

Douglasia

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Journal of the
WASHINGTON
NATIVE PLANT
SOCIETY

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

Remnant Prairie in Seward Park

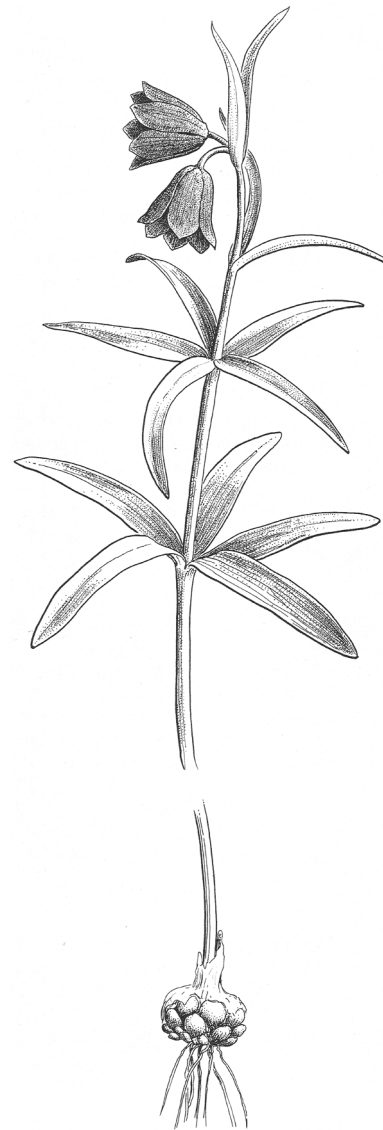
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Fritillaria camschatcensis

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A Note About This Issue

The amount of knowledge, talent and energy that exists within the membership of the Society never ceases to amaze me. This fact is well represented in the report of the Conservation Committee inside this issue. These hard working folks, along with other society member volunteers have followed issues of importance to the conservation of native plants, and acted on information gathered by participating in field projects, as well as making sure the voice of the society is heard by decision making bodies.

This summer, in spite of the unpredictable weather, has been a busy one for the Native Plant Society. I hope many of you have been able to take advantage of some of the opportunities that have been offered, from field trips, to Botany Washington or the annual backpack. If you missed any of these though, we have reports on all the activities in this issue. We hope these will inspire you to try to participate next year.

If your interests lie closer to home, Linda Ellis has written an article for gardeners who would like to make their own property more closely resemble the surrounding natural habitat. Learn about the Growing Wild program, and pick up some useful tips for adding more native plants to your own garden.

Many thanks go to the contributors to this issue, as well as to all who help keep *Douglasia* on schedule. It is truly a team effort.

Cynthia Spurgeon
Managing Editor

Correction

In the Spring/Summer 2008 issue, the article "Recolonization of Black Huckleberries at Mt. St. Helens" was incorrectly attributed to Sylvia Yang. The author should be Suann Yang. We apologize for the error.

Rising from the Ashes: How a Remnant Prairie Survived Seattle

by Stewart Wechsler, Paul Talbert, and Al Smith,
Central Puget Sound Chapter

Introduction

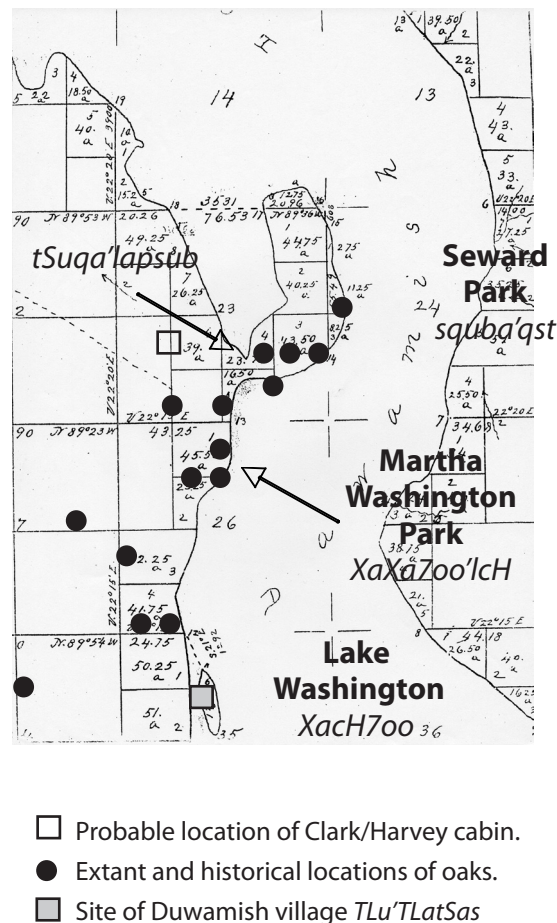
The Washington Native Plant Society (WNPS) identified Garry oak (*Quercus garryana*) ecosystems as one of three focus areas for conservation and education. Seward Park has the largest stand of Garry oaks remaining in Seattle, and receives thousands of park visitors every year, making it an ideal location for educating the public about the importance of Garry oak ecosystems. The restoration of the Garry oak grove to a more natural oak woodland or prairie was identified as a 'priority one' goal of Seattle Parks and Recreation's Vegetation Management Plan for Seward Park (<http://www.seattle.gov/parks/horticulture/vmp/SewardPark.htm>). To this end, the Friends of Seward Park (FoSP) began restoration work in the fall of 2006 with the planting of additional Garry oaks and understory species. In 2007 Stewart Wechsler, Paul Talbert, and Al Smith, members of WNPS Central Puget Sound Chapter and of the FoSP, applied for and received a grant from the Central Puget Sound Chapter of WNPS to continue this restoration effort and develop signage and other materials and programs to further public education about Garry oak ecosystems.

History of Clark's Prairie

Seward Park is home both to the largest remnant of old-growth Douglas-fir forest left within Seattle, called the Magnificent Forest by park historian Don Sherwood, and to a Garry oak grove, unique in Seattle, that retains some of the understory associates of a Garry oak woodland or prairie. Located on the south-facing slope of Pinoy Hill, the Garry oak grove is believed to be a remnant of a historical prairie, referred to by early European-American settlers as Clark's Prairie (Buerge 1984). Evidence for this prairie is to be found both in historical descriptions and in extant vegetation.

Oaks were mentioned by Isaac Ebey in the first written description of Lake Washington in 1850. The 1861 General Land Office cadastral survey mentions oaks along a survey line that corresponds to present-day S. Othello Street near Lake Washington, and also along the lakeshore

Survey map of Clark's Prairie with approximate locations of oaks reported in 1861 and of extant oaks.



north from S. Othello Street to near Seward Park (Cadastral Surveys and Field Notes for Oregon and Washington 1982; Larson 2005). Garry oaks can still be found in this same area, and several of them are thought to have been alive in 1850. Until recently a large Garry oak was present at S. Othello Street and Rainier Avenue S., and oaks are present in both Seward and Martha Washington Parks as well as in some scattered locations in between. The street names Oakhurst and Oaklawn in the Uplands neighborhood immediately west and south of Seward Park also suggest the former presence of an oak prairie or woodland. Several oak-associated plants are still present at the south end of Seward Park, suggesting that a complete oak ecosystem was formerly present (Table 1).

Oak ecosystems in Washington are thought to have evolved in a warmer and drier climate with frequent wildfires between 10,000 and 5,000 years ago, probably expanding postglacially northward into Washington from

the Willamette Valley of Oregon. For the past 5000 years of cooler and wetter climate patterns, oak prairies have been maintained by the active intervention of Native Americans, who periodically burned the prairies, killing Douglas-fir and other fire-intolerant species but leaving thick-barked Garry oak and its associates. The 1861 survey of Clark's Prairie briefly describes the oak understory as composed of pioneering second-growth species such as alders and willows. This has been suggested to indicate the abandonment of regular prairie burning some time before 1850 as a result of the decimation of local Coast Salish peoples by smallpox prior to Euro-American settlement (Larson 2005). However, the survey also mentions "dead-enings" in the Clark's Prairie area that probably indicate recent fires (Buerge 1992), suggesting that at least part of the area was still being actively burned in 1861. The presence in Seward Park of snowbrush (*Ceanothus velutinus*), which requires fire to help germinate its seeds, is a good indication that burning occurred here previously. One fire swept through the old-growth Douglas-fir forest that covers most of the Seward Park peninsula an estimated 200 years ago, leaving fire scars on all the old surviving trees and producing a distinct class of younger trees that became established after the fire.

Some of the cultural context of the prairie for the *XacH.poabsH* (Lake Indians) who occupied the area before 1850 can be inferred from place names recorded by T. T. Waterman (1916) using informants such as Jenny Davis, who grew up on *XacH.po* (Lake Washington) in the 1870s and who later supplied a list of the names of villages around the lake (Duwamish et al. v. the United States 1927). The part of the prairie near present Martha Washington Park (*XaXa.po'lcH*, taboo container) was considered to be a sacred or taboo place where a supernatural being was thought to live (Waterman 1916). The prairie lay between a village at Pritchard's Island (*TLu'TLatSas*, small island) and the marshy isthmus of Seward Park (*tSuqa'lapsub*, upper neck), which became seasonally flooded, making the Seward Park peninsula (*squba'qst*, noses) into an occasional island (Waterman 1916; McDonald, 1979; Thrush 2007). It has been suggested that the prairie may have been the location of a village (Buerge 1992) whose name was rendered as "Se-kal-oulsh" by court scribes (Duwamish et al. v. the United States 1927). This name bears a faint resemblance to *tSuqa'lapsub*, but the location of this village on Lake Washington is unknown, other than a suggestion that it was on south Lake Washington because Jenny Davis listed it together with the names of villages at Bryn Mawr, Pritchard Island, May Creek, and Mercer Slough.

Euro-American settlers presumably named the prairie for

Table 1. Oak-associated wild native plants of the south slope of Pinoy Hill, Seward Park.

Species	Common Name
<i>Amelanchier alnifolia</i>	Saskatoon, serviceberry
<i>Arbutus menziesii</i>	Arbutus, madrona, madrone,
<i>Aster subspicatus</i>	Douglas aster
<i>Bromus carinatus</i>	California brome
<i>Bromus sitchensis</i>	Sitka brome
<i>Bromus vulgaris</i>	Columbia brome
<i>Ceanothus velutinus</i>	Snowbrush, sticky laurel
<i>Deschampsia elongata</i>	Slender hairgrass
<i>Festuca rubra</i>	Red fescue
<i>Juncus bufonius</i>	Toad rush
<i>Lonicera hispidula</i>	Hairy honeysuckle
<i>Berberis aquifolium</i>	Tall Oregon grape
<i>Melica subulata</i>	Alaska onion-grass
<i>Moehringia macrophylla</i>	Big-leafed sandwort
<i>Pteridium aquilinum</i>	Bracken
<i>Quercus garryana</i>	Garry oak, Oregon white oak
<i>Rosa nutkana</i>	Nootka rose
<i>Rubus ursinus</i>	Trailing blackberry
<i>Symphoricarpos albus</i>	Common snowberry
<i>Toxicodendron diversiloba</i>	Pacific poison-oak
<i>Vicia americana</i>	American vetch

Edward A. Clark, who together with John Harvey staked adjoining claims in the area adjacent to and just south of Seward Park on April 10, 1852 (Oregon Donation Land Claim Files, National Archives and Records Administration, Seattle). Clark and Harvey probably selected this site for their claims because it was already a relatively open prairie, and could be reached by a trail from Elliot Bay (Cadastral Survey 1861). Harvey was a logger and farmer, while Clark was Seattle's first photographer, and also worked as a schoolteacher and justice of the peace (Watt 1931; Dorpat 1984). Interestingly, Clark is also known for leading a mob that nearly succeeded in lynching a young Indian accused of involvement in a murder. The Indian, whose name was *Cheshiahud* or Lake John, was afterward acquitted, and later lived for many years on Portage Bay. Coincidentally, *Cheshiahud* was the father of Jenny Davis, the informant for the names of Lake Washington villages.

Harvey's and Clark's cabin was burned in the 1856 Indian war, and Harvey claimed \$1000 of damages to his improvements, suggesting that he had multiple buildings and crops by that time. In 1858-1859 Harvey and Clark sold their claims on Clark's Prairie to David Graham, who succeeded Clark as Seattle's schoolteacher. Clark died the following year, and Harvey re-settled in Snohomish, where his descendents currently operate the Harvey Airfield (Donna Harvey, personal communication). In 1863 David Graham traded the land to his brother Walter, who grew apples and other fruit on Clark's Prairie for ten years, living probably near 57th Avenue S. and S. Eddy Street (Bass 1937). In 1864 Walter Graham married Katherine Stickney, one of the 'Mercer girls' brought by Asa Mercer



Garry oaks at the Clark's Prairie restoration site. PHOTO: PAUL TALBERT

from the east coast to be wives for Seattle men (McDonald 1979). Graham sold the part of Clark's Prairie including Martha Washington Park to Mercer, who in turn gave it in 1869 to John and Zipporah Wilson to repay debts he incurred in bringing the second set of Mercer girls to Seattle. The Wilsons settled at Martha Washington Park and also grew fruit, so it is likely that much of Clark's Prairie was cleared and turned into orchards by the 1880s. With the founding of Columbia City in 1891 and the installation of an electric train to Rainier Beach, the main part of Clark's Prairie slowly became converted to residential housing over the next half century.

The Grahams owned only a small part of the Seward Park peninsula adjacent to the isthmus, and Walter Graham's granddaughter reported that they seldom went there because of the poison-oak (McDonald 1979). In 1889 the Grahams sold the remainder of their property, including the Uplands neighborhood and the south half of the Seward Park isthmus to John W. Edwards, a lumber mill manager and real estate investor, who sold it the same day to Joshua M. Sears, the richest man in Boston. Sears

placed it in a trust for his wife Sarah Choate Sears, an artist, photographer, and art collector. It is unclear whether the Sears family ever visited their property in Seattle. The bulk of the Seward Park peninsula was bought in 1868 by Philip Ritz, a nurseryman and railroad advocate who lived in Walla Walla and who never developed his property in Seattle. Ritzville is named for him. When he died in 1889, his wife and daughter sold the Seward Park peninsula to William Bailey, a young investor from an iron manufacturing family in Pennsylvania who lived briefly in Seattle from 1889 until no later than 1895. During this time Seattle Parks Superintendent E. O. Schwagerl first proposed acquiring the 'Bailey Peninsula' for a park in 1892, based on its outstanding virgin forest. A widely repeated story that poison-oak saved the park from logging is not plausible as an explanation of the surviving old-growth Douglas-fir forest, which lacks poison-oak and was spared instead because Ritz and Bailey were absentee landowners, but the story may have some credence for explaining the survival of the remnant Garry oak ecosystem. It was another eleven years before the Olmstedes were hired

to develop a park system and again proposed acquiring the peninsula for a park. A park bond in 1910 and a condemnation proceeding against the Bailey and Sears families, who were unwilling to sell at the price offered by the city of Seattle for their properties, resulted in the creation of Seward Park, which officially opened in 1913.

The lowering of Lake Washington in 1916 led to the drainage of the large marshy area adjacent to the park entrance, widening the isthmus. The former marsh was subsequently filled, and seeded with lawn grasses. The peninsula perimeter exposed when the lake was lowered became the site of the present lower loop road, which runs immediately below the most prominent extant Garry oaks, and which was open to cars until the 1970s. In the 1930s many cords of firewood were removed from the park, grubbing out the understory brush was encouraged, and many ornamental plantings were added, especially to the south part of the park that included the northern limit of Clark's Prairie (Al Smith, personal communication). The prairie remnant was also the proposed site for a bridge to Mercer Island, a controversy that lasted throughout the 1930s, eventually being resolved by the construction of the Lacey V. Murrow (I-90) bridge in 1940 (Buzz Anderson and Al Smith, personal communication).

During the development of the Vegetation Management Plan for Seward Park in 2005, the Friends of Seward Park (FoSP), a neighborhood park stewardship group founded in 1999 (www.sewardpark.org), advocated for recognition of the Garry oak ecosystem as a unique feature in Seattle, and succeeded in getting it included as a restoration priority in the plan. In 2006 FoSP planted about 20 additional oaks and began introducing native understory plants to sites on the south side of Pinoy Hill.

Project Aims

The twin goals of the current project were to expand the prairie understory at a small site beneath the Garry oaks and to use this site to educate the public about Garry oak ecosystems in order to encourage appreciation for and conservation of native oak prairies and of the remaining Garry oaks in Seattle. The specific accomplishments intended included: the clearing of an approximately 30' x 75' bed of ornamental *Hypericum* from beneath two of Seward Park's most prominent oaks and replanting it with native prairie grasses and herbs; development of an informational sign at the site, a display about the project in a nearby 3' x 4' covered kiosk and a brochure about oak communities for public distribution; coordination with Audubon Washington's new center in the park and with FoSP to lead public programs discussing the oak prairie.

Table 2. Planted species and their presence on May 25, 2008

Species	Family	Present?
<i>Agoseris grandiflora</i>	Asteraceae	N
<i>Allium acuminatum</i>	Liliaceae	Y
<i>Allium cernuum</i>	Liliaceae	Y
<i>Amsinckia menziesii</i>	Boraginaceae	Y
<i>Apocynum androsaemifolium</i>	Apocynaceae	?
<i>Arabis glabra</i>	Brassicaceae	Y
<i>Arabis hirsuta</i> var. <i>eschsoltziana</i>	Brassicaceae	Y
<i>Arctostaphylos uva-ursi</i>	Ericaceae	Y
<i>Aster curtis</i>	Asteraceae	Y
<i>Balsamorhiza deltoidea</i>	Asteraceae	Y
<i>Brodiaea coronaria</i>	Liliaceae	Y
<i>Camassia leichtlinii</i>	Liliaceae	Y
<i>Camassia quamash</i> azurea	Liliaceae	Y
<i>Campanula rotundifolia</i>	Campanulaceae	Y
<i>Campanula scouleri</i>	Campanulaceae	N
<i>Carex inops</i>	Cyperaceae	Y
<i>Castilleja hispida</i>	Scrophulariaceae	N
<i>Cerastium arvense</i>	Caryophyllaceae	Y
<i>Claytonia rubra</i>	Portulacaceae	Y
<i>Collinsia parviflora</i> var. <i>parviflora</i>	Scrophulariaceae	Y
<i>Collomia grandiflora</i>	Polemoniaceae	Y
<i>Collomia heterophylla</i>	Polemoniaceae	Y
<i>Danthonia californica</i>	Poaceae	Y
<i>Delphinium menziesii</i> var. <i>menziesii</i>	Ranunculaceae	N
<i>Dichelostemma congestum</i>	Liliaceae	Y
<i>Dodecatheon hendersonii</i>	Primulaceae	N
<i>Eriophyllum lanatum</i>	Asteraceae	Y
<i>Erythronium oregonum</i>	Liliaceae	?
<i>Festuca roemerii</i>	Poaceae	Y
<i>Fragaria vesca</i> ssp. <i>bracteata</i>	Rosaceae	Y
<i>Fragaria virginiana</i> var. <i>platypetala</i>	Rosaceae	Y
<i>Fritillaria affinis</i>	Liliaceae	Y
<i>Geum macrophyllum</i>	Rosaceae	Y
<i>Gnaphalium canescens</i> ssp. <i>thermale</i>	Asteraceae	N
<i>Gnaphalium purpureum</i>	Asteraceae	Y
<i>Heracleum maximum</i>	Apiaceae	N
<i>Hieracium albiflorum</i>	Asteraceae	Y
<i>Koeleria macrantha</i>	Poaceae	Y
<i>Lathyrus nevadensis</i> ssp. <i>lanceolatus</i>	Fabaceae	N
<i>Lilium columbianum</i>	Liliaceae	Y
<i>Lomatium nudicaule</i>	Apiaceae	N
<i>Lomatium triternatum</i>	Apiaceae	N
<i>Lomatium utriculatum</i>	Apiaceae	Y
<i>Lotus unifolius</i>	Fabaceae	Y
<i>Luzula comosa</i>	Juncaceae	?
<i>Madia exigua</i>	Asteraceae	Y
<i>Madia madioides</i>	Asteraceae	N
<i>Marah oregonus</i>	Curcubitaceae	N
<i>Microseris laciniata</i>	Asteraceae	Y
<i>Moehringia macrophylla</i>	Caryophyllaceae	Y
<i>Montia fontana</i>	Portulacaceae	Y
<i>Montia parvifolia</i>	Portulacaceae	Y
<i>Olsynium douglasii</i>	Iridaceae	Y
<i>Panicum capillare</i>	Poaceae	N
<i>Panicum occidentale</i>	Poaceae	?
<i>Paxistima myrsinites</i>	Celastraceae	Y
<i>Phacelia nemoralis</i>	Hydrophyllaceae	Y
<i>Potentilla gracilis</i> var. <i>gracilis</i>	Rosaceae	Y
<i>Quercus garryana</i>	Fagaceae	Y
<i>Ranunculus occidentalis</i>	Ranunculaceae	Y
<i>Rupertia phytodes</i>	Fabaceae	Y
<i>Sanicula crassicaulis</i>	Apiaceae	Y
<i>Satureja douglasii</i>	Lamiaceae	Y
<i>Sedum oregonum</i>	Crassulaceae	Y
<i>Solidago simplex</i> ssp. <i>neomexicana</i>	Asteraceae	Y
<i>Spiraea betulifolia</i>	Rosaceae	Y
<i>Trientalis borealis</i> ssp. <i>latifolia</i>	Primulaceae	Y
<i>Viola adunca</i>	Violaceae	Y
<i>Xerophyllum tenax</i>	Liliaceae	Y
<i>Zigadenus venenosus</i>	Liliaceae	N

Restoration

Prairie restoration efforts focused on a bed of ornamental *Hypericum* that was planted below prominent oaks adjacent to the outer loop road that surrounds the peninsula at the level of the previous lake shoreline. Additional sites on the south slope of Pinoy Hill were also deemed appropriate for planting. Pinoy Hill is composed of the soft sandstones and clays of the 35 million year old Blakely Formation, which formed in shallow coastal waters as the ancestral High Cascades grew to the east. The hill has shallow, rocky, well-drained soils that most likely contribute to the survival of the oak ecosystem rather than its replacement by Douglas-fir forest.

FoSP, in collaboration with Seattle Parks and Recreation (SPR) and the Seward Park Environmental and Audubon Center (SPEAC), hosted three work parties to clear the *Hypericum* bed on May 5, September 1, and November 3, 2007. Each work party was attended by 5-20 volunteers. The vast majority of visible *Hypericum* was removed, although some remains intermingled with native snowberry (*Symphoricarpos albus*), Nootka rose (*Rosa nutkana*), and poison-oak (*Toxicodendron diversilobum*). Many shoots have since re-sprouted from buried roots. Continued weeding of *Hypericum* and other weeds is a priority for ongoing work.

In November 2007, Paul Talbert and Christina Gallegos of SPEAC made two presentations to each of two sixth grade classes at Orca K-8 School, the closest middle school to Seward Park. The presentations included discussion of fire ecology and oak ecosystems, as well as of food webs and forest ecology. On November 30, these two classes spent the day at Seward Park. The classes divided into groups and rotated between continued weeding at the oak site, planting of prairie understory plants, a walking tour emphasizing ecology of the old-growth forest, and a water-monitoring exercise conducted at the lakeshore. The students planted about 100 bulbs of common camas (*Camassia quamash*), 50 bulbs of great camas (*Camassia leichtlinii*), 50 bulbs of chocolate lily (*Fritillaria affinis*), 50 bare-root Henderson's shooting star (*Dodecatheon hendersonii*), and small numbers of a variety of other plants. The plants were acquired from the WNPS fall seed and bulb sale and from Fourth Corner Nursery of Bellingham. As far as is known, all plant materials were from lowland Puget Sound. Several additional plantings from salvage material from the prairie at Frederickson, WA, have been made periodically in the fall and spring by Stewart Wechsler and Al Smith. Most plantings were done in the former *Hypericum* bed, but additional plantings were done at four or more other sites on the south slope of Pinoy Hill, ranging



Oak gall. PHOTO: PAUL TALBERT

from relatively bare and dry ground to wet meadows.

Assessment of plant survival was done on May 25, 2008. Table 2 shows the species present on that date. Our most remarkable success was the camas. Of ~150 camas bulbs planted (both species) over 120 were visible on May 25 and most had set fruit. During April and early May their blooms made a stunning display readily visible to thousands of park users. Our most egregious failure was Henderson's shooting star. The 50 bare-root plants consisted of a small bulb-like root and small shoot. After planting in the fall, the leaves withered quickly and there is little evidence of re-sprouting this spring. While we cannot rule out the possibility that some bulbs may survive and re-sprout next year, it is likely that the plants died during the winter. Future attempts to establish this species might benefit from planting more established bulbs. The 50 chocolate lilies planted showed intermediate success. Several small plants were observed on May 25, but none are yet large enough to flower. Since at least one chocolate lily planted in a previous year survived, we are optimistic that the small plants will survive to flower in future years. Less abundant species include ~15 common lomatium (*Lomatium utriculatum*), ~12 western buttercup (*Ranunculus occidentalis*), 10 Oregon sunshine (*Eriophyllum lanatum*), and five slender cinquefoil (*Potentilla gracilis*). All of these appear to be re-seeding, as are the extant madrones (*Arbutus menziesii*) (many seedlings) and Garry oaks (*Quercus garryana*) (about 10 new seedlings were observed, together with a similar number of planted saplings). Other species were mostly planted in small numbers. Of 70 species planted, 52 were in evidence on May 25. A handful of others were possibly overlooked because their location was not exactly known.

Sam (Sandra) Woods from Seattle Audubon conducts monthly bird surveys at several sites in Seward Park, in-

cluding our prairie restoration site. At present there are no regularly seen birds at the site specifically associated with oak ecosystems rather than conifer forest, urban landscapes, or shoreline environments. However, western meadowlarks (*Sturnella neglecta*) and a Lewis' woodpecker (*Melanerpes lewis*) have been seen as vagrants, so there is the possibility that the enhanced prairie habitat may eventually attract such birds with continued restoration. Northern flickers (*Colaptes auratus*) utilize the grassy slopes at the site. Western garter snakes (*Thamnophis* sp.) are also known in the park, and we intend to try to improve the habitat for them at our restoration site by the addition of more logs and rocks.

The only animal specifically associated with oak ecosystems resident at Clark's Prairie is the oak apple gall wasp (*Andricus quercuscalifornicus*), which breeds in the oaks. Stewart Wechsler has focused attention on introducing plant species that provide larval habitat for prairie butterflies, and some of the extant species in the park such as snowbush (*Ceanothus velutinus*) are potential host plants for butterfly larvae such as pale swallowtails (*Papilio eurymedon*). We are optimistic that at some future date we may acquire prairie butterflies either through their presence as larvae on salvaged plants or by migration. One of our restoration sites on Pinoy Hill is host to a colony of halictid or andrenid bees (identification presently uncertain). While these are not specifically associated with prairies, they favor nesting in tunnels in open dry ground and are entirely appropriate at this site.

Educational Outreach

In addition to providing classroom instruction and service learning to Orca sixth grade classes, educational materials and programs were developed to reach the general public. We prepared a sign about the restoration of Clark's Prairie that is housed in a kiosk near the restoration site. The sign is at the south entrance to the outer loop trail. This trail receives more foot traffic than any other park trail in Seattle except Green Lake. The sign gives a brief history of the prairie and a short explanation of fire ecology, describes some of the associated plants and the cultural use of camas, and summarizes our restoration project, acknowledging support from WNPS. The sign was in place for the grand opening of the new Seward Park Environmental and Audubon Center on April 26, 2008. The text of the sign is also available on the FoSP website (<http://www.sewardpark.org/sewardpark/magforest.html#garryOak>).

We have also developed a four-fold brochure about oak ecosystems which acknowledges support from WNPS. In

addition to succinct information on Garry oak ecosystems, this brochure highlights the threats to these ecosystems and offers practical advice on how citizens can help to protect them.

One audience for prairie education is the volunteers who helped to clear our restoration site. These have included university students, neighbors, parents of Orca students, and others. At each work party, we were careful to give an overview of why the restoration project is important, as well as to communicate details about the specific plants on site, and share the history of Clark's Prairie.

Paul Talbert and occasionally others also lead monthly walking tours of Seward Park that nearly always include passing by and discussing the oak prairie restoration site. Some of these programs focus on the oak grove and prairie in depth, often in connection with the Native American history of south Lake Washington.

During the grand opening of SPEAC on April 26, two tours to the oak prairie were led by Stewart Wechsler with about 30 participants each. The following day (April 27), Paul Talbert led a WNPS-sponsored field trip in Seward Park for the recent Native Plant Awareness Week with over 20 participants who visited the prairie and discussed the restoration project.

The Clark's Prairie project has received media coverage in newsletters for SPEAC and Orca K-8, and was mentioned briefly on KUOW's Weekday with Steve Scher during the gardening show on May 13, 2008. Notably, in May 2007 journalist Kathryn True wrote a feature article for the Seattle Times featuring Stewart Wechsler's vision for the site and mentioning our WNPS stewardship grant. More generally, our long interest in and discussions of Clark's Prairie have led to some coverage that began well before this grant but may still endure after it, in such places as David Williams' book *The Street-Smart Naturalist* (see pp.47-51, based in part on an interview with Paul Talbert).

Future Prospects

Continued planting of salvage plants and seeds will be led by Stewart Wechsler and weeding will continue periodically at the current restoration site. Whether small bonfires might ever be incorporated as part of maintenance is unclear, but weeding will probably continue to be the main defense against alien invasion. Al Smith has spent thousands of hours removing invasives in all parts of Seward Park, and we expect that his efforts will continue on Clark's Prairie. We anticipate that our restoration sites will slowly expand with additional plantings. Re-seeding of some species will help to fill in bare soil and protect

against weed invasion.

Perhaps more significantly, SPEAC has adopted a nearby site for long-term restoration work with teens, starting with monitoring current use patterns, removing invasives, and re-planting with natives. SPEAC has adopted three sites representing the three main habitats in the park (old-growth forest, oak savannah, and lakeshore environments), and will use them in their Young Scientists and Eco Explorations programs on a regular basis. These programs will eventually introduce hundreds of teens to oak ecosystems and reclaim a section of mostly lawn for oak savannah habitat. Clark's Prairie will help to carry out the vision of Audubon's CEO John Flicker to create the next generation of the environmental movement by reaching out to youth especially in urban, ethnically diverse areas.

A completely unanticipated development of our work on Clark's Prairie has been the inclusion of the Garry oak grove as a target for restoration within the scope of an anonymous \$1 million donation to Seattle Parks and Recreation to do restoration work in Seward Park over the next ten years. This money will be used to coordinate two work parties in the park every month on the 1st and 3rd Saturdays, to develop a youth conservation corps, and to leverage these funds as matching contribution for grants to do habitat restoration and other kinds of work in the park, making the grant money go farther. Targeted areas for the donation include removing ivy from trees, eliminating blackberry from the forest edges, responding to storm damage, and restoring the oak prairie. The anonymous donation will greatly expand the opportunity to restore not only Clark's Prairie, but also the Magnificent Forest and lakeside salmon habitat. It will also continue and expand the goals of the IvyOUT program started by WNPS in Seward Park several years ago. Although it may be an exaggeration, head Urban Forester Mark Mead credited the long-term efforts of the Friends of Seward Park with directing this donation money to Seward Park. The Friends in turn credit the support and vision of WNPS in inspiring and funding our work in Seward Park.

Paul Talbert would like to dedicate this report to the memory of Margaret Bergman, who helped open his eyes and heart to the wonders of Seward Park.

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WNPS Member Donations at Work

This research was supported in part by a grant from the Washington Native Plant Society.

2008 Conservation Highlights

By WNPS Conservation Committee, John Browne, co-chair; Mike Marsh, co-chair; Katrina Strathmann, Linda Storm, Bill Brookreson, Scott Moore, Rita Moore and Kathleen Winters

2008 Evergreen Cities Act

Passed by legislature and signed by Governor Gregoire on April 1, 2008.

WNPS supported the Evergreen Cities Act to restore, retain, and establish more trees and forests in our cities, towns, and counties. The Act provides for Evergreen Communities Recognition, to recognize cities, towns, and counties doing superior urban forest planning and management. CTED (Community Trade and Economic Development) will develop model urban forest management plans and ordinances to retain trees, restore urban forest, and expand forest canopy. Local governments may be funded to update or adopt inventories, plans, and ordinances through special assessment mechanisms.

WNPS also supported the Washington State Department of Natural Resources' funding request in order to implement a statewide inventory and assessment of our state's community forests.

Conservation Committee Meetings

The WNPS Conservation Committee is committed to meeting two times yearly for full day meetings to work on issues and drive committee involvement on advocacy needs. At its meetings in January and September a general discussion of committee organization, communication, and priorities laid the groundwork for coordinating efforts.

Short-term and long-term goals were discussed. Short-term goals included: concentration on grazing on public lands, development of guidelines for a conservation grant program, learning more about the legal and political framework around plans for the aggressive development of water supplies in the Columbia River Basin, and following the agri-fuel/biofuel issue with respect to potential impacts of habitat conversion and introduction of invasive species. An additional short-term goal is to strengthen working relationships with state and federal land managing agencies and the tribes.

Long-term goals include efforts to retain priority focus on invasive species and threatened Garry oak and shrub-steppe habitats.

Conservation Grant Guidelines

The Conservation Committee developed guidelines for a grant program to provide funds to further the goals of conservation of Washington native plants. Through this program, the committee's goal is to support or enhance on-the-ground conservation or restoration projects. Grant requests may be from WNPS local chapters or WNPS members. For more information on the guidelines: www.wnps.org/conservation/conservation_grant.html

Only one application was received in 2008 seeking funding for the purchase of weed wrenches for invasive species removal projects in Kent. The Conservation Committee decided to acquire the wrenches for WNPS, and to loan them to the city of Kent during 2008. The wrenches will be made available to other groups for their restoration needs as a tool loan.

Grazing in Eastern Washington

Whiskey Dick/Quilomene Livestock Grazing Plan

In July of this year we had the opportunity to comment during the scoping for the Washington Department of Fish and Wildlife's (WDFW) proposed Environmental Impact Statement (EIS) on grazing on Wildlife Lands managed by the Department in eastern Kittitas County. Our letter, (at www.wnps.org/conservation/conservation_reports.htm), expresses our concern that domestic livestock will greatly alter the native plant communities represented on WDFW lands

WDFW holds that it is important to acquire as much native land as it can in a time when extensive areas of shrub-steppe are being converted to agriculture, and to commercial and residential development, because these changes, if they occur, will destroy the shrub-steppe forever. In some cases, they have had to agree to let grazing continue on the lands being acquired, or even on other lands WDFW manages, in order to secure consent to a proposed sale by local landholders and county officials who represent them. The proposed grazing plan is part of a Coordinated Resource Management (CRM) plan in Kittitas County that, according to WDFW staff, may increase the palatability of forage on Wildlife Lands for elk after the cattle have removed the old dead plant material (bunchgrasses with dead material predominating are described as "wolfy" by the cattlemen). The hope is that if elk are attracted more strongly to the WDFW lands they will not be damaging nearby private farm fields.

Research publications which Mike Marsh reviewed in "Responses of Elk and Mule Deer to Habitat Grazed by Livestock" (see www.wnps.org/conservation/conservation_reports.htm) generally question or negate this idea. Grazing

for elk management seems to work when land is already overgrazed, and elk come to the grazed area when grazing is reduced or limited to a certain period of the year.

In another report, "Livestock Grazing Effects on Native Grasslands," (www.wnps.org/conservation/conservation_report.htm), Mike Marsh reviews literature discussing damage caused by livestock grazing in native landscapes of the Columbia Basin and other intermountain lands. While the direct impacts of grazing by livestock are profound, that influence may be temporary because of species protected in persisting seedbanks and nearby refugia, but the effects of consequent erosion and especially the introduction of aggressive alien species may have altered the Great Basin and Columbia Basin landscapes forever.

2008 Shrub-Steppe Monitoring Project

Under the leadership of Mike Marsh, a project to monitor a WDFW site in eastern Kittitas County was implemented. In April of 2007, Don Knoke, Brett Johnson and Mike established and sampled 10 vegetation measurement transects on the Whiskey Dick Wildlife Area in eastern Kittitas County. The intention is to define the ecological condition of this shrub-steppe site and to provide a baseline from which to measure change if the land is grazed by domestic livestock in the future. A plan to permit grazing was prepared by WDFW, but was withdrawn after a lawsuit threatened by Western Watersheds Project forced the agency to prepare an environmental impact statement.

In the winter of 2008, WDFW announced a plan to graze other wildlife lands west and north of Whiskey Dick, referred to here as Quilomene lands, which lie just west of the Wild Horse Wind Farm in Kittitas County. In early March, WNPS was invited to join WDFW monitoring staff to observe their methods for monitoring, and we adopted those methods in establishing an additional 10 transects on the Quilomene lands in spring 2008. In 2007, a plot-based sampling method was used; in 2008, the WNPS monitoring project switched to a line-intercept method, also used by WDFW.

The first field day was April 27, which focused on training WNPS volunteers in the sampling method. Those attending included Don Knoke, George Wooten, David Biek, Susan McDougall, Julia Bent, Jim Duemmel, Linda Ellis, Betty Swift, Dan Paquette, Erin Kruse, John Browne, Bill Brookreson, Catherine Hovanic, Janka Hobbs, and Ed Lisowski. On each day but one of our ten field days in April, May and June, we were assisted, as last year, by Don Knoke and his dog, Tiger. Don's knowledge of the flora added immensely to the value of our study. The success

of this spring's field work is due to the able planning and assistance of Julia Bent. Julia organized volunteers, drove participants to the work parties in April and May, and led work parties later in May and early June. Others who took part in field work are John Browne Jr, Dan Paquette, Jim Duemmel, Janka Hobbs, and Linda Ellis.

Some measurements that were comparable suggest that significant recovery has occurred on Whiskey Dick in the past 29 years. An average of 18 species were recorded per transect line on Whiskey Dick, while Quilomene sites averaged only 10.5 species per transect, although this difference may be due to the differences in sampling methods used at the two sites. The soil protecting lichen and moss cover averaged 14.5% on Whiskey Dick, twice that on the Quilomene sites. Invasive annual grasses averaged only 2.5% of total canopy cover on Whiskey Dick, while on Quilomene sites the average was 23.2%, nearly ten times as great. Despite the progress seen on Whiskey Dick, recovery is not complete, particularly for lichen and moss cover. An estimated 23% of the soil is still unprotected there.

A full report of the monitoring that occurred in 2008 will appear in the spring issue of *Douglasia*.

WNPS Policy Regarding Grazing on Public Lands

An ad-hoc committee for the development of a Public Lands Grazing Policy met in July at Lake Easton. The primary purpose of this policy is to protect native plant species and communities by supporting appropriate grazing practices on appropriate sites.

The trade-off between benefits and costs of grazing on public lands has long been an issue with WNPS members, public land managers and the public at large. Public land managers (both state and federal), charged with increasing revenues from public lands have often used grazing as another source of income from the lands they manage. WNPS members (and often the public at large) have questioned whether the potential negative effects warrant the monetary return.

At the same time, however, WNPS recognizes the shared goals of ranchers and WNPS to preserve natural open spaces. We recognize the economic and social values involved in ranching, and we realize also that well-managed livestock grazing causes less modification of natural habitats than most other human uses, including energy development, agriculture, and conversion for residential and commercial use. We believe that native habitats that appear to be intact should be managed to support dynamic native plant and wildlife populations into perpetuity.

This policy will further present current issues and concerns, make recommendations and provide scientific references to support the overall policy as developed by WNPS. We hope to have the policy adopted by the full WNPS Board of Directors during its fall business meeting and present it to the membership in the spring issue of *Douglasia*.

Policies on Native Propagule Availability for Restoration

WNPS was alerted to the possibility that Washington state agencies might be under pressure to utilize less expensive, non-native or cultivar propagules in habitat restoration or rehabilitation projects. WNPS was troubled by potential policy changes which might make purchasing native species and genetically local material more difficult. In response, the WNPS wrote a letter to Washington State Department of Transportation (WSDOT) administrators expressing our concern about the importance of using genetically local native material for restoration and rehabilitation efforts.

The WSDOT as well as other state and federal agencies, is involved in numerous restoration and rehabilitation projects that have the potential to impact the ecological functions of native habitats. WSDOT has developed a good track record for using more native species when appropriate, and in particular species that are genetically local to the region of a rehabilitation or mitigation site. A WSDOT staff member responded to WNPS that the agency has no intention of changing its policy of using native propagules.

The Conservation Committee will continue to monitor this issue, as changes in the availability or cost of native propagules due to new regulations related to growing them, or to changes in state funding mandates, have the potential to affect most native rehabilitation efforts in the region.

Support for Public Land Acquisition Proposals

Washington state agencies annually seek funding to acquire additional lands from the Washington State Wildlife and Recreation Coalition. The WWRC is made up of a diverse group of 135 organizations and it lobbies the governor and state legislature for funding to implement its activities including a state grant program that provides funding to protect habitat, preserve working farms and create new local and state parks. Over time it has given out over \$500 million to conserve land for these purposes.

WNPS supported the following proposals which must

work their way up through individual agencies to be finally proposed to the WWRC.

Wanapum Natural Area Preserve

This project involves the proposed acquisition of priority parcels within the proposed 11,620 acre Wanapum Natural Area Preserve (NAP) in Grant County. The preserve is designed to ensure the protection of two primary conservation targets: the striped whipsnake (*Masticophis taeniatus*) and the Inter-Mountain Basin Active and Stabilized Dune Ecological System.

This is the first NAP in Washington designed to conserve inland sand dunes. The preserve design permits the sand dunes to migrate, allowing the natural dynamic processes associated with this ecological system. State and federally listed species that occur in the project area include sagebrush lizard (*Sceloporus graciosus*), peregrine falcon (*Falco peregrinus*), ferruginous hawk (*Buteo regalis*), Washington ground squirrel (*Spermophilus washingtoni*), and black-tailed jackrabbit (*Lepus californicus*). The project area also supports rare plant species including Geyer's milkvetch (*Astragalus geyeri*), beaked spike rush (*Eleocharis rostellata*), Great Basin gilia (*Gilia leptomeria*) and gray cryptantha (*Cryptantha leucophaea*). Approximately 2300 acres of the globally rare Wyoming big sagebrush/needle-and-thread grass plant association occurs within the project area.

Mid-Columbia Shrub-steppe Project

This project proposes the acquisition of easements or land within 5,000 acres of shrub-steppe in northern Douglas County. The lands to be acquired here fill important habitat needs recognized by WNPS; their protection would protect seven native plant community types. For example, they protect important examples of plant community types in the sagebrush steppe ecosystem which are becoming increasingly rare because of human development of these natural landscapes. They connect other lands, already protected, thus providing greater opportunities for populations of native plants and animals in different areas to disperse and to exchange genetic material. This larger area of connected habitat will promote the survival of native plants and animals in future years.

Increasing Water Storage Capacity in Eastern Washington

The Conservation Committee is striving to learn more about the legal and political framework around plans for the aggressive development of water supplies in the Columbia River Basin and what impact these plans might

have on native plant habitats in eastern Washington.

Section 214 of the Act of February 20, 2003 (Public Law 108-7 PDF 1.3 mb), states: "The Secretary of the Interior, acting through the Bureau of Reclamation, shall conduct a feasibility study of options for additional water storage in the Yakima River Basin, Washington, with emphasis on the feasibility of storage of Columbia River water in the potential Black Rock Reservoir and the benefit of additional storage to endangered and threatened fish, irrigated agriculture, and municipal water supply. There are authorized to be appropriated such sums as may be necessary to carry out this Act." The Bureau of Recreation is joined by Washington's Department of Ecology on this study (with funding from the 2005 State budget for this purpose).

The "potential Black Rock reservoir" mentioned is a valley presently traversed by State Route 24 on the south side of Yakima Ridge, from the Hanford Reach to the Moxee Valley, on the SE outskirts of Yakima. It is strongly backed by the "junior" water rights holders in the Yakima Valley, who are lobbying with the aid of former Washington Congressional Representative Sid Morrison as their spokesperson. (Water for this project would be drawn from the Columbia River at Priest Rapids and/or Wanapum Dam.)

More information can be found at: www.usbr.gov/pn/programs/storage_study/authorization.html and: www.cbbulletin.com/292562.aspx

Water projects along the Columbia River are also being considered. A main stem off-channel storage appraisal study was conducted as an element of a Memorandum of Understanding entered into in 2004 by the Bureau of Reclamation (Reclamation), Washington Department of Ecology (WDOE), and the three Columbia Basin irrigation districts. Out of 11 sites considered initially, a site on lower Crab Creek has been moved to the top of the list, as "most feasible". WDOE, Reclamation, and the Columbia Basin irrigation districts will review the study report and will consult with stakeholders, agencies, and entities, including the Columbia River Basin Policy Advisory Group, prior to decision making as to whether to request from Congress authorization and funding for a feasibility study and EIS. More information can be found at: www.ecy.wa.gov/programs/wr/cwp/cr_mainstem_storage.html

In 2006, the Legislature established the Columbia River Water Supply Development Account (Account) to fund water storage and conservation projects and studies. In October 2007, Ecology began accepting pre-applications for its first annual Columbia River Basin Water

Management Grant Program. Successful applicants will be awarded grants funded by the Account. Three projects being studied include the Odessa Aquifer recharge, The Kennewick Aquifer recharge, and a reservoir on the Similkameen River West of Oroville. (This "account" requires 2/3 water be provided "out-of-stream" and 1/3 for "in-stream" flows, by law.) www.ecy.wa.gov/programs/wr/cwp/cr_grants.html

Bio-Fuels and the Potential Impact on Native Plant Communities.

We continued to follow complex biofuels issues with both interest and concern. Currently, the interest in biodiesel appears to be declining but the interest in agriculturally-based fuel production still is high. The concerns of the Conservation Committee are centered in two areas – loss of shrub-steppe and other native plant habitat and introduction of potentially highly invasive, exotic species.

So long as ethanol production is corn-centered, the impact on Washington native plants will be minimal because the state's climate is not really suited for large amounts of corn production. Corn, however, is a very inefficient source for ethanol. The transition to cellulosic ethanol using other biomass presents far different issues. One of the proposed sources for the biomass is hybrid poplars whose production in eastern Washington would potentially use significant amounts of water and cause more conversion of shrub-steppe lands. Other potential sources for biomass are even less benign and offer the potential to be massive invasive plant problems since the key is rapid growth producing large amounts of biomass. Realizing that, for good reasons, we need to free ourselves from foreign oil dependence, biofuels will be produced. Our goal, while recognizing the role of biofuels, is to oppose the introduction of known invasive species and support measures that protect high-quality habitat from conversion. We also plan to support development of alternative sources of renewable, green energy, as well as new technology that will have minimal impacts on native habitats and species.

Invasive Species.

Addressing invasive species remains one of the three priority policy areas for WNPS conservation efforts. In 2008, our efforts focused on the Washington Invasive Species Council. WNPS, through its membership in the Washington Invasive Species Coalition and with the active participation of Bill Brookreson, worked with the Council on developing *Invaders at the Gate: the Washington Invasive*

Species Council Strategic Plan. This strategic plan is designed to better coordinate Washington's efforts against invasive species. The plan is available online at www.rco.wa.gov/invasive_species.

In addition, Jane Wentworth replaced Catherine Hovanic on the State Noxious Weed Board's Weed Committee after Catherine's many years of service. The Weed Committee makes recommendations for the state noxious weed list. On a regional basis, we are supporting efforts to revive and focus the Pacific Northwest Invasive Plant Council (PNW IPC) which has been largely inactive for several years.

WNPS Directors Serve on State Committees to Protect Washington's Native Plant Resources

Mike Marsh - Washington Department of Fish and Wildlife Diversity Advisory Committee

The Wildlife Diversity Advisory Council is a citizen group formed by WDFW to provide viewpoints to the WDFW on issues it is, or should be, dealing with regarding the conservation of what is called "non-game wildlife". The Council meets every 3 months to receive reports from Rocky Beach, Manager of the Wildlife Diversity Division of WDFW, and from other specialists. The Council's members have a variety of interests, and include a couple who care for loons on Loon Lake, and a west side bird rehabilitator. The Advisory Committee has had reports on the arrival of wolves in Washington, on the release of fishers in the Olympic Peninsula (one of these little animals promptly traveled from the Dungeness to the Hoh watershed, a distance of more than 50 km), on the spread of chytrid fungus (potentially a major cause of the decline of amphibian species), and on the livestock grazing on public lands issue. The Council wrote to the WDFW Director regarding the grazing issue last year. Altogether, it is an interesting assignment, and gives us new contacts and a perspective beyond what we would normally have.

Mike Marsh - Washington Association of Conservation Districts' Committee on Public Lands Management

Dean Longrie, as President of the Washington Association of Conservation Districts, asked Mike Marsh to join a task force set up by the Washington Association of Conservation Districts to learn about their concerns regarding the acquisition of lands by the WDFW and to examine how prepared that agency is to manage its lands, new and old. Conservation District members are especially concerned about the damage that

is sometimes done by wildlife in their agricultural lands, so management of elk and deer herds, adequate fencing of the public lands adjacent to their own lands, and provision for compensation by the state for damage to crops are concerns. Basically, Conservation District members think that WDFW is acquiring land too fast and without a plan, and will probably ask WDFW to determine which of the 30 or more ecosystem types in Washington are not already represented in their portfolio and to use that list as a guide in purchasing more land. Another major concern is that WDFW should quickly acquire more field staff to properly manage their lands, including botanists who can assess the current condition of wildlife lands and help to plan their proper use (such as whether or not grazing should occur on a parcel).

Jane Wentworth - Noxious Weed Advisory Committee to the Washington State Noxious Weed Control Board

Jane serves on the Noxious Weed Committee as a representative of the WNPS. The committee is comprised of members and staff of the State Noxious Weed Control Board, several County Weed Program Coordinators, a representative of the Washington Nursery and Landscaping Association, and scientific advisors. It meets several times a year to review and discuss information pertaining to requests for changes to the Washington State Noxious Weed List, and makes recommendations to the State Weed Board prior to its annual rulemaking and adoption of the weed list into Chapter 16-750 WAC. Committee meetings are usually held in May, July, and September, on the eve of the state board meetings, and are open to the public. The committee is currently working on an impact and risk assessment form and process, a better definition of "control" in the WAC, and the issue of an invasive species reportedly being suspected or claimed to be a native species, such as yellow nutsedge (*Cyperus esculentus*), herb Robert (*Geranium robertianum*), and reed canarygrass (*Phalaris arundinacea*).



Gardening with Native Plants—The Growing Wild Program

by Linda Ellis, Central Puget Sound Chapter

In 2003 WNPS offered a new program for people who wanted to add native plants to their gardens. Growing Wild and Greener Gardens was started in response to a perceived need, homeowners who wanted more native plants, more wildlife, and less maintenance in their yards and gardens. The program was conceived to get gardeners enthused about enriching their land with native plants and wildlife. It evolved from a Seattle Audubon program, Gardening for Life, that had been discontinued.

In the first years Anne Triola and Ola Edwards implemented the program. Ola trained a group of knowledgeable WNPS members, who were also gardeners, in how to conduct a garden consultation. When an advertisement for the program appeared in a Seattle paper, applications flooded the WNPS Office. Ola and her consultants were off and running.

The program has been in place for five years, although oversight has shifted from the State to the Central Puget Sound Chapter of WNPS. To date, 125 consultations have taken place, and applications continue to come into the office. There are now 16 active GW consultants.

While gardening with native plants is not a new theme at WNPS (see *Douglasia* 24:2), it continues to interest our members. After five years, it is a good time to take stock of the Growing Wild Program.

How the Program Works

In order to arrange a Growing Wild garden visit, homeowners submit an application form and a sketch map of their garden to the WNPS office. The homeowner describes his or her interests and briefly describes the garden's soil conditions, moisture, sun-shade, and existing vegetation. WNPS members pay a \$75 donation. Non-members pay \$100, and their donation includes a one-year WNPS membership. The Growing Wild Coordinator then schedules a consultant to visit the garden. The consultation takes about an hour and a half in the homeowner's garden. Usually, that is more than enough time to walk around and discuss the gardener's interests and concerns. The Growing Wild consultants make recommendations and suggestions. Then, they summarize their observations and recommendations—including plant suggestions, a

bibliography, and links to other resources. The homeowner receives the report after a review by the Growing Wild Coordinator.

Gardeners' typical interests are such things as attracting more wildlife, increasing the number of native plants, reducing watering, removing invasive species, identifying existing plants, and sometimes, the overwhelming prospect of creating a garden from scratch. The consultants do not address some subjects, such as drainage problems, pesticide use, erosion, or permitting issues. They stick with their expertise: the right native plant in the right place.

Training the Growing Wild Consultants

Growing Wild garden consultants are chosen based on their knowledge of native plants and their enthusiasm for teaching others. Almost all of them have been Native Plant Stewards. They receive a day of training in which they hear presentations on designing with native plants, designing for wildlife, and their role as a consultant. Then they are taken to a garden to observe, take notes, and draft a test report. Generally, once this training is completed, a newly trained consultant will accompany a seasoned consultant on his or her first official garden visit.

Designing with native plants requires careful observation of the garden site conditions. Knowing the site and mimicking natural plant communities that occur in similar circumstances is a good point of departure. Some straightforward guidelines for designing with natives are presented: mix evergreen and deciduous plant species for interest year round; layer plants so that their forms are visible (shorter ones in front); use groundcovers to reduce the likelihood of invasion by weeds; and group plants with similar cultural needs together, such as woodland garden species, meadow species, drought-tolerant sun-loving species. Consultants take into account how gardeners intend to use the space, views from inside the house, and crucial pathways. It is good to have a few simple mantras as well. Every edge requires maintenance. Rarely do we see a straight line in nature. Walkways need to be wide enough to accommodate their intended uses. Plants grow and gardeners should know the ultimate size of a plant, as well as its habit. Will the plant send out aggressive runners like the beach strawberry (*Fragaria chiloensis*) that covered my yard in one season, or will it be tidy and self-contained?

Since many native plant gardeners want to attract wildlife, the four key elements of wildlife habitat are emphasized in the training. A garden should provide food, water, shelter, and a place to raise the young. Multiple layers of vegetation and a diverse palette of native plants will offer

habitat to more birds than a lawn with a few foundation shrubs. When thinking about habitat, gardeners should remember to provide habitat for the little critters that run the world, i.e., insects. Insects provide food for birds. Recent studies have shown that native trees and shrubs can be home to as many as four times the number of insects as ornamental or exotic plants, known for their “pest free” qualities (Tallamy 2007). Incorporating a few rotting logs will provide a buffet for some birds. If possible, garden habitat should be designed to offer food sources throughout the year. For example, oceanspray (*Holodiscus discolor*) seeds persist into winter, hence, this species offers food and shelter for bushtits and other birds.

During training, the anecdotal experience of seasoned Growing Wild consultants was as important as the design and biological and botanical information. For the Growing Wild trainees, a great deal of information comes all at once—meeting the homeowner, assessing the garden site conditions, identifying existing plants, and then being asked for suggestions. Consultants have a checklist of items to observe when they go to a garden. They must take in all that information, and at the same time respond to the concerns of the homeowner. But good advice from one experienced consultant was, “The most important thing to observe in the garden is the gardener.” Are they tuned in to the world of the garden? Are they motivated to nurture their space or are they going to hire it out? Is the yard a total wreck with all sorts of junk around, or neat as a pin where barely a loose twig or a bug is tolerated? It is important to assess how much energy the gardener will spend on creating their native plant garden.

Some Recent Examples

Sally's Garden—The Blank Slate

Sally and her husband have a new house on a corner lot facing south and west. A number of garden beds had been identified. Sally wanted to reduce maintenance and water use and to attract wildlife. The consultants suggested that she focus on the areas that she saw or passed through most often. They suggested a suite of trees, shrubs, and ground covers for each bed.

Since the consultation, Sally's beds are filling with natives. Her eye is excited by the tiny details of natives. Her biggest challenge was deciding which plants to plant and where to put them. In a south-facing bed, she planted mountain hemlock (*Tsuga heterophylla*), red-flowering currant (*Ribes sanguineum*), asters (*Aster* sp.), kinnickinnick (*Arctostaphylos uva-ursi*), and other sun-loving species. Her biggest surprise was how much fun it was—especially seeing the seed pods and berries and discovering native plants that just showed up as volunteers.



Before and two years after. The south-facing bed at Sally's garden before the consultation at top. Sally planted red-flowering currants, asters, mountain hemlock, and other sun lovers. She continues to add new plants to this bed. PHOTOS: LINDA ELLIS.

John's Garden—Too Much Lawn

John's house came with an expanse of lawn and a storm water ditch along the street. A large big-leaf maple (*Acer macrophyllum*) shaded the front yard while two mature conifers and a large lawn dominated the back yard. Two years after his consultation, he had transformed the front yard by removing the grass and creating pathways with stepping-stones. He reconfigured the storm water ditch to give it a slight meander, created a streambed of large smooth stones, and planted sedges, snowberry (*Symphoricarpos alba*), and red-osier dogwood (*Cornus sericea*) along the sides.

In the back, he built a low berm along the street and planted it with evergreen coast silk tassel (*Garrya elliptica*) to gain privacy. John left a dead tree to provide nesting sites for chickadees. He planted many native species—Indian plum (*Oemleria cerasiformis*), snowberry (*Symphoricarpos*

albus), twinberry (*Lonicera involucrata*), aspen (*Populus tremuloides*), and several ash (*Fraxinus latifolia*). John laid stepping stone paths through the new plantings. Before the transformation, he did not spend much time in the yard. Now, he likes to walk in his yard and see how his plants are doing. He has begun propagating native plants and spends time watching birds that come to the yard. He said it feels like a sanctuary to him.

When asked what his biggest challenge was, he said it was how to get rid of the lawn. The biggest surprise was how easy it was. He covered the lawn with newspaper, mulch (wood chips), and leaves from the big-leaf maple. The lawn was gone in one season.



Instead of a die-straight storm water ditch, John created a vegetated stream-bed. PHOTO: LINDA ELLIS.

Donna's Garden—Training Ground

Donna is a veteran gardener, photographer, and long-time member of WNPS. The transformation of part of her garden was not due to a Growing Wild consultation, but her garden was used as a training site for some GW consultants. She removed a deck that was located off her home office and created a woodland stream, waterfall, and pond planted with native plants. Donna planted shade- and moisture-loving plants along the stream, such as bleeding heart (*Dicentra formosa*), wild ginger (*Asarum caudatum*), maidenhair fern (*Adiantum pedatum*), and shooting star (*Dodecatheon jeffreyi*). She added columbine (*Aquilegia formosa*), large leafed avens (*Geum macrophyllum*), Oregon iris (*Iris tenax*), and dagger leaf rush (*Juncus ensifolius*), and other natives around the pond. She said as soon as the pond was installed, new species of birds and insects showed up at her garden.

Building the pond was hard work, and Donna's biggest challenge was the planning, particularly deciding how to place the rocks to make the stream look natural. She learned that when creating the stream-bed, the sides should

be vertical so that the rocks along the sides do not fall in. The easiest part was choosing and placing the plants.



Donna's stream and pond surrounded by native plants. PHOTO: LINDA ELLIS.

Looking Ahead

The Growing Wild Program has educated many gardeners, and it keeps many of them coming to native plant sales and talking to neighbors about native plants. They often become more profoundly engaged in the opportunities for nature in their yards. One woman keeps her binoculars on the windowsill to see the birds that come into her garden, and now that the grass has been replaced with native species her garden feels bigger and more interesting. Another gardener suggested that it would be great to map all the GW gardens in Seattle and create a network, so that members could keep in touch and discuss how their native gardens are doing. Another said his neighbors hoped they could have their own class in gardening with natives after seeing what he had done in his yard.

The Growing Wild Program clearly fills a need for some homeowners, and the structure of the program works well. Our members' experiences are encouraging and inspiring. Other WNPS chapters may see an opportunity to spread the word about native plants in a similar way. To contact Growing Wild, call or e-mail the WNPS Office at (206) 527-3210 or lindaellis@wnps.org.

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Field Guide to the Sedges of the Pacific Northwest

By Barbara L. Wilson, Richard Brainerd, Danna Lytjen, Bruce Newhouse and Nick Otting.
Oregon State University Press, Corvallis,
Oregon 2008.

*Reviewed by Alan Yen, Central Puget Sound
Chapter*

There are over 150 species of *Carex* in the Pacific Northwest, making it the largest genus of flowering plants in our region. Despite the species richness, the sedges probably are one of the most enigmatic and as a result, ignored plant groups among most plant enthusiasts. There are good reasons for the general avoidance or even fear of these plants. First of all, most of them are not “showy” like a *Penstemon* or *Castilleja* and thus are often overlooked on the trail. In addition, a lot of the species “look the same”, with grass-like leaves and little brown parts near the top. Furthermore, the learning curve to identify sedges seems uncomfortably steep and involves many technical terms and small and often difficult to see details. For example, if one tries to use Hitchcock to identify a sedge, one is immediately asked to count the number of stigmas and determine the shape of the seeds for plants that appear not to have any flowers or seeds. The line drawings in Hitchcock, while often very helpful, hardly give users the ability or confidence to quickly “picture key” any species.

Many of the common field guides for our region include species of sedges as part of the treatment, but most contain morphologically or ecologically distinct species that are relatively easy to identify. For example, it is not hard to recognize *Carex macrocephala*, or the bighead sedge, without using an identification key; it only grows on sandy ocean beaches and has unmistakably large seed heads. However, none of these field guides treat sedges in a comprehensive manner, thereby reducing their usefulness as a tool to learn about the sedges. The new *Field Guide to the Sedges of the Pacific Northwest*, written

by the botanists of the *Carex* Working Group, changes all that.

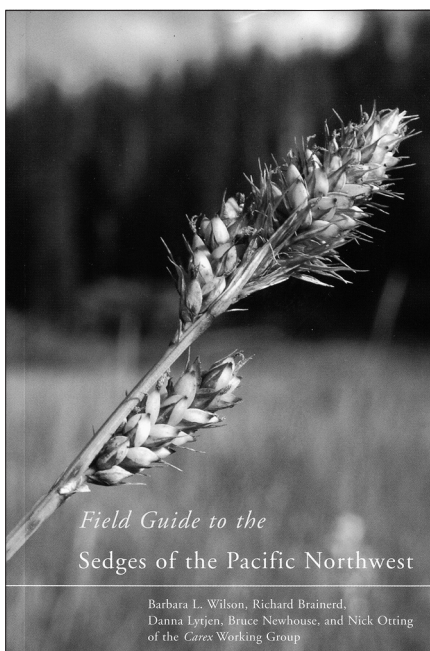
The new field guide is a treasure for those who like sedges or who want to learn more about them. The book contains information on sedge morphology, ecology, ethnobotany, and most of all, systematics. The taxonomic treatment includes information on nomenclature, classification, identification keys, and species descriptions that are accompanied by large numbers of illustrations and photographs. To familiarize users with the technical terms used in identification, the book has extensive glossaries and visual aids. There are also helpful hints and insights on how to answer many difficult questions. For example, how does one determine the numbers of stigmas when one can't see any? Or where are the male flowers when

all of them are gone, as is usually the case? What is a rachilla or what is phyllopodic? The book offers clear and useful answers.

My favorite part of the book is the information associated with each species. In addition to the species description, the book offers habitat information, a dot map of known locations for Oregon and Washington, comparison with similar species, and the best of all, photographs of key diagnostic features, such as whole plant, habitat, or close-up pictures of the perigynia and other useful attributes. Almost all the species included in the book are illustrated with photographs, one of the key reasons making this book so useful as a field guide.

I have not had a chance to test the key, which spans over 30 pages. The key is divided into more subgroups than Hitchcock, and this could make it easier to use. In addition, there are photographic illustrations of morphological features next to certain leads, and this could make it easier for the users as well.

Will this new book make learning sedge identification easier? The answer is a yes, but with a caveat. The caveat is that as useful as this new book is, it is up to the users to develop the interest to learn about the sedges and a willingness to put in the effort. But the rewards can be great. This new book will do a lot to reduce the steepness of the learning curve, and open up the beautiful world of sedges to all those willing to enter.



Ecology of Black Lily

(*Fritillaria camschatcensis*):

A Washington State Sensitive Species

by Holly Zox, Central Puget Sound Chapter, Warren Gold, Associate Professor, University of Washington, Bothell

Black lily (*Fritillaria camschatcensis* (L.) Ker-Gawl.) is a bulbous perennial herb in the Liliaceae distributed along the northern Pacific Rim from Japan to northwestern North America. Though globally secure, black lily is a state-listed sensitive species in Washington, where it is considered imperiled (S2), and Oregon, where it is critically imperiled (S1). Washington and Oregon represent the southern extent of its range in North America (Hultén 1968; NatureServe 2008). Information on black lily in the Pacific Northwest is largely ethnobotanical. Also known as northern rice root, the rice-like bulblets were eaten by many Northwest Coast Peoples (Turner, 1975; Pojar and MacKinnon, 1994; Kari, 1995). The only detailed ecological research reported in the peer reviewed literature examined the dynamics of large subalpine populations in northern Japan (Shimizu et al., 1998; Yonezawa et al., 2000). In Washington State, black lily is found in the northwest portion of the state across two disparate ecological habitat types: coastal high salt marsh and montane to subalpine wetlands. An understanding of the biology and local distribution of black lily would aid in conservation and restoration efforts for a species of cultural and ecological concern (see Fig. 1).

In 2004, a study was begun on the basic biology, ecology, and population dynamics of black lily in two Snohomish County, Washington sites: (1) a high salt marsh population in the Quilceda Estuary, part of the Snohomish River estuary of Puget Sound, and (2) a subalpine population in a sphagnum fen in the Morning Star Natural Resources Conservation Area (NRCA) in the Cascades Mountains. Though only 38 km apart, these two locations contrast in climatic and ecological characteristics. Plants at both populations have been censused on an annual basis (through 2008), for their presence, life stage, and reproductive characteristics. The phenological stage of plants has been recorded at periodic intervals through the growing seasons, from growth initiation to senescence. This information will aid in understanding of basic population



Figure 1. Black lily with perfect (bisexual) flowers. PHOTO: HOLLY ZOx

dynamics, reproduction, and life stage transitions. In addition to population data, a limited subset of data was gathered on growth and reproduction (e.g., plant height, capsule, and seed production). Physical and chemical features of the environments at these two sites were also sampled. Chemical analyses of soil samples from areas with and without black lily were conducted at both sites for soil moisture, organic matter, pH, conductivity (to assess salinity), and available nitrogen. Air and soil temperatures were also measured throughout the growing seasons at both sites, and tidal inundation—the exact location and tidal height of black lily patches—was measured at the estuary. In addition, a vegetation community survey was conducted in 2005 for plots with and without black lily at both sites.

The Black Lily

Black lily grows from a scaly bulb covered with rice-like bulblets (Pojar and MacKinnon, 1994) (see Fig. 2). The species exhibits a complex life history including three stages distinguished by leaf type and reproductive state: (1) single-leaf / non-flowering (SL), (2) multi-leaf / non-flowering (ML), and (3) multi-leaf / flowering (MLF)



Figure 2. Black lily bulb composed of individual bulblets. Scale is in inches. PHOTO: WARREN GOLD



Figure 3. Different life stages of black lily: multi-leaf flowering ramet with flower buds in the lower right; multi-leaf ramet in lower center and left side; and single-leaf ramets in upper middle of the photograph. PHOTO: HOLLY ZOZ



Figure 4. Multi-leaf ramet with bulb attached. Note disintegrating bulb in upper left of photograph with detached individual bulblets. PHOTO: WARREN GOLD

(Shimizu et al., 1998; Yonezawa et al., 2000). Leaves are arranged in whorls in both multi-leaf stages (see Fig. 3). Flowers may be either male or perfect (bisexual) and exist on a plant in any combination. Plants live for many years and move back and forth between life history stages, with death thought to occur only in the single-leaf stage. All three stages (single-leaf non-flowering, multi-leaf non-flowering, and multi-leaf flowering) reproduce clonally as bulblets detach and sprout new ramets (individual members of a clone) (see Fig. 4). In the Japanese studies, seedlings were rarely encountered, leading the researchers to conclude that populations appear to be maintained by clonal reproduction (Shimizu et al., 1998; Yonezawa et al., 2000). Flowering plants can have anywhere from one to seven (the most we have observed) flowers, and grow about 10 to 60 cm tall. Flowers are pollinated by flies of the family Calliphoridae (which includes blow flies), no doubt attracted by the aroma of rotting flesh (personal observation). The aroma is responsible for some of black lily's more interesting names, such as outhouse lily and lady-on-the-pot.

The Study Sites

The Quilceda Creek estuary is located on the Tulalip Indian Reservation near Marysville, Washington. The coastal maritime climate is moderate year-round. Daily maximum and minimum air temperatures averaged over a year were 15 °C and 6 °C in nearby Everett, Washington from 1971 – 2000. Average annual precipitation (predominantly rainfall) during the same period was 95 cm (University of Washington 2008). The Quilceda Estuary is one of the least impacted portions of the lower Snohomish River delta and has high ecological and cultural value. The study site includes a gradient from low tidal elevations at the creek edge to upper tidal elevations at the forest edge over a distance of approximately 152 meters. This gradient encompasses high emergent, woody debris wrack line, and backshore habitat types. Tidal vegetation communities include those dominated by Lyngby's sedge (*Carex lyngbyei*) at lower elevations, hardstem bulrush (*Schoenoplectus acutus* subsp. *occidentalis*, syn. *Scirpus acutus*), or salt grass and spike bent grass (*Distichlis spicata* and *Agrostis exarata*) at middle elevations, and vegetated decomposing logs and shrub island communities at upper elevations.

Black lily is restricted to upper tidal elevations, known as the backshore habitat from the forest edge to the open marsh behind the woody debris wrack line. The habitat is a mosaic of tidal channels, sedge and rush sediment plateaus, woody debris, and shrub/tree islands. In addition

to black lily, our early surveys have identified populations of Henderson's checker-mallow (*Sidalcea hendersonii*), uncommon in Puget Sound estuarine sites and springbank clover (*Trifolium wormskjoldii*), another species of cultural use and concern for native tribes. Most black lily patches occur within a 30 cm tidal band from 3.2 to 3.5 meters above Mean Low Low Water. This elevation is found primarily on rotting logs and at the edges of shrub/tree clumps and is above most ordinary high tides (and the tops of most hip waders, as we found when conducting a night-time high tide survey).

The Morning Star NRCA is part of a larger high precipitation zone bordered on the north by the North Fork Stillaguamish River, on the south by the Middle Fork Snoqualmie River, and extends from the western Cascades front to near the crest. This area is characterized by steep topography which intercepts the full brunt of prevailing winter storms from north and south of the Olympic Mountains, leading to the unusually high precipitation, which otherwise occurs only on the Olympic Peninsula. Annual precipitation in the NRCA ranges from 254-508 cm, most of which falls as snow. Snow accumulations above 750 meters elevation average greater than 300 cm (Henderson et al. 1992, Washington Department of Natural Resources 2003). The cool, unusually wet climate of this zone results in vegetation zones nearly 500 meters lower than expected for this latitude (Washington Department of Natural Resources 2003).

The black lily study site within the NRCA is a sphagnum fen at 872 meters elevation. This is a cold, high snow accumulation site, as evidenced by the subalpine plant association of mountain hemlock (*Tsuga mertensiana*) and copperbush (*Elliottia pyroliflora*, syn. *Cladothamnus pyroliflorus*) within a montane Pacific silver fir (*Abies amabilis*) forest matrix. The snow persists well into June or July, leaving a short growing season. Black lily at this site grows in lakeside sphagnum communities containing a mosaic of shrub islands and herbaceous meadows.

What We Found: Biology of Black Lily

1. What you see is not what you get.

Populations of black lily are dominated by the less conspicuous single-leaf life stage (> 80%), which is not mentioned in species descriptions (Hitchcock and Cronquist, 1973; Pojar and Mackinnon, 1994) and may be overlooked during surveys. Rapid assessments using large, flowering individuals often do not reveal the extent and abundance of black lily (and most SLs senesce before the larger individuals bloom). However, life stage proportions remained stable across populations and years,

with about 3 – 4% of black lily ramets producing flowers (similar to Japanese populations; Shimizu et al., 1998). Consequently, it may be possible to estimate ramet population size by counting all MLF and figuring they represent about 4% of a population.

2. They grow up fast

In both locations, black lily is one of the first species to become active in the spring (March-April in the estuary and June-July in the mountains). This appears to allow black lily to accomplish much of its growth and reproduction before surrounding herbaceous competitors have grown taller and deciduous shrubs have established a mature shade canopy.

3. Is the importance of children overrated?

While only 3 – 4% of our populations produced flowers, an even smaller proportion produced ripe seed (1.4% and 0.6% in the estuary and mountains respectively). The lower seed production in the mountains appears tied to a loss of seed capsules during ripening, which takes about twice as long in the mountains (~9 weeks) compared to the estuary (~4.5 weeks). Most of the flowering individuals produced from 1-3 flowers, though rare individuals produced as many as 5-7 flowers. Much of the seed at both sites was contributed by these few robust plants.

However, the proximate maintenance of black lily populations may not be strongly linked to seed production. Since all three life-history stages (SL, ML, and MLF) reproduce clonally and seed production is so low (as in the Japanese studies) our populations appear to be largely maintained by clonal reproduction.

The maintenance of genetic diversity associated with even occasional sexual reproduction, however, could be vital to black lily's survival at the southern extent of its range in a warming climate. Care should be taken when collecting seed. Consideration should be given to how much seed collection populations can sustain, how to distribute collection among individuals, and whether protocol should differ among populations. Mountain populations need to be larger to sustain seed collection due to lower seed production and expected habitat changes from climate change.

4. Change happens

Both populations, though apparently secure in 2004, have suffered declines as of 2007 related to biotic disturbances. Beavers flooded the mountain site, and small mammals (probably voles) created an extensive system of tunnels under the largest black lily patch in the estuary. Patches contain one to hundreds of ramets and are scattered throughout the study sites. The largest

Quilceda patch declined 69% from 2006 – 2007, leading to a decline of 24% in the overall Quilceda population for 2007. The large patch has not rebounded, and population size remains low in 2008. The mountain population declined considerably from 2004 – 2005. Most of the black lily patches were flooded, making an accurate census difficult. Only 42% as many plants produced flowers in 2005 as in 2004, and only 24% of the flowering plants ripened capsules. Only a few black lilies have been seen in the mountain site in 2006 – 2008.

An additional (and worrisome) agent of change in the estuary is the presence of perennial pepperweed (*Lepidium latifolium*), an exotic invasive herb that also is one of the first plants to emerge. Pepperweed typically forms dense monocultures (Renz, 2000; Zouhar, 2004). Pepperweed is encroaching on black lily habitat in the estuary and has already displaced some patches. A pepperweed control program is under way (Zox, 2008).

Populations of black lily in Washington and Oregon, where it is a sensitive species, exist as islands (Sommargren 2008), with little chance for recruitment among sites. Distribution of black lily at both Quilceda and Morning Star is scattered and patchy, in essence tiny islands of suitable microhabitat in the midst of larger rare islands where this habitat might be encountered, making lilies at these sites possibly even more vulnerable to disturbance.

Ecology of Black Lily

1. Higher ground

Black lily grows in a variety of very different ecological settings. However, the habitats of the two populations studied (mountain fen and estuarine salt marsh) share some structural similarities. In both, black lily was found growing on locally raised elevations such as decaying wood and the margins of woody mosaics. The higher elevations may result in shorter, less frequent inundation and earlier snow melt. Frequency and duration of tidal inundation in salt marshes and timing of snow melt in subalpine habitats have been shown to exert major influence on vegetation patterns (Evans, 1976; Woodward et al., 1995; Mitsch and Gosselink, 2000). The somewhat less-stressful conditions of the black lily patches relative to the surrounding habitat is further reflected in some of the vegetation community and environmental features tested. The dominance of hardhack (*Spiraea douglasii*), a facultative wetland shrub found in nitrogen-medium soils, on Morning Star plots with black lilies as opposed to marsh cinquefoil (*Potentilla palustris*), an obligate wetland herb, in Morning Star plots without black lilies suggests black lily might be growing on ground subject to less flooding (Cook, 1997; McCoy,

2006). In the estuary, soil ammonium and organic matter content were higher in black lily plots than in plots without black lily. The higher ammonium and organic matter of black lily plots might create less stressful conditions than found in the surrounding marsh. Higher organic matter is often associated with less tidal flushing of raised locations (Mitsch and Gosselink, 2000). The presence of Pacific crabapple (*Malus fusca*, syn. *Pyrus fusca*), a shrub characteristic of nutrient-rich sites, in estuary plots with black lily might reflect the higher ammonium (Klinka et al., 1989). Though the average salinity at estuary plots with and without black lily was not significantly different, black lily plots were less variable, and avoided the highest salinity readings. Variability of salinity is even more stressful to many plant species than high salinity (Mitsch and Gosselink, 2000). Plots with black lilies at both study sites had higher species richness and diversity (Shannon-Weiner index) than plots without black lilies, and plots with black lilies at both sites had more variability in nearly all the soil characteristics tested, perhaps resulting in more niches for different plant species.

2. Related or not?

The soil environment at both the mountain and estuarine habitats presents challenges to plant function. The specific challenges, however, are quite different. Soils in the subalpine fen are cool and acidic, leading to slow decomposition and low nutrient availability. Soils in the salt marsh are warm and saline, and could lead to drought stress (Mitsch and Gosselink, 2000).

Vegetation analysis of species cover clearly differentiated between the plant associations containing black lily in saltmarsh versus mountain fen communities (Kovach Computing Services, 2005). The differences in plant communities and in soil challenges and the adaptations necessary to survive such challenges in two such disparate settings, suggest the possibility of different ecotypes (something we would like to explore in future research). The presence of different ecotypes would have major implications for conservation and restoration approaches.

The Future

The long term persistence of black lily in Washington faces a number of challenges. Our region lies at the southern extent of this species' range and a warming climate may jeopardize regional populations. Mountain populations linked to high precipitation zones may be impacted by predicted changes in the timing, form and amount of precipitation associated with climate change. Successful management will require continued study.

In five field seasons we have barely scratched the surface

of the black lily story in Washington. Genetic testing of mountain and estuarine populations would be essential in discovering whether we have different ecotypes. Different karyo-ecotypes were found in Japan. Lowland populations were found to be triploid (36 chromosomes), larger, with more and larger leaves, more flowers, and apparently sterile, while mountain populations were found to be diploid (24 chromosomes), smaller, and fertile (Matsuura, 1935). Germination studies need to be done on seeds from both sites, and from plants with different numbers of flowers. Furthermore, the role of humans in dispersal and maintenance of Washington's black lily populations would be important to understand for this culturally important species.

In addition, biological and ecological features that might make some populations more vulnerable to disturbance and extirpation need to be identified. Scattered, patchy distribution, small populations, and early emerging invasive species would be some factors to consider. Populations more at risk will need more frequent monitoring. Control to ameliorate some risks (such as with invasive species) should be considered. Enhanced understanding of the basic biology of black lily will facilitate the management of this species for use in cultural purposes. The emerging understanding of black lily should be applied to the enhancement of impacted populations and the introduction of black lily to restoration efforts with appropriate habitats. For instance, the introduction of woody debris at appropriate tidal heights in local estuarine restoration projects could facilitate black lily restoration on site or the maintenance of nearby populations.

Acknowledgements

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WNPS Member Donations at Work

This research was supported in part by a grant from the Washington Native Plant Society.

Conservation Grant Funds Available

The WNPS Conservation Committee is soliciting proposals for Conservation Grants of up to \$500 that further the goals of conservation of Washington native plants. Through its grant process, the committee's goal is to support or enhance on-the-ground conservation or restoration projects.

Deadline for submissions is January 15, 2009.

For more guidelines, format and where to send see: http://www.wnps.org/conservation/conservation_grant.html

For more information or to discuss your proposal contact:

John Browne, Co-Chair
Conservation Committee
206-463-9641
jbrowne001@centurytel.net

League of Conservation Voters Report

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Vote Scorecard: 110th, 1st session Search Results

Sen. Maria Cantwell, DEM	87%
Sen. Patty Murray, DEM	87%
Rep. Jay Inslee, DEM, WA-1	95%
Rep. Rick Larsen, DEM, WA-2	80%
Rep. Brian Baird, DEM, WA 3	95%
Rep. Doc Hastings, REP, WA 4	5%
Rep. Cathy McMorris Rodgers, REP, WA-5	5%
Rep. Norman Dicks, DEM, WA 6)	95%
Rep. Jim McDermott, DEM, WA-7	95%
Rep. Dave Reichert, REP, WA-8	85%
Rep. Adam Smith, DEM, WA-9	90%

Date: September 1, 2008

Obama, Illinois, 67%

Biden, Delaware, 67%

McCain, Arizona, 0%

State Leadership Averages, 80-90% includes WA, OR,



Advance Lodging Reservations Suggested for 2009 Study Weekend

The 2009 WNPS Study Weekend will be held in the beautiful Wenatchee Valley on June 5–7. We look forward to a fun time of camaraderie in the shrub-steppe and forests of this unique area. More information will be in a subsequent issue of *Douglasia*, but if you need a motel, make reservations in a timely manner since this is a busy time.

Evening meetings and meals will be at the Chelan County Fairgrounds in Cashmere. Camping is also available there in an adjacent field across from the main gate (complete with hookups and shower facilities; \$20/night). Other camp sites in the area include Monitor County Park and Confluence State Park.

If you are not a camper, a variety of motels are available. Two of the closest are the reasonably priced Village Inn (Cashmere: 509-782-3522) and the Moonlight Motor Lodge (north edge of Wenatchee: 509-663-5157). The Wedge Mountain Inn (Dryden: 509-548-6694) is nearby but somewhat more expensive (\$120/night plus). Several motels in Wenatchee will offer group rates for the Study Weekend including the following (arranged from high to lower price): Holiday Inn Express (509-663-6355); Chieftain Best Western (877-203-8585); Comfort Inn (866-973-7839); Cedar's Inn (800-358-2074); and Value Inn (800-668-1862). Mention WNPS when you make reservations.

WNPS Call for Proposals

Washington Native Plant Society Research and Inventory Committee Research Proposals Due by January 15

by Pam Camp, Wenatchee Valley Chapter

The WNPS Research and Inventory Committee has a yearly budget that it disburses to worthy proposals that foster the aims of the Washington Native Plant Society, i.e., “to study and conserve native plants.” We are interested in supporting projects that extend our knowledge of the biology of native species or that inventory the flora of an understudied area. Special consideration will be given to proposals investigating the oak or shrub-steppe ecosystems, or invasive species. Another priority is to support research efforts of graduate students and to help develop the careers of botanists with interests in native plants.

To receive full consideration, proposals should be submitted by January 15 of each year. Members of the Research and Inventory Committee will review the proposals and a decision will be made by April 1. Proposals received after the January date may be considered later if any funds remain after the first round of awards. Proposals should request no more than \$1000 to \$1500 except in unusual circumstances. In general, half of an award is paid when the proposal is funded and the second half is paid when the project has been completed and a final report

has been submitted.

For more information and proposal guidelines see:
http://www.wnps.org/research/proposal_guidelines.html



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Washington Rare Plant Care and Conservation

2008 Botany Washington at the Rosemary Inn on Crescent Lake: July 25-27

by Ann and Fred Weinmann

In round numbers, 50 botanists headquartered on the shore of Crescent Lake for the 12th annual Botany Washington. The big story was the common, the endemic and the rare plants of the Olympic Mountains, the bogs and the coastal marshes; the lucky story is the weather; and the back-story is the great camaraderie among the participants. Even though our interest can sometimes be intense, I believe we lived up to the characterization by Goethe that botany is the “gentle science” conducted by friendly people.

Though this event wasn't an Olympic Chapter event our members acted as the unofficial hosts. Fred acted as unofficial chairman and Ann as unofficial organizer. Centered at the Rosemary Inn our chapter provided the hike leaders and speakers for the event. We lucked out! Rain was forecast but we all stayed dry with periods of sunshine on Saturday. We lucked out again! The Obstruction Point road opened just in time so we could take our scheduled hike to Lillian Ridge. We will credit chapter member and Olympic National Park education specialist Janis Burger for the last minute road opening.

Rain free hiking continued on Sunday for the botanists who stayed in the Crescent Lake area; but the Cranberry Lake contingent received a mild soaking (what does it matter when we were walking in water up to our knees?), and the Mt. Townsend botanizers were greeted by heavy rain. Matt Berberich, Willi Smothers and their intrepid group of seven botanists will be awarded the BotWa 2008 “**Extreme Botany**” award for summiting Mt. Townsend in the pouring rain and maintaining a cheerful attitude.

Thanks to Sharon Schlentner, Dixie Llewellyn, Wendy McClure, Janis Burger, Fred and Ann Weinmann, Matt Berberich and Willi Smothers for leading hikes. Special thanks also to our evening program speakers, Steve Acker, Janis Burger, and David Allen. Steve provided us a status report on the removal of the Elwha Dams with particular emphasis on the plans and challenges for revegetation of the reservoir lands. Janis presented her excellent overview of the Olympic flora. Her photography made us realize why we only very reluctantly are giving up on film photography in favor of digital. David Allen, whose thumbs ooze green, summarized his work of propagating native plants for the many vegetation restoration projects in Olympic National Park including a massive ramp up for restoration following dam removal. As always we thank Catherine Hovanic and folks in the Seattle office who handled registration details and money matters and to everybody who shared the Botany Washington 2008 experience. We lucked out in one more way! The flowers were at their peak. See you all

>



Participants in Botany Washington 2008. PHOTO: MARK TURNER

A Look at Washington's Rare Plants: Yellow Lady's Slipper (*Cypripedium parviflorum*)

Washington State Threatened Species

*In 2007, Washington Rare Plant Care & Conservation Volunteer David Boose collected population data in six locations where *Cypripedium parviflorum* had been observed 15-20 years ago. He located the plant in just two of the locations. This is second in a series by Rare Care featuring Washington's rare plants.*

Text and photo by David Boose, Rare Care Volunteer



2008 Botany Washington continued from previous page

next year at Botany Washington 2009. How about a return to the Methow Valley, the site of Botany Washington number 1 in 1997?

Addendum by Chapter Chair, Sharon Schlentner:

Botany Washington in the Olympics was a true treasure in July. The weather even cooperated, giving us the opportunity to open books and really look at the plants during the peak of blooming for this year! I would like to extend my personal and the Olympic Chapter thanks for all of the work that Fred and Ann Weinmann did to put this event together for us all. It would not have happened without their tremendous effort. Kudos to Fred and Ann.



Yellow lady's slipper, *Cypripedium parviflorum*, is a treasure for casual plant hunters like me. A member of the orchid family, its golden, moccasin-shaped pouch and elongated, spiraling petals and sepals make it beautiful, photogenic, and easy to identify. Looking for it is also a great excuse to visit the Ponderosa pine forests of northeastern Washington, where it occurs in the moist transitional zones between wetlands and uplands in mature forest stands. And at 10-30 inches tall, it doesn't require any "belly botanizing"! About the only down side is that it frequently seems to co-occur with poison ivy.

But *C. parviflorum* is also intriguing from a conservation standpoint. It is highly variable; *Flora of North America* identifies three varieties but recognizes that even these show differences across their ranges, and hybridization between *C. parviflorum* and other *Cypripedium* species is common. *C. parviflorum* occurs throughout large parts of North America but is considered sensitive, threatened, or endangered across most of that area. Its distribution in Washington is limited, with only scattered populations in four counties. And it appears to have fairly specific habitat requirements, at least in Washington. I found it only in shady sites under "middle-aged" stands of understory shrubs such as red-osier dogwood (*Cornus stolonifera*) and snowberry (*Symphoricarpos albus*). As the shrub canopy ages, dense shade and accumulating woody debris appear to eliminate *C. parviflorum*. Normally, periodic disturbance (fire, for example), might clear the canopy and allow lady's slippers to re-establish as shrubs grow back. But in many places, disturbance has allowed the invasion of reed canary-grass (*Phalaris arundinacea*), whose dense cover prevents the regrowth of both the shrubs and the lady's slippers they harbor. It is clear that preserving these treasures of the inland forest will be a complicated conservation challenge.



Plant Lists Available Online

Before you set out on your next hike, check out the "Native Plant Lists" link at the WNPS web site www.wnps.org. Here you'll find plant lists from more than 500 sites throughout the state, compiled by some of the most respected names in Washington botany. Updates will be done once a year and members are invited to contribute their own lists. If you have suggestions about the plants lists or would like to contribute a plant list, please contact Don Knoke at donknoke@yahoo.com.



Washington Native Plant Society's 2009 Photo Calendar



If you're one of those people who never tire of gazing at a gorgeous plant, we've got the perfect way to indulge your fancy. From the first glimpse of the purple trumpet flowers of Davidson's penstemon perched on alpine rocks to the peculiar hemi-parasitic plant known as Thompson's paintbrush, the 2009 WNPS Photo Calendar will enthrall you with Washington's botanical beauty. Featuring photos taken by Society members, the calendar will remind you year round of the special plants Washington has to offer the wildflower enthusiast.

In addition, each month the calendar has smaller inset photos, includes dates of interest to those who are botanically inclined, and gives food for thought in the text which accompanies the featured image. Photos featured for this calendar produced by the Society were selected from over 100 images that were submitted by WNPS members.

Support the conservation work of the Society and its

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Seattle, WA 98115

(Expect delivery within 2 weeks.)

efforts to educate others about the value of preserving native plant species which are critical to the health of Washington's natural resources and quality of life.

Buy one for yourself and some for those on your gift list. Calendars may be purchased at chapter meetings this fall, you may buy online with a credit card at www.wnps.org, or send in the order form above. Each calendar is \$10.00, plus \$2.00 for shipping (one flat rate of \$2.00 shipping even for multiple calendar orders).

Sign Up for WNPS List Serve

Want to get involved with discussions about native plants and related issues with other WNPS members? The WNPS list serve offers announcements, news, and discussion relevant to native plants and the WNPS membership.

How to sign up: Email wnps@wnps.org and ask Catherine Hovanic to be added to the list. You must be a current WNPS member. Catherine will forward your request to our list provider who will add you to the list and email you with instructions for posting and unsubscribing.

2008 WNPS Annual Backpack Report

To the Goat Rocks Wilderness:
July 25-28, 2008

by Jim Riley, South Sound Chapter

Friday July 25

At 9:30 on a sunny but cool morning, ten avid hikers plus four dogs headed up the Walupt Lake trail with flower checklists in hand. Trying to get to camp by lunch time, we marched on without lengthy pauses making mental notes of what species we saw along the way. A short distance from camp we were joined by the eleventh member of our group, Linda. Participants on the trip were: Jim Riley, Bob Tokach, Don Knoke, Jim Duemmel, Jim and Mary Prichard, Julia Bent, Linda Swartz, Vickie Spivey, Sharon Rodman, Joan Frazee and the dogs, Tiger, Missy, Quila and Fritz.

We arrived at the Short Trail camp a little after noon and quickly set about making camp and eating lunch. When everyone was ready, eight of us set out on the trail again to hike up to Gertrude Lake at the base of Lakeview Mountain. Bob tried his luck with a fishing pole while the rest of us looked at the wildflowers. The mosquitoes soon became too bothersome to stick around so we all headed back down the trail to camp. After dinner we sat around the campfire and went through the checklist to see what plants we all encountered today. Along with the common ones in the Cascades we also saw: candy stick (*Allotropa virgata*), subalpine mariposa (*Calochortus subalpinus*), leafy miterwort (*Mitella caulescens*), and small white violet (*Viola macloskeyi*). A three-point buck in velvet joined us in camp for a couple minutes and four elk were spotted on the hillside across the lake from camp before the night was over.

New Invasive Plant Newsletter

Are you interested in news regarding invasive plant science, management, education, and policy? If so, check out the first issue of the bimonthly e-newsletter produced by the Center for Invasive Plant Management.

View the August 2008 Newsletter: <http://app.e2ma.net/campaign/7c56854ecfb45c22dac6bd1a5780bf70>

Subscribe: <http://app.e2ma.net/app/view:Join/signupId:39800/maillingId:1125384>



Hikers and dogs at Gertrude Lake. PHOTO: JIM RILEY

Saturday, July 26

When most of us were ready, we departed Short Trail camp and headed up the Pacific Crest National Scenic Trail to our next destination at Sheep Lake. The trail took us across some open hillsides on the south slope of the ridge where we added several more species to our lists. As our elevation increased we also started to come across a few snow banks along the way.

Our line of hikers spread out on the trail as a few stopped to key out a flower or two. Arrival at the Sheep Lake camp was before, at, and after lunch time as the stragglers finally made it in. After eating and setting up the tents most of us spent the rest of the day in camp while some explored the area. Sheep Lake is at 5710 feet and was thankfully free of snow. In the evening we once again sat around the campfire and tallied up the species on our lists. Noteworthy additions today were: rockslide larkspur (*Delphinium glareosum*), dwarf hesperochiron (*Hesperochiron pumilus*), alpine knotweed (*Polygonum phytolaccaefolium*), rayless mountain butterweed (*Senecio indecorus*), buttercup-leaved suksdorfia (*Suksdorfia ranunculifolia*) and Cusick's speedwell (*Veronica cusickii*).

Sunday, July 27

We woke up to a cold and foggy day and prepared daypacks for a hike up to Cispus Pass. Jim and Mary Prichard decided to hike home today so we all said our good-byes as they left camp. The rest of us (except Vickie with blisters) headed north on the Pacific Crest National Scenic Trail. At the ridge south of the Klickitat River we had to hike across a lot of snow between there and Cispus Pass. At the pass we spent a lot of time looking around for flowers or whatever else we could find. The north side of the pass was free of snow and we found a decent place out of the wind to eat some lunch. This is where we

came across alpine collomia (*Collomia larsenii*) and three-toothed miterwort (*Mitella trifida*).

Back at camp the clouds started to part now and then to let the sun shine through. We had time to relax a little before it was time to prepare our contributions to the potluck dinner. We set up our culinary fare on some flat rocks next to camp and loaded up our plates with all kinds of goodies as we went from dish to dish. Don even provided some scorched banana pudding for dessert. A final review of the checklist this evening totaled some 250 species of trees, shrubs, ferns and flowers.



Potluck at Cispus Pass. PHOTO: JIM RILEY

Monday: July 28

The skies were clear this morning so I suggested to Vickie that we hike up to the pass on the ridge above the Klickitat basin before we hiked out to the trailhead. Bob wanted to hike up to Lake Corral so the three of us said good-bye to the rest of the group as they prepared to leave. Vickie and I had a wonderful view of the Goat Rocks and basin when we got to the ridge. We then headed back to camp where we met Bob and soon we were on trail. Even on our way down the hill we managed to add three or four plants to the list.



View of Goat Rocks from the ridge. PHOTO: JIM RILEY

BOTANICAL ATTRACTIONS

Erna Gunther Ethnobotanical Garden at the Burke Museum of Natural History and Culture, University of Washington

by Kathy Murray

Just to the right of the main entry steps to the University of Washington's Burke Museum, in a large concrete planter that features a tall totem pole with a toothy whale at its base, stands a smallish Garry oak (*Quercus garryana*). This tree, which one would expect to see in vast open areas, is part of the Erna Gunther Ethnobotanical Garden, a collection of more than 100 plant species from both sides of the Cascade Mountains that Northwest natives found useful for food, clothing, shelter, and household implements.

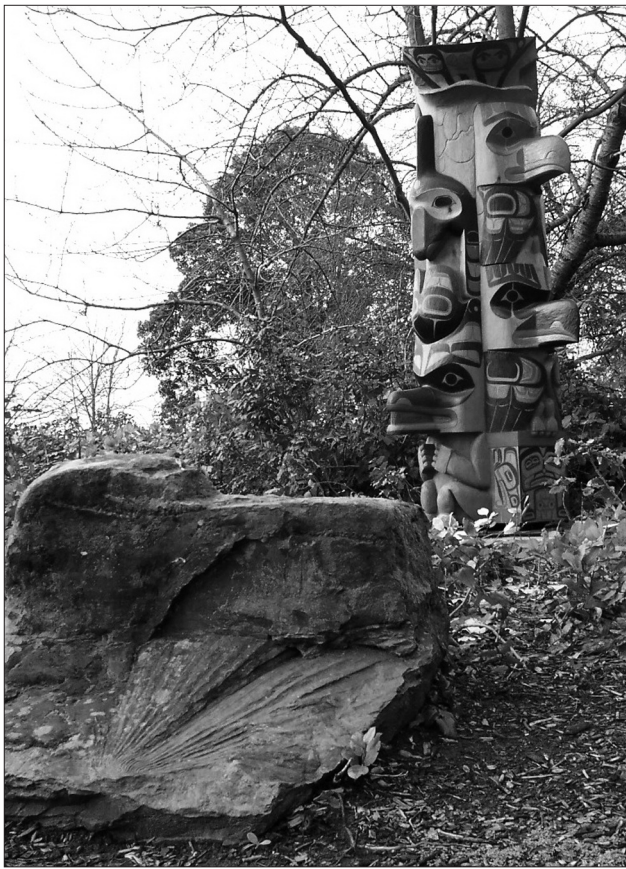
The compact garden dates to 1984 when it was created to honor University of Washington Anthropologist Erna Gunther, the first director of the Washington State Museum (now called the Burke) and head of the university's Department of Anthropology for 25 years. Many of us know Gunther from her 1945 book, *Ethnobotany of Western Washington*, which is still in print.

While one could quibble about the grouping of some plants, such as a nice clump of wild ginger (*Asarum caudatum*) in a bed of hybrid azaleas, it is wonderful to see a diverse selection of natives in an easily accessible urban setting where they can be seen year-round. This is especially useful for viewing such perennial herbs as great camas (*Camassia leichtlinii*) that die back after blooming in the spring.

Most plants are labeled with their common and botanical names with notes about how they were used by native peoples, their typical habitat, and how they can be incorporated into garden spaces. For example, according to the signage, the leaves of kinnikinnick (*Arctostaphylos uva-ursi*) were smoked. Its habitat is dry open areas and in gardens it can be used to cover dry banks.

Other native plants in the garden include short and tall Oregon-grape (labeled as *Berberis* [*Mahonia*] *nervosa* and *B. aquifolium*, respectively). These shrubs produce edible berries as does salal (*Gaultheria shallon*) and both can be used to produce dyes—yellow and purple, respectively.

By perusing the tags you'll learn that Native Americans ate acorns from the Garry oak, used the stems of orange



Palm fossil outside Burke café. PHOTO: KATHY MURRAY

honeysuckle (*Lonicera ciliosa*) to lash bridges, layered coltsfoot (*Petasites* sp.) in pit ovens, made snares from the leaves of Pacific Coast iris (*Iris douglasiana*), used the bark of shrubby cinquefoil (*Potentilla fruticosa*) as tinder to start fires, and made baskets from bear-grass (*Xerophyllum tenax*) and common sweetgrass (*Hierochloe odorata*). The latter was also used as incense. Henderson's shooting star (*Dodecatheon hendersonii*) produces a pink stain, wild ginger leaves were used for baby bedding, and Pacific ninebark (*Physocarpus capitatus*) was used as an emetic and laxative.

After visiting the garden be sure to walk around the museum to its south side, just outside the café entrance, and look at the rock and mineral specimens. These include petrified logs and large palm fossils from the Chuckanut formation near Bellingham. Then duck inside for a cup of coffee in the cozy café paneled with 18th century French pine. Or combine a visit to the garden with one to the museum and see the permanent displays of Northwest tribal art and household objects, some created from plants growing just outside the entrance.



Burke Museum

Location: Northwest corner of University of Washington campus (15th NE and NE 45th Street, Seattle)

Access and parking: Excellent bus access; parking immediately outside the museum (usually free Saturday afternoons and all day Sunday; other days, prepay daily rate and receive refund when exiting).

Parking information: http://www.washington.edu/commuterservices/parking/products/2007_visitors_guide.pdf

Museum Web site: <http://www.washington.edu/burkemuseum/>

Garden Web site: <http://www.washington.edu/burkemuseum/exhibits/details.php?ID=16&type=current>



Garry oak outside Burke Museum entrance. PHOTO: KATHY MURRAY

Information for Contributors

Members and others are invited to submit material for publication in *Douglasia*. 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 professional botanist to the interested enthusiast. For more information about how to contribute, see http://www.wnps.org/douglasia/douglasia_contributors.html.

Email submissions to: cspurgeon@msn.com

Deadlines for submission

Deadline	Issue	Members receive approximately
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March 1	Summer	May 1
June 1	Fall	August 1
September 1	Winter	November 1

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Giving at the workplace



Workplace giving is a means by which you can donate to WNPS and other charitable organizations through payroll pledges. Giving through automatic payroll deductions makes it easy to give. The Washington Native Plant Society is a member of Earth Share of Washington, a federation of leading environmental and conservation organizations. Many companies sponsor Earth Share of Washington giving campaigns through which you can designate a donation to WNPS. Federal, Washing-

ton State (including UW and WSU), King County, City of Seattle and other governmental agencies also sponsor giving campaigns that include WNPS as a charitable option. For a complete list of participating companies check out the Earth Share of Washington web site at www.esw.org. If your company has only a United Way giving campaign, you can still contribute to WNPS by designating Washington Native Plant Society in the "specific organization" or "donor option" section of the United Way pledge form.



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- A chapter newsletter with local news and information
- Field trips to see wildflowers and unusual plant communities
- Classes by expert botanists
- Annual study weekends
- Conservation and restoration activities
- The fellowship of plant lovers from all over the State of Washington

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April and October, dates to be determined.

For more information on agenda and location contact the WNPS office two weeks ahead of the meeting date.

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