

“Seeds for Tomorrow: The Role of Native plants here, now and into the future.”



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Acknowledgement, with Respect



Elsie Claxton, Elder of Tsawout,
with *xpay'* - western red-cedar

Hychk'a to the Penelakut (Cowichan Tribes), WSÁNEC' and other Coast Salish First Nations, on whose traditional territories we are today, and to all the other First Nations of the Salish Sea, whose ancestors have tended and drawn their sustenance from these lands and waters over thousands of years.

With Deep Gratitude to all my Indigenous teachers and collaborators:



(clockwise): Ida Jones, Clan Chief Adam Dick (*Kwaxsishtalla*), Selina Timoyakin, Helen Clifton, Mabel Joe, Dr. Mary Thomas, Dr. Ron Ignace, Dr. Margaret Siwallace, Elsie Jacob, Alice Tallio, Felicity Walkus... and so many more.

Special thanks to:

- **Colleen Doty**, Chair of the Galiano Seed Library (SLOG) ,
- **Barbara and Gary Moore**
- **Kristen→ and James Miskelly**
- All the Seedy Saturday crew; special recognition to **Carolyn Herriot**
- **Dr. Richard Hebda**: “Our Gardens of the Future Will be Rooted in the Past”
- **Eric Higgs, Stephanie Cairns and Logan, and all friends who live on Galiano Island**



My Seedy talk today...

- Introduction; importance of native plants
- Seed and fruit dispersal
- Indigenous Peoples' cultivation practices
- A few seedy stories
- Concluding comments



Growing Native Plants in your garden...



- Adds interest, value and diversity
- Supports local wildlife (e.g. songbirds, native pollinators, amphibians and reptiles)
- Provides new foods, materials and medicines to you & your family
- Brings new opportunities for learning, experimenting, fostering new knowledge and insights
- Helps restore damaged habitats & maintain ecosystems



At your doorstep...

Build on and Design habitats that are special to this region, to grow a broad diversity of native species, each with its own requirements and its own gifts:

- colour, texture, scent, flavour, wildlife habitat,
- foods and beverages,
- materials for dyes and crafts, walking sticks, garden poles, and
- herbal medicines (use only with great caution and understanding of their effects)



Celebrating Seeds



Whitebark pine cones and seeds (*Pinus albicaulis*) – one of our treasured pine species, growing in interior montane forests

Seeds are miraculous microchips that have the capacity to reproduce themselves, and in doing so, to produce the sources of energy, natural solar panels of the earth, beauty and abundance that ***all*** of us enjoy. We need to celebrate seeds, the fruits & cones that embrace them, and the plants that produce them. We should never, never take them for granted.

The multiplier effect of fruits and seeds...



Not only can a mighty oak tree from a tiny acorn grow; so can an entire forest of oak trees – over the generations

Seeds and fruits are designed to be spread..



Consider the fireweed – first plant to populate a burned over area – because its seeds can fly!



<https://www.friendsofthewildflowergarden.org/pages/plants/fireweed.html>



Chilcotin fire area,
summer 2028 (one
after intense forest
fires]



Fireweed (*Epilobium angustifolium*)

Haas (Sm'algyax) – an ancient plant of the north

Grows from branching rhizomes; young shoots edible (rich in Vitamin C); Flowers a great source of honey nectar; mature stems produce fibre for cordage

Often animals (including humans) are involved...

Cow-parsnip (*Heracleum maximum*): bears love the tender young shoots (so do people), and bears help to disperse the seeds/fruits.



Mt
Matlock,
Haida
Gwaii



Always peel the young shoots before eating!!

Bears not only spread seeds through their excrement, but also by scattered eating



Indigenous Plant Management (including seeds and fruits)



Black huckleberry (*Vaccinium membranaceum*)

Traditional Land and Resource Management Practices

- Use of fire to maintain prairies, upland meadows, and other habitats and to renew individual species
- Pruning and coppicing trees and shrubs
- Tilling, weeding and selective harvesting of root vegetables
- Re-planting, ceremonial scattering and transplanting propagules



Land and Resource Management Practices, cont.



Flower and Edible root of Pacific silverweed (*Potentilla egedii*), often enhanced by “traditional root garden” cultivation on the Northwest Coast

- Creating habitat through structural alterations
- “Ownership” of patches, stands
- Distributed use and harvesting across landscapes and over time
- Multi-generational monitoring of plant (and animal) populations



Tidal Root Gardens
of the Kingcome
River estuary:
t'ekkillakw

*“It was all important. That **t'əx^wsús** [springbank clover], and the **dləksəm** [silverweed], and the **q^w'anniy** [Nootka lupine], and the... **xúk^wk^wem** [riceroot]. See, when they go down the flats, they use little pegs. ‘This is my area.’ You got your own pegs, in the flats. And then you continue on that, digging the soft ground... so it will grow better every year. Well, I guess, fertilizing, cultivating, I guess that’s... the word for it. Every family had pegs, owned their little plots in the flats.” (Kwaxistalla, Clan Chief Adam Dick, 1996)*

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A few seedy stories for you...



What are these
seeds/fruits?



e.g. Camas (KŁO, EL OR SPÁNŪ):
cultivated for generations



- Not only burning and clearing prairies
- Selective harvesting; replanting smaller and biggest bulbs
- Timing of harvest (when seed capsules are ripe)
- Ownership of tended patches
- Rotations of harvest



Bulbs of giant camas (*Camassia leichtlinii*), tended and weeded by Dr. Brenda Beckwith (as part of her doctoral research on camas): “super-bulb”

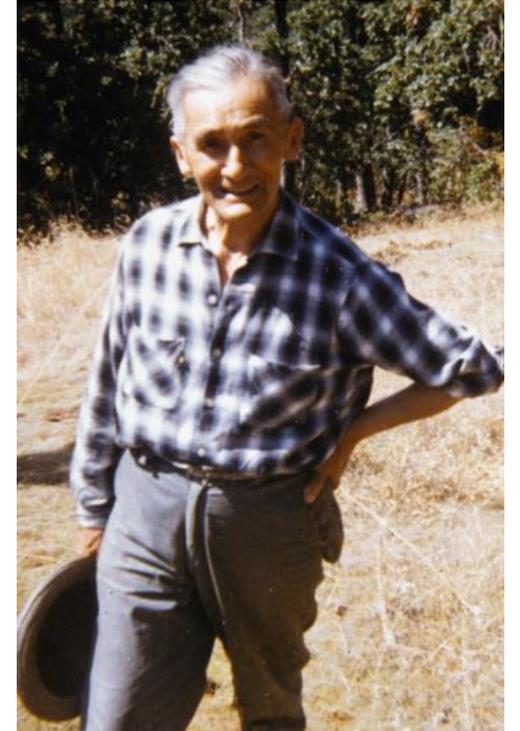
Common camas (*Camassia quamash*)

Clearing the land for camas...



Dr. Pakki Chipps, Scia'new
Beecher Bay

The way that the family group... would establish claim to a plot of land [for camas harvesting] would be by clearing it. Once a family cleared a plot, it would “just naturally” become their plot to use, ... clearing was done in the fall or spring before the gathering season, ... The plot from which the bulbs were to be gathered would be cleared of stones, weeds, and brush, but not of trees. (Ethnographer Marguerite Babcock, from interview with Christopher Paul, Saanich, 1967)



Chris Paul Sr.,
Tsartlip

Blue camas (*Camassia* spp.): how the cultivation works... continuous seed production, with selective harvesting



Camas bulbs, different ages, from a 1 m² plot (Kate Proctor's MSc research, Garry Oak Preserve, Somenos Lake, Duncan, VI)



Enhancing growth of edible camas (*Camassia quamash*, *C. leichtlinii*) & other foods

Yew-wood
digging
stick; a key
implement



Bulbs of giant camas (*Camassia leichtlinii*) of different ages – two to ~10 years old

- Not only burning and clearing prairies
- Selective harvesting; replanting smaller and biggest bulbs
- Timing of harvest (when seed capsules are ripe)
- Ownership of tended patches
- Removal of large rocks
- Rotations of harvest



Transplanting as well



Alice Paul (left) of Hesquiaht on the West Coast of Vancouver Island said that her people transplanted camas bulbs from the Victoria area to the meadow behind Hesquiaht Village (Turner and Efrat 1982 – with Barbara Efrat on rt)

Camas Restoration project in Castlegar



Led by Dr. Brenda Beckwith, Dr. Val Huff, and the Camas group there



“Wild celery” (*Lomatium nudicaule*), a ceremonial plant...

Kwak’wala: ***q’exemín***

Ditidaht: ***ts’axmíin***,

Comox: ***q’exemin***

Sechelt: ***q’exémin***

Squamish: ***q’exmín***

Halkomelem, Quw’utsun’: ***q’axmín***

Halkomelem, Upriver: ***q’axmíil***

Straits Salish (Saanich): ***q’axmín***

Lushootseed: ***q’axbíd***

Secwepemc: ***éq’mə***

Nlaka’pamux: ***q’áq’mə?***



- Young stalks and leaves eaten as a green vegetable
- Seeds chewed or made into tea to treat colds, sore throats, tuberculosis

KEXMIN [Qexmín] and the Origin of Salmon (Saanich)



“Once there were no seals and the people were starving; they lived on elk and whatever other game they could kill. Two brave youths said to each other, ‘Let us go and see if we can find any salmon.’ They embarked in their canoe and headed out to sea, not caring in what direction they travelled. They journeyed for three and a half months. Then they came to a strange country. When they reached the shore a man came out and welcomed them, saying, ‘You have arrived.’”



q'əx̄mín and the Origin of Salmon – II



"We have arrived," the youths answered, though they did not know where they were. They were given food to eat, and after they had eaten their host led them outside the house and said, "Look around and see what you can see." They looked around and saw smoke from *q'ex̄min* (Indian celery) that the steelhead, sockeye, spring and other varieties of salmon were burning, each for itself, in their houses." The youths stayed in the place about a month.



q'əx̄mín and the Origin of Salmon – III

Their hosts then said to them, "You must go home tomorrow. Everything is arranged for you. The salmon that you were looking for will muster at your home and start off on their journey. You must follow them." So the two youths followed the salmon; for three and a half months they travelled, day and night, with the fish. Every night they took *q'ex̄mín* and burned it that the salmon might feed on its smoke and sustain themselves. Finally they reached Discovery Island (*Tl'ches*), where they burned *q'ex̄mín* all along the beach; for their hosts had said to them, "Burn *q'ex̄mín* along the beach when you reach land, to feed the salmon that travel with you... if you treat the salmon well, you will always have them in abundance...."



q'əxmín and the Origin of Salmon – IV



“Now that they had plenty of salmon at Discovery Island they let them go to other places--to the Fraser River, Nanaimo, etc. Because their journey took them three and a half months, salmon are now absent on the coast for that period....





q'əx̄mín and the Origin of Salmon - V

“They also told the young men how their people should dress when they caught the salmon, and that they should start to use their purse net in July, when the berries were ripe. **So today, when the Indians dry their salmon they always burn some *qexmin* on the fire (or on top of the stove); and they put a little in the fish when they cook it. Also, when they cut up the salmon, before inserting the knife they pray to the salmon, that they may always be plentiful.**” (Jenness, n.d.: 94)

Seliliye Belinda Claxton with salmon for smoking



And, *q'əx̄mín* still grows at *Tl'ches*

Hazelnut (*Corylus cornuta*)

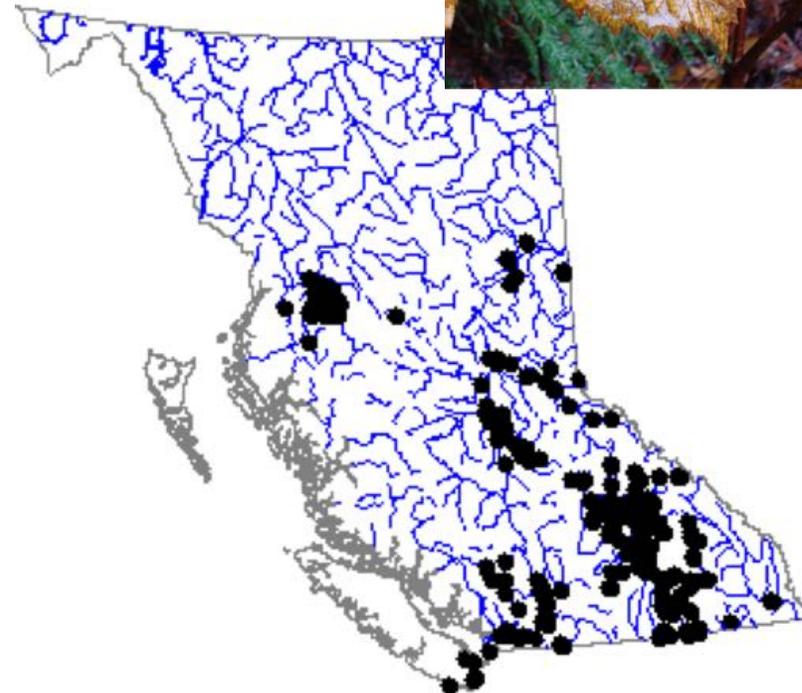
- Bushes burned, coppiced, transplanted
- Nuts sometimes taken from squirrel caches
- Widely traded
- Nisga'a and Gitksan name related to Proto-Salish name for "seed"



Armstrong CG, Dixon M, Turner NJ. 2018. Management and Traditional Production of Beaked Hazelnut (*k'áp'xw-az'*, *Corylus cornuta*; Betulaceae) in British Columbia. In *Native Foodways*. Herron S. Editor. University of Arizona Press.

Hazelnut (*Corylus cornuta*)

- Nisga'a: ***ts'ak'a tyay'tkw***
- Gitksan: ***sgan-ts'ek'*** (WG) (W), ***sgan-ts'ak'*** (EG) (E)
- [cf. Proto-Salish ***s-ts'ik'***, ***s-ts'ik*** (fir or pine cone, nut, acorn) – Kuipers 2002]
- Halkomelem, Upriver: ***sth'itsem***
- Stl'atl'imx (Fraser River): seeds: ***s-ts'a'k'*** = *Pinus albicaulis*



E-flora BC map Klinkenberg 2009



Hazelnut (*Corylus cornuta*):

Secwepemc: *qé7p'cw* (W), *qá7p'cw* (E)

Dodie Eustache (Simp'cw; ca. 1991) remembered from her childhood, that her granny used to visit them, and she would always bring food. At Christmas time she would come with a big sack (50 lb flour sack) of hazelnuts, because she knew Dodie's dad was very fond of these. Dodie used to go with her aunt to search for hazelnuts. They'd walk along, her aunt with a stick which she'd poke about at the base of the tree to find squirrel caches. The squirrels hid caches all around the bases of trees. When her aunt found one she'd get the kids to collect them, but they never took all of them; she told them always to leave some for the squirrel. They'd get several litres from a single cache. The husks were already worn away by being buried. People ate the nuts raw and really enjoyed them, especially at Christmas.

qé7p'cw (W), *qá7p'ucw*, *qá7p'cw* (E) (today, some people apply this to any kind of nut, but others say it's only for hazelnut)



- "If you pick the hazelnuts you'll notice they have those burry little outsides.... [My grandma] would put them all in a gunnysack and bury it in a wet place quite a while. And then when you take it out all that top is kind of rotted away; she'd lay it on the ground and just work it with her foot and when you take it out you can just slip out the nuts. It was eaten just as it was. And another way I loved was, she would take dried saskatoons and hazelnuts and pound it into like a bar... and we ate it like that. It was *tasty!*" (Mary Thomas, Secwepemc)



Saskatoon berries (*Amelanchier alnifolia*) SĆI,SEN – key berry of Canadian history

Named after Cree word *misâskwatômina*. Saskatoon's founder, John N. Lake, named it in 1882 after tasting a handful of the berries from along the riverbank

Pemmican (Cree *pimîhkân*, cf. *pimî* (“fat, grease”)) – an energy rich food for travel: Dried meat or dried salmon; suet from deer, bison, or salmon oil; berries; seeds or nuts... pounded together and formed into a dense loaf

sts'k'á?it – Whitebark pine (*Pinus albicaulis*)

- ***sts'ák'*** (seeds; also pine seeds, sunflower seeds, beans in gen.; see Proto-Salish, above); ***sts'k'á?itp***, ***sts'k'é?itp*** (tree); OR ***t'epuxétp*** ('hazelnut tree'; any nut tree)

Edible seeds a favourite food of the upper Nlaka'pamux. Tsilhqot'in and others. Cones gathered in fall, after seeds mature, but while the scales still tightly closed. To open, cones are spread out on the ground and exposed to the sun. Very soon, the scales open and the cones are knocked against a hard surface to extract the seeds. Many were cached in dry places for future use.



Edith O'Donaghey (Lillooet, Stl'atl'imx) remembers whitebark pine seeds (s-ts'ék')



"The cones are real sticky. They've got to burn. Dig a pit and put them there, but nowadays [1980s] you put them in an old pan or something because of the pitch. And you heat it up or put it in the oven; it's just like roasting peanuts. ...if you put in in the fire, it'll open up and then you pick them out. Or put them in a pit, ...And then they'll open up and you just pick them up... My dad used to bring it home by the sackful. Oh, we'd put it right in the oven right now!"

Clark's nutcracker: "Whitebark pine bird" (in Tsilhqot'in and Secwepemc-tsín)



*Photo by Paul
Turbitt*

http://www.natureconservancy.ca/en/what-we-do/resource-centre/featured-species/birds/clark-s_nutcracker.html



*Robert
Mutch
photo*



Thought to have co-evolved with whitebark pine as its major seed disperser (Lanner 1996).

Ceremonial scattering of berries...



- Dolores Bebbington reported (pers comm. December 2006) that when she used to go blueberry picking with her dad, Norman Michel of Soda Creek (Xatsūll First Nation), she was always wondering why he used to throw some berries around into places where they were not growing. Later, she realized that he had been planting new berry bushes.

Mountain potato, or spring beauty (*Claytonia lanceolata*):
(s-)k^wən-k^wín, tətúwn', sk^wenk^wínem, sken'k^wín'em



Sam Mitchell, harvesting
mountain potatoes, Pavilion
Mt., ca 1974



Carefully and
selectively
harvested;
sometimes
seeds scattered
and corms
transplanted



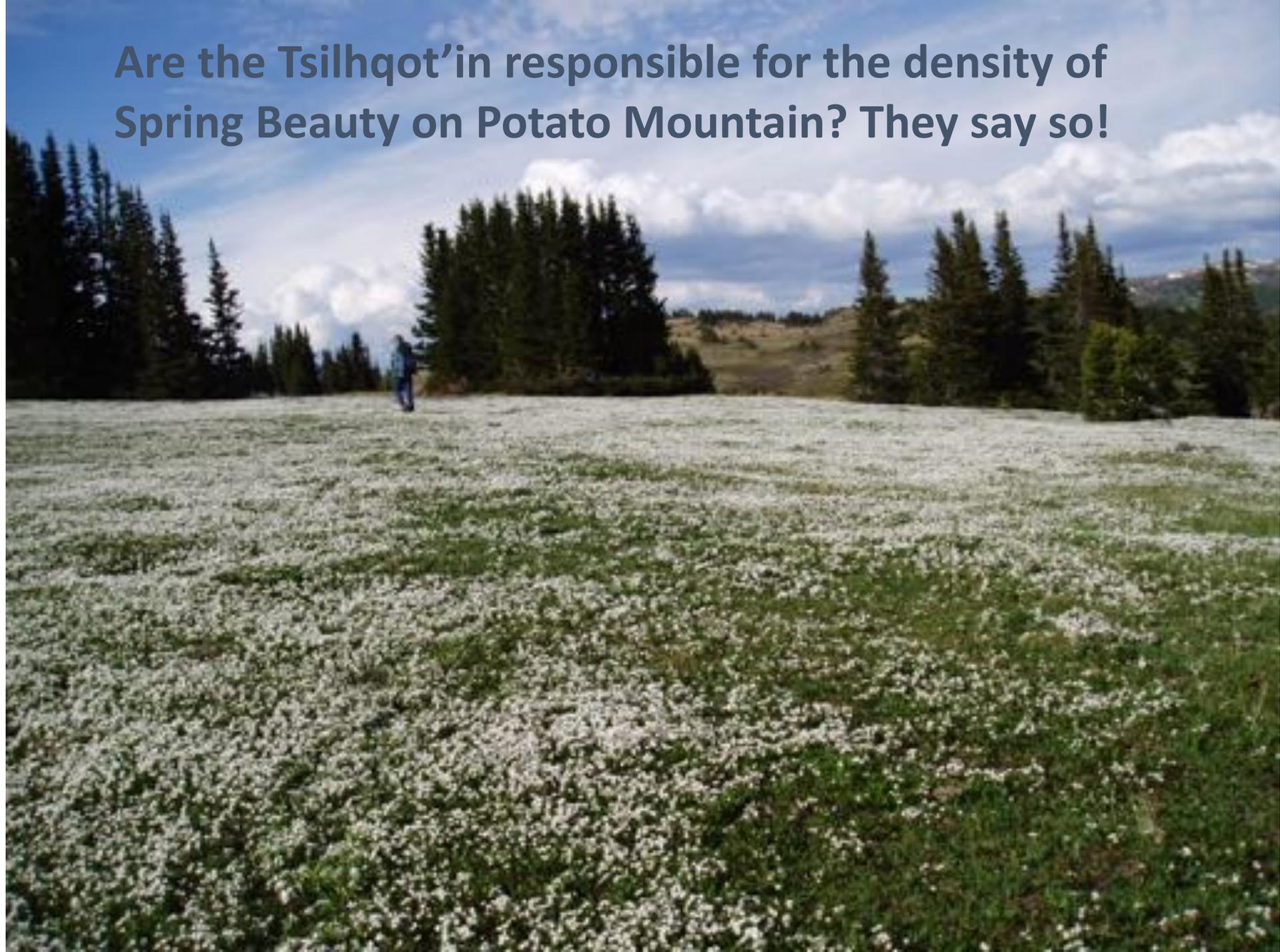


Tsilhqot'in: Ceremonial replanting *súnt'iny* “Mountain potato” (*Claytonia lanceolata*)

A bereaved woman was told to go into the mountains and pull up “mountain potato” old stems and scatter them in places where they do not grow, to help spread these valuable plants (Xeni Gwet'in: Mabel Solomon and Gilbert Solomon, 2003)



Are the Tsilhqot'in responsible for the density of Spring Beauty on Potato Mountain? They say so!



Wapato (*Sagittaria sagittata*)

Nlaka'pamux:

q^w'aq^w'úls,

Secwepemc:

tsexk^welk^welúl's



Joe Thomas Ignace with wapato

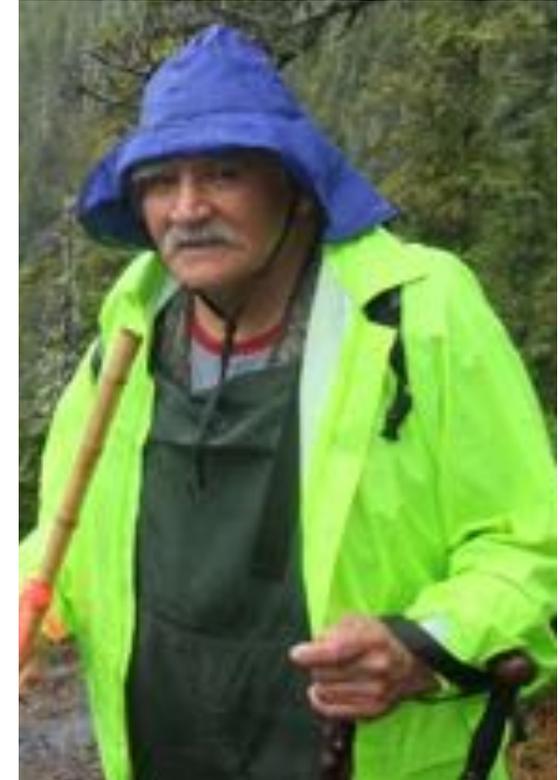
Wapato (*Sagittaria latifolia*), SKÁUᑦ: ancient edible tuber

- Pitt Polder archaeological site: 3,500 year-old wapato tubers in almost pure patch, with digging sticks in context (with thanks to Katzie First Nation, Amy Homan and Tanja Hoffmann)



Evidence of widespread sharing of use & transplanting...

- Squamish: *x^wux^wuq^wúłts*
- Halkomelem, Upriver: *x^woq^wółs; sqəq^wwíthəł*
- Nlaka'pamux: *q^w'aq^wúłs, q^w'əq^wúł's*
- Secwepemc: *tsexk^welk^welúl's* (W), *xk^welk^welús, xk^welk^welul's* (E) 'yellowed eye' (affected by cataracts)



Dr. Luschiim Arvid Charlie, Duncan, recalled from his mother that they brought the tubers from Fraser Valley to a Salt Spring Island lake



Back to the *t'ekkillakw*:
Northern Riceroot (*Fritillaria
camschatcensis*): *xúk^wk^wem*

*“Yes, well that was my job...
to pick them off... it’s on the
bottom, called the **gagemp**.
Then they told me to throw it
back in the [garden plot]....
It’s like a cup and that
xúk^wk^wem sits in there... that
was my job as a kid, when I
was with the old
people...”* (Chief Adam Dick,
pers. comm. 1996)



Regeneration...



Each one capable of growing into a new plant; the ***gagemp*** is larger, and has a head start

107 propagules in one “bulb set”

Meanwhile, in Shuswap (Secwepemc) country... Mary Thomas: digging *sxwixw*

*“But we would help Grandma; she would dig and turn the sod over with a digging stick ... and we’d be right in there, looking through. And we only took the big ones; **we buried back the little ones.** And when you look at the root when you get it, there’s a little, right on the end, it looks like it’s got little whiskers, the root – **you had to clip that off and throw it back in the soil** where it was growing, so it would grow back again....”*



Yellow glacier lily (*Erythronium grandiflorum*), a staple food of interior peoples

Oceanspray, or ironwood (*Holodiscus discolor*);
KÁȚEŁĆ (q'éy't'th-ətch)



- Hard wood used for digging sticks and tools
- Brown seed-heads made into a tea to treat diarrhoea; said to be learned from Interior peoples

Lessons for tomorrow...



- Native plants have real value; they are not “weeds,” to be “weed-eaten” or destroyed
- Their seeds and propagules have value and interest
- Many native plants are in trouble, and they need all the help they can get from us – as do songbirds, and native wildlife of all kinds.

Seeds and seedlings are precious!



Pacific crabapple seedlings on Haida Gwaii; these trees are threatened by introduced deer.



Thank you so much! Keep on planting! And think about the local treasures!



Red huckleberry
(*Vaccinium parvifolium*) –
sq^w'áq^wtsəs – Likes to grow
on rotten wood; green
twigs in winter; tangy
beautiful berries; great for
pies and muffins and jams.