



Kootenay **Native Plant** Society
connecting people, plants, and place



2 million seeds of 30
native plant target
species collected,

12 project partners in
conservation activities
on 13 sites across Lower
Columbia Region

400 camas bulbs and
60,000 camas seeds
planted at 5
enhancement sites.

JOIN US ON THE POLLINATION PATHWAY!

In 2021, KNPS launched an ambitious plan to build, connect and broaden habitat for native plants and pollinators. Our goal is to support these important species in our region through the impacts of climate change.

Throughout the Lower Columbia Region, the staff, volunteers and valued partners who make up the Pollination Pathway Climate Adaptation Initiative have been learning about and working to restore 13 native plant enhancement sites. And we are excited to share that over the past year we have been able to measure our positive impact!

In this year-in-review, we tell you about some of our achievements and offer a few snapshots of the exciting work underway. ●

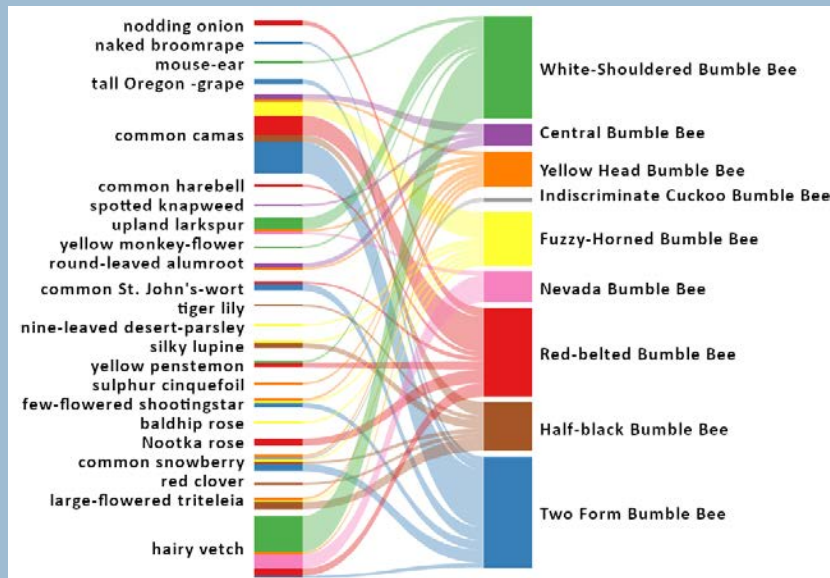
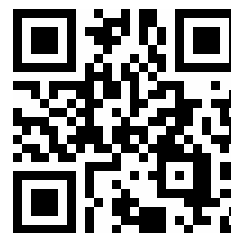
NEW FINDINGS IN BEE BUSINESS

Our 'Floral Relations of Native Bees in Camas Meadows' project has been opening some new vistas in bee research. Graduate student Rowan Rampton documented 99 species of flowering plants and over 200 species of bees that visit Lower Columbia camas meadows. His observations revealed that over one-third of the known bee species in British Columbia can be found in these meadows. Even more exciting, through Rowan's diligent work and the assistance of bee taxonomist Lincoln Best, this project has uncovered bee

species unknown to science, as well as species new to British Columbia and to Canada!

The interactive pollination networks he has created (one pictured here) provide a fascinating view into bee - flower bonds and shows us how, among a diverse meadow full of plants, bees inevitably play favourites, yet everyone wins.

Link to full interactive pollination network:



Plant use by 9 bumble bees in West Kootenay camas meadows. Each bee had its own flower preferences, with camas being the most important. The online chart is interactive, and is available here:

<https://rowanrampton.github.io/InteractiveNetworks/BombusFigure.html>

Full network - best viewed on phone or tablet

<https://rowanrampton.github.io/KNPSNet21-22/Cam22Net.html>

Also as part of this project, KNPS hosted an important eco-cultural event with First Nations, western trained scientists, and project representatives in Millennium Park, Castlegar, in May 2022. This event was called; 'ítxwá? (Camas) and təptəpqin (Bee): Exploring Ecological Methods and Value Systems Among Western-trained Ecologists and Indigenous Knowledge Keepers'. Participants included members of the Colville Confederated Tribes, Sinixt Confederacy, Okanagan Nation Alliance, Secwépemc Nation, and Ktunaxa Nation.

The outcome of this event was a rich and respectful conversation about approaches to bee and camas research and how best to recognize and honour Indigenous ways of knowing in this work. Our time together provided us a rare and special moment to bond over our shared connection to the land.

PROTECTING THE FUTURE OF CAMAS

Seed collecting and planting days are the foundation of KNPS conservation and ecological restoration work. Every year, college and university students join our team in summer months and make important contributions to these efforts on the ground and, often, through innovative research projects. Their work enhances the effectiveness of KNPS restoration efforts and offers valuable data and observations to numerous other stakeholders across BC and Canada in support of ecosystem protection.

One such remarkable student-lead project is the mapping work of Selkirk College student Tannah Ernst as part of her GIS Program Thesis. She is creating a map, known as a species distribution model, for camas (*Camassia quamash*) in the Pacific Northwest Interior (Columbia Plateau), including the camas occurring in the Lower Columbia. Camas is an ecologically and culturally significant flower that KNPS has been working to protect since 2012.

Tannah's map illustrates existing sites of camas as well as projected distribution of future sites, taking into account how our climate is expected to change in the next two decades. Although she is still completing this work, Tannah has already been able to identify a predicted reduction of camas habitat in the Lower Columbia under a 2020-2040 mid-risk climate scenario.

Another highlight of KNPS Camas work was the renewed relationship with teachers and students with Brent Kennedy and Mt. Sentinel schools, located near the Crescent Valley Camas meadow.

With support from the Ministry of Transportation and 20 volunteers, the site was cleared of encroaching shrubs and opened up for camas and other meadow plants in August 2022.

The site is now poised to become a special outdoor gathering place for local students as they learn about camas and become entrusted stewards of this meadow.

In other words, much of the camas growing along the Columbia River and parts of the lower Kootenay River could be lost in the coming decades. This research contribution by Tannah is key to understanding and planning for the survival of this plant under the impacts of climate change still to come. ●



BRINGING BACK THE BUTTERFLIES

Through our 'Building Climate Resilient Butterfly Habitat' project KNPS is working in Beaver Creek and Syringa provincial parks to document butterfly species and create native plant communities that attract and support butterflies.

Last year in these parks, we identified 48 butterfly species, including the blue-listed (marked of special concern) Silver-spotted Skipper and the at risk (red-listed) Edith's Copper. In the fall, restoration sites were established in each provincial park and both native plant seeds and seedlings, custom chosen based on our research findings, were planted into these sites.

An exciting part of this project is the Butterfly Habitat Interpretive Garden (BHIG) located near the day use area at Syringa Park. With the support of BC Parks, this public space now has hundreds of native plants that are important host plants for caterpillars and nectar plants for adult butterflies, especially those that are considered to be at risk and climate vulnerable. Enhancement of this interpretive site is ongoing and in early 2023 we added a universally accessible pathway and a bench; interpretive signage will be coming soon, as well. It is an exciting and rewarding part of the Pollination Pathway program that will continue to reach hundreds of park visitors annually. ●

MILKWEED FOR MONARCHS

Monarch Butterflies are a beloved butterfly famed for its long migration and close association with milkweed species. They were also recently recognized as an endangered species under the International Union for the Conservation of Nature.

While surveying the populations of showy milkweed - the Monarch's preferred food source - in the Pend d'Oreille Valley last summer, our student intern, Tiffany Muncaster, discovered the return of this beloved butterfly to the Lower Columbia. **This was the first time the butterfly has been seen in our region for five years, when KNPS Program Manager Valerie Huff last found caterpillars during her annual Monarch survey.** Tiffany went on to document a total of 29 Monarch caterpillars in the Pend d'Oreille and another 18 caterpillars at another showy milkweed site, Montrose Hill.




































In addition, Valerie documented leaf damage from hungry young caterpillars near the Waneta dam, south of Trail. This last record is notable because all the showy milkweed occurring at this site were planted by KNPS over the last six years. Now, it appears this site is supporting an internationally endangered butterfly.

We are proud to see our efforts are making a measurable difference to supporting Monarchs right here in the Kootenays! ●

Native Plants for the Pollination Pathway

The bees and butterflies have told us which plants they need!

The KNPS research team has spent three years documenting the native plants that are most important to native bees and butterflies in low elevation West Kootenay ecosystems. These discoveries are shared in this *first-of-its-kind* list. Choosing these priority flowering herbs and shrubs will help pollinators flourish in your garden and connect your garden with wild populations. Together, we can build a more biodiverse and resilient pathway of native plants and pollinators across our landscape.

NATIVE PLANTS		POLLINATOR BENEFITS	
HERBS	yarrow (<i>Achillea millefolium</i>)	★	
	nodding onion (<i>Allium cernuum</i>)	★	
	spreading dogbane (<i>Apocynum androsaemifolium</i>)	★	
	showy milkweed (<i>Asclepias speciosa</i>)	★	
	common camas (<i>Camassia quamash</i>)	★	
	western springbeauty (<i>Claytonia lanceolata</i>)	★	
	Sutherland's larkspur (<i>Delphinium sutherlandii</i>)	★	
	showy daisy (<i>Erigeron speciosus</i>)	★	 
	parsnip-flowered buckwheat (<i>Eriogonum heracleoides</i>)	★	 
	yellow monkey-flower (<i>Erythranthe guttata</i>)	★	
	showy aster (<i>Eurybia conspicua</i>)	★	 
	brown-eyed Susan (<i>Gaillardia aristata</i>)	★	
	golden-aster (<i>Heterotheca villosa</i>)	★	
	round-leaved alumroot (<i>Heuchera cylindrica</i>)	★	
	streambank globe-mallow (<i>Iliamna rivularis</i>)	★	 
	small-flowered fringe cup (<i>Lithophragma parviflorum</i>)	★	
	swale desert-parsley (<i>Lomatium ambiguum</i>)	★	
	nine-leaved desert-parsley (<i>Lomatium triternatum</i>)	★	 
	silky lupine (<i>Lupinus sericeus</i>)	★	
	yellow penstemon (<i>Penstemon confertus</i>)	★	
	common yampah (<i>Perideridia gairdneri</i>)	★	
	silverleaf phacelia (<i>Phacelia hastata</i>)	★	
	thread-leaved phacelia (<i>Phacelia linearis</i>)	★	
	worm-leaved stonecrop (<i>Sedum stenopetalum</i>)	★	
	western Canada goldenrod (<i>Solidago lepidota</i>)	★	 
	smooth aster (<i>Symphyotrichum laeve</i>)	★	 
	large-flowered triteleia (<i>Triteleia grandiflora</i>)	★	
SHRUBS	kinnikinnick (<i>Arctostaphylos uva-ursi</i>)	★	 
	tall Oregon-grape (<i>Berberis aquifolium</i>)	★	
	snowbrush (<i>Ceanothus velutinus</i>)	★	 
	black hawthorn (<i>Crataegus douglasii</i>)	★	
	oceanspray (<i>Holodiscus discolor</i>)	★	
	mallow ninebark (<i>Physocarpus malvaceus</i>)	★	
	choke cherry (<i>Prunus virginiana</i>)	★	 
	Nootka rose (<i>Rosa nutkana</i>)	★	

Pollinator "Magnets"



These plants have been identified in our field work as attracting a wide variety and number of bees, butterflies, and other pollinators. Essential for supporting the broadest diversity of pollinators and other native plants.

Plants for Specialist Bees



Many bees specialize on the pollen from a single type of plant. These "specialist bees" are particularly vulnerable to extinction with the loss of their plant partner. Including plants for specialist bees in gardens and natural areas can also support a variety of other pollinators.

Butterfly Host Plants



Caterpillars of butterflies and moths feed on specific plants. For example, Boisduval's Blue caterpillars eat only silky lupine. By choosing these plants, you can support the rare and climate-vulnerable butterflies of the West Kootenay.

Note: This list is just a small selection of the native plants needed in healthy ecosystems. Aim for diversity and abundance in your plantings.

One well chosen plant can make a world of difference to a native pollinator!

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KNPS Connects People, Plants, and Place

We welcome you to show your support for Native Plants by becoming a member of KNPS!

Cost is \$20 for an individual , \$35 for immediate family up to 4.

Membership is renewed annually.

Members are entitled to vote at our Annual General Meeting (members 18+) and receive benefits like early sign ups for our public events. Most of all, members have the reward of protecting and conserving native plants and pollinators that rely on them. Thank you!

visit www.kootenaynativeplants.ca/getinvolved/memberships to signup today!

Warm Thanks to Our Supporters

Our conservation work is only made possible through a generous array of funders and partners. Warm thanks to all, and especially Columbia Basin Trust whose multi-year Ecosystem Enhancement Program matching grant has provided a secure foundation for our Pollination Pathway program.



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