

Fourth Corner Nurseries

5652 Sand Rd., Bellingham, WA 98226 | TEL 800-416-8640 | FAX 888-506-1236 | EMAIL sales@fourthcornernurseries.com | WEB http://fourthcornernurseries.com

NATIVE PLANTS OF NORTH AMERICA | WHOLESALE CATALOG

Greetings,

As we forge ahead into our 36th year the feelings of excited wonderment in seeing each new crop of seedlings put down roots and push up through the soil this spring is as strong as ever. As propagators there are certain professional expectations that year in and year out more plants will be produced. Thus, in a clinical sense new crops are an affirmation of our proficiency. We do take great satisfaction in challenging ourselves to grow more species and make better plants. However, if you could masquerade as one of the bumblebees or white crowned sparrows fluttering around our farm you would see our excitement over the new crops is about more than our own success as propagators. These little sprouts, native plants that have been grown from thoughtfully curated seed collections from throughout the Pacific Northwest and beyond, hold the promise and potential to restore degraded landscapes, reconnect fragmented habitats, instill beauty, provide food, shelter and a myriad of other critical ecological functions for all life, even and especially for people. Like a flower needing the partnership of a pollinator to bear fruit, we cannot fulfill this promise on our own. Our nursery is only the beginning, and only by partnering with our customers will these plants find a home and an opportunity to realize their potential. We depend on your shared passion and ingenuity, and we cherish your feedback and support. Thank you!

We are extremely excited to share our latest offerings and look forward to working with you in the years to come.

Warm regards,

Dylan

Dylan Levy-Boyd,
General Manager, Fourth Corner Nurseries



Rewilding Agriculture: Native Plants Are the Future of Better Farms

by Eric Lee-Mäder, The Xerces Society



Klickitat Canyon Vineyard. Photo by Eric Lee-Mäder of Xerces

Everyone who works in conservation has moments or locations that recharge their batteries and remind us of why we do what we do. For me, one of these purely magical events occurs every spring at Klickitat Canyon Winery in Lyle, Washington when the lupine, balsamroot, and desert parsley are in full bloom across the vineyard understory. Time slows down and the world gives way to a soundtrack of meadowlarks and raptors. In this moment, I find myself standing in wonder, not quite certain if I'm looking at a farm or nature preserve.

I've had the fantastic privilege of working with the Klickitat team for nearly a decade in my role as a pollinator and beneficial insect ecologist at the Xerces Society, a non-profit wildlife conservation organization focusing on invertebrate animals. Klickitat Canyon's model of blurring the lines between a natural plant community and a functional farm represents a system that is elegant, productive, and arguably the kind of land management we increasingly need. Deep-rooted native bunch grasses stabilize the vineyard slopes, beneficial insects supported by the abundance of habitat provide nearly complete suppression of vineyard pests, and the beautiful meadow creates an attractive destination for customers. Particularly interesting to me however is the incredibly diverse and abundant wildlife present on the farm

including huge numbers of songbirds, native bees, and rare butterflies. After the grape harvest, they even open the gates, allowing mule deer to browse the meadow.

Earth Without Animals

It's probably obvious to most readers that agriculture is one of the most significant forces impacting global wildlife. Insects, my professional focus, provide some of the most clear and stark case studies of how agriculture affects wild animals. For example, over the past 20 years we have seen a nearly 90% population decline in the formerly common monarch butterfly, due in large part to the loss of milkweed host plants in and around intensively managed agricultural fields. Similarly, among our 46 species of North American bumble bees, it is estimated that fully a quarter of them

(continued on page 10)

INSIDE THIS ISSUE:

"Rewilding Agriculture: Native Plants Are the Future of Better Farms".....	1
Greetings	1
Common Name Index.....	2
Contact Information.....	3
Wetland Indicator Status.....	3
Reference Information.....	3
Trees & Shrubs.....	4
Purchase Order Form.....	9
"Coastal Black Gooseberry—A <i>Ribes</i> to rave about"	11
Conifers.....	12
Live Stakes.....	12
Herbaceous Perennials.....	13
Grasses, Rushes, Sedges.....	17
Aquatics.....	19
Bulbs, Rhizomes, Tubers.....	20

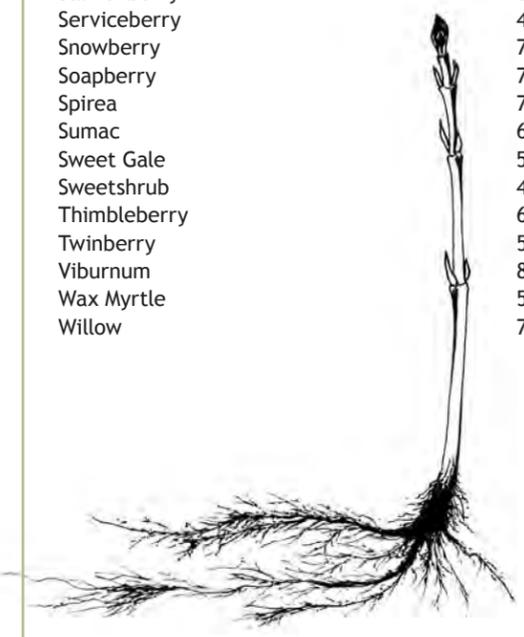
Fourth Corner Nurseries
5652 Sand Rd.
Bellingham, WA 98226

PRSR STD
U.S. Postage
PAID
Lynden, WA
PERMIT NO 20

COMMON NAME INDEX

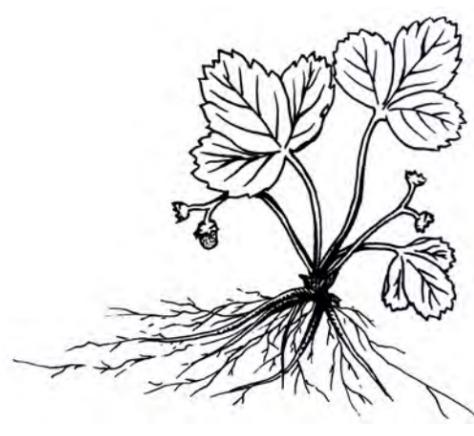
TREES & SHRUBS

Alder	4
Ash	5, 7
Aspen	5
Birch	4
Blackberry	6
Cascara	5
Ceanothus	4
Cherry	6
Chokeberry	4
Choke Cherry	6
Coralberry	8
Cottonwood	5
Crabapple	5
Cranberry	8
Currant	6
Dogwood	4
Elderberry	7
Gooseberry	6
Hawthorn	5
Hazelnut	4
Honeysuckle	5
Huckleberry	8
Indian Plum	5
Maple	4
Mock Orange	5
Mountain Balm	4
Mountain Mahogany	4
Ninebark	5
Oak	6
Ocean Spray	5
Oregon Grape	5
Plum	5
Raspberry	6
Redbud	4
Rose	6
Salal	5
Salmonberry	6
Serviceberry	4
Snowberry	7, 8
Soapberry	7
Spirea	7
Sumac	6
Sweet Gale	5
Sweetshrub	4
Thimbleberry	6
Twinberry	5
Viburnum	8
Wax Myrtle	5
Willow	7



HERBACEOUS PERENNIALS

Alumroot	14
Aster	16
Avens	14
Balsamroot	13
Beach Pea	14
Blanket Flower	14
Bleeding Heart	13
Bluebells	13, 14
Blue-eyed Grass	15
Buttercup	15
Checkerbloom	15
Checkermallow	15
Cinquefoil	15
Coltsfoot	15
Columbine	13
Cone Flower	13, 15
Devil's Club	14
Echinacea	13
Field Mint	14
Fireweed	13
Fleabane	13
Fringecup	16
Goatsbeard	13
Goldenrod	15
Goose Tongue	15
Gumweed	14
Hedgenettle	16
Hyssop	13
Inside-out Flower	16
Iris	14
Lupine	14
Milkweed	13
Monardella	14
Monkeyflower	14
Mugwort	13
Onion	13
Oregon Sunshine	13
Paintbrush	13
Pearly Everlasting	13
Penstemon	15
Piggyback-Plant	16
Plantain	15
Prairie Smoke	14
Sea Thrift	13
Sedum	15
Self Heal	15
Silverweed	13, 15
Soapweed	16
Sorrel	15
Spring Gold	14
Stonecrop	15
Strawberry	14
Violet	16
Waterleaf	14
Waterparsnip	15
Woolly Sunflower	13
Wormwood	13
Yarrow	13
Youth on Age	16
Yucca	16



GRASSES, SEDGES, RUSHES

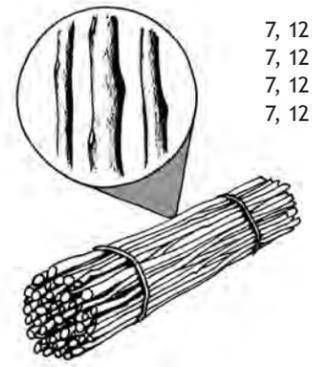
Arrowgrass	19
Brome	17
Bulrush	17, 18, 19
Cattail	19
Fescue	18
Horsetail	18
Junegrass	18
Mannagrass	18
Meadow Barley	18
Oatgrass	17
Rice Cutgrass	18
Rush	18
Saltgrass	18
Sedge	17
Spikerush	18
Sweetgrass	18
Threesquare	18
Tufted Hairgrass	18
Wildrye	18
Wool Grass	19



LIVE STAKES

Live stakes are made to order, and are available for the following species. Please specify your desired length when placing your order. The caliper will vary from 1/4" - 1"; we do not grade by caliper size. Live stakes have the highest success rate in our area when planted between October and March.

Hooker Willow	7, 12
Pacific Willow	7, 12
Scouler's Willow	7, 12
Sitka Willow	7, 12



AQUATICS

Arrowhead	19
Buckbean	19
Bur-reed	19
Cinquefoil	19
Marshlock	19
Pond-lily	19
Skunk Cabbage	19
Speedwell	19
Veronica	19
Wapato	19
Water Parsley	19

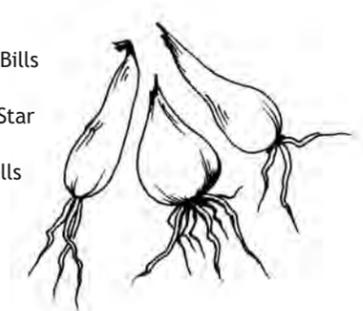
CONIFERS

Cedar	12
Douglas Fir	12
Fir	12
Hemlock	12
Pine	12
Spruce	12



BULBS, RHIZOMES, TUBERS

Brodiaea	20
Camas	20
Checker Lily	20
Fool's Onion	20
Johnny Jump Up	20
Lily	20
Larkspur	20
Mosquito Bills	20
Onion	20
Shooting Star	20
Triteleia	20
Yellow Bells	20



FOR YOUR INFORMATION

Contact Information

NURSERY SALES AND SHIPPING

Office, sales@fourthcornernurseries.com

Angie O'Hare, angie@fourthcornernurseries.com

Shelley Weisberg, shelley@fourthcornernurseries.com

Phone: (360) 592-2250

Fax: (888) 506-1236

Address: 5652 Sand Rd., Bellingham, WA 98226

CONTRACT GROWING & CUSTOM PROPAGATION

Dylan Levy-Boyd, Bare Root Propagation,
dylan@fourthcornernurseries.com

Kelly Broadlick, Plug Production,
kelly@fourthcornernurseries.com

Richard Haard, Ph.D., R&D Propagation,
richard@fourthcornernurseries.com

Georgia Mitchell, Bare Root Tree and Shrub Production,
georgia@fourthcornernurseries.com

ACCOUNTING & BILLING

Allison Jones, allison@fourthcornernurseries.com

Shelley Weisberg, shelley@fourthcornernurseries.com

Billing Address: 5757 Sand Rd., Bellingham, WA 98226

Sales hours:
8 AM-4 PM PST
Monday through Friday

Toll free: 800-416-8640
Fax: 888-506-1236

Wetland Indicator Status

This edition of the Fourth Corner Nurseries catalog reflects the changes encompassed in the most recent 2016 National Wetland Plant List (NWPL). It is important to note that our catalog lists the wetland indicator status for each plant in the Western Valleys, Mountains and Coast region, even if the plant occurs in or is native to another region. If you are installing plants outside of this region, please consult the NWPL to confirm the status of your plant in the region in which it will be installed. Plants not listed on the NWPL for the Western Mountains, Valleys, and Coast region (indicated as NL in our catalog) either do not occur in our region, or have not been tested in our region.

To see the full list, including the indicator status of each plant across all ten regions, please visit: http://wetland-plants.usace.army.mil/nwpl_static/home/home.html

OBL - Obligate Wetland

Almost always occurs in wetlands.



FACW - Facultative Wetland

Usually occurs in wetlands, but may occur in non-wetlands.



FAC - Facultative

Occurs in wetlands and non-wetlands.



FACU - Facultative Upland

Usually occurs in non-wetlands, but may occur in wetlands.



UPL - Upland

Almost never occurs in wetlands.



NL - Not Listed

These plants are not listed in the Western Valleys, Mountains and Coast region of the NWPL.



A Note on Nomenclature

Several species have recently experienced name changes resulting from continuing research. We have listed plants by their current names, with previous or other commonly used names noted. Current names are from the PLANTS Database at <http://plants.usda.gov>.

Terms and Conditions

Pricing and order payment: Pricing is based on stock on hand and is in U.S. funds; availability and price may change without notice. Volume discounts are built into our pricing structure. Prices do NOT include shipping. Non-credit customers or customers placing contract growing orders must submit a 25% deposit within 10 days of the order being placed. The balance is due in full before shipping for all non-credit customers; unpaid orders will not be shipped and we will not be held liable for deterioration of your plants while we wait for payment. We accept Visa and Master Card.

Minimum orders: Total order \$100.00 minimum. Plants are sold in multiples of 50.

Cancelations: A 25% restocking charge will be billed on canceled or reduced orders. Cancelations or reductions of quantity ordered must be in writing. An order may not be canceled after the preparation of the order for shipping.

Substitutions: If we are unable to supply the size plants that you have requested, we reserve the right to substitute the next available size without notice, unless you have requested in writing that you do not want substitutions. You will be charged for the size shipped.

Shipping: Bare-root orders will be shipped by the method we think best unless you have specified otherwise. Orders are typically shipped UPS, truck freight, or delivered at cost. Orders may also be picked up at our nursery; please call a few days ahead to schedule a pickup. Tree and shrub orders held for shipping after April 1st must be prepaid in full and are subject to additional storage charges. We charge for shipping materials.

Claims: We take great care to provide quality healthy nursery stock. However, we can give no guarantee, expressed or implied, as to productivity or life span. Buyers assume responsibility of the plants as soon as they receive them. Any stock received in unsatisfactory condition must be reported to us within 5 working days. Plant claims will be reviewed and credit issued where justified; at no time will we be responsible for more than the purchase price. We do not guarantee plants' survivability after leaving our care.

Non-guarantee: We do our best to fulfill all committed orders completely and on time, but will not be liable for delays or shortages that are out of our reasonable control including, but not limited to frost, heat waves, disease, flood, fire, labor shortages, transport delays, or otherwise.

Custom Propagation Services

If you have a project requiring plant species not listed in this publication, plants propagated from seed provenances other than those listed, or very large quantities of plants in a particular size, we encourage you to consider using our custom propagation services. We have extensive experience producing plants to meet special contract requirements. During the past ten years we have successfully completed growing contracts for the U.S. Forest Service, Seattle City Light, Seattle Metro, and the Washington Departments of Transportation, and Fish & Wildlife. Our experienced staff is always ready to discuss your plant needs - for question about trees, shrubs, perennials, and seed contact Dylan Levy-Boyd, dylan@fourthcornernurseries.com, for questions about bulbs contact Richard Haard, richard@fourthcornernurseries.com.

Grading

We take care to grade and ship high-quality, healthy plants, true to name and count. Height grades are measured from the soil line. Transplants are mostly but not always branched and have more developed root systems than seedlings. If you require special grading regarding branching or root systems, or quantities other than our standard bundle size, please ask and we will do our best to meet your needs for a small additional charge.

Seed Sourcing at Fourth Corner Nurseries

The lion's share of our plants are propagated from source identified seed. We take great pride and care in sustainably collecting the seed that we use from genetically diverse populations, and offer multiple seed sources of the most common restoration species. Knowing that much of the restoration work in our region is being done at low elevations surrounding the Puget Sound, we strive to offer at least one seed source from low elevation Puget Trough sites whenever possible.

Available sources for each species are listed in our catalog according to the EPA Level III Ecoregion from which the seed originates, two notable exceptions being: 1) conifers will be organized by the industry's tree seed zone maps; and 2) species for which the Level III Ecoregion is unknown will be organized by state. In the absence of species specific seed zones for native plants, Level III Ecoregions show promise as an approximate delimiter between populations under differing ecological conditions. If you prefer to use alternate seed zones, we are happy to work with you to determine if our specific collection sites conform to your project guidelines. We also continue to offer contract growing options which allow for propagation of particularly collected seed.

To view a map of the EPA Level III Ecoregions in the Pacific Northwest or the conifer seed zone maps, visit our website: fourthcornernurseries.com/seed-zone-maps/

Plant Availability

Each species listing is accompanied by a graphic displaying the months when that plant is generally available (indicated by green squares). A selection of grasses, sedges and rushes are available through the winter months for a slightly higher price, indicated by an additional color. Availability is subject to change.

Estimating and Planting

Spacing	Number per sq. ft.
6 inch	4.000 per sq. ft.
8 inch	2.250 per sq. ft.
12 inch	1.000 per sq. ft.
15 inch	0.640 per sq. ft.
18 inch	0.444 per sq. ft.
24 inch	0.250 per sq. ft.
30 inch	0.160 per sq. ft.
36 inch	0.111 per sq. ft.
48 inch	0.062 per sq. ft.
8 foot	0.015 per sq. ft.
10 foot	0.010 per sq. ft.

Area Formulas

Circle	πr^2
Triangle	Base x Height x 0.5
Rectangle	Length x Width

Metric Conversions

10 cm	3.9 in	50 cm	19.7 in
15 cm	5.9 in	60 cm	23.6 in
20 cm	7.9 in	80 cm	31.5 in
25 cm	9.8 in	1.00 m	3 ft, 3.4 in
30 cm	11.8 in	2.00 m	6 ft, 6.7 in

Unit Price
50 100 500 1000
A unit is one plant. All pricing is for individual plants based on total quantity purchased per species. Bare root plants are available in bundles of 50 only.

TREES & SHRUBS

UNIT PRICE
GRADE SIZE 50 100+ 500+ 1000+

Symphoricarpos hesperius (Trailing Snowberry) NL

Prostrate shrub with light pink flowers and white berries. Native in Pacific coast states and Idaho woodlands. Provenance: 04-Cascades

Available	J	F	M	A	M	J	J	A	S	O	N	D
Seedling												
	2-0	3-6"	1.70	1.53	1.19	.85						
		6-12"	1.80	1.62	1.26	.90						
		12-18"	1.90	1.71	1.33	.95						

Symphoricarpos mollis please see *Symphoricarpos hesperius*

Symphoricarpos occidentalis (Western Snowberry) FAC

Deciduous shrub found in moist places east of the Cascades. Small white berries often cling through winter to provide food for wildlife. Native east of the Cascades in Washington, southern British Columbia to Utah and east to the Atlantic coast. Provenance: ND

Available	J	F	M	A	M	J	J	A	S	O	N	D
Seedling												
		3-6"	1.70	1.53	1.19	.85						
		6-12"	1.80	1.62	1.26	.90						
		12-18"	1.90	1.71	1.33	.95						

Symphoricarpos orbiculatus (Coralberry) UPL

Deciduous, dense shrub with arching stems, pinkish-white flowers June-July, and showy clusters of coral-red berries in the fall. Berries persist through winter, attracting birds. Grows 2-5' tall, full to part sun, well-drained soil, although it tolerates a wide range of soil types. Spreads by runners. Native from the Great Plains eastward to the central Atlantic coast, with scattered populations in Utah. Provenance: PA

Available	J	F	M	A	M	J	J	A	S	O	N	D
Seedling												
	2-0	6-12"	1.80	1.62	1.26	.90						
		12-18"	1.90	1.71	1.33	.95						

Symphoricarpos oreophilus v. utahensis (Utah Snowberry) NL

Deciduous shrub reaching 5' in height, with pink flowers June-August, and white fruits. Found in open sites generally between the Cascade and Sierra mountain ranges and the Rocky Mountains, with some spillover in eastern Montana. Grows from the foothills to high elevations, tolerates light shade, some drought. Provenance: 10-Columbia Plateau

Available	J	F	M	A	M	J	J	A	S	O	N	D
Seedling												
		6-12"	1.60	1.44	1.12	.80						
		12-18"	1.80	1.62	1.26	.90						

UNIT PRICE
GRADE SIZE 50 100+ 500+ 1000+

Vaccinium membranaceum (Black Huckleberry) FACU

Choice berries are sought after for baking, preserving, and trailside snacking across the western United States. Fruit is shiny and black when ripe. Deciduous shrub, grows to 6'. Provenance: 77-North Cascades

Available	J	F	M	A	M	J	J	A	S	O	N	D
In production; inquire for availability												

Vaccinium ovatum (Evergreen Huckleberry) FACU

West coast evergreen shrub, densely bushy to 6-8' tall, light pink flowers and purplish-black berries. Most common in semi-open woods, in soils high in organic matter. A lovely shrub for ornamental plantings. Has excellent soil binding, erosion control capabilities, tolerant of salt spray. Cloned from selected western Washington lowland plants. Available in containers only.

Available	J	F	M	A	M	J	J	A	S	O	N	D
2" pots												

Vaccinium parvifolium (Red Huckleberry) FACU

Deciduous huckleberry found in the shaded understory of western forests. Prefers moist soil with plenty of organic matter, fruits better with more sunshine. Cloned from selected northwestern Washington lowland plants. Available in containers only.

Available	J	F	M	A	M	J	J	A	S	O	N	D
2" pots												



Vaccinium parvifolium (Red Huckleberry)

UNIT PRICE
GRADE SIZE 50 100+ 500+ 1000+

Viburnum ellipticum (Oval Leaved Viburnum, Common Viburnum) NL

Northwest native deciduous shrub to 12' tall, with white flowers, black fruit, and reddish fall color. Found in dry, open woodlands in southern Washington to northern California, but can tolerate moist sites with dappled shade. Drought tolerant, good restoration plant for dry sites. Provenance: 02-Puget Lowland

Available	J	F	M	A	M	J	J	A	S	O	N	D
Seedling												
		6-12"	1.40	1.26	.98	.70						
		12-18"	1.60	1.44	1.12	.80						
		18-36"	1.80	1.62	1.26	.90						

Viburnum opulus v. americanum (American Cranberry Bush) FACW

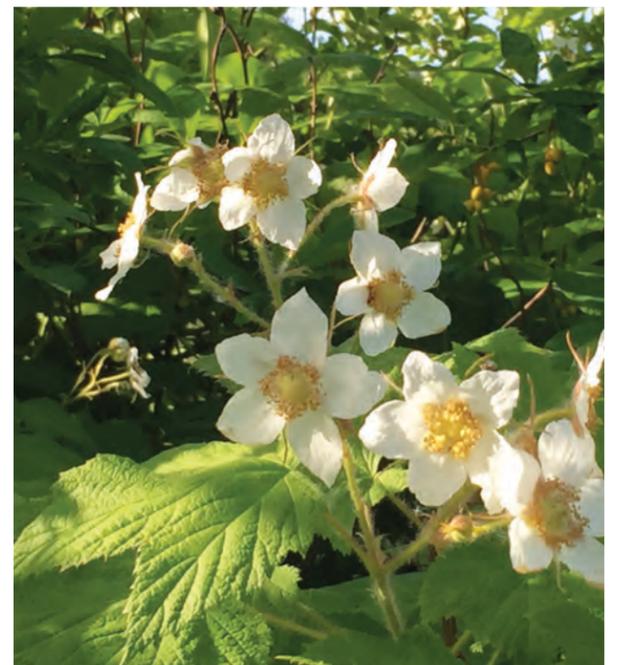
Native across Canada and northern tier of United States in moist to swampy habitats. Shrubby growth to 8-12' tall and wide with white lacecap flowers in late spring, drooping clusters of cranberry-like fruits in the fall. Plants attract birds and butterflies. Provenance: PA

Available	J	F	M	A	M	J	J	A	S	O	N	D
Seedling												
		6-12"	1.80	1.62	1.26	.90						

Viburnum opulus v. opulus (European Cranberry Bush) Non-native FACW

Naturalized in our area. Attractive fall foliage and red berries in winter. Prefers sunny aspect. Grows to 10'.

Available	J	F	M	A	M	J	J	A	S	O	N	D
Seedling												
		6-12"	1.20	1.08	.84	.60						
		12-18"	1.70	1.53	1.19	.85						



Rubus parviflorus (Thimbleberry)



North Cascades Audubon Society

promoting conservation of birds and other wildlife in Whatcom County

Field Trips

See our calendar online for dates & times

Monthly Programs: September-May

4th Tuesday at 7 pm, 121 Prospect Street

www.northcascadesaudubon.org



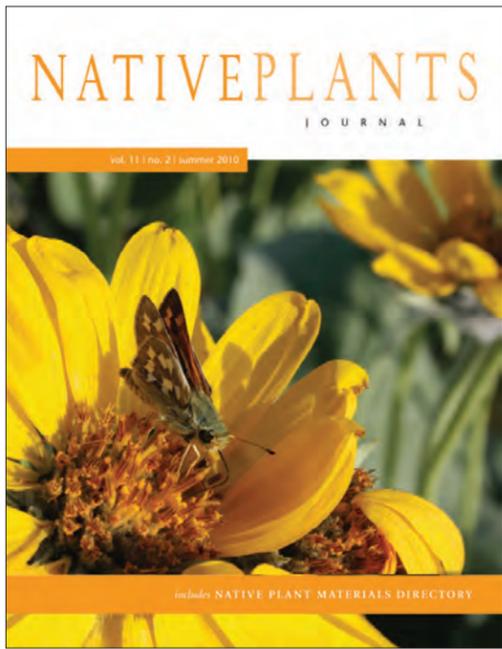
© Andrew A Reding

Native Plants & Birds

The best home for a bird is a native plant. Discover easy ways to support birds in your backyard!

<http://www.northcascadesaudubon.org/conservation/native-plants-birds/>

npj.uwpress.org



Native Plants Journal

Edited by Stephen Love
ISSN: 1522-8339, e-ISSN: 1548-4785, 3/year

Native Plants Journal is a forum for dispersing practical information about planting and growing North American (Canada, Mexico, and U.S.) native plants for conservation, restoration, reforestation, landscaping, highway corridors, and related uses. Topics include seed germination, planting techniques and tools, equipment, cultural techniques, production trends, seed collection, genetics, and fertilization. The second issue of each year includes the Native Plants Materials Directory, which provides information about producers of native plant materials in the U.S. and Canada. Subscribers receive online access to all back issues; volumes one through five are open access and available at npj.uwpress.org.

The University of Wisconsin Press publishes related journals which may be of interest to you: *Ecological Restoration*, *Land Economics*, and *Landscape Journal*. Please visit uwpress.org to browse free sample issues of any of the journals.



1930 Monroe Street, 3rd Fl., Madison, WI 53711-2059 USA | journals@uwpress.wisc.edu
Phone: (608) 263-0668 • Fax: (608) 263-1173 or (US only) (800) 258-3632 | <http://uwpress.wisc.edu/journals>

Purchase Order



Fourth Corner Nurseries

5652 Sand Road, Bellingham, WA 98226
TEL (360) 592-2250
FAX (888) 506-1236
EMAIL sales@fourthcornernurseries.com
WEB <http://fourthcornernurseries.com>



Date _____

SOLD TO:
Business Name _____

Address _____

City _____ State _____ Zip _____

Contact Person _____

Telephone () _____ Fax () _____

Email _____

SHIP TO (if different):
Name _____

Address _____

City _____ State _____ Zip _____

QUANTITY	SIZE	DESCRIPTION	PRICE EACH	TOTAL PRICE

Substitutions (please check):
 If size ordered is unavailable, substitute next:
 largest size available smallest size available
(You will be charged for the size shipped)
 No substitutions

Please sign and return with a 25% deposit. Payment will be due before shipping.
X _____
Send 25% of this amount to place a firm order

SUBTOTAL	
SALES TAX	
TOTAL	

(Rewilding Agriculture continued from page 1)

are at risk of extinction, likely due to the spread of disease from managed bees used for crop pollination.

Ecologists monitoring insect populations elsewhere in the world consistently report similar findings. In Europe for example, scientists have documented a nearly 80% decline in insect biomass over the past 20 years. These trends should alarm us because insects perform a huge range of functions including pollination, nutrient cycling, and serving as food for other wildlife ranging from salmon to songbirds to grizzly bears.

Unfortunately, insect declines are representative of a much broader global loss of wild animals. In a mammoth report known as *The Living Planet Index* published every four years by the London Zoological Society and the World Wildlife Fund, scientists aggregate population surveys for thousands of different animal species from across the globe. In many cases there are multiple scientists conducting these surveys for individual species, which provides multiple data sets that can span decades. Aggregating many different population surveys for many different species provides an extremely comprehensive picture of overall global animal numbers. Through this approach, *The Living Plant Index*, has documented the disappearance of approximately 50% of Earth's wild animal abundance over the past 40 years.

As the single largest land use, it's not surprising that agriculture has one of the most direct and significant impacts on wildlife. Here in the United States since 2007, at least 12 million acres of perennial grassland have been converted to row crop production following federal legislation incentivizing corn production for ethanol. This represents a staggering loss of wildlife habitat. In this same timeframe, we have witnessed a relatively new class of very long lasting agricultural insecticides known as neonicotinoids used at an ever increasingly volume. These insecticides are highly toxic to a wide range of invertebrates and based on U.S. Geological Survey monitoring, are now found in about half of all surface waters across the country. With this rise in insecticides there are new concerns about what the loss of insects will mean for bird populations, and countless other types of wild animals.

Farming with Nature

There's a strange irony that even as wildlife declines accelerate, we know more and more about the significant and valuable role they play on farms. Among the current science on pollinators for example, researchers have repeatedly demonstrated that farms with sufficient amounts of natural habitat can get all of their crop pollination needs fulfilled by the wild bees supported by that habitat. (Typically this amounts to about 20 or 30% of the nearby landscape.) In the case of some high value crops, such as blueberries, yields actually increase when pollinator-friendly wildflowers are on planted on the edge of farms, making habitat restoration a profitable farm practice.

Moreover, this same habitat is also well documented to increase natural pest suppression. Over a 6-year period, the Xerces Society and scientists from UC Berkeley collaborated on a project to assess the benefits of native plant hedgerows to large-scale tomato and canola fields in California's Central Valley. Through that project, the lead researchers found that farms where native hedgerows were restored to field edges had greater levels of activity by predatory insects in the nearby crops. By placing egg masses of pest insects in the nearby crop fields, we were able to see the direct effect of beneficial insects migrating out of the hedgerows to attack those pest insect eggs. At a large enough scale, this type of habitat management can reduce or completely eliminate the need for insecticides.

Beyond insects, scientists have also documented



Not much to look at now, but this will soon be a native shrub hedgerow on a gigantic Eastern Washington apple orchard. Photo by Kitty Bolte of Xerces



Closeup of the newly planted hedgerow with the golden currant already in flower. Photo by Kitty Bolte of Xerces

significant pest suppression by songbirds. In one study for example, farms with nearby habitat had greater numbers of songbirds and those songbirds reduced alfalfa pests by more than 1/3. None of this is particularly new information however. As long ago as the early 1900's, the USDA produced a number of publications on the value of wildlife to farms. One from 1923, titled *The Economic Value of North American Skunks* included such sage commentary as, "The skunk conserves the food supply by preying upon insects and the other enemies of crops."

Aside from wildlife, native plants also provide countless other agricultural benefits, including field edge buffers that can reduce runoff, windbreaks and shelterbelts that protect against erosion, living cover that can increase water infiltration and recharge groundwater, and even grazing forage for livestock. While many of these conservation practices are very old and well established, today there is a renewed and growing interest in the benefits of integrating native plants back into farm systems.

Bringing Biodiversity Back to the Farm

Today those of us working in agricultural conservation have been lucky to ride a growing wave of interest in sustainable systems. Since the USDA formally established the National Organic Program almost 20 years ago, there has been a strong consumer response. In fact, for many major food companies, conventional (i.e. non-organic) products have stagnating profit margins while organic equivalents continue to increase in market share. Along with this consumer interest in food not treated with synthetic chemicals, there are growing calls both from farmers and consumers for farm systems that also sequester carbon, protect soil health by reducing or eliminating tillage, and provide habitat for pollinators.

The particular interest in pollinator conservation has occupied most of my professional capacity since the passage of the 2008 Farm Bill which, for the first time ever, mandated that USDA conservation programs offer technical and financial incentives to help farmers restore habitat for bees. This legislation has been reauthorized in every subsequent Farm Bill, and a dedicated Federal pollinator recovery plan was even developed by the Obama administration in 2015. Many of that plan's provisions are still in effect. Today, through the USDA incentive programs, many of which help defray the costs of habitat restoration, individual farmers across the U.S have collectively restored around 700,000 acres of wildflower field borders and native shrub hedgerows. This hardly offsets the overall national loss of habitat that has occurred in the same timeframe, but it is a positive step.

One of the most exciting recent developments has been the response of the food industry which is also making investments in native plant restoration on supplier farms for pollinators. These investments are driven by consumer expectations that food manufacturers do the right thing, as well as by an understanding that without pollinators, key ingredients will be more expensive and less available. Among these investments, we've seen enormous commitments by companies such as General Mills—which is targeting large-scale habitat restoration across nearly 300,000 acres of supplier farm lands, Nestle—which is currently planting flowering, drought-resistant native shrub hedgerows that are more than 6-miles long on California farms, and Danone North America - one of the largest organic food companies in the world which is working to create bee habitat on almond farms.



Pollinator field border—Clarkia in bloom at an Oregon blueberry farm. Photo by Eric Lee-Mäder of Xerces

Again, the conservation practices that farmers and food companies are increasingly adopting today are not new. The concept of hedgerows for example, can be dated back to bronze age Europe where they were developed as living fences to contain livestock. And in the centuries since, many other systems that integrate native plants back into agriculture have been widely studied through formal academic disciplines such as agroecology. While in recent years there has been a steady rise in farmer adoption of new twists on these ideas under the umbrella of ‘regenerative agriculture’ which focuses on carbon sequestration, and sustainable grazing to promote systems such as silvopasture (grazing livestock under mature trees). What is new is the scale of this native plant restoration taking place on farms today, which is something we have not witnessed since Dust Bowl era efforts to plant shelterbelts and establish permanent soil-protecting ground covers. This is worth celebrating.

A New Wild

Another moment and place that recharges my conservation batteries is my own farm on Whidbey Island every spring when the *Camassia leichtlinii* appears in an old sheep pasture. Today the sheep are gone and my family is focused on native seed and cider apple production. It’s amazing to realize that our camas survived a century of grazing and plowing (our farm was one of the earliest



Native wildflower field border on a 2000-acre almond farm in California. Photo by Jessica Cruz of Xerces

homesteaded on the island), and more amazing to realize that our camas was part of a large complex of meadows across central Whidbey known to be harvested by native people for more than 5000 years. Watching native bees and butterflies move between camas blossoms and apple trees evokes a sense of wonder and begs the question of whether more farms can someday look like this. At this point it seems unlikely that we will

ever restore large expanses of wilderness habitat for animals, but perhaps our farms can become a new sort of wilderness, one that makes for better food, preserves room for wildlife, and recharges all of our batteries.

Eric Lee-Mäder co-directs the Pollinator Conservation and Agricultural Biodiversity Program at the Xerces Society. He can be reached at: Eric@xerces.org.

Coastal Black Gooseberry—A *Ribes* to rave about

by Abe Lloyd

In my estimation, the tastiest of the many types of currants and gooseberries that are found in Western Washington is Coastal Black Gooseberry (*Ribes divaricatum*). With smooth skin and tart flavor, they are a welcomed snack whenever I can find them. Compare them to our region’s other *Ribes* which all have either daunting looking spines on the fruit, or strongly resinous flavor, and they have even more appeal.

The first time I laid eyes on a Coastal Black Gooseberry was in June of 1997. My high school buddy, his dad, and I were just getting started on an eight week canoe expedition through the Broughton Archipelago off the Central Coast of BC. Part of our mission was to supplement our diet with as much wild food as possible and we had only packed starchy staples like oatmeal, rice, and beans to force ourselves to forage for the balance of our diet. With little experience ocean fishing or collecting seaweeds, I was keen to collect as many berries as possible, but little was ripe beyond Salmonberries (*Rubus spectabilis*).

The Red Huckleberries (*Vaccinium parvifolium*) were starting to blush when we paddled past the hope inspiring place name Berry Island to camp at Mound Island. There along the edge of the white shell beach was a plant I had never seen. I could tell it was related to Prickly Black Currant (*Ribes lacustre*), but the stems weren’t covered with fine prickles. Young berries were starting to form so I made a note to look for it in the coming weeks.

A month later, when hunger had honed our ability to pull Red Rock Crab out of the shallows bare-handed, jig Kelp Greenling without snagging, peel seaweed off the rocks, bake clams on the fire, and find the best (by then ripe) berry patches, we returned to Mound Island to check on those gooseberries. Sure enough, they were ripe and we happily added the large black berries to our morning mix of rolled oats and mashed Salal berries. It was a perfect combination.

It wasn’t until much later that I learned the full name of that gooseberry, and ever since then, I’ve always greeted it like a friend that treated me lavishly during hard but transformative times.



A small Coastal Black Gooseberry on Lopez Island

Coastal Black Gooseberry is a small hairy and armed shrub that normally grows 3-8 feet tall. The red-gray barked stems have up to 3 stout spines at the base of each leaf and normally lack prickles. The ¼-1 inch long spines are initially green, but redden in their first year and fade to orange or tan in subsequent years. Leaves are covered with fine hairs; petioles are ½-1 inch long; and leaf blades are maple shaped with 5 rounded and toothed lobes, the central being the largest and the lateral being the smallest (and sometimes absent). Flowers are solitary or born on 1-2 inch long racemes of 2-4 flowers; pedicels and peduncles are sparsely covered with gland tipped hairs or smooth. Each flower has 5 green-red sepals that usually curve backwards; petals are pinkish-white with a broad tip; the 5 stamens are white or pink, twice as long as the petals; the 2 pistils are covered with fine long hairs where they styles are fused, but are hairless where they split apart near the tip. Berries are purplish black when ripe, round, smooth, and 5/16-7/16” wide with withered flowers persisting on the tips.



Note the hairy styles that are fused at the base

(continued on page 16)

CONIFERS

GRADE	SIZE	UNIT PRICE			
		50	100+	500+	1000+

General information about conifers

Rather than being selected for timber production, our conifers are grown from woods-run (wild collected) seed from the lowest elevation sources available. They may not be the straightest or the tallest, but these trees contain all of the genetic diversity that our iconic PNW forests have to offer, ensuring the best chance for establishing resilient, long-lived plant communities.

Conifers are available as plugs or plug transplants (P-1). Plug sizing is based on volume. For example, a plug-15 has 15 cubic inches of soil volume. Height varies, but typical height ranges are described in the chart below.

Conifer plugs are stored in frozen bundles and should be allowed to thaw before planting. Once plugs thaw their shelf-life is limited; please plant as soon as possible after thawing.

Abies grandis (Grand Fir)

The most common true fir of the lowlands, with glossy, deep green needles, grand fir provides important cover, nesting sites, and seeds for birds, squirrels, and other wildlife. Maximum height 200-250'. Native from British Columbia south to California, Idaho, and Montana.

Seed Zone: ABGR-3 at 500-1000' elevation (0-1000' band)

Available	J	F	M	A	M	J	J	A	S	O	N	D
Plug-15						1.44	1.30	1.01	.72			

Picea sitchensis (Sitka Spruce)

Lowland conifer reaching 120-200' tall, common in wet habitats. Fast growing, with dense root systems for erosion control. Provides important wildlife habitat and shade for streams. Native from Alaska south to California. Tolerates salt spray in shoreline plantings. Seed Zone: PISI-4 at 1000-1500' elevation (only one elevation band exists)

Available	J	F	M	A	M	J	J	A	S	O	N	D
Plug-15						1.44	1.30	1.01	.72			

Pinus contorta v. contorta (Shore Pine)

Two-needled pine with rounded stature to 40'. Adaptable to many soil types, from moist areas around lakes and bogs west of the Cascades to well-drained or nutrient-poor locations. Tolerates salt spray along shorelines. Native from Alaska south to northern California.

Seed Zone: PICO-6 at 500' elevation (0-1000' band)

Available	J	F	M	A	M	J	J	A	S	O	N	D
Plug-6						.96	.86	.67	.48			
Plug-15						1.44	1.30	1.01	.72			



Pinus contorta v. contorta (Shore Pine) plugs are offered in two sizes: plug-15 (left) and plug-6 (right)

GRADE	SIZE	UNIT PRICE			
		50	100+	500+	1000+

Pinus ponderosa (Ponderosa Pine)

Long-lived tree native to the western United States. Grows 55-90' tall, drought tolerant, found in wide variety of soils, from fine textured to rocky, shallow to deep. The seeds are eaten by many birds, and the needles provide food for grouse. Seed zone: PIPO-5 at 2500' elevation (2000-3000' band)

Available	J	F	M	A	M	J	J	A	S	O	N	D
Plug-15						1.44	1.30	1.01	.72			

Pseudotsuga menziesii (Douglas Fir)

Fast-growing, long-lived tree with densely set, soft needles that are dark green to blue-green in color. Native to western North America. Grows to 70-250' in height, preferably in deep, moist soil and full sun. Seed Zone: PSME-4 at 200' elevation, PSME-5 at 100' elevation (both are in the 0-1000' band)

Available	J	F	M	A	M	J	J	A	S	O	N	D
Plug-6						.96	.86	.67	.48			
Plug-15						1.44	1.30	1.01	.72			

Thuja plicata (Western Red Cedar, Canoe Cedar)

A magnificent tree along the coast with drooping branches. Shade tolerant but not dependent. Grows to 80-200' tall in moist to wet soils. Native from southeastern Alaska to the northern coast of California. Seed Zone: THPL-2 at 100' elevation (0-2000' band)

Available	J	F	M	A	M	J	J	A	S	O	N	D
Plug-10						1.32	1.19	.92	.66			
Plug-15						1.44	1.30	1.01	.72			

Tsuga heterophylla (Western Hemlock)

An important conifer in western forests, tolerant of sun or shade in well-drained soil. Recognized by its graceful pendant branches and spire-like drooping crown. Grows to 200' tall. Seed Zone: TSHE-3 at 980' elevation (0-1200' band)

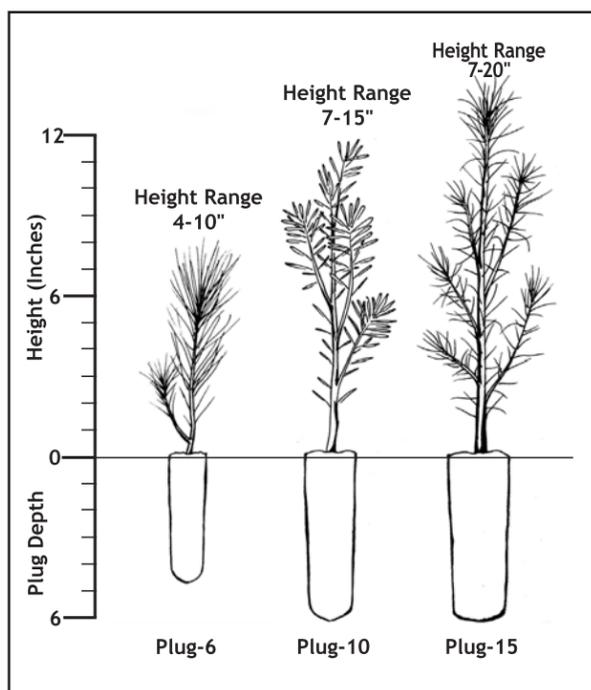
Available	J	F	M	A	M	J	J	A	S	O	N	D
Plug-10						1.32	1.19	.92	.66			
Plug-15						1.44	1.30	1.01	.72			

Tsuga mertensiana (Mountain Hemlock)

A lovely tree, with its graceful form, spire crown, and needles that look like little stars on the hanging branches. Can grow to 100' but often only grows to 20-30'. Generally a mountain tree, it is native from sea level to 3000' in Alaska south through the West Coast mountains to over 8000' in Sequoia National Park, in the Sierras. Shade tolerant, grows best in cool, moist sites. Seed Zone: coastal Vancouver Island, BC

(no new seed transfer zones exist for this species)

Available	J	F	M	A	M	J	J	A	S	O	N	D
Plug-6						1.32	1.19	.92	.66			



GRADE	SIZE	UNIT PRICE			
		50	100+	500+	1000+

A quick guide to deciphering conifer seed zones:

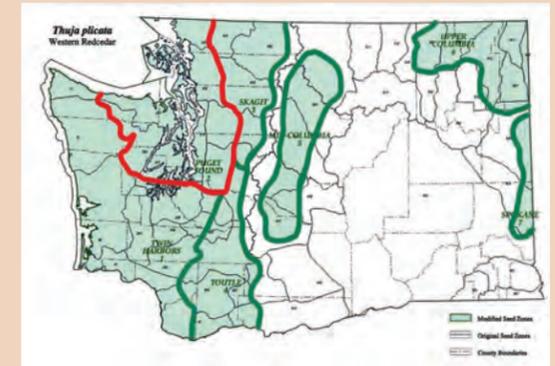
Species-specific seed zones were developed for many of our native conifers by the US Forest Service and the Washington State Department of Natural Resources in 2002. These research-based zones are better guidelines for seed transfer than generic ecoregions, and we use them whenever they are available. Despite their usefulness, these seed zones can be a bit confusing. Unlike the old conifer seed zones (developed in 1966), the new zone boundaries, zone names and numbers, and elevation bands are different for each species. We list the zone numbers, elevation of the collection, and relevant elevation band for each of our offerings. The seed zone for Thuja plicata is broken down below as an example.

Thuja plicata has seven seed zones in Washington state. Our seed is from the Puget Sound-2 zone, outlined in red on the map below.

THPL-2 at 100' elevation (0-2000' band)

The seed collection was made at an elevation of 100'.

Thuja plicata has 2000' elevation bands, so these trees can be safely planted at appropriate sites between 0-2000'.



Seed zone maps for each species are available on our website at fourthcornernurseries.com/seed-zone-maps/

LIVE STAKES

Live stakes come in bundles of 50, are made to order, and are available for the following species. Caliper will vary from 1/4" -1"; we cannot grade to caliper size. Please specify your desired length when you place your order. We can accommodate up to 5' lengths on most species. Please call for price and availability.

Species

Salix hookeriana (Hooker Willow) .30/ft

Salix lucida ssp. lasiandra (Pacific Willow) .30/ft

Salix scouleriana (Scouler's Willow) .30/ft

Salix sitchensis (Sitka Willow) .30/ft

HERBACEOUS PERNNIALS

GRADE UNIT PRICE
SIZE 50 100+ 200+

Stachys chamissonis v. cooleyae [S. cooleyae] (Coastal Hedgenettle) FACW

Rhizomatous perennial 2-3' tall, with pink flowers in mid-summer that attract butterflies and hummingbirds. Common in moist clearings from Alaska to coastal California. Containerize for ornamental ponds. Provenance: 02-Puget Lowland

Available	J	F	M	A	M	J	J	A	S	O	N	D
Bare-root seedling						.80	.54	.40				

Stachys cooleyae (Cooley's Hedge-nettle) please see *Stachys chamissonis v. cooleyae*

Symphotrichum subspicatum v. subspicatum [Aster subspicatus] (Douglas Aster) FACW

West coast native aster of moist habitats, especially estuaries. Grows 3-4' tall branching stems and many purple flowers attract butterflies. Tolerates salt spray in shoreline plantings. Provenance: 02-Puget Lowland

Available	J	F	M	A	M	J	J	A	S	O	N	D
Bare-root seedling						.70	.47	.35				

Tellima grandiflora (Fringecup, Bigflower Tellima) FACU

Rhizomatous perennial with small white flowers with fringed petals fading to pink, April to July. Prefers partial shade, commonly found in moist woods and along stream banks. Found from Alaska south to California, west of the Cascade crest, sea level to mid elevation in the mountains. Grows 1-2' tall. Provenance: 02-Puget Lowland

Available	J	F	M	A	M	J	J	A	S	O	N	D
Bare-root seedling						.80	.54	.40				

Tolmiea menziesii (Youth on Age, Piggyback-plant) FAC

Northwest rhizomatous perennial to 2' tall, with small pinkish-brown flowers in spring. Found in moist shady habitats. Spreads by little plantlets on the parent leaves. Native from southern British Columbia to northern California at low elevations. Provenance: 02-Puget Lowland

Available	J	F	M	A	M	J	J	A	S	O	N	D
Bare-root seedling						.80	.54	.40				

GRADE UNIT PRICE
SIZE 50 100+ 200+

Typha latifolia (Common Cattail) please see GRASSES, SEDGES, RUSHES

Vancouveria hexandra (Inside-out Flower) NL

Rhizomatous woodland perennial with delicate white flowers in May and June. Common in moist, shady forests from the south Puget Trough in Washington, western Oregon, and northwestern coastal California. Grows 12-18" tall. Provenance: 02-Puget Lowland

Available	J	F	M	A	M	J	J	A	S	O	N	D
Bare-root seedling						.90	.60	.45				

Veronica americana (American Speedwell), please see AQUATICS

Viola adunca (Prairie Violet, Hookedspur Violet) FAC

Deep purple violet of low elevation prairies and rocky coastal outcrops. Heart-shaped deep green leaves, grows to 4" tall. Widespread from southern Alaska across Canada, and the western states. Blooms April to August. Provenance: 02-Puget Lowland

Available	J	F	M	A	M	J	J	A	S	O	N	D
In production; inquire for availability												



Tolmiea menziesii (Youth on Age, Piggyback-plant)

GRADE UNIT PRICE
SIZE 50 100+ 200+

Viola palustris (Marsh Violet) OBL

Spreading pale lavender violet of wet marshy areas. Native across Canada and south through the western United States. Grows to 8" tall. Blooms May to July. Provenance: 02-Puget Lowland

Available	J	F	M	A	M	J	J	A	S	O	N	D
Bare-root seedling						.80	.54	.40				

Yucca glauca (Small Soapweed) NL

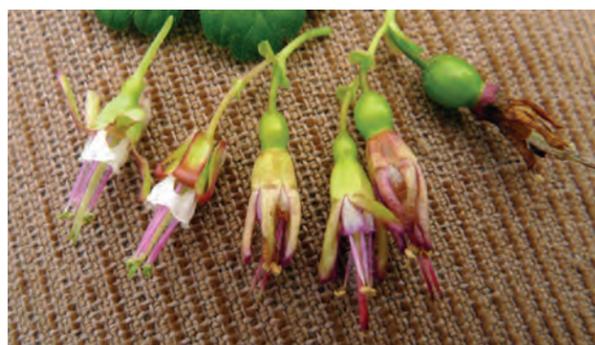
Evergreen perennial with tough sword-shaped leaves and greenish-white flowers in tall clusters. Native from Montana and N. Dakota south to Texas and across to Arizona. Easy to grow and long lived, drought tolerant; grows 18" tall and 24-36" wide, mature plants bloom late spring, early summer. Provenance: CO

Available	J	F	M	A	M	J	J	A	S	O	N	D
Bare-root seedling						.90	.60	.45				



Stachys chamissonis v. cooleyae [S. cooleyae] (Coastal Hedgenettle)

(Coastal Black Gooseberry continued from page 11)



A range of flowers and young Coastal Black Gooseberry fruit



Ripe berries of Coastal Black Gooseberry

As the name suggests, Coastal Black Gooseberry thrives near the ocean. I see it most frequently on backshore dunes and rocky bluffs within a stones throw of the saltchuck, but it also grows in open woods at low elevations. It is found from Bella Bella on the Central Coast of BC southward to Los Angeles with only a few populations east of the Cascades, most notably near The Dalles in north central Oregon.

The berries of Coastal Black Gooseberry are traditionally eaten fresh and occasionally cooked, juiced, sauced, or dried into cakes by virtually all Indigenous people that inhabit the plants' range (Moerman). The Kwakwaka'wakw—who steward the lands and waters around the Broughton Archipelago where I first learned this plant—traditionally gather the berries while they are still green by beating the bushes with sticks and knocking the fruit onto mats. They are eaten fresh, boiled and slathered with eulachon grease, and more recently with milk and sugar (Turner and Bell 1973).

The species epithet *divaricatum* comes from the English word "divaricate," meaning forked, branched or spreading, probably in reference to the berries which are often found in clusters of two, the large spreading thorns, or the shrubs which can spread and form extensive colonies. Coastal Black Gooseberry is also called Spreading Gooseberry, or Wild Gooseberry. There are two named varieties: *Ribes divaricatum* var. *parishii* Parish's Gooseberry is found only in California, and *Ribes divaricatum* var. *pubiflorum* or Straggly Gooseberry is found in both California and Oregon.



Range map courtesy of CPNWH

