

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.*

Flora of small islands of the San Juans

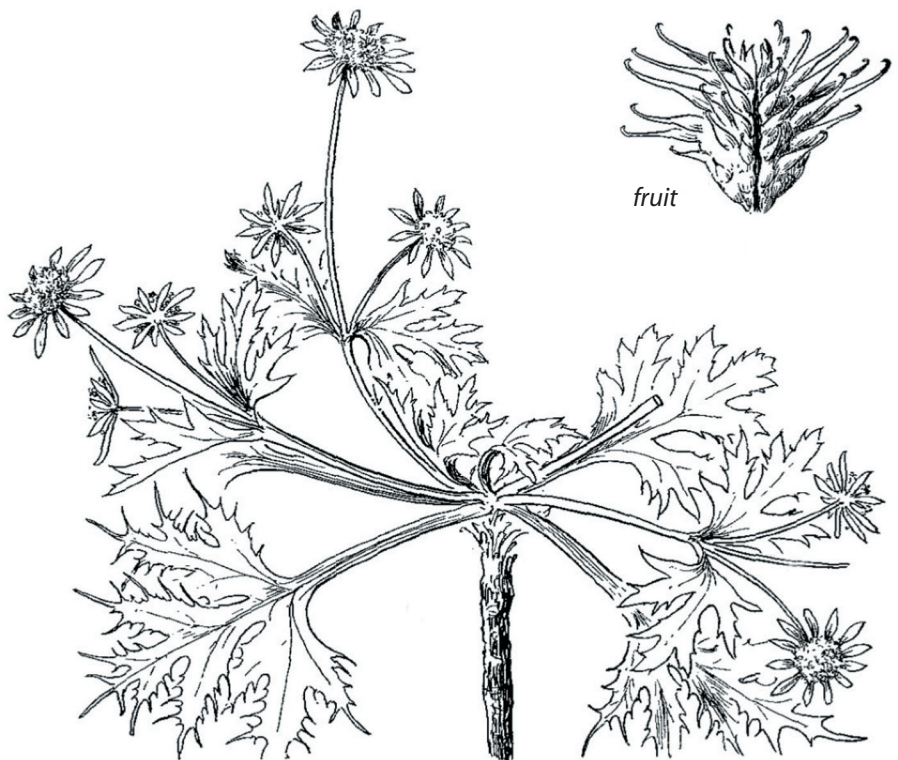
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Douglasia

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* To become a WNPS Fellow is the highest honor given to a member by our Society. This title is given to those who have made outstanding contributions to the understanding and/or preservation of Washington's flora, or to the success of WNPS.
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A note about this issue

I hope you've all been able to take advantage of our lovely summer and to get out among the wild flowers. One article in this issue offers some perspectives on Washington's diverse flora in places that most of us will never reach, the smallest of the islands in the San Juan Archipelago (p. 3). David Giblin and Peter Dunwiddie provide fascinating information on plant composition and dispersal characteristics in the San Juans.

In the context of this summer of record heat and numerous wildfires, the article on the use of controlled burning to preserve prairies provides a look at the benefits of fire and the problems posed by a paucity of trained firefighters (p. 16).

I'd also like to call your attention to two articles (Conservation update, p. 2, and Grazing plan for Whiskey Dick Wildlife Area, p. 11) that discuss proposals by the Washington Department of Fish and Wildlife to open some state land to cattle grazing. John Browne discusses the political background of this proposal while Mike Marsh (both co-chair the WNPS Conservation Committee) describes the topography and flora of one of the areas proposed for grazing.

On a sad note, in recent months the WNPS has lost three Fellows, Tom Corrigan, Joe Miller and Ruth Peck Ownbey. Their memorials begin on p. 20. A Fellow is the highest honor given to a WNPS member and all three contributed to our knowledge of nature and will be greatly missed.

Finally, this issue has a ballot for WNPS Board candidates for four open positions. Please vote.

Kathy Murray

Editorial Board Chair

Errata: In the Spring 2007 issue of *Douglasia*, the article "Beyond Hitchcock and Cronquist" incorrectly listed *Carex hystericina* as the synonym in Hitchcock and Cronquist for *C. magellanica* ssp. *irrigua*. Hitchcock and Cronquist use the name *C. paupercula* for this taxon. In addition, the article should have stated that the Washington Natural Heritage Program *does* welcome sighting information for Review List species.

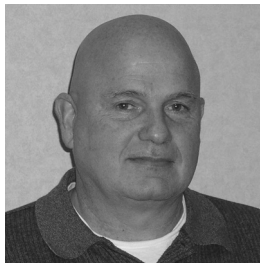
WNPS State Board of Directors: Meetings 2007

October 20, 2007

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

President's message

by Dean Longrie



It is with sadness that in this issue we must memorialize some of the true stalwarts of the Washington Native Plant Society. Ruth Ownbey and Joe Miller, both WNPS Fellows, passed away this spring. They were active in the early years of the Washington Native

Plant Society helping to get the Society organized. Joe Miller served as president for one year and Ruth Ownbey served as treasurer for several. Each of them served the Society in different capacities for many years. You will read more about them in this issue.

Unfortunately another WNPS Fellow, Tom Corrigan, died in May. Tom served for eight years as chairman of the Salal Chapter and continued to be active and involved until very recently. Last summer we were proud to pay tribute to Tom in the summer issue of *Douglasia*, as he was awarded the highest honor of the Society. Each of these individuals came from very different backgrounds but each recognized the value of serving in an organizational role for the Washington Native Plant Society. WNPS is grateful and better for their service.

I never had the pleasure of meeting Joe Miller or Ruth Ownbey, but I did have the pleasure of meeting Tom at our last WNPS Study Weekend in Chewelah. Tom's passing caused me to reflect on what is important and valuable. Like Tom, I value our natural environment. Professionally, I made working with nature, wildlife and plants my vocation. I worked at this for most of thirty years. My influence seemed reflectively small—primarily on small areas of some National Forests in Oregon and Washington. During my tenure as the Regional Botanist I became involved with very active members of the Oregon Native Plant Society. I noted the statewide efforts that the organization was making to preserve and maintain native plants, especially rare species, on all lands—private as well as public. The people making the difference, having an influence statewide were mostly volunteers, people like Tom Corrigan, who gave their most precious gift of time to benefit what they valued.

Tom was an orthopedic surgeon by training but his avocation was the natural world. When he became interested in Washington's native plants he found ways to support the Washington Native Plant Society, and he did

this by supporting a critical component of WNPS—the organizational needs at the chapter level. I only briefly met Tom, but he embodied the values I see so much of in WNPS members who serve on the State Board and who serve at the local level.

I hope some of you will consider the value of your time and use it to help an organization—whose work you care about—be successful with its mission. With the Washington Native Plant Society you don't have to be a botanist or native plant expert to chair a chapter, serve as treasurer, make cookies for meetings, help out at a native plant sale, write letters in support of conservation issues, edit a newsletter or provide positive support and assistance. You just need a willingness to contribute some of your time to the common goals of WNPS. I hope in the year to come you will find time to volunteer. If you knew Tom, Joe or Ruth, volunteer in their memory, if you didn't, volunteer in their spirit.

DL

Education grants available

by Fayla Schwartz, WNPS Education Committee Chair

The Education Committee of WNPS has grant money available for projects conducted by WNPS chapters and individual members. The projects must be focused on educating the public (or some subset of the public) about native plants in our area. Types of projects funded in the past have been educational web sites, museum or interpretive exhibits, signs for native plant gardens, development of native plant gardens in schools and other public places, and development of slide shows and other materials that can be used in public presentations. Grant amounts typically range from \$200 to \$1,000, depending on the type of project and how much money is available in that granting cycle.

Deadlines for WNPS education grants are May 15 and November 15 each year. If you or your chapter has a project that could use some education funding, please see the grant proposal guidelines on the WNPS web site at www.wnps.org. Go to "Activities" (left column of the home page), and click on "Education." More information is also available from the Education Committee chair, Fayla Schwartz, at fschwartz@everettcc.edu.

FS

Conservation update

by John H. Browne, Jr., *Conservation
Committee Co-Chair*

The recent announcement by Washington Department of Fish and Wildlife (WDFW) that another indigenous prairie species has been put on “life support” is just the kind of news that seems designed to maintain a state of mind that I’ve come to refer to as “divine discontent.” The species under consideration (the Taylor’s checkerspot butterfly) is not a plant—but, like most members of the animal kingdom, it is “plant-dependent” ... and the lack of both a sufficient number of appropriate plants, and places where they may flourish, is the reason for the need for the collaboration that is keeping this species “afloat.” While the U.S. Army, the Portland Zoo, The Nature Conservancy, and others have offered their resources to the efforts by Washington Department of Natural Resources and WDFW to expand habitat, another state agency, the Washington Department of Transportation, continues with plans to bifurcate some of that same prairie habitat with a new four-lane highway. The particulars of that project, proposed SR704, are presently “on hold”; but the generalities—public agencies working at cross-purposes to one another’s efforts—is still an important issue, on many different fronts. (For more info on the butterfly and the prairies that it needs, go to www.southsoundprairies.org.)

The proposals to open WDFW lands to commercial grazing may be the most blatant conflict of diverse interests to reveal itself in recent history (but I’m open to evidence of other examples... bring ‘em on!). At a time when two state agencies with extensive land holdings are “swapping” properties, for a list of reasons (including contiguity—for more effective management), as well as, in WDNR’s case, also selling a bit of real estate, the issue of “the prime directive” of the WDFW appears to be challenged, albeit obliquely. In the alleged interests of “fish and wildlife” the argument is being made that cattle grazing can be a useful management tool, as well as a provider of a wee bit of income for the agency. The historic record would challenge both premises, however, which has been ably documented by several parties, including our own Michael Marsh, who has requested an Environmental Impact Statement in place of the agency’s “Determination of Non-Significance” for the Whiskey Dick Grazing Permit—and rightly so, for as weighty and complex an issue as this one. [See Mike Marsh’s article “Grazing Plan for Whiskey Dick” elsewhere in this issue.—Ed.]

Part of the justification, on WDFW’s part, for allowing grazing is that the timing of it will enhance the situation for

elk and deer, who will be showing up afterwards, apparently. (That the nearby orchardists and other agriculturalists may find this to be in their best interests, too, is not explicitly stated.) This provided me a moment of historical recall ... to the time when WDFW was known as “Fish and Game,” a name that reflected more accurately the extractive nature of our collective relationship with “public lands.” It was a great leap, aesthetically and ecologically, to begin to consider the “non-game” species as providers of some value to the public, even though it may have been considered as a peripheral one, for us, because of their intrinsic place in their communities. The policies (and, hopefully, a burgeoning philosophical shift) that have developed as a result of this acceptance of the verities of ecological observations, when pressed by this land-use issue, has posed these questions in my mind: Is the native plant community on these public lands considered “wildlife”? ... and, if so, do their needs merit the same attention as those other “non-game” species?

As an economic impetus, I’d argue that there are far more “shots” taken at flowering parts of our indigenous plant community than are taken at elk, on an annual basis; and that the recreational value provided by this fact alone can offer some statistical basis for making an economical determination of the value of local plant communities around the state. Of a more pervasive nature is the value of that plant community, itself, to the rest of the “wildlife” in whose midst we find ourselves. Like the other common natural elements, our air and our water, they are essential to our long-term survival, just as they are, on a more immediate level, to their wild cohabitants. We have collectively agreed that clean air and clean water are in the best interests of the majority of us. Shouldn’t it follow that, especially in those places our public agencies profess to manage for the good of the indigenous wildlife communities, the native plants there be given the same consideration accorded to the other wild species?



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.



Vascular plant floristics and biogeography of small islands in the San Juan Archipelago

by David Giblin, *University of Washington Herbarium, Burke Museum*

Peter Dunnwiddie, *The Nature Conservancy*

Introduction

The San Juan Archipelago is composed of approximately 173 named islands scattered off Washington State's northwest coast. Though the bedrock for some of these islands dates back over 200 million years, the islands' flora developed only recently in relative terms. It was only 12,000 years ago that the islands emerged completely bare after sitting under a mile-plus deep ice sheet for

nearly 100,000 years. Over the following dozen millennia, vascular plants, nonvascular plants, and lichens episodically colonized, dispersed, disappeared, and reappeared in unknown patterns and frequencies. Indigenous cultures likely impacted the islands' flora through the cultivation, transplantation, and/or eradication of particular species. The activities of nonindigenous peoples, through agriculture and residential/commercial development, have also dramatically changed the islands' habitats and species composition over the past 150 years. Collectively, these factors contribute to making the San Juans an intriguing area to explore botanically, not to mention a breathtaking setting in which to do fieldwork.

Despite their proximity to Seattle and Vancouver, there is a surprising dearth of published information about, or collections from, the San Juans. University of Washington botany professor T. C. Frye collected in and around Friday Harbor in the early twentieth century. In the 1980s, Scott Atkinson and Fred Sharpe wrote what is still the definitive book on the islands' flora, *Wild Plants of the San Juans*. In



This photo shows the predominant habitat types encountered on the islands we surveyed: seaside rocky outcropping, prairie-like headlands, and lowland coniferous forest. PHOTO: DAVID GIBLIN

the course of their research, these two outstanding young botanists collected extensively on the main islands of the San Juans, but many of the smaller islands were not visited, and their floras remained largely undocumented.

Current project background

In 2005, we applied for and received a research grant from the Washington Native Plant Society to document the vascular plant, nonvascular plant, and lichen richness (i.e., the number of species) of the small islands found throughout the archipelago. Our original idea of “small islands” was those roughly 40 acres or less in size, though we exceeded that criterion in select cases. The primary attraction of this size class was that many of these islands had either never been comprehensively surveyed, or, if they had been, the species lists were scattered among various published and unpublished documents. One of our goals for the project was to create a centralized resource where this information could be accessed by anyone interested in these data. A complete set of the specimens collected in this study resides at the University of Washington Herbarium (WTU), and the specimen data can be accessed through WTU’s online database (<http://biology.burke.washington.edu/herbarium/collections/vascular/search.php>). Any duplicate specimens that we made will be deposited at the herbaria of the University of British Columbia and Washington State University. Because our expertise is in vascular plants, the article here focuses on this component of the study. Identifications of the lichen and bryophyte

specimens collected are ongoing.

Our survey work differs from that of Atkinson’s and Sharpe’s in that we are generating comprehensive species lists for all of the small islands based on herbarium vouchers (plant specimens). As will become apparent later in this article, herbarium vouchers are the most valuable form of documentation in plant surveys because they are tangible evidence of what is growing where and when. Species lists without vouchers are very helpful, but the difference is that there is no way to evaluate or examine the identification of a species found on a list. As any botanist knows, field identification of various species can be difficult, and in such instances the microscopes and reference materials (i.e., other specimens, flora manuals) found in a herbarium are essential for the accurate identification of such species. Another factor distinguishing our study is that we are interested in examining the patterns of species richness among these small islands in the context of island biogeography theory. Briefly, this theory predicts that richness on a given island results in part from the combination of its size and its distance to the mainland. For example, an island that is small and far away from a mainland should have fewer species than an island that is large and close to a mainland.

2005 field season

With these goals in mind, we led two three-day collecting trips in 2005 that targeted the small islands along the southern end of Lopez Island. We scheduled the trips for late April and late May in order to capture

the different suites of species that flower in the San Juans during spring. For example, late April is a great time to find a number of species that are dormant or “burned up” by late May, including blue-eyed Mary (*Collinsia parviflora*), redstem springbeauty (*Claytonia rubra*), and chocolate lily (*Fritillaria affinis*). Conversely, species such as nodding onion (*Allium cernuum*), pink honeysuckle (*Lonicera hispidula*), and crown brodiaea (*Brodiaea coronaria*) typically are not fully flowering until the end of May or early June.

For the initial April 2005 trip, we were joined in the field by Peter Zika, Ben Legler, Joe Arnett, Steve Hahn, Byron Bishop, Katie Glew (lichens), and Judy Harpel (bryophytes). We visited a total of 10 islands and made 417 vascular plant collections during the trip. For those species on each island that were not in a reproductive state (flowers/fruits/cones/



Lisa Bellefond and Victoria Willey-Echeverria collect specimens in the seaside prairie habitat on one of the small islands off the south end of Lopez Island in May 2005. PHOTO: DAVID GIBLIN

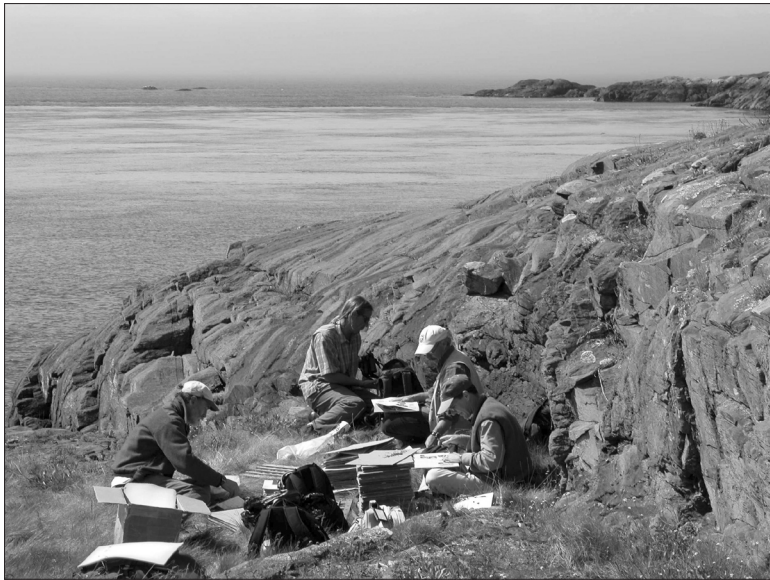
spores), and for which we were confident we knew their identification (e.g., ocean spray [*Holodiscus discolor*]), we noted their presence on that island and thus included them on the island's ultimate species list. A volunteer from The Nature Conservancy (TNC) generously donated his time and the use of his yacht to transport our group among the islands. Not only did he expertly navigate us among the tidal currents and fog we encountered, but he also shuttled us safely from boat to island by dinghy.

In May 2005, Bert and Sue Webber graciously provided us the use of their boat, the *Snow Goose*, at cost to visit an additional 17 islands. The group this time was much larger, 20 in all, which was a major factor in our ability to visit so many islands. It was wonderful to have the assistance of so many "citizen scientists." Joining us were Elizabeth Bell, Lisa Bellefond, Cole Brooking, Linda Brooking, Lousia Dunwiddie, John Floberg, Judy Harpel, Wayne Harpel, Nick Hill, Sally Hill, Jessie Johanson, Joe Johanson, Mary Johanson, Peg Pearson, Cindy Spurgeon, Victoria Wyllie-Echeverria, and Peter Zika.

Perhaps the most exciting collection from this outing was a species of Indian paintbrush (*Castilleja*) that ultimately turned out to be new to science. WTU Research Associate Mark Egger is a world authority on this genus, and it wasn't until he saw the specimen several months later that we learned we had collected an undescribed species. Mark is currently in the process of publishing this new species with a colleague from Canada, Matt Fairbarns. Interestingly, this species had been collected several times over the last century in the Victoria area, but had been misidentified as another more common species, *Castilleja ambigua*. The population from which we collected is the first and only known U.S. population. This story underscores the importance of collecting specimens. Had we only been making species lists, Mark never would have seen the specimen and we would not be aware of the existence of this new San Juan/Gulf Islands endemic. Moreover, our collections also resulted in the documentation of 20 occurrences for five species on the Washington Natural Heritage Program's rare plant list.

2006 field season

Building on our successes from 2005, we planned three additional three-day trips for 2006. We shifted our



(Left to right) Peter Dunwiddie, Steve Hahn, Joe Arnett, and Byron Bishop press plants on the first trip in April 2005. PHOTO: DAVID GIBLIN

geographical focus to a suite of islands stretching from Eastsound of Orcas Island to the southeast corner of Stuart Island, which marks the northwest boundary of the archipelago. The first two trips in April and May of 2006 were funded by the University of Washington Herbarium Endowment, and the generosity of an anonymous donor made possible a third trip in early September. As mentioned, most vascular plants in the San Juans flower in spring, but there are a substantial number of species (e.g., goldenrod [*Solidago canadensis*], Gmelin's saltbush [*Atriplex gmelinii*], fall knotweed [*Polygonum spargulariaeforme*]) that flower in late summer. A possible reason for this second bloom period is that these species can tolerate the droughty conditions that characterize Pacific Northwest summers. At this time of year, there is likely to be less competition than in spring for resources such as water, nutrients, and pollinators.

In 2006, TNC generously allowed us to use the cabin on Yellow Island as our center of operations. Outdoor camping is not permitted on Yellow Island, so caretaker Phil Green kindly allowed us to take over all available floor space in the cabin. Phil also served as the trip's captain, as we rented TNC's boat the *Stewardship* in order to travel among the islands we surveyed. Though we did not turn up any new species from our 2006 surveys, we did visit a total of 27 islands and made a remarkable 1,700 collections. The biggest island we visited was Flattop, which is 80 acres in size, and the smallest island was Little Oak, which came in at 0.01 acres. Surprisingly, we picked up several species in this year's surveys that we had not

collected in 2005, and these included farewell-to-spring (*Clarkia amoena*), fringed redmaids (*Calandrinia ciliata*), and the parasitic salt-marsh dodder (*Cuscuta salina*). We also documented an additional four locations for Washington rare plant species.

We had the pleasure and good fortune in 2006 to be joined by another outstanding group of regional botanists who generously donated their time, efforts, and expertise to this project: Joe Bennett, Pam Camp, John Floberg, Rod Gilbert, Emily Gonzalez, Eliza Habegger, Steve Hahn, Ben Legler, Carrie Marschner, Tara Martin, and Victoria Wylie-Echeverria. WTU's National Science Foundation intern Jessica Ni organized island-by-island species lists for the September trip, and Linda Brooking and Barbara Williams databased and processed all of the specimens, respectively.

Floristics and biogeography

Results from our activities to date have generated novel insights into the composition and biogeographical patterns of the San Juans vascular plant flora. Approximately 70% of the taxa (including species, subspecies, and varieties) that we collected were native. Despite the fact that nonnative taxa probably first appeared in the San Juans only 150 years ago, we found that they are as widely distributed throughout the archipelago as the native taxa. Island size had a significant effect on species richness for

both native and nonnative species, but the distance of an island from the closest mainland (e.g., Lopez Island) did not. Moreover, the size of an island had no bearing on the ratio of native to nonnative species found there, suggesting that land use history is likely to have the biggest impact on the species composition and habitat integrity of any one island.

In total, we have located 24 populations of five taxa that occur on the "List of Plants Tracked by the Washington Natural Heritage Program" (www.dnr.wa.gov/nhp/refdesk/lists/plantrnk.html). A particularly interesting find was a population of bear's foot sanicle (*Sanicula arctopoides*), a species that previously had not been reported in Washington north of Gray's Harbor County. We collected Alaska alkaligrass (*Puccinellia nutkaensis*) on several islands, suggesting that the San Juan Islands are likely the home to the largest populations of this easily overlooked grass. Alaska alkaligrass occupies a rather narrow ecological niche, as we only saw and collected it on exposed rocky outcrops rising directly from the sea.

One of the most interesting patterns that we found is the difference in life histories and dispersal modes between the most widely distributed native and introduced species that we have observed to date (see accompanying table). All but one of the six most widely distributed introduced species are annuals (*Hypochaeris radicata* is the exception), and all six have seed morphologies that enable animal or wind dispersal. In contrast, the six most widely distributed natives are all perennials, and only two of them (*Festuca rubra* and *Rosa nutkana*) have fruits and seeds with morphological features that facilitate animal dispersal.

Future plans and conclusion

We believe that our efforts over the past two years have yielded important findings and insights regarding the vascular plant flora of the San Juans in general, and the smaller islands there in particular. With additional funding, we are hoping to continue these surveys in unexplored corners of the San Juans. There still remain many small islands that we would like to make first-time visits to, and there are a small number of larger islands (>100 acres) that we are interested in surveying, and ideally we would like to have survey data for all of the small islands at the April,

List of the most common native and introduced species collected and observed on 54 islands in the San Juan Archipelago in 2005-06.

Native species	Common name	Island occurrences
<i>Festuca rubra</i>	red fescue	50
<i>Grindelia birsutula</i>	coastal gumweed	46
<i>Rosa nutkana</i>	Nootka rose	39
<i>Plantago maritima</i>	salt marsh plantain	36
<i>Cerastium arvense</i>	field chickweed	36
<i>Camassia leichtlinii</i>	large camas	36
Introduced species		
<i>Geranium molle</i>	dovefoot geranium	38
<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>	soft brome	36
<i>Bromus diandrus</i>	ripgut brome	35
<i>Aira praecox</i>	early silver-hair grass	35
<i>Vulpia bromoides</i>	brome six-weeks grass	34
<i>Hypochaeris radicata</i>	hairy cat's ear	31

Invasion by butterfly bush (*Buddleja davidii*): Impacts on the geomorphology of a gravel bar in the Tolt River, Washington

M.S. thesis by Jennifer Leach, University of Washington

Butterfly bush (*Buddleja davidii*, family Loganiaceae) is a pioneering shrub native to river bars in central and western China. Prized for its dense panicles of colorful flowers, tolerance of a range of soil conditions, and its ability to attract a large number of butterflies to the garden, *B. davidii* has become widespread around the globe through introduction as an ornamental. As dense thickets of escaped populations have become increasingly prevalent along riparian corridors in the Pacific Northwest, there is growing concern regarding the impact of butterfly bush to these native ecosystems. Long recognized as an invasive shrub in Britain and New Zealand, butterfly bush was listed as a Class C noxious weed in Washington State in November 2004, with overwhelming support from nursery and land managers, state park officials, and conservation groups.

The impact of invasive shrubs on river channel geomorphology has been the subject of several investigations. Perhaps the most dramatic example of

geomorphological changes due to woody plant invasion is that of salt cedar (*Tamarix chinensis*), a shrub that has become naturalized throughout the American southwest. Where dense thickets of salt cedar have established along rivers of the Colorado Plateau, stabilization by roots and sediment trapped by dense foliage has significantly increased the size of in- and near-channel landforms, resulting in substantial channel narrowing.

Pioneering vegetation within the active channel and floodplain influences the development of channel morphology through two primary mechanisms. First, stems submerged during flooding provide resistance to flow, enabling suspended particles to settle out of the water column. Secondly, sediment is then bound together by plant roots, which enables in-channel landforms to persist. The degree to which woody plants influence channel morphology depends largely on 1) individual species' tolerance to flooding and scouring, and 2) their above- and below-ground morphological characteristics. Previous studies have found that woody species with shrubbier growth forms (greater stem density) lead to greater accumulation of sediments. Similarly, plant species with denser root systems have been found to contribute to greater bank stability.

In order to investigate the impacts of colonization by butterfly bush on channel geomorphology, I compared patterns of a) species distribution, b) contribution to channel roughness, and c) contribution to bank strength for butterfly bush and for co-establishing native pioneers, black cottonwood (*Populus trichocarpa*) and sitka willow

San Juans continued from previous page

May, and September time points. With this information in hand, we will have not only a comprehensive understanding of the distribution and diversity of the San Juan Islands flora, but also an outstanding baseline data set for future researchers to use in a variety of contexts.

The flora of any region is dynamic, and the San Juans is no exception. By making specimens in the course of our research, depositing them in regionally important herbaria, and making this information available online, we are ensuring that researchers and native plant enthusiasts have tangible evidence to explore questions regarding the flora of one of Washington's natural history jewels.

Acknowledgments

Logistical support for this project was provided by

the U.S. Fish and Wildlife Service (Annette de Knijf), The Nature Conservancy, Washington State Parks and Recreation Commission (Robert Fimbel, Ph.D.), U.S. Bureau of Land Management (Pamela Camp), San Juan Preservation Trust, and the San Juan County Land Bank. Financial support for this research was provided by the Washington Native Plant Society, Herbarium Endowment, Friends of the Herbarium, and the National Science Foundation (REU internship).



WNPS Member Donations at Work

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



Dense stands of *Buddleja* stretch for several miles along many reaches of the lower Tolt River. This photo was taken in July 2005 on a gravel bar located adjacent to the upstream edge of the study site. PHOTO: JENNIFER LEACH

(*Salix sitchensis*), on a gravel bar on the lower Tolt River in Washington. The study site was located directly upstream from the town of Carnation, in the vicinity of the Tolt River Natural Area. For each of the three study species, I measured 1) the presence and/or density of persistent plants and seedlings relative to elevation, substrate size, and landform position; 2) the density and diameter of basal shoots (measured at 10cm above ground) and crown shoots (measured at 30cm above ground); and 3) the density, diameter, and tensile strength of roots.

Presence/density of persistent plants

Patterns of distribution observed for the three study species suggest that persistent plants are distributed throughout the study site according to species-specific tolerances to flooding and scouring. Compared to black cottonwood and sitka willow, persistent butterfly bush plants were present in high densities at higher elevations and in sheltered locations, which indicates that butterfly bush is comparatively less tolerant of both frequent inundation and high-intensity flooding than the other two species. No patterns of seedling distribution were observed for any study species, which indicates that patterns observed in the distribution of persistent plants are the result of post-germination factors.

Basal and crown shoot density and diameter

There was no significant difference in the density of

basal shoots among the three study species. However, butterfly bush has a significantly greater number of crown shoots per ramet than black cottonwood or sitka willow, which resulted in this species occupying a significantly greater area within the channel than the other two study species. These differences are likely the result of differences in plant architecture during growth and development. Both black cottonwood and sitka willow exhibit growth patterns controlled by relatively strong apical growth characterized by a thick central stem and lateral branches on the lower bole; of the two, black cottonwood most strongly demonstrates this tendency. In contrast, butterfly bush has a more spreading habit characterized by several basal shoots and a high density of thick lateral shoots that extend from the base into the crown. Results from this study indicate that butterfly bush contributes to significantly greater channel roughness than black cottonwood or sitka willow.

Root density

Roots of sitka willow had significantly greater tensile strength than black cottonwood and butterfly bush roots. No significant differences in root density were observed among the three study species, most likely as a result of high variance within the data. However, data indicate that butterfly bush has a greater number of fine roots (roots <1mm diameter) than black cottonwood, which may result in increased bank strength in areas colonized by butterfly bush compared to areas colonized by black cottonwood.

Implications

Accelerated rates of sediment accretion and increased bank stability will likely lead to the development of more persistent in- and near-channel landforms and a subsequent decrease in channel braiding and/or migration. These morphological changes could lead to substantial changes in in-stream habitat where native pioneers black cottonwood and sitka willow have been displaced by butterfly bush. In addition, increases in channel roughness as a result of colonization by butterfly bush could lead to more frequent overbank flooding.



WNPS Member Donations at Work

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

ELECTION 2007

WNPS BOARD

There are four candidates for four positions. A space for a write-in vote is included on the ballot. Candidates with the most votes will each serve three-year terms on the WNPS Board beginning in the fall of 2007. Two voters per ballot are allowed for those with family memberships and family voting privileges. Please fold where indicated on the back side of this ballot, tape edges, apply postage, and return the ballot by October 1, 2007 or sooner.

☐ **Candidate Terry Lillybridge** is currently the Forest Botanist/Plant Ecologist for the Okanogan and Wenatchee National Forests in Wenatchee, Washington. His duties include ecosystem restoration, vegetation classification, rare plant research and program management for rare plants, noxious weeds and area ecology. Terry has a B.S. in Range Management and an M.S. in Forest and Range Management (emphasis plant ecology, wildlife and soils) from Washington State University. He has worked professionally as a soil scientist, range conservationist, plant ecologist and botanist. He has over 30 years experience with the classification, interpretation and restoration of Eastern Washington ecosystems. Terry is a charter member of the Wenatchee Valley Chapter of the Native Plant Society and has served as treasurer and board member. Terry enjoys native plants and the communities that they inhabit. Each year he collaborates with BLM botanist Pam Camp to lead spring "Wildflower Walks" in the areas surrounding Wenatchee.

☐ **Candidate Dean Longrie** has served on the Washington Native Plant Society Board of Directors as a member-at-large, treasurer and as the current president. Dean was the Regional Botanist for the USDA Forest Service since 1989 until his retirement in 1997. Prior to this, he was responsible for the botany, wildlife and noxious weed management programs on Mt. Hood National Forest. He has lived in Clark County since 1978. Dean currently serves as the chairman for the Clark Conservation District and vice-president of the Washington Association of Conservation Districts. He also serves on the Clark County Endangered Species Advisory Committee. Dean has a B.S. in Botany from the University of Wisconsin and an M.S. and Ph.D. in Wildlife Ecology from Michigan State.

☐ **Candidate Gary Smith** has been a member of the Washington Native Plant Society since 1999. He has served on the Central Puget Sound Chapter Board as vice-chair (2002-2003) and has been the Stewardship Program chair for the past four years. Gary retired as the Northwest Deputy Regional Director for NOAA's National Marine Fisheries Service in 1995. Since retiring Gary does volunteer work on community-based restoration projects, vegetation monitoring and mentoring school children in restoration education. He and his wife have served as Washington Department of Natural Resources Stewards at Oak Patch Natural Area Preserve in Mason County since 2001. Gary has a bachelor's degree in Biological Science from California State University at San Jose.

☐ **Candidate Jane Wentworth** is a life member of WNPS and currently serves as an at-large member on the Washington Native Plant Society Board of Directors. Jane had originally joined the Board to fill out a vacated term, decided to run for a second full term, and would like to continue for another full term. Jane currently serves on the Executive Committee, the Editorial Board for *Douglasia*, and leads the WNPS's Invasive Species Initiative. Jane earned a master's degree in Botany from the University of Washington in 1994 after conducting four years of demographic research on *Castilleja levisecta*. Jane continued her work on rare plants by conducting surveys and preparing conservation reports for the Washington Natural Heritage Program for two years. In 1997, Jane became the Program Coordinator for the then newly formed King County Noxious Weed Control Program. Jane currently serves on the Kitsap County Noxious Weed Control Board and the Bainbridge Island Land Trust where she is secretary and chairs the Stewardship Committee.

☐ **Write-in Candidate:**

☐

----- FOLD HERE -----

POSTAGE

WASHINGTON NATIVE PLANT SOCIETY
6310 NE 74th Street, Suite 215 E
Seattle, WA 98115

----- FOLD HERE -----

Grazing plan for Whiskey Dick Wildlife Area

by Mike Marsh, Conservation Committee Co-Chair

A large stretch of high shrub-steppe land lies on the slopes west of the Columbia River between Wenatchee and Vantage. The land is nearly unbroken by farming or development, perhaps because of its steep slopes and rocky soils, but a wind farm is seen from afar as you drive toward the area on highway I-90. A large elk herd uses portions of this landscape as winter habitat; Sage Grouse (listed by Washington State as threatened and by the federal government as a candidate for listing) were seen with chicks; and the Sage Thrasher of melodious song nests there.

In spring, Whiskey Dick bursts into bloom with balsamroots and phlox seen from the highway, and lupines, fleabanes and buckwheats, yellow bells and sagebrush violets abound if you stop and look around.

Land ownership there rests mostly with Washington Department of Fish and Wildlife (WDFW) in the L.T.

Murray, Quilomene, and Whiskey Dick wildlife areas. The WDFW is negotiating to buy the Skookumchuck, a 16,000-acre sliver of land between Whiskey Dick and the Quilomene area to its north. Kittitas farmers and ranchers are distressed by elk grazing in their pastures, and in particular on their crops, so an agreement called a Coordinated Resource Plan has been forged with private landowners in Kittitas County to permit livestock grazing on Whiskey Dick. The aim of the plan is to make that land more attractive to elk, the theory being that early spring grazing will remove last year's dry growth so elk will find tastier grazing the next fall and winter.

Grazing is scheduled to begin in 2008, a year later than planned because the WDFW had not completed an Environmental Assessment (EA) required under the State Environmental Policy Act. The EA for the Whiskey Dick Grazing Plan was released shortly after Helen Engle had alerted me to news of a pilot study of grazing on an Asotin County Wildlife Area. This stimulated some WNPS members to visit Whiskey Dick the day after the April Board meeting in Ellensburg. Steve Herman of Evergreen University led us out (Catherine Hovanic, Bill Brookreson, Wendy McClure, Sandy Halstead—a “place-



View north across Rocky Coulee; much of Whiskey Dick is steep terrain. PHOTO: MIKE MARSH

based” USEPA employee from Prosser—and me) to see the plants and hear the birds.

Finding that WDFW may not have compiled base year (pre-cow) monitoring data, I decided that a guerilla plant transect measuring plan was in order. Brett Johnson agreed to furnish himself and his truck to go up to Whiskey Dick with me May 14-16. I emailed Don Knoke, and he agreed to go out and show us some of the plants. We loaded plot measuring frames, 50-meter tapes, rebar for permanent marker stakes, wooden stakes, sampling forms, camping gear and food into Brett’s truck and headed out. We met up with Don, and with him following, we drove to Whiskey Dick via Vantage, a very circuitous route occasioned by Brett and me talking too much and failing to exit from I-90 at the town of Kittitas.

On our first morning we learned the names of some of the plants with Don’s patient help. The landscape had lost many of the flowering species by May 14, but lupines, native onions, showy fleabanes and at least two buckwheats were still blooming, and Gairdner’s penstemon (*Penstemon gairdneri*) was seen in several places. Rigid sagebrush (*Artemisia rigida*), narrow-leaf goldenweed (*Stenotus stenophyllous*) and two shrubby buckwheats—rock buckwheat (*Eriogonum sphaerocephalum*) and thyme-leaf buckwheat (*Eriogonum thymoides*)—were plentiful on stonier sites, although mostly past flowering. On a lithosol ridgetop within walking distance of camp we found Hoover’s tauschia (*Tauschia hooveri*), a state-listed species. It looks like a small reddish wire contraption at this stage, with branching stems and linear leaves. After being shown two or three and photographing one, I could still not find plants on my own!

This land was purchased by WFDW in 1981, and there has been little or no grazing since that time. Most of the landscape appears to be in good to excellent health with respect to flowering plants, but the coverage of biological crust is quite low throughout in comparison with what I have found on Benton County shrub-steppe. Whether this is because of natural circumstances, or a legacy of past cattle grazing is difficult to say. There is extensive lithosol

habitat on ridge tops, with better biological crust than was seen on deeper soils, and both bluebunch wheatgrass and Idaho fescue are flourishing on deeper soils.

Three community types that are listed for concern by the Washington Natural Heritage Program are common here: the Stiff Sagebrush/Sandberg’s Bluegrass community, the Wyoming Big Sagebrush/Bluebunch Wheatgrass community mixed with the Big Sagebrush/Idaho Fescue community, and the Thyme Buckwheat/Sandberg’s Bluegrass community. We sampled vegetation

within each of these communities. I had created a list of 100 random locations on Whiskey Dick, and we used 10 of these which represented the principal habitat types as well as a sampling of terrain features such as north slope, south slope, stony ridge top, and ravine or “coulee” bottom.

After Don’s orientation we located two of the predetermined sites using a geographical positioning unit, pounded stakes in

and capped the rebar stakes with bright orange plastic caps (the elk will love them!). We measured plant cover by species as well as shrub extent and height at each site, while Don listed plants that he saw near the transects. Don’s dog, Tiger, helped too. Every once in a while there was 5% cover of dog foot in the sampling frame!

In late afternoon we decided to call it a day. Don said he would return the next day, and we agreed to meet at the bottom of a tributary to Rocky Coulee where one of my random points was located, just north of the campsite which Brett and I had chosen. We set up our tents beside the old “pumphouse,” a rusted water tank next to an old rocking horse pump of the sort seen on oil wells.

By pooling resources, Brett and I ate well. We had salmon the first night, talked into the evening, then settled down for a relatively peaceful night. The stars were very brilliant, and the lights of towns and farms across the Columbia could be seen in the distance.

We rose early, and decided to sample a transect near our camp before Don’s arrival. This we did, but Don did not see the message we had left on the truck’s windshield, and he headed down into the coulee before we returned, so



Scilloid onion (*Allium scilloides*) bread; it’s just like garlic bread, only prettier! PHOTO: MIKE MARSH

we started down after him. The way changed from a moderate, grassy slope to a very steep descent over basalt scree, and at this point, where we could see the coulee bottom, I let out a couple of loud “coo-ee”s, but heard no reply. We followed a fence-line for a little way, hollered again, and I decided Don was probably not in the ravine anymore, so I returned to camp, where, of course, I found Don. Returning to where I had left Brett, we proceeded to lay out the coulee bottom transect and survey it. This coulee did not have as well developed a riparian community as

the one we would survey the next day, but we did find woolly breeches (*Hydrophyllum capitatum*), as well as red miner’s lettuce and Squaw currant, all riparian community species. We returned to camp for lunch, then headed west to do a transect in a broad east-sloping valley and another one on a steeper north slope at the foot of another basalt scree slope. Here we discovered big-head clover and Umptanun Ridge lomatium (*Lomatium quintuplex*) right by the road, with fields of Douglas’ buckwheat and occasional hedgehog cactus among other species to the south of our vehicle and a stony garden of penstemon, bitterroot, Douglas’ buckwheat and many other flowering herbs and sub-shrubs to the north.

That evening we retired with satisfaction, planning to finish our work the next day with three transects so that we could leave early, or four transects if we worked well. Dinner in camp was a tasty pasta, with garlic bread, but we



Don Knoke measures while Brett Johnson records shrub height and extent. PHOTO: MIKE MARSH

had forgotten the garlic. We had found that the abundant pink flowers of scilla-like onion had a distinctly garlicky taste: problem solved! At dusk after dinner, while we were talking, Brett said, “There’s an owl, headed straight for us!” It veered over the water tank and flew quickly out of sight, but Brett had seen its flat, owl-like face. Our sleep was disturbed somewhat by wind which rattled our tent flaps.

Tuesday morning Brett and I sampled a ridgetop transect while waiting for Don to arrive. We had two more upland transects picked out, but we had decided that we would not be able to get down to the bottom of Rocky Coulee with Brett’s truck because of some really bad rocky obstructions that we had found in the road the previous day, and because with his somewhat bald tires and the steep grade that we could see ahead, we were not sure that we would get back up. Don looked at these difficulties too, and had thought about them overnight. He said he thought the Subaru would go down and come back as well, and it did.

On the way down we drove through a draw which originated in a steep northeast-facing hillside covered with riparian vegetation. Serviceberry (*Amelanchier alnifolia*), snowberry (*Symphoricarpos albus*), bitterbrush (*Purshia tridentata*) and squaw currant (*Ribes cereum*) crowded each other, and there were rushes underneath. This is a site where one of four springs will be “improved” with installation of a gravel pad and a cattle tank.

At the bottom of the coulee there was a large check dam, now full of a sward of cheatgrass (*Bromus tectorum*) instead of water. Our transect site was another 200 meters up the coulee. Here a rocky streambed was fully developed, with abundant riparian vegetation in a 30-meter wide flat



Gairdner’s penstemon (*Penstemon gairdneri*) was near the bottom of a steep, north-facing slope. Don Knoke found four penstemons during this field work. PHOTO: MIKE MARSH

ravine bottom. Shoots of bitter cherry were waist-high and flowering, probably grazed back repeatedly by elk.

We ended our day completing all four transects that I had planned, and we headed home well satisfied with the work. The trip would not have been of any value without the participation of both Don and Brett. Brett was a great teammate in all aspects of the work, as well as providing our transportation. Don helped us to identify nearly every scrap of vegetation that we found in our sampling frame on transects. We identified and estimated canopy cover for a total of 55 species on transects, and Don identified 134 species in his cruises around our transects.

That weekend, I attended a field day with WDFW's Wildlife Diversity Advisory Council, heard the Department's argument on why it is essential to allow grazing on Whiskey Dick (summarized above) and provided the information from our field work to the monitoring personnel that attended. I hope they will make use of it and let us come back.



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Fourth annual Native Plant Appreciation Week

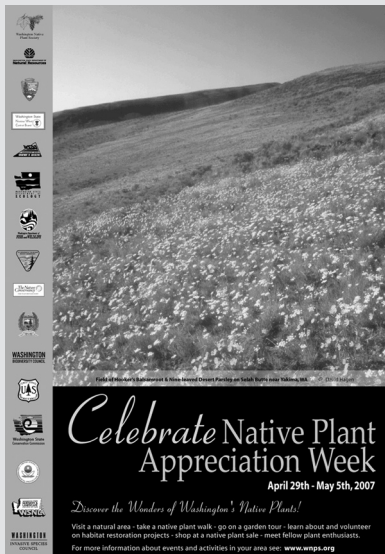
by Catherine Hovanic, WNPS Administrator

During the first week of May this year Washington celebrated its fourth annual Native Plant Appreciation Week (April 29th through May 5, 2007). Governor Gregoire signed this year's proclamation and encouraged citizens of the state to learn more about native plants by taking a walk, visiting a natural area, or becoming involved in a restoration project. WNPS chapters and other organizations coordinated 70 activities in 20 counties to provide opportunities for Washingtonians to learn more about our native plant diversity. Many cities throughout Washington joined the Governor in proclaiming this week.

WNPS invited many Washington nurseries to participate during the week by offering native plant stock to their customers and displaying our Native Plant Appreciation Week poster. Over 30 nurseries participated.

Kim Galimanis of 4Point Design (and *Douglasia's* layout editor) designed this year's Native Plant Appreciation Week poster using David Hagen's winning photo entry of a field of Hooker's balsamroot and nine-leaved desert parsley. The Nature Conservancy, again, provided their wonderfully designed Native Plant Appreciation Week bookmarks to all who participated in any of the activities this year.

Special thanks go to all those individuals who took time out of their busy lives to open their homes for garden tours, give plant walks, lead a restoration effort, or assemble photos and thoughts for interesting presentations. Behind the scenes many people were involved in the planning, coordination, and preparation of news releases and public service announcements, distribution of over 2,000 posters, and the development and upkeep of the Native Plant Appreciation Week web site. These are the people who truly helped make Native Plant Appreciation Week successful in 2007.



Cities and Counties Proclaiming Native Plant Appreciation Week

Aberdeen
Bainbridge Island
Bellevue
Camas
East Wenatchee
Edgewood
Enumclaw
Federal Way
Gig Harbor
Issaquah
Kirkland
Monroe
Normandy Park
Poulsbo
Puyallup
Redmond
Richland
Seattle
Sea-Tac
Sedro-Woolley
Sequim
Shoreline
Spokane Valley
Richland
Tumwater
University Place
Vancouver
Walla Walla

Participating and Supporting Organizations

Bellingham Parks & Recreation
Cedar River Watershed Education Center
Cedarson Nature School
Central Puget Sound Chapter of WNPS
Central Washington Chapter of WNPS
City of Richland
Columbia Basin Chapter of WNPS
Columbia Hills Partners
Derby Canyon Natives
Desert Jewels Nursery
Earth Corps
East Lake Washington Audubon Society
Friends of the Cedar River Watershed
Friends of Puget Prairies
Green Seattle Partnership
Harbor Pride Civic Organization (Oak Harbor)
King County Department of Natural Resources
and Parks
Koma Kulshan Chapter of WNPS
Kul Kah Han Native Plant Garden
Mercer Island Parks and Recreation
Metro King County
Mountains to Sound Greenway
Northeast Chapter of WNPS
Nooksack Salmon Enhancement Assn.
Olympic Peninsula Chapter of WNPS
Olympic Wetlands Resources
Puget Creek Restoration Society
The Nature Conservancy
Salal Chapter of WNPS
Seattle Public Library
Suksdorfia Chapter
University of Washington Natural Sciences
Library
United States Bureau of Land Management
United States Environmental Protection Agency
United States Forest Service
United States National Park Service
Washington Native Plant Society
Washington Audubon Society
Washington Parks and Recreation Commission
Washington State Conservation Commission
Washington State Department of Agriculture
Washington State Department of Natural
Resources
Washington State Department of Fish and
Wildlife
Washington State Department of Ecology
Washington State Noxious Weed Control Board
Washington State Nursery and Landscape Assn.
WSU Cooperative Extension – Kitsap County
Yelm Public Library

Participating Nurseries

Alpine Nursery, Inc., Renton
The Barn Nursery, Olympia
Bay Hay & Feed, Bainbridge Island
Big Dipper Farm, Black Diamond
Burnt Ridge Nursery, Onalaska
City People's Garden Store, Seattle
Classic Nursery and Landscape,
Redmond
Coldsprings, Duvall
Derby Canyon Natives, Peshastin
Desert Jewels Nursery, Spokane
DIG Floral and Garden, Vashon
Furney's Nursery, Inc., Des Moines
The Greenery, Bellevue
Hayes Nursery, Issaquah
Magnolia Garden Center, Seattle
Milestone Nursery, Lyle
Molbak's, Woodinville
MsK Rare Plant Nursery, Shoreline
Plants of the Wild, Tekoa
Rosso Nursery & Garden, Seattle
Season's Nursery, Seattle
Shore Road Nursery, Port Angeles
Sky Nursery, Seattle
Spokane Boys, Inc., Spokane
Swanson's Nursery, Seattle
Squak Mt. Greenhouse & Nursery,
Issaquah
Tower Perennial Gardens, Spokane
Village Green Perennial Nursery,
Seattle
Watershed Garden Works, Longview
Watson's Greenhouse and Nursery,
Puyallup
Well's Medina Nursery, Medina
Wildlands Nursery, Benton City
Windmill Gardens, Sumner
Woodbrook Nursery, Gig Harbor

A burning desire: Fire on the prairies of Western Washington

by Gabrielle Byrne, *The Nature Conservancy*
Linda Storm, *Ethnobotanist/WNPS Board Member*

Since the dawn of our species, we've been fascinated by fire—its beauty, its power and not least of all, its hunger—leading some to imagine it as a living, breathing entity with a mind of its own. Fire has been used as a tool to manage landscapes for millennia. Native peoples in the Pacific Northwest burned prairie lands to stimulate the growth of camas bulbs, an important food crop, along with many other edible roots, green vegetables, berries and numerous medicinal plants. Open prairies were important hunting grounds; they were frequented by grazing animals and provided a clear line of sight for the kill. Ancestors of the contemporary Chehalis, Cowlitz, Squaxin Island and Nisqually tribes applied prescribed burning techniques on the same prairies we work to restore today. Their detailed knowledge of fire included how to time, direct and control prairie burns.

The end of the huckleberry harvest season just before the onset of autumn rains served as a signal for the time to burn. Dry prairie grasses and oak woodland understories were burned to reduce insect pests and to clear the ground for easy acorn harvest. Native people used fire to clear trails, and the trails were used, along with river courses, as firebreaks. Wetted tree boughs were also used to moisten



Setting fire to Douglas fir encroaching on the prairie, 2004.
PHOTO: ERIC DELVIN

the ground to prevent fires from spreading. Native people controlled fires by observing wind speed and direction, gauging moisture conditions of soil and air, and by working together to direct fire away from home sites and toward the landscapes intended to burn. Fires were set every two to three years on the prairies to prevent woody fuel build-up and to replenish desired plant crops.

Today, conservationists in Western Washington are working to make fire a staple of the prairies once again, with the goal of saving this rare habitat and the unique



Eric Delvin and Peter Dunwiddie of The Nature Conservancy (left) with WDFW and WDNR fire crew, September 2005. PHOTO: LINDA STORM

species that rely on it. Prairies once stretched from British Columbia all the way through the Puget Trough to the Willamette Valley of Oregon. Conservative estimates suggest that only 3% of native prairie plant communities remain in Washington State today. One of the primary reasons so much of the prairie landscape has been lost is because of the encroachment of nonnative species such as Scot's broom, as well as native Douglas firs. Fire is one of the most effective ways to control both of these species. In the wake of a managed fire, space is opened up for native plants to recolonize the burned area.

Burns conducted by The Nature Conservancy are known as prescribed burns because they are carried out following a detailed prescription that outlines the precise conditions under which the burn can take place. This ensures not only that the burn can be conducted safely, but also that it will achieve particular ecological objectives. A typical written prescription runs many pages, and details the type of wind, humidity, temperature, and fuel conditions necessary to initiate a burn; the sorts of equipment and personnel needed, and the manner in which they will be deployed; as well as myriad other details regarding smoke hazards, contingencies, ignition and holding patterns. Every burn is unique, and each

requires a specific prescription that is tailored to the site and the particular conservation objectives.

One of the most difficult aspects of successfully carrying out a prescribed burn is making sure all the conditions detailed in the prescription are just right—a little wind but not too much, ensuring the burn is not too hot or too cold, preparing firebreaks according to plan and, of course, having all equipment in place and functioning properly. In Western Washington, prescribed burns have generally been carried out with the assistance of crews from the Washington Department of Natural Resources (WDNR). Unfortunately, the time when conditions are ideal in Western Washington for a prescribed burn falls in the middle of the season when many, if not all, of the state's fire staff are fighting wild blazes elsewhere. A number of agencies are currently working to develop a joint fire program to increase the pool of trained crews available for prescribed burning during this busy time of year.

Carri Marschner, the Mima Land Steward with The Nature Conservancy, has worked on the fire lines. When asked how somebody gets to participate in a burn, she says, "Everyone has to be specially trained and meet specific physical fitness standards. Then you suit up in NOMEX suits, which are made of fire-retardant material. The fire is set with a drip torch; when held at an angle, gas drips down onto the wick and lays down a line of fire."

Marschner shows the area of the last burn on a map. Three dirt roads bordering the area were used as firebreaks, as well as a mowed lane on the north side. Roads and mowed lanes often serve as fire breaks, and are further widened through a process called "blacklining." Ground is wetted down a few feet back from the road, and then burned between the road and the water line (similar to the

manner in which native peoples used trails and wetted tree boughs as firebreaks). This practice produces a broad area with no fuel, which will then stop the larger fire when ignited. Once blacklining is completed, the team can start to burn the interior spaces.

"One of the issues with fire as a management tool is public relations," Marschner says. "People have this knee-jerk reaction to the idea of fire, but I have to say, I was really in awe of

the burn bosses. They are so good at predicting what a fire will do. The fire behaved exactly the way they said it would. And we made sure we had the support in place to handle anything. We had three fire trucks on site for that burn."

Managed fires are generally acknowledged by prairie conservationists as a necessity to keep the prairies healthy. A number of groups, including The Nature Conservancy, the Washington Department of Natural Resources, the Natural Heritage Program and the U.S. Fish and Wildlife Service, are now working together to establish a joint fire program with high safety standards, well-trained and experienced crews, and a consistently available support network that will allow permitting for the most effectively timed burns. Conservationists are working cooperatively to manage prairies under new conditions, using many of the same principles that indigenous peoples used in the past. The survival of Western Washington's prairie lands and the species dependent upon them may well be counting on our active care and use of prescribed fire.

For more information about prairie restoration and about the contemporary and traditional indigenous uses of fire in Washington's prairies see www.southsoundprairies.org.



Oak woodland understory burn at Glacial Heritage, September 2005. PHOTO: LINDA STORM



Prairie fire set at Glacial Heritage, September 2005.

PHOTO: LINDA STORM



Recent publications available from Washington Natural Heritage Program

by Joe Arnett, Rare Plant Botanist, Washington Natural Heritage Program

Recognizing the need for action to protect biological diversity within Washington, the state legislature passed the Natural Area Preserves Act in 1972, the year before the U.S. Congress passed the Endangered Species Act. The Natural Area Preserves Act was amended in 1981; the amendment established the Washington Natural Heritage Program (WNHP) within the Department of Natural Resources. The mandate for the Natural Heritage Program was (and still is) to provide the scientific basis for developing a statewide system of natural areas. As the system of natural areas grew, the DNR established the Natural Areas Program to manage these special lands. A key aspect of the roles of the Natural Heritage and Natural Areas programs is to work closely with federal, state, and local agencies, educational institutions, private organizations, and individuals to collaborate on statewide conservation planning.

The WNHP provides the statewide function, across all ownerships, of classifying and collecting data about existing native ecosystems, inventorying and monitoring rare species, and maintaining a database of this information. This information provides the scientific basis to determine protection needs, and is used by landowners, state and federal agencies, consulting firms, planning departments, and conservation groups to support the state's ecological health.

One function of the WNHP is to make information about priority species and ecosystems available to the public. The following documents, and many others, are available on the WNHP web page at <http://www.dnr.wa.gov/nhp/refdesk/pubs/index.html>:

- *Endangered, Threatened, and Sensitive Plants of Washington (this is the new Washington rare plant list revised in February 2007)*
- *A Plan to Reintroduce Golden Paintbrush*
- *Field Guide to Selected Rare Plants of Washington*
- *State of Washington Natural Heritage Plan (look for a brand new 2007 edition soon)*
- *Washington Herp Atlas (amphibians and reptiles)*
- *Plant Associations in Washington's Puget Trough Ecoregion*
- *Plant Associations of Balds and Bluffs of Western Washington*



Flora of North America reaches halfway mark

by Nancy R. Morin, Southwest Regional Coordinator, Flora of North America

More than 900 botanists working as part of the Flora of North America project have now cataloged over half of the genera of higher plants native to or naturalized in North America north of Mexico, and hope to finish by 2011. The Flora of North America is the first comprehensive and scientifically authoritative publication treating the 20,000-plus species of plants in both the United States and Canada.

Thirteen volumes have been published (including an introductory volume), one volume is being printed, and two more volumes are expected to be published this year. A total of 30 volumes are planned to be published. The second volume of grasses (Poaceae, Volume 24) came out in early 2007, completing the monocotyledonous plants. The first of three volumes on mosses, liverworts, and hornworts is in press. Especially exciting was the publication of all three volumes on the sunflower family (Asteraceae, Vols. 19, 20, 21) last year. The treatments include identification keys, nomenclatural information, common names, descriptions, distributions (including maps), and discussions. Every genus and approximately one out of three species are illustrated.

The Flora of North America makes many lifetimes of study and the best knowledge from regional floras available in print and electronically. Editorial centers are located at Missouri Botanical Garden, the Hunt Institute for Botanical Documentation, Université de Montréal, and the University of Kansas. Authors base their work on knowledge of plants in the field, herbarium specimens, and review of the literature. The project also has a network of regional reviewers. Authors and editors work as volunteers; grants and donations support technical editors and botanical illustrators. The books are published by Oxford University Press-US and currently are on sale at the discounted price of \$76 per volume (available at www.oup.com/us/fnaseries with promo code 25316). More information on Flora of North America and treatments from published volumes are available at www.fna.org.

For more information contact Nancy R. Morin, FNA Business Office, P.O. Box 716, Point Arena, California, 707-882-2528, nancy.morin@nau.edu.

Flora of North America note cards available

To celebrate publication of the Asteraceae volumes, the Flora of North America created a set of 12 note cards (4 × 6") featuring FNA plants, artists, and authors. Each card reproduces the botanical illustration of the taxon on the front, and a distribution map, taxonomic placement, and notes about the taxon, author, and artist on the back. This first set includes:

TAXON	AUTHOR	ARTIST
<i>Arctanthemum arcticum</i> subsp. <i>polare</i>	Luc Brouillet	Yevonn Wilson-Ramsey
<i>Baccharis halimifolia</i>	Scott Sundberg	Bee F. Gunn
<i>Cirsium douglasii</i> var. <i>breweri</i>	David Keil	John Myers
<i>Dicranocarpus parviflorus</i>	Justin Allison	Linny Heagy
<i>Echinacea pallida</i>	Lowell E. Urbatsch	John Myers
<i>Helianthus maximiliani</i>	Edward E. Schilling	Marjorie C. Leggitt
<i>Madia elegans</i>	Bruce Baldwin & John Strother	Barbara Alongi
<i>Munzothamnus blairii</i>	Leslie Gottlieb	Bee F. Gunn
<i>Pluchea odorata</i> var. <i>odorata</i>	Guy Nesom	Barbara Alongi
<i>Packera cymbalaria</i>	Debra K. Trock	Linny Heagy
<i>Senecio amplexans</i> var. <i>holmii</i>	Ted Barkley	Yevonn Wilson-Ramsey
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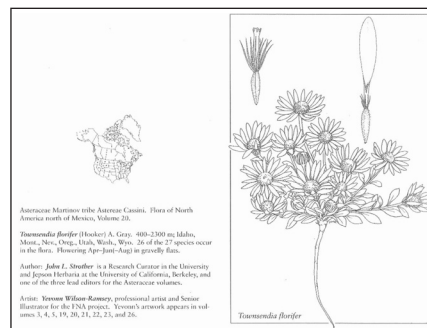
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WNPS loses three honorary Fellows

Memorial: Tom Corrigan 1933-2007

by Dr. Arthur R. Kruckeberg, Professor Emeritus,
Botany, University of Washington



Tom Corrigan. PHOTO: BARBARA CORRIGAN

Tom's fascination with natural history took many forms. Foremost was his devotion to the native flora of our region. He was an early active member of WNPS. His pivotal help in forming the Salal Chapter (Skagit County) and his guidance of the chapter early on is a prime example of his deep commitment to fostering our flora's preservation, study and enjoyment. Tom shared Art Kruckeberg's fascination for geobotany, the study of the interplay between geology and plant life. For instance, Tom joined Art on forays into serpentine habitats, where the chemistry of rocks and soils has profound effects on the flora. Tom and Art shared in visits to two prime serpentine sites in Washington: Olivine Bridge dunite (serpentine) outcrop (South Fork Nooksack River) and Eldorado Creek drainage, North Fork Teanaway River.

Perhaps Tom's most adventuresome encounters with natural phenomena were at Mount St. Helens. In 1979 he was a member of the WNPS party that surveyed the flora of that restless volcano. That survey, once published, served as a baseline reference for post-eruption studies of the vegetation recovery on the volcano. Then on May 18, 1980, Mount St. Helens blew her top! And Tom was in the midst of it. He was trapped for many hours by the massive fallout of ash in Randle, just north of the volcano.

Tom became intrigued with the mosses of our area. Once learning how to identify them, he keenly felt impelled to lure others into the lore of moss diversity. To this end, he compiled a layman's illustrated manual, *Mosses to Find in Western Washington*, in 2001 (privately published).

Tom epitomized the best in amateur natural history: passionate interest plus keen observation and study. His

deep commitment to learning about the natural world will be a model for generations of amateurs yet to come. The WNPS recognized Tom's outstanding contributions to the Society by naming him a Fellow in 2006 (see *Douglasia* 30(3):3-6).

[The following is reprinted with permission of the family.]

Beloved husband and active father Dr. Thomas Francis Corrigan Jr., 73, died at Skagit Valley Hospital in Mount Vernon on May 5, 2007.

Tom lived a very full life. He was a man of his word, a believer in justice, and a lover of the Green World. He lived his values every day, guided by a strong sense of ethics and a belief in the importance of kindness.

Whatever he took an interest in, which was just about everything, he did wholeheartedly. He strove for excellence and compassion in medicine, nurturing and encouragement in family life, and involvement and support for the common good in community life. He infused into everything his warm sense of humor, a deep respect for others, and a genuine curiosity about how things work and why.

Tom was born on August 9, 1933 to Thomas F. and Helen Corrigan in Glen Ridge, New Jersey where he spent his childhood with sister, Carol and brother, Dick. He completed his studies at Union College in New York and graduated from medical school at McGill University in Montreal in 1959, where he met and married his wife of 47 years, Barbara.

He was drafted into the Army Medical Corps in 1961 and served as a captain for two years in Herlong, California, with Barbara and son Christopher (Kit). Tom finished his medical residency at the University of Wisconsin-Madison.

He and Barbara moved to Washington in 1966 with daughter Kimberly, and son Thomas. They settled in Mukilteo, and welcomed third son, Michael.

For almost thirty years Tom practiced orthopedic surgery at Everett Orthopedic and Fracture Clinic setting bones and making friends throughout the community.

Tom actively supported his wife's and children's various activities while making time to pursue his lifelong passions for botany, birds, and boats. He also tried his hand at throwing pottery and making glazes. He raised livestock and bailed hay. He painted landscapes and built houses. He embraced the unknown in each of his learning adventures and believed that perfection was the enemy of good.

Tom was also fascinated by travel -- learning about and

exposing himself and his family to different cultures and topographies and celebrating the beauty of the Pacific Northwest. The family spent a month in Europe in the 70's and summers in the Puget Sound aboard their 30' sailboat, the Irish Rover. In the 80's Tom trekked in Tibet and Nepal with field scientists. He searched for rhododendrons in China and Mongolia. He and Barbara took safaris in Africa, bird-watched in Trinidad, and Tobago, and explored many countries across the globe.

They retired to LaConner in 1995 where he served as the Salal Chapter Chair of the Washington State Native Plant Society for eight years, organizing lectures and field trips. In 2006 Tom was chosen as a Native Plant Society Fellow. He authored and published *Mosses to Find in Western Washington*, a field guide for amateur bryologists, and taught classes for the Skagit Audubon Society.

In retirement Tom also continued his reckless abandon with things that float (which began the summer of his 15th year) by building a fleet of wooden boats that ranged from 6' kayaks to 12' rowboats to 22' ketches. He also built a 22' gaff-rigged sailboat that he donated to the Sea Scouts of Anacortes.

Tom brought joy, love, and respect into the lives of his family and friends, and they in turn to his.

Tom is survived by his wife and children, his grandchildren, Keely, Rory, and Dashiell, his sister Carol Conway, many nieces and nephews, and countless much-loved friends.

In lieu of flowers, please consider a gift to one of the organizations Tom served: The Washington Native Plant Society; The Center for Wooden Boats; or the The Skagit Audubon Society.

Memorial: Joe Miller 1915-2007

Reprinted from The Wild Cascades journal, with additional text by Dr. Arthur R. Kruckeberg, Professor Emeritus, Botany, University of Washington

The story of Joe Miller's passionate devotion to preserving wild nature can only be told by proclaiming the close linkage between Joe and his wife, Margaret. The amazing efforts of this team of two have been fully told in *The Wild Cascades* (the journal of the North Cascades Conservation Council, Winter 2006). What follows here, then, is a vignette of the Millers' unstinting work with the flora of the Washington Cascades.

Joe and Margaret Miller in so many ways gave full

devotion to glorifying and fostering the preservation of the wild world of our region's native flora. Self-taught was their expert knowledge of our plant world. When Ross Dam was threatened to be raised to flood pristine old-growth cedar in Big Beaver Valley, they mounted a floristic survey of the drainage. Their meticulous inventory of the area destined to be flooded was a key and decisive contribution to stop that travesty. Their masterful account of the valley's biota has become a paradigm of gathering evidence in the wild to preserve a great piece of nature.

The Millers also pioneered a new kind of preservation in the montane West. Cascade Pass was being loved to death, its flora being trampled to near extinction. The Millers convinced the Park Service that restoration of the pass area could be done by propagating starts of local native species for reintroduction to the disturbed sites. They established a plant nursery near Newhalem and packed the propagules back to the pass for planting. This successful venture now has been repeated all over the montane West. The Millers started habitat restoration!

Joe and Margaret were early active members of the Washington Native Plant Society. Joe was president early on. The Millers also initiated an annual plant sale for WNPS members at their Bellevue home. This pioneering effort continues now at the Bellevue Botanic Garden, an institution also fostered by the Millers!

So, we will cherish the Millers' unstinting devotion to the preservation of our Northwest's rich plant life.

Joe W. Miller was born May 17, 1915, in Kansas City, Missouri. He gained a degree in English from the University of Kansas. Married to Margaret in 1946, they eventually settled in Seattle, where Joe worked for the federal government. Their home in Bellevue has been the center of many a gathering of like-minded conservationists.

The duo's contribution to preserving wild nature via many pursuits serves as a model for all to follow.

Memorial: Ruth Peck Ownbey

*by Joy Mastrogiuseppe,
Curator, WSU Marion
Ownbey Herbarium*

"The show changes every two weeks," Ruth Ownbey would tell visitors to her garden in Pullman, Washington, graciously



inviting them to return later in the season. Ruth and her husband Marion started developing the garden when they moved to Pullman in 1939, and it became something very special. The garden has many unusual plants, and Ruth enjoyed giving tours to both individuals and groups.

Ruth Peck Ownbey passed away on March 14, 2007, at the age of 93. She was a Fellow of the Washington Native Plant Society and was also active in the Audubon Society (serving as President of the Palouse chapter), The Nature Conservancy, and other natural history groups. Her membership and participation in these groups reflect her serious interest and delight in the natural world.

Ruth was by training a botanist; her PhD dissertation dealt with the genus *Polygonatum* (the “true” Solomon’s seal). She married F. Marion Ownbey in 1937, and they raised their four children (Richard, Martha, Barbara, and David) in Pullman. Ruth was a staunch and enthusiastic defender of the natural world, through her own activities and through her support of others in educational and research programs. She was always happy to assist researchers and was vitally interested in the protection of rare species. After Marion’s death in 1974, Ruth made annual contributions to the herbarium at Washington State University, named in his honor. At the annual Pullman Garden Fair, the interesting garden plants Ruth propagated and grew were always favorites.

The Ownbeys owned a parcel of land along the Palouse River near Harvard, Idaho, and although it had been grazed before they acquired it, they kept it natural except for Marion’s experimental *Dicentra* hybrid garden. Ruth wished this land to be maintained as a natural area, and willed it to the Audubon Society. This is the only known Idaho site for water howellii (*Howellia aquatilis*).

Ruth, thank you for sharing with us your fascination and involvement with the natural world. You always kept your sense of wonder, and we miss you.

[Ruth Ownbey served as the first treasurer of WNPS, from 1976 through 1980. As an initial director she, along with Joe Miller, is listed on the articles of incorporation for the Washington Native Plant Society. Ruth also continued to support WNPS through the years with her regular donations.—Catherine Hovanic, WNPS]



Invasive species update

The following is excerpted from “Invasive News in a Nutshell #16” by Joan Cabreza, US EPA, with additional text by Jane Wentworth, WNPS Central Puget Sound Chapter

Citrus long-horned beetle

The Washington Department of Agriculture has declared victory in a 5-year battle against the citrus long-horned beetle (CLHB) in Tukwila, Washington. On January 6, the agency removed a one-square-mile quarantine placed in November, 2001. During this time, more than 40,000 host trees were surveyed around the quarantine zone, and 1,000 trees in the quarantine zone were removed. More than 500 residents also participated in several “Chipper Days” events to dispose of potentially contaminated yard waste.

This is indeed a victory. The citrus long-horned beetle, a native of Korea, was first discovered in August 2001 in Tukwila. Its arrival on a shipment of bonsai maple trees is the first and only time the beetle has been caught outdoors in the United States. This wood-boring beetle is considered a serious pest in Asia. According to the Washington Department of Agriculture, the CLHB poses an unprecedented threat to more than 40 varieties of hardwood trees, including maple, poplar, oak, and willow, and fruit trees such as apple, cherry and pear. The larvae or grubs bore into healthy trees and live inside until they mature, for about nine months. During that time, they sever tissues that carry nutrients and water, thus killing the host tree. When the beetles are mature, they chew their way out of the tree, mate, produce up to 200 eggs per female, and the cycle begins anew. To date, scientists believe the beetle does not attack conifers. Hardwood trees in our greenbelts, urban landscapes, backyards and natural areas would all be at risk if this nonnative pest had been able to establish. Good work and thanks to the Washington Department of Agriculture and all those who helped make this effort a success! For more information, go to <http://agr.wa.gov/PlantsInsects/InsectPests/CLHB/default.htm> or call (800) 443-6684.

Washington Invasive Species Council

The new Washington State Invasive Species Council held its third meeting and fourth meetings in March

Continued on page 24

On the lookout for *Lamium galeobdolon*

by Alison Halpern, Washington State Noxious Weed Control Board

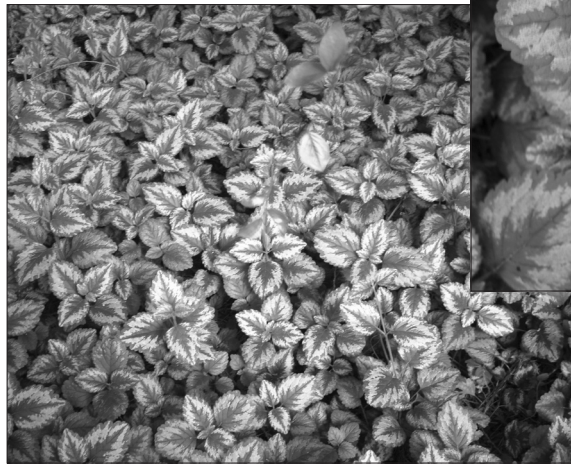
Yellow archangel, *Lamium galeobdolon*, also known as *Lamium galeobdolon* in the nursery trade, is a recent addition to the 2007 Washington State Noxious Weed List. This Class C Noxious Weed has been a popular horticultural choice as a ground cover and in hanging baskets, due to its attractive foliage, tolerance to shade, and spreading habit. Unfortunately, cuttings of this species have been improperly disposed of, and *L. galeobdolon* has been escaping into the forest understory, particularly in urban parks, wooded roadsides, and along shaded streambeds. It has been documented in King, Kitsap, San Juan, and Thurston counties, although it is probably elsewhere in Western Washington. We were aware of around thirty locations during the listing process for this species. However, we are continually receiving reports of additional sightings, and we are trying to improve our distribution information for this noxious weed.

A member of the mint family, *L. galeobdolon* is native to temperate regions of Asia and Europe. It is a perennial, fast-growing, viny, evergreen herbaceous plant that grows prostrate to the ground, forming a dense ground cover and also climbing up and over low-growing vegetation and small structures such as tree stumps. Leaves are oppositely arranged on a purplish, square-shaped, hairy stem. In bright sun, the plant will grow more erect, and flowering stems have been observed growing erect as well. The most striking—and most identifiable—feature of this plant is its variegated green and silver leaves. The pattern really stands out in the forest understory. The typical leaf is 2.5 to 8 cm long and up to 5 cm wide, with a petiole that is up to 3 cm long. Leaves are serrated and ovate shaped, with rounded or cordate bases. Flowering occurs between April and June, and the flowers are the typical small, irregular, lipped flowers of the mint

family. They are yellow and occur as pairs internodally on the stem. It appears to primarily reproduce vegetatively via stolons. Stem fragments also produce adventitious roots, which is why garden cuttings are so problematic. It also appears to produce viable seeds. The plant lacks the menthol odor of some mint species. Arthur Lee Jacobson once described it as “unpleasant and yet not revolting,” and this smell has given this plant the common name weasel-snout (although I cannot say I have personally ever smelled the snout of a weasel and, thus, cannot confirm the similarity). Whatever the smell, we do know that it forms dense mats that may be displacing our native understory flora.

If you think you’ve come across *Lamium galeobdolon*, please contact the Washington State Noxious Weed Control board (noxiousweeds@agr.wa.gov; 360-902-2082) or your local county Noxious Weed Control Coordinator. Thank you for your help!

SH



PHOTOS: ALISON HALPERN



Lamium galeobdolon scrambles down a ravine at Dead Horse Canyon Park in Seattle.

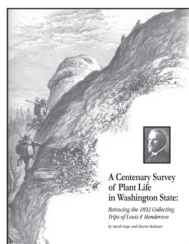
Invasive species continued from page 22

and May. The meetings so far have focused primarily on organizational matters and receiving briefings from various existing groups. We have also begun development of a questionnaire that will be sent to a variety of state and regional groups to begin to piece together a more complete picture of invasive species

activity in Washington. We have also begun work on a state strategic plan. The next council meeting will be held August 20. Meeting minutes, council members, and other information are available on our new web site at http://www.iac.wa.gov/invasive_species/default.htm.

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Oregon identifies new *P. ramorum* outbreak

(Excerpted from the *California Oak Mortality Task Force* June 2007 newsletter)

Oregon has identified a new *P. ramorum* outbreak that is approximately 1.5 miles north of the quarantine area. The federal land, administered by the USDI Bureau of Land Management, is forested with large old-growth Douglas-fir in the overstory and predominantly tanoak, Oregon myrtlewood, bigleaf maple, and evergreen huckleberry in the mid- and understory layers.

The site was detected in early March during ground-based surveys that were being conducted as a follow-up to a *P. ramorum*-positive water baiting sample. A one-inch diameter live tanoak with a bleeding canker located approximately 500 feet upstream from the water find was determined to be the source of the stream water positive. An eradication treatment area boundary of 300 feet was immediately established around the known affected tanoak, totaling approximately 4.9 acres. A quarantine area that extends approximately one-half mile in all directions from the affected tree was also established. As of late April, all tanoak and evergreen huckleberry within the treatment boundary had been cut and piled. Piles will be burned as soon as conditions are appropriate. Myrtlewood plants left on site, soil, and resprouting vegetation will be carefully monitored. For more information, contact Ellen Goheen at egoheen@fs.fed.us.



Virtual Oomycete demonstration nursery opens

by Norman L. Dart, WSU Extension Coordinator

Washington State University announces the opening of a “virtual Oomycete demonstration nursery” where nursery owners can tour a generic nursery and get ideas on how to improve management strategies for *Phytophthora* and *Pythium* at their own nursery site (with an emphasis on *P. ramorum*). For a direct link to the nursery, go to <http://www.puyallup.wsu.edu/ppo/nursery.html>. This resource is also posted permanently under “training modules” at <http://www.puyallup.wsu.edu/ppo/resources.html>.



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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.

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See http://www.wnps.org/douglasia/douglasia_advertising.html

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: gatrellk@msn.com

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

Welcome new members

3/29/2007 through 6/20/2007

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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, Washington State (including UW and WSU), King County, City of Seattle and other govern-

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