of short-term peat accumulation from the excavated shore pine trees ranged from 0.64 to 1.1 cm per year. Together, these results suggest the bog is still accumulating peat.

Significance and Conservation

Evidence strongly indicates that Crowberry Bog is an ombrotrophic peatland, the first ecosystem of its type identified in the conterminous western US and the most southern example in western North America. As such, it is of national and continental significance. Because it is tied so closely to climatic factors, the bog's location at the southern extent of where raised bogs occur makes it an ideal location for climate change research.

Text Box 2. Raised Bog Landforms

Plateau is the central portion of the bog

Rand is the sloping margin of the bog edge.

Lagg is the outer perimeter of the bog, serving as a transition zone between the bog and adjacent upland and/or wetland habitats



Figure 5. Plateau of Crowberry Bog. Red peat moss (*Sphagnum rubellum*) dominates the surface while western bog laurel (*Kalmia microphylla*) (showing off in bloom), crowberry (*Empetrum nigrum*), and Labrador-tea (*Rhododendron groenlandicum*) are the common shrubs.

During the course of this and other studies of Crowberry Bog, the site was found to support numerous features that have been identified by the DNR's Natural Heritage Program as having significant biodiversity values. The bog supports five state imperiled plant community types, a rare butterfly, a state rare plant, and two rare mosses. All five plant communities are restricted to coastal bogs and acidic fens of the Pacific Northwest region. The examples at Crowberry Bog are among the best known in the state. A rare copper butterfly endemic to coastal bogs and acidic fens is known from the bog. Recent taxonomic revision of this species by Robert Michael Pyle and Paul Hammond (*Lycaena mariposa*), has left some uncertainty as to whether the individuals at Crowberry Bog are the Makah copper (*Lycaena mariposa makah*), or June's copper (*Lycaena mariposa junia*). Previously these two subspecies were lumped as the Makah copper (*Lycaena mariposa charlottensis*) which was considered to be a State Candidate species and was listed by the US Fish and Wildlife Service as a Species of Special Concern because of limited distribution and threatened habitat. The taxonomic revisions likely increase the conservation significance of the new subspecies due to even more narrow distributions. The State Sensitive long-styled sedge (*Carex stylosa*) is found in the lagg. This is the only lowland population in Washington. Austin's peat moss (*Sphagnum austinii*) has a circumboreal distribution but is primarily limited to areas with a strong oceanic influence. Although it is not considered rare across its entire range, it is considered to be imperiled within the US and critically imperiled within Washington State. The population at Crowberry Bog is the southernmost known in western North America. Small capsule dung moss (*Splachnum ampullaceum*) only occurs on herbivore dung generally within peatlands. Although considered globally common, it has only been documented at Crowberry Bog and one other location in Washington.

All of these factors led the Washington Natural Heritage Program to propose the site be designated a state natural area.

In October 2019 the Board of Natural Resources voted to protect Crowberry Bog as Washington's newest natural area preserve. Our research will help guide management and future research needed to maintain the site's ecological integrity.

Looking for exemplary examples of Washington's natural heritage is similar to embarking on a treasure hunt. Each rare species or rare ecosystem encountered is a thrilling experience. However, the day I set foot into Crowberry Bog will always be a step above the rest.

For more information

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Joe Rocchio is the Program Manager for DNR's Natural Heritage Program (WNHP). He also served as the WNHP's vegetation ecologist from 2007 to 2019. In that role, he developed a statewide classification of Washington's bogs and fens, conducted statewide inventories of high-quality peatlands, and researched the effects of surrounding land use on the vegetation, hydrological regime, and water chemistry of western Washington bogs. Joe has a B.S. in Environmental Science from Indiana University and an M.S. in Ecosystem Analysis from the University of Washington. He can be reached at joe.rocchio@dnr.wa.gov.



WNPS Email Discussion Group

The WNPS discussion group is intended for shared timely information for botanists and native plant conservationists. It's an alternative to the WNPS Facebook Group, where members share their plant finds, ask for ID help, and converse socially about native plants.

Please consider signing up to receive or share email communication regarding events, job listings, conservation issues, and more. Please join:

WNPSDiscussionGroup+subscribe@groups.io

Thank you, Michael Marsh

by Becky Chaney, WNPS Conservation Committee Chair

As seasons cycle by, it's to be expected that committee members change. After 30 years of WNPS chapter and state conservation advocacy, WNPS Fellow Michael Marsh is leaving the Conservation Committee. His long-term dedication and consistency have ensured the work of the committee connects the vision of the WNPS founders to Conservation Committee current decisions. Advocacy, like habitat, is dynamic and change is inevitable. At times of change, I find retrospection may provide future direction as well as memories.



Mike Marsh (left) at home in the shrub-steppe. PHOTO: FRANK HARRIS

Reference our Newsletter, Washington Native Plant Society, Vol. 1, No. 1, Summer 1976, to recognize that Mike's advocacy efforts support the founding principles of the society. "In a nutshell, our major objectives center around preservation and enjoyment of Washington's native flora." The stated objectives include "Taking action to save endangered areas through publicity, persuasion or on occasion legal action" and "Providing expert testimony to government bodies, especially in land use planning on issues concerning the survival of native plants."

The WNPS Conservation Committee was active by 1981 and Mark Egger started the tradition of the *Douglasia* Conservation Notes (now the Conservation Corner you are reading) when he filled the vacant chair position in 1984. This issue, *Douglasia* Vol. 8, No. 1, also notes "We ARE NOT a society of posy-sniffers. We ARE a society of plant-lovers who are determined that those who come after us will have the same opportunities we have had to enjoy the wild and wonderful native plants of Washington state." Mark, along with WNPS Fellow Mary Fries, diligently kept the committee active and on-task into the early 2000s. While Mark focused on public land planning, Mary brought attention to the threat of noxious weeds.

When Mike agreed to co-chair Conservation in 2003, WNPS had just completed a five year strategic plan. The plan recognized loss of habitat and the impacts of invasive species as

the two biggest threats to native plants. It also focused WNPS efforts on 1) identification and control of invasive species, 2) protection of existing shrub-steppe communities, and 3) protection of Garry oak communities. WNPS recognized that protection must extend to the entire ecosystem rather than individual plant species.

Since 1992, Mike was initiating work on preservation of the shrub-steppe habitat, ultimately resulting in the 2008 WNPS Grazing Policy. Skipping through the years to *Douglasia* Vol. 27, No. 4, WNPS Fellow Fred Weinmann provides a Member Profile of Mike that recounts his work within Seattle, preserving heritage trees and heron habitat, and across the state, protecting not only the shrub-steppe but also old growth stands in the Gifford Pinchot National Forest, all prior to his 2004 appointment to co-chair the state Conservation Committee.

Mike's first Conservation Update (*Douglasia* Vol. 28, No.1) adds a new issue of concern to his list of many—Kittitas Valley Wind Power. He notes, "The potential for future expansion of wind-power farms in Washington makes it important for us to develop a unified and forward-looking approach as we work to protect the shrub-steppe habitat, where wind farms are often located." He also reports on WNPS advocacy regarding the management of west side state trust forest lands, enumerating seven measures requested for inclusion in the plan, and on rule changes for grazing leases. It is fascinating to see how closely current concerns align with those of nearly 20 years ago. I skip forward once again to 2011, and find another article by Mike, filling in for Conservation Committee Chair John Brown who was recovering from an accident. In 2011, the economy was slow and Mike notes the temporary benefit to the environment. Yet, still at work, he is advocating for additional protections in the Department of Fish and Wildlife proposed Habitat Conservation Plan and encouraging action by WNPS membership.

And the work continues. Mike has provided timely, informative authorship or review of WNPS advocacy for nearly two decades amounting to over 100 documents by my count. Recent additions are the WNPS Climate Change Policy, litigation regarding the proposed Pumice Plain road at Mount St. Helens, and support for the successful recognition of National Native Plant Appreciation Month. Mike has held the Conservation Committee to the original intent of WNPS founders and ensured that WNPS is the pre-eminent advocate for native plants within our state borders. Mike, thank you for the years of thoughtful work, considerably presented. Those of us on the 2021 Conservation Committee will miss your input and will strive to do our best to continue carrying out the WNPS commitment to protect our native plants and habitats for future generations.

Becky can be reached via e-mail at conservation@wnps.org. She is always happy to hear your conservation interests, concerns, and comments. Ideas for conservation oriented webinars are also welcome.



Support Our Work

The Washington Native Plant Society depends on your support to deliver the mission of the society. Your help can make the difference and sustain the impact of WNPS into the future.

Become a Member

Join our community of plant lovers and be the first to learn about the programs in your area. Contact the office or go online at www.wnps.org/store-membership/membership.

Donate Online

You may donate any amount online through our secure website at www.wnps.org/donation/make-a-donation.

Donate through Your Workplace

- Workplace giving is an easy way to support WNPS.
- Federal Employees may donate through the Combined Federal Campaign—CFC # 69374. The CFC is now a giving option for retired Federal workers.
- Washington State Employees may donate through the Combined Fund Drive—CFD # 0315051.
- King County Employee giving—WNPS agency code #9600.
- Workplace matching gifts: Your employer may offer to match your charitable donations—and help your gift do more. Contact your workplace's charitable giving contact.

WNPS Endowment Fund Giving

Endowment gifts are kept as permanently restricted funds as designated by the donors. This fund provides annual distributions that support the WNPS Grant programs in Research and Plant Inventory, Conservation, and Education. Arrange your gift online or by mail:

- Online at www.wnps.org/donation/endowment (and review our Endowment Policy www.wnps.org/bylaws-and-policies/state).

To support WNPS by check and US mail:

Please make checks payable to WNPS and mail to: WNPS 6310 NE 74th St., Ste 215E, Seattle, WA 98115

Make A Planned Gift

Making a gift through your estate is a powerful way to express your values, care for the earth, and ensure a lasting impact. *"One generation plants the trees, another gets the shade."* — Chinese Proverb

Here are examples of how to make a planned gift:

- Name the Washington Native Plant Society in your will.
- Make the Washington Native Plant Society a beneficiary to your IRA or life insurance policy.
- Name the Washington Native Plant Society as the beneficiary of a charitable remainder trust.

There are other ways you can make a charitable gift through estate planning—consult your lawyer or financial planner.

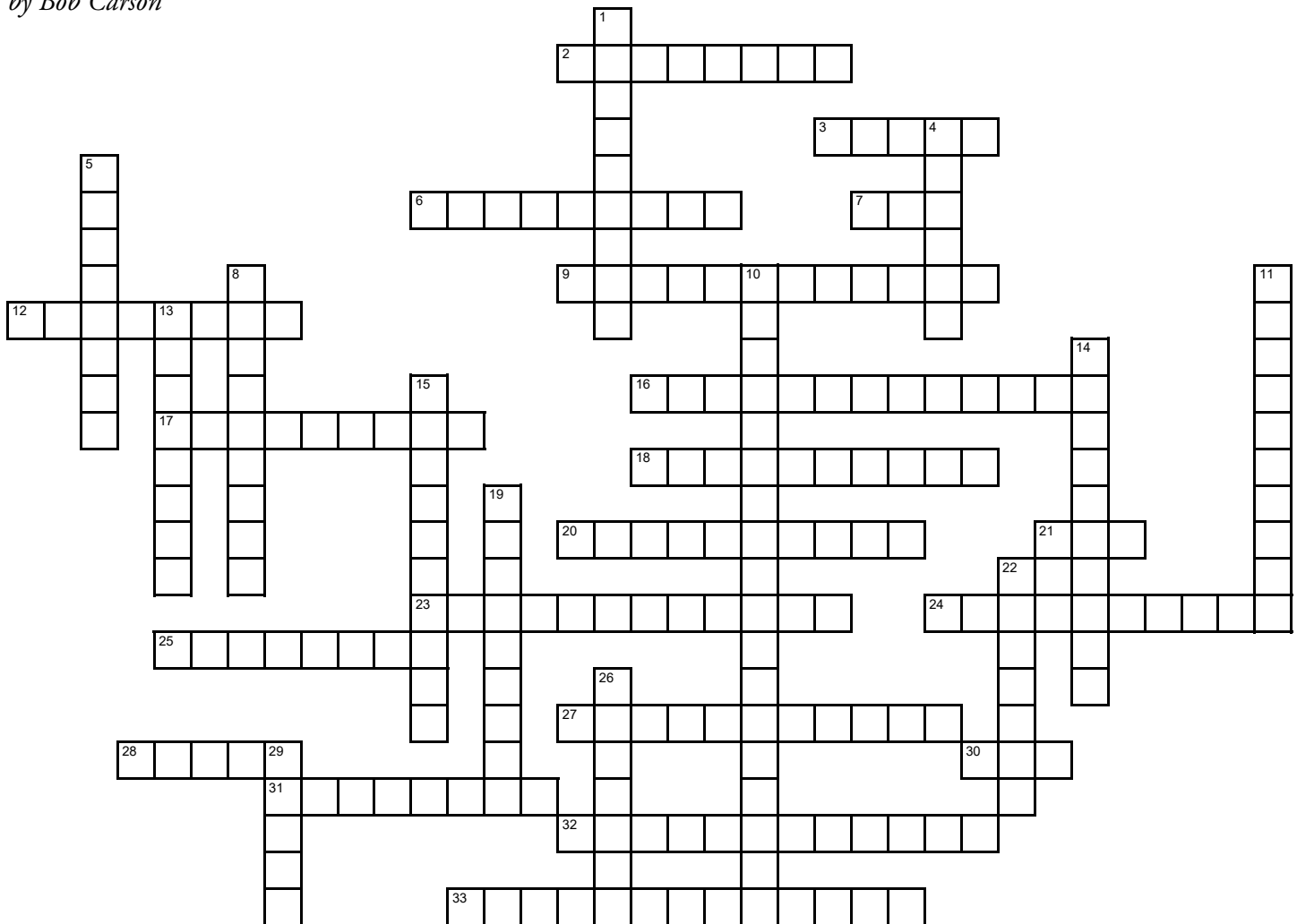
Make A Stock Donation

WNPS can now support a transfer with a brokerage account.

Learn all the ways you can support WNPS at www.wnps.org/donate. For more information on giving options, call the WNPS office 206-527-3210.

Botany Crossword Puzzle

by Bob Carson



ACROSS

- 2 nation with the greatest plant diversity
- 3 thorny invasive plant with yellow flowers
- 6 kissing hemiparasite
- 7 noble, balsam, grand
- 9 bearberry
- 12 geologic period with first vascular plants
- 16 tree feeding grizzlies
- 17 buckbrush (scientific name)
- 18 dominant historic plant of Palouse Hills
- 20 tallest flowering plant
- 21 wood for baseball bats and axe handles
- 23 dwarf mistletoe
- 24 tallest tree (historic)
- 25 tropical coastal tree
- 27 tree common as Miocene fossil
- 28 deciduous conifer
- 30 source of bow wood
- 31 Indian plum
- 32 most voluminous tree
- 33 tree abundant in Yellowstone N.P.

DOWN

- 1 highest elevation tree (scientific name)
- 4 tree for airplanes
- 5 vixen mitten
- 8 Canadian serviceberry
- 10 tree with tripinnate leaves
- 11 tree from Morocco
- 13 tree for totem poles
- 14 spiny medicinal plant
- 15 dead Russian thistle
- 19 inedible fungus with spreading pointed segments
- 22 dune tree with blue berries
- 26 tree with red bark and berries
- 29 holiday plant with red berries

Eight New Fellows for 2021

The highest accolade given to a member by our society is to be named a WNPS Arthur R. Kruckeberg Honorary Fellow.

To be selected as a WNPS Fellow a person must be a current or past member of the Washington Native Plant Society and done one or more of the following:

- Through the actions of this member, a significant and lasting change in the organization has been realized.
- An extraordinary contribution of volunteer time dedicated to WNPS.
- An outstanding act or driving force in terms of conservation, education, research or advocacy of Washington's native flora.
- Longevity of contribution at state or chapter level.

The Fellows policy was amended by the board in 2020, changing the award cycle from every five years to three years. It was pointed out that potential recipients have contributed many years to the organization and are logically late in years. A total of 34 WNPS members have received the award, and over 60% of the recipients are deceased. Sadly, some of these awards have been given posthumously (such as the case of Sarah Reichard in 2019) and so late in life that the recipients do not have time to enjoy the spoils of the award (Terri Knoke was awarded one month before her passing in spring 2020). Our hopes are to remain timely in awarding significant "life-time" service going forward.

The board of directors voted to name the following eight nominees as new WNPS Arthur R. Kruckeberg Honorary Fellows.

Bill Brookreson

Bill Brookreson helped to initiate and maintain the WNPS Stewardship Program for over 15 years. He became a Native Plant Steward in 2007, and actively promoted WNPS stewardship in many roles at both the state and chapter levels. As Chair of the Stewardship Steering Committee, he promoted the pilot program concept, hired a stewardship contractor, and aided as needed to ensure that the new program was successful. He also convinced the board to raise the WNPS Stewardship Committee to standing committee status.

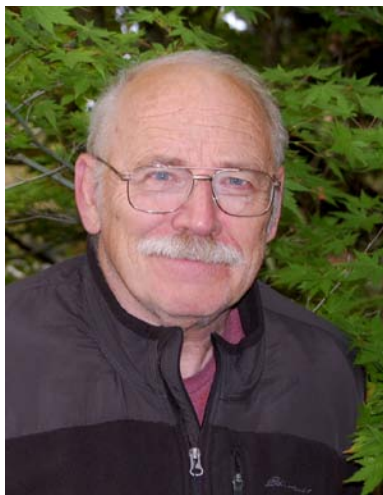


PHOTO: CATHERINE HOVANIC

Bill has logged in over 11,020 hours in the Steward Database. This represents 3,617.9 hours on his project and 7,799

hours of service to WNPS. Denise Mahnke, Business Manager at WNPS, says, "That equals 475.7 days of non-stop, 24/7 work for WNPS!" Future accomplishments of the Native Plant Stewardship Program will build on a foundation and tradition Bill played a huge role in assembling.

Bill also served for several years on the WNPS State Conservation Committee, was one of the founders of Native Plant Appreciation Week, helped reactivate the Suksdorfia Chapter, and then proceeded to help the Suksdorfia Chapter host the 2018 Study Weekend in the Columbia Gorge.

Bill has been a vital volunteer for the South Sound Chapter. He served as chapter chair, was a driving force of the Chapter's very successful Spring and Fall Plant Sales, chairing the Plant Sale Committee from 2010 to 2019. And for many years, Bill volunteered at the WNPS informational booth at the Washington State Fair.

In 2018, he received the Mentzelia Award for exceptional service to WNPS.

Joe Arnett

Joe Arnett studied botany at Western Washington University with WNPS Fellow Ron Taylor, completing a master's degree on *Silene* systematics. He worked as a botanist for more than 30 years, including a long career as rare plant botanist with the Washington Natural Heritage Program.

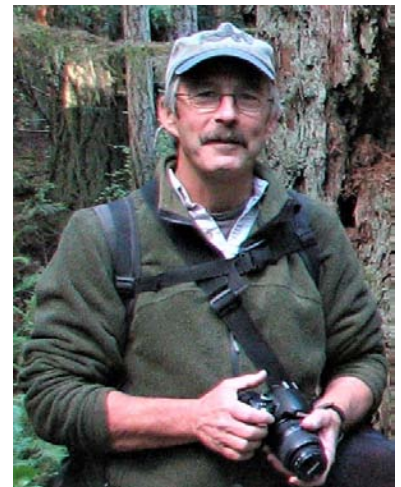


PHOTO: FRED WEINMANN

Joe also taught field botany and plant identification at community colleges, the North Cascades Institute, and Bastyr University, in addition to WNPS. For his teaching, Joe authored a plant identification manual: *Botanical Primer, a Systematic Introduction to Plant Identification*, which continues to be a reference for the WNPS Master Native Plant Stewardship program.

Joe has worn many volunteer hats with WNPS: at-large board member, Native Plant Stewardship Program instructor, field trip leader, Editorial Committee member, co-sponsor of Botany Washington from 2011-2018, writer for *Douglasia* and other WNPS publications, Study Weekend and Botany Washington trip leader, and guest speaker for chapter programs.

A gifted writer, Joe shared his thoughts in a collection of essays, *Walking in the Beauty of the World: Reflections of a Northwest Botanist*, available from WNPS. "His essay on why common names should not be standardized is especially wonderful. Joe even donated the proceeds of his book to help fund the Society," says Walter Fertig, WNPS Editorial Committee Chair.

In 2011, he played a lead role in completing a *Field Guide to the Rare Plants of Washington*, published by the University of Washington Press.

Joe also worked tirelessly to promote conservation of remnant Puget Sound prairies and Palouse grasslands. His efforts helped lead to the protection of Steptoe Butte, one of the last remaining Palouse grasslands and home to several rare species, including Spalding's catchfly (*Silene spaldingii*).

David Giblin, Ph.D.

David Giblin has made many contributions to Washington botany through his position as the Collections Manager of the University of Washington Herbarium at the Burke Museum and his emphasis on partnerships and education. In particular, he was the driving force behind revising the *Flora of the Pacific Northwest*, the primary reference for botanists in our state. He initiated the



PHOTO: MARY LEVIN

project about ten years ago, developed a plan to accomplish this overwhelming task, and secured grants and other funding. He also recruited researchers, editors, and illustrators. In addition, he rallied volunteers to help with many of the tasks. The revised edition was published in 2018. David continues to enhance the *Flora* by publishing online revisions as new information becomes available.

David was honored by the Central Puget Sound Chapter as Professional of the Year in 2011, and because of his work the Herbarium was honored as the WNPS Partner of the Year in 2019. In addition to publication of the *Flora*, this award also recognized David's critical role in building an interactive database for the WNPS Plant Lists. David conceived the idea of a database that would automatically update accepted names and recommended a funding source. He then helped develop a scope of work and coordinated Ben Legler's work on the project. The plant list database, which resides on the University of Washington server, has been well received by WNPS members and the number of lists is growing as members learn its value and ease of use.

David's other contributions to WNPS include serving on the WNPS Editorial Committee since 2003, serving as Technical Editor for *Douglasia*, and leading field trips at almost every Study Weekend. He is also Program Director of Botany Washington, which he has co-hosted with WNPS for 10 years. In addition, David partnered with WNPS on many other botany workshops. As a long-time supporter of the WNPS Master Native Plant Stewardship Program, David has presented plant morphology and plant identification workshops.

Ellen Kuhlmann

Ellen Kuhlmann's role on the Editorial Committee has been remarkable. She has proofread five years of *Douglasia* issues and contributed numerous articles. She also initiated the Communications Survey and wrote an amazing report of the results.

Ellen's long association with WNPS began when the Wenatchee Valley Chapter was founded

in 1994, and Ellen was engaged in that chapter's leadership from the beginning. She attended meetings, led field trips, and became chapter president in 1995. Ellen spearheaded and organized the May 1997 Study Weekend, held at Lake Wenatchee.

Ellen has contributed well over 500 samples of Washington's flora to the Pacific Northwest Herbarium and contributed many hours of volunteer service collecting, identifying, and processing plant material. She has been an important source of inspiration and is an encyclopedia of information for the many students and other herbarium patrons interested in learning more about our local flora.

Ellen worked from 2006-2010 as the Seeds of Success Project Manager for the Washington Rare Care and Conservation.

As an active WNPS volunteer, Ellen served for six years on the WNPS Board of Directors as an at-large board member and served as board treasurer for three years. For more than six years, she was a member of the state board's financial task force. She has served on the WNPS calendar committee since its inception in 2006.

For 15 years, Ellen has authored the text for WNPS's annual calendar, which is both beautiful and educational. The annual calendar is also an important fundraiser for WNPS and its chapters.

In 2014, Ellen co-authored *Trees and Shrubs of the Pacific Northwest* with Mark Turner.

Dixie Llewellyn

Dixie Llewellyn has long been a strong advocate for native plant conservation, particularly in Jefferson County. She was instrumental in developing natural history interpretation for the general public in several areas, most no-



PHOTO: MARK TURNER



PHOTO: FRED WEINMANN

tably at Froggy Bottom and Kah Tai Prairie in Port Townsend. Once a waste area, Froggy Bottom is now a restored, functioning wetland with mature native plantings and beautiful interpretive signage, largely through Dixie's initiative and efforts.

Kah Tai Prairie is a small, fairly intact remnant of the prairie that was once prominent in eastern Jefferson County. It is surrounded by a city golf course. Dixie has been a major part of its protection and continued maintenance since it was discovered several years ago. She was also part of developing the interpretive kiosk that remains at the site.

Her nomination "is not based only on her thousands of hours of work for the Society, but also on Dixie's willingness to develop project concepts and take initiative. She epitomizes those important contributors who have good ideas, but also dig in to bring projects to fruition," says Denise Mahnke.

Dean Longrie, Ph.D.

Dean Longrie has the distinction of being the longest-serving WNPS President—2006 to 2014. He also served the Board as a director-at-large and treasurer.

"His intent to see that the staff of WNPS are effectively supported has left me with a fond respect for the leadership and the



PHOTO: WNPS BOARD OF DIRECTORS 2005

consistency provided over the course of his tenure. The example of delegation to other roles on the board is strong, and the development of structure for the organization evident," says Denise Mahnke

Dean has been very active with the Conservation Districts both at the county and the state level; he has served as chairman of the Clark County Conservation District and president of the Washington Association of Conservation Districts.

Dean established critical partnerships with Conservation Districts across the state. As President, Dean arranged a memorandum of understanding between the Washington Association of Conservation Districts and WNPS that is still in force.

Dean is the Chair of the Washington State Conservation Commission whose mission is to "conserve natural resources on all lands in Washington in collaboration with conservation districts and other partners." He also served on the Clark County Endangered Species Advisory Committee.

Dean's career included working as a wildlife biologist and botanist for the US Forest Service and a part-time landscape contractor.

Wendy McClure

Wendy McClure has introduced many people to the wonders of botany. She has always had the interest and patience to assist others in keying a plant whether she knew the name or not, and has helped others as a frequent field trip leader as well as when attending field trips lead by others. Some of the people she helped became



PHOTO: ANN WEINMANN

members of WNPS and others simply became more interested in our native flora. Wendy was, in effect, a wonderful mentor to many without even recognizing it. While individually small and incremental, when considering Wendy's attendance at nearly every Olympic Peninsula Chapter and state event for nearly 40 years, her contributions have surely increased the visibility and changed the organization for the better.

Wendy has led hundreds of Society field trips for over 30 years. This included coordinating overnight botanizing adventures and leading field trips at almost every annual Study Weekend. It is worth emphasizing that her contributions have been long term and continuous at both the chapter and state level.

Wendy was Olympic Peninsula Chapter Chair from 1999 to 2009. As chair, she ensured that the Chapter sponsored at least one event per month, even if this meant personally sending a postcard to each member. Wendy has remained on the Chapter board, and was also frequently willing to attend state board meetings to represent the Olympic Peninsula Chapter. Wendy served on various state board committees and as chair for the 2004 Study Weekend held on the Olympic Peninsula.

Wendy's commitment to native plant education and advocacy is further evidenced by her return to the University of Washington in the 1990s to complete a degree in botany. She also advocated for native plants as a long-time member of the Kitsap County weed board and as a volunteer for Olympic National Park where she assisted with various projects, including native plant restoration. During the Elwha Dam removal, she was a consistent volunteer at the greenhouse/nursery where hundreds of thousands of plants were propagated for restoring the newly exposed former lake bottoms.

Richard Olmstead, Ph.D.

Richard (Dick) Olmstead, professor in the University of Washington's Department of Biology, stepped into the role of University of Washington Herbarium Curator in 1996, following Melinda Denton and C. Leo Hitchcock. As one of Melinda Denton's graduate students in the 1980s, he collected across the West in search of *Scutellaria*. He



PHOTO: BEN DRUMMOND

maintained this field orientation while becoming an expert in the field of molecular systematics. This field-lab combination has benefitted the many students he trained; he emphasizes that it is vital to know plants in the field, and that understanding the evolution of their DNA is not all there is to know about a group of plants. He has advocated for this field orientation in the Botany Department (now Biology Department) at the UW.

Dick initiated the UW Herbarium Foray in his first year on the faculty at UW—determined to bring the collecting program back to life. This successful program has fostered a sense of community around the Herbarium as well as procuring thousands of specimens for the Herbarium and its exchange program. At year 20 in 2017, the Forays had collected more than 12,000 specimens and involved 172 people.

Dick has been a fierce advocate for the Herbarium. He brokered the administrative transfer of the Herbarium from the Biology Department to the Burke Museum. Under the aegis of the Burke, the Herbarium enjoys the company of other UW natural history collections; this conceivably provides better fiscal protection and legislative advocacy during lean budget years.

Through the “Plant Identification and Classification” course at the UW that he teaches annually, Dick has introduced thousands of students to the wonders and intricacies of recognizing plant families and keying out in “Hitchcock.”

Dick was a key sponsor in the update and production of *Flora of the Pacific Northwest—2nd edition*, which was years in the making. Other regions of the country had long envied us the original *Flora of the Pacific Northwest*, and we are among only a few areas of the country to have an updated regional flora. Without Olmstead's backing, completion of the *Flora* would likely have been much more difficult.

Dick's research interest on the phylogenetic reconstruction of flowering plants by molecular methods and the use of phylogenetic inference to understand plant evolution encompasses several families, including the Lamiaceae and Solanaceae. In addition to his lab and field studies, Dick is a keen horticulturist. He cultivates rarities from western North America, China,

and other places, and he is actively removing invasive species and restoring native plants to a ravine at his home in Lake Forest Park.

Dick knew Art Kruckeberg well, as a friend and colleague. As Kruckeberg and his family strove to maintain the legacy of the Kruckeberg garden and MSK Nursery, Olmstead worked with the City of Shoreline to help the Kruckeberg Botanic Garden find its footing. He served on the board of the Garden and currently serves on the Lake Forest Park Tree Board. His national service includes a term as president of the Botanical Society of America and the American Society of Plant Taxonomists.

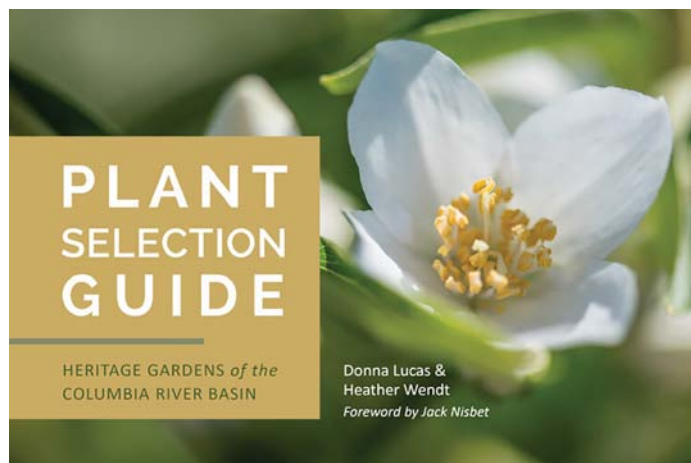
For the Washington Native Plant Society, Olmstead has contributed to *Douglasia* and given chapter program talks, notably on “Whatever happened to the Scrophulariaceae?” He also taught WNPS Native Plant Stewardship Program students about the “Plant Geography of Washington.”

Submitted by WNPS Awards Committee: Van Bobbitt, Nina Kidd, Denise Mahnke, and Gail Sklar



WNPS Awards 2021

WNPS Outstanding Partner Award



This award is presented annually to an agency, organization, or individual who has made significant contributions to native plant conservation, research, or education in Washington. This year the award is presented jointly to: (1) **Benton Conservation District**; (2) **Franklin Conservation District**; (3) **Heather Wendt**, assistant manager, Benton and Franklin Conservation Districts; and (4) **Donna Lucas**, past secretary and long-time member of WNPS Columbia Basin Chapter. These organizations and people took leading roles in creating and coordinating the Heritage Garden Program.

The Heritage Garden Program “has been a major component of outreach to the broader general public, helping to take advantage of and inspire interest in native plants from our area. Last year during the pandemic, the program still managed to reach over 500 people through presentations and webinars

and provided technical assistance/site visits to 58 homeowners and businesses in Benton and Franklin Counties.” -Mickie Chamness, WNPS Columbia Basin Publicity Chair

This program resulted in the publication of the book *Plant Selection Guide – Heritage Gardens of the Columbia River Basin*, co-authored by Donna Lucas and Heather Wendt.

WNPS Mentzelia Award

This award is presented annually to WNPS members who have made a significant contribution to native plant conservation, research, or education in Washington. This year’s Mentzelia Award winners are **Fayla Schwartz, Forest Shomer, Don Schaechtel, and Van Bobbitt.**

Fayla Schwartz

During this most challenging year for WNPS programming, Denise Mahnke reported that “**Fayla Schwartz**, long time Board member, stepped up to provide a workshop series in Plant Biology which had high interest amongst the membership, was filled to capacity, and raised almost as much revenue as the average Study Weekend event for WNPS.”



PHOTO PROVIDED BY FAYLA SCHWARTZ

Fayla also offered an online program in 2020 “on the Native Flora of the Olympic Peninsula, which continues to be the highest watched event on the WNPS YouTube channel.”

Fayla Schwartz currently serves as Chair of the Olympic Peninsula Chapter, on the Board of Directors, and on the Education Committee, which she led for over 26 years.

Forest Shomer

Forest Shomer has been an active member of the Olympic Peninsula Chapter since 1986, but his career as a native plant advocate predates the founding of WNPS. In 1973, he started a mail order seed company called Abundant Life Seed Foundation, featuring native seeds for our bioregion. He managed the nonprofit for nearly 20 years.



PHOTO: KATHY DARROW

Today, Forest can often be found stewarding local preserves, especially at Kah Tai Prairie Preserve and Fort Worden State Park, where he has logged well over 1,000 hours of volunteer time over the past decade tackling invasive weeds. Forest was the founding president of Friends of Fort Worden, which began in 1992 to launch restoration of the Point Wilson shoreline, as well as to support other goals of the State Park.

Don Schaechtel

Don Schaechtel currently serves as WNPS director-at-large, Treasurer, Fundraising Committee Chair, Financial Advisory Committee Chair, Executive Committee member, and Strategic Plan Implementation Committee member. Previously, Don served in other leadership positions with the WNPS Board of Directors: President (2017-2018), Immediate Past President (2018-2020), Secretary (2015-2017), and Nominations and Governance Committee (2015-2019).



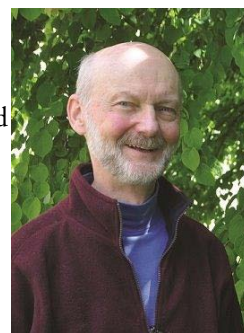
PHOTO: WNPS BOARD OF DIRECTORS

Don really excels in outreach to major donors. He personally calls all donors that have contributed over \$250. His personal touch with major donors helped secure the funding to start the Youth Ecology Education through Restoration (YEER) project this year, in addition to his help submitting the No Child Left Inside grant.

Most of all, Don puts the good of WNPS above his personal desires. For example, in fall 2018 WNPS was unsuccessful in filling the position of Treasurer, perhaps the most important and time-consuming office of the WNPS Board of Directors. Don was willing to give up his position as President to be our Treasurer, because that is what WNPS needed.

Van Bobbitt

Van Bobbitt currently serves as the Past-President, Awards Committee Chair, Strategic Planning Implementation Committee Chair, Nominations and Governance Committee Chair, and Native Plant Appreciation Month (NPAM) Committee member. Van served as the WNPS President of the Board of Directors (2018-2020), carrying WNPS through the pandemic and supporting decision-making for members, staff and the board. Van returned to the WNPS Board of Directors as a Director-at-Large in 2017 (he was a previous board member in



the 1980s). During his first year, he accepted the nomination to serve as WNPS Board Vice-President (2017-2018).

Gail Sklar, NPAM Committee Chair, mentions Van's work as instrumental in supporting the transition from Native Plant Appreciation Week to Native Plant Appreciation Month. His work on redefining the Proclamation for the event to include climate change concerns is important work and demonstrates his passion for conservation.

Bill Brookreson comments that Van has a long history of supporting the Stewardship training program; while on the faculty of West Seattle Community College, where he was a member of the faculty and taught horticultural courses, Van was one of the volunteer instructors for stewardship training and provided the facility space for several of the training programs. While teaching at the college, Van oversaw the creation and maintenance of the marvelous arboretum on the campus. Many of Van's students have carried on with his enthusiasm for Washington's native plants in volunteerism and careers.

Van's work on the Strategic Plan and determination to continue despite the pandemic shutdown provided leadership to transition the Board from an in-person to a virtual strategic planning process. Van provided an inclusive model of leadership for WNPS in encouraging participation not only on the Board but also in the WNPS Committees.

Van's leadership on the WNPS Board of Director's Nominations and Governance committee has been focused on building a full Board, with all seats filled. His ability to recruit and welcome new members to the Board has increased the capacity of the organization and provided support for the new vision in the 2020-2023 Strategic Plan.

Van has always led from the premise of serving the mission of WNPS and clearly confirming decisions as they applied to the mission, for all to follow.



WNPS Welcomes a New Volunteer Coordinator

by Denise Mahnke

The WNPS office is pleased to announce the hiring of Lorraine Sawicki, in the new Volunteer Coordinator position.



Lorraine comes to WNPS with a strong background in the use of technology to tell a compelling story. Holding a BS in Computer Science, from the College of New Jersey, and a User-centered Design certificate from the University of Washington, Lorraine will be ready to further WNPS online and support development of new systems for volunteer engagement and communications. Her skills, coupled with her love of plants and strong volunteer background, make her a great match for this WNPS position. Lorraine is a Master Gardener who came to WNPS originally to learn more about native plants, and to support the WNPS Communications Committee.

Her experience includes serving at Puget Consumer Coop as a Web Designer, and Jones & Jones Architecture and Landscape Architecture as a Marketing Coordinator. Her extensive skills in art, data management, and support to web resources will be a big asset to the team.

Lorraine will be working with the chapters of WNPS to support volunteer needs. The Stewardship program will also benefit with expanded communications and volunteer engagement opportunities.

Elizabeth Gage will continue to serve as the Office Coordinator at WNPS. Her role is changing, where she will be directly providing customer service in the office and keeping membership records up to date for the organization. Please feel free to call on our staff as needed (206) 527-3210.



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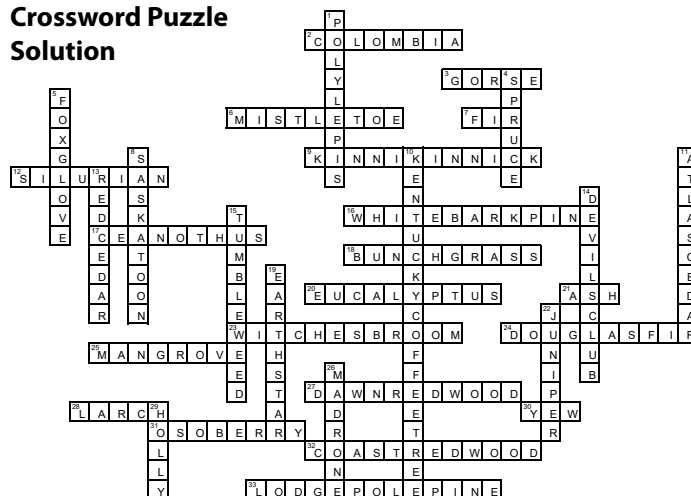
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Botany

Crossword Puzzle Solution



Washington Native Plant Society State Board Directory

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(Director's term follows name)

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Keyna Bugner 2020-2023
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Immediate Past President*

Van Bobbitt 2017-2020
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Vice-President*

Gail Sklar 2019-2022
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Secretary*

Vacant
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Treasurer*

Don Schaechtel 2018-2021
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Chair Vacant (rotating members)
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Ashley Shattuck
Becky Chaney
Gretchen Graber
Gail Sklar
Ted Crovello
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* Denotes a voting position

** Ad hoc committees are formed to address society business and are not defined by WNPS bylaws, as are standing committees.

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Puget Sound gumplant (*Grindelia integrifolia*) among grasses at Fort Worden. PHOTO: MARK TURNER