Woman digging balsamroots, Botanie Valley, BC ca 1900 (*Balsamorhiza sagittata*)

*"Eating the Okanagan": Exploring Change in our local food systems*

# Foods of Yesterday, Foods for Tomorrow

## Indigenous Plant foods of the Okanagan Region and their potential for the future


Nancy J. Turner
Professor Emeritus
Environmental Studies
University of Victoria

UBC Institute for Biodiversity, Resilience, & Ecosystem Services (BRAES) and UBC Institute for Community Engaged Research (ICER)

# With respect and recognition:

- To the Silyx, Sinixt, Ktunaxa, Secwepemc, Nlaka’pamux, Stl’atl’imx, Tsilhqot’in and other First Nations of southern Interior British Columbia. Thank you for caring for these lands and waters over countless generations. ***Limləmt!*** ***Kwukstsamcw***! Thank you!

# Special Thanks to:

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- UBC Okanagan: UBC Institute for Biodiversity, Resilience, and Ecosystem Services (BRAES), UBC Institute for Community Engaged Research (ICER) & partners
- Drs. Ron & Marianne Ignace and family; Drs Eric Peterson and Christina Munck, Tula Foundation and Hakai Institute, for their support of my work over the past four years.

# With Deep Appreciation:

Dr. Mary Thomas, Neskonlith, with modern digger, ca 1998

To all my Indigenous teachers and collaborators from many First Nations across BC and Beyond. Thank you for sharing your knowledge and wisdom with me. I have so much gratitude!

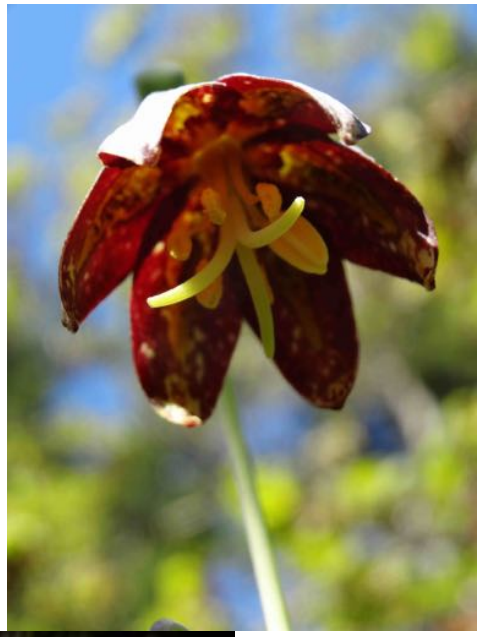
Sam Mitchell, Xaxl'ep, Stl'atl'imx, ca. 1984, with desert parsley (*Lomatium macrocarpum*)

Selina Timoyakin, Okanagan, and bitterroot (*Lewisia rediviva*) ca. 1975

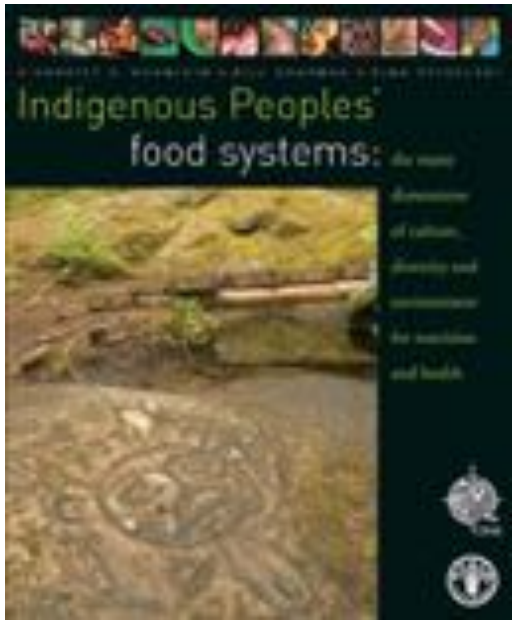
# My talk today…

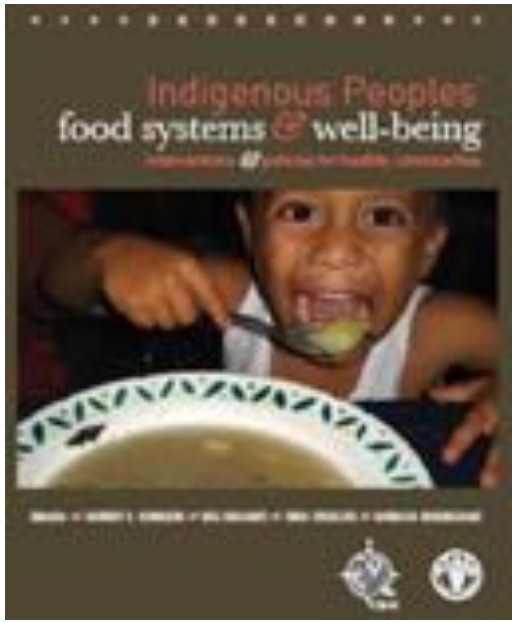
- Introduction
- Importance of Indigenous food
- Examples of keystone edible plants of South Central BC
- The Culture of Plants
- Changes
- Into the Future

***səmálmál*** [Nlaka'pamux); "***sméta***" (Sylix); chocolate lily (*Fritillaria affinis*), a root vegetable in the Lily Family



# Worldwide: *Indigenous Peoples' Food Systems*



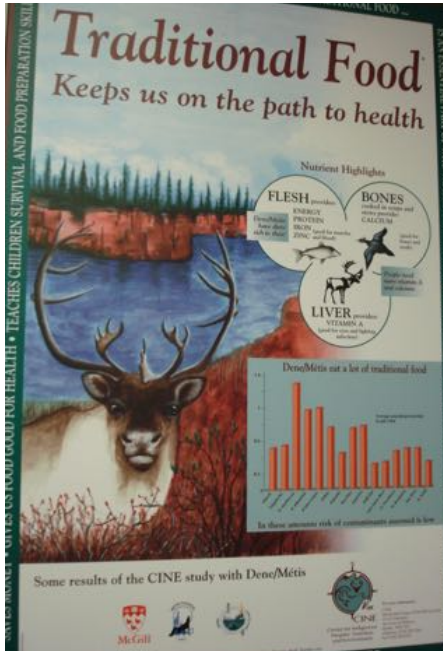




- Kuhnlein, HV. et al. series of books: http://www.fao.org/docrep/012/i0370e/i0370e00.htm

- "[Indigenous peoples] control a wealth of knowledge of their ecosystems, including knowledge of their native foods, that merges with health and healing knowledge embedded in local culture and practice…. [They] have much to teach the industrialized world."
- "… the long-evolved [Indigenous] food systems …amount to a treasure of knowledge that is typically overlooked and undervalued; [with] potential benefits for the well-being and health not only of Indigenous peoples, …but also industrialized and other populations."

# In Canada… (Kuhnlein et al. 2006)

- “Environmental, social and economic conditions profoundly impact the health of indigenous peoples”
- Since the 1940s, an increase in permanent settlements, leading to dependence on purchased ‘market” and ‘store’ foods and a decrease in the importance of foods derived from hunting, fishing, gathering and traditional agriculture.



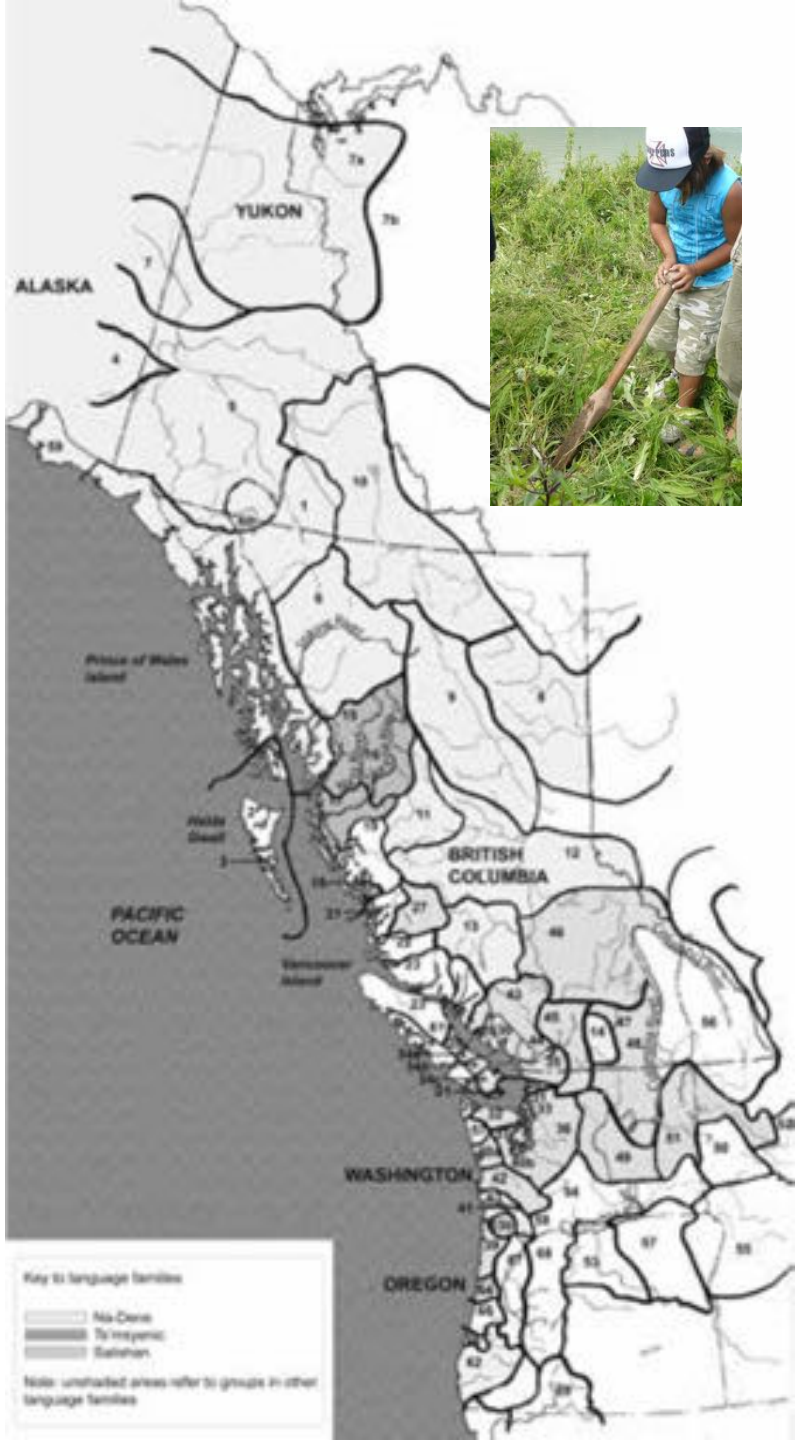

- “Diets have become more energy-dense and higher in fats, sugars and salt contained, for example, in soft drinks and snack foods.”

# “Nutrition Transition”: a worldwide phenomenon

- Radical and relatively rapid shift in Indigenous food systems around the world towards “western” refined, marketed foods, high in unhealthy carbohydrates and fats
- See recent talk by Harriet Kuhnlein 10/9/18: http://nationalacademies.org/hmd/Activities/Nutrition/ObesitySolutions/2018-OCT-9/Videos/Session3-Videos/16-kuhnlein-video.aspx

# Food Security & Food Sovereignty

- *Food security*: when all people, at all times, have physical and economic access to safe and nutritious food, which meets dietary needs and food preferences, in sufficient quantity to sustain an active and healthy lifestyle.
- *Food sovereignty:* the ability to make substantive choices about food consumption - what types of foods are eaten, and where, how, and by whom they are produced. (World Food Summit 1996)

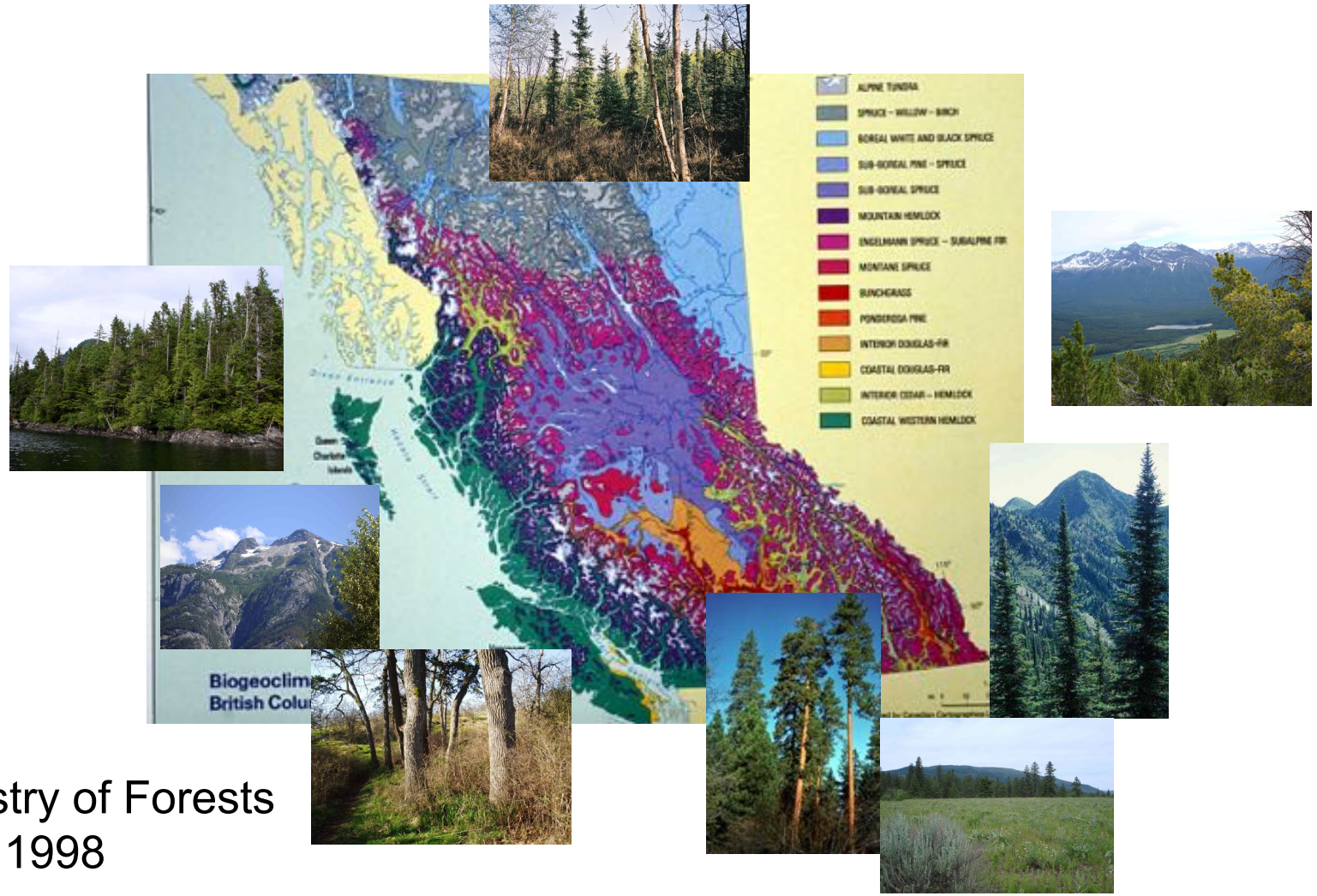





# First Peoples in NW North America

- Over 50 language groups, some related, others completely distinct
- Long history of occupancy - at least 12,000 years
- Unique adaptations and approaches reflected in rich and complex cultures and languages
- Have withstood drastic change, yet they endure

# Biodiversity & geographic diversity of BC: 18 distinct “Biogeoclimatic” zones




Ministry of Forests map 1998

# Maintaining Biocultural Diversity

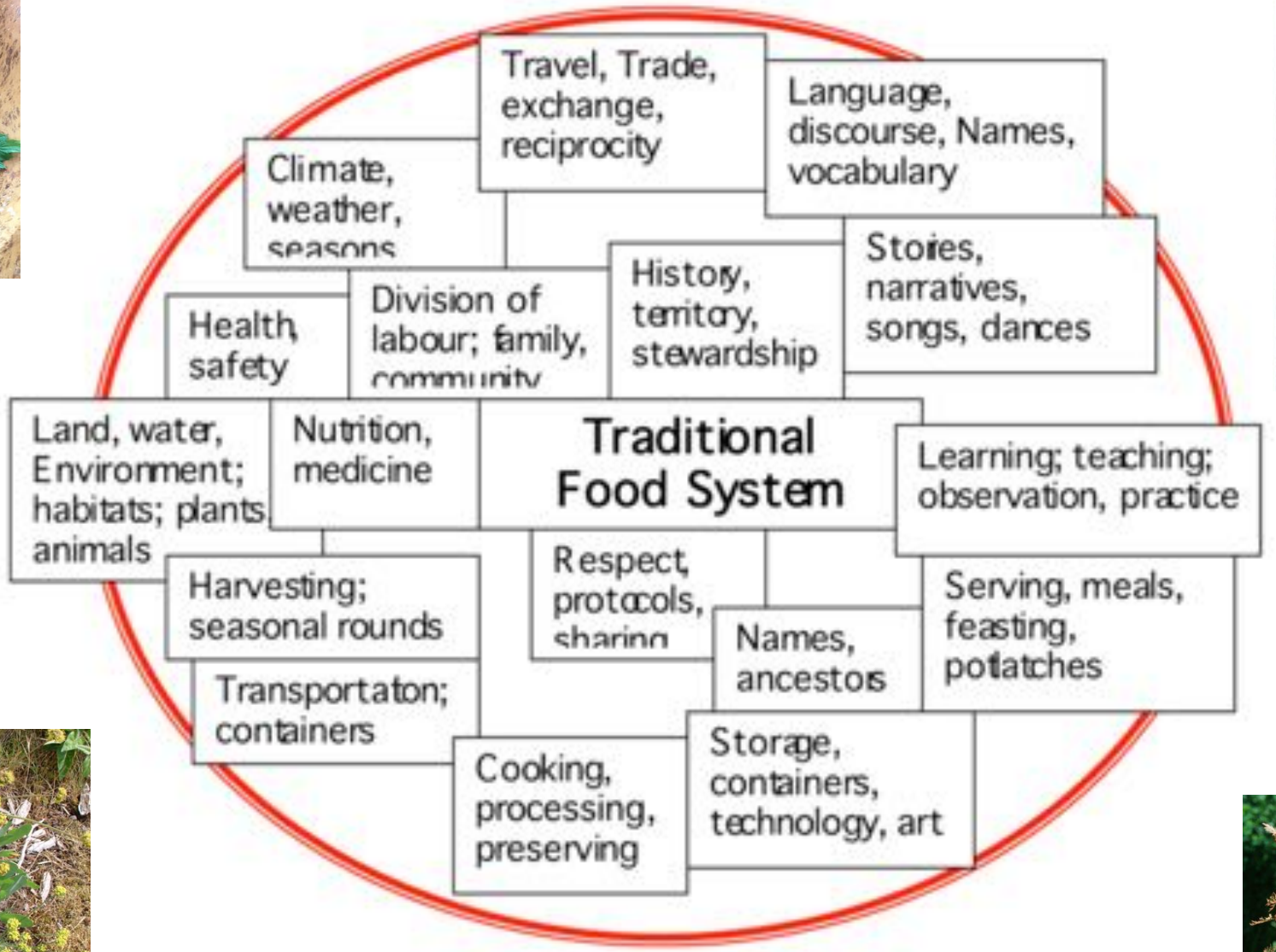
*Our collective human heritage:*

Food systems: Languages, stories, ceremonies, beliefs, technologies, management practices, economic & social systems, ways of knowing, relationships with environments

# Indigenous food & knowledge systems

- Practical knowledge: how, when & where food is harvested, processed, stored, served and sustained over time
- Communication and passing on knowledge in culturally appropriate and effective ways
- Ways of monitoring and decision-making around food use
- Underlying worldview and belief system associated with food use

Black hawthorn (*Crataegus douglasii*) and wild raspberry (*Rubus idaeus*)


Travel, Trade, exchange, reciprocity
Language, discourse, Names, vocabulary
Climate, weather, seasons
Stories, narratives, songs, dances
History, territory, stewardship
Division of labour; family, community
Health, safety
Land, water, Environment; habitats; plants animals
Nutrition, medicine
Traditional Food System
Learning; teaching; observation, practice
Respect, protocols, sharing
Harvesting; seasonal rounds
Serving, meals, feasting, potlatches
Names, ancestors
Transportaton; containers
Storage, containers, technology, art
Cooking, processing, preserving

# Gendered knowledge

- Gene Hunn (1981)* estimated that about 50% of calories on Interior plateau were derived from roots; 70% from plant foods
- Ames and Marshall (1980) suggested that the wide availability and diversity of root foods was an important factor in the early attempts at sedentism on the Interior Plateau, between about 5300 and 4500 years ago.

*(Hunn, E. S. 1981. “On the Relative Contribution of Men and Women to Subsistence among Hunter-Gatherers of the Columbia Plateau,” *Journal of Ethnobiology* 1, no. 1: 124-34)

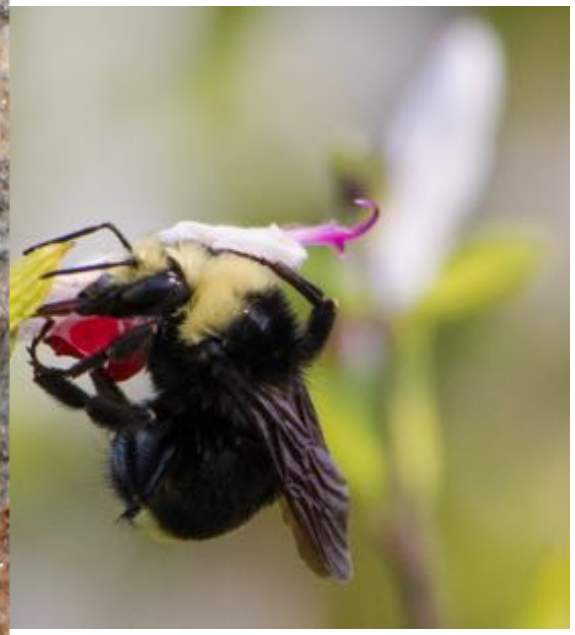
# Wildlife – our relatives

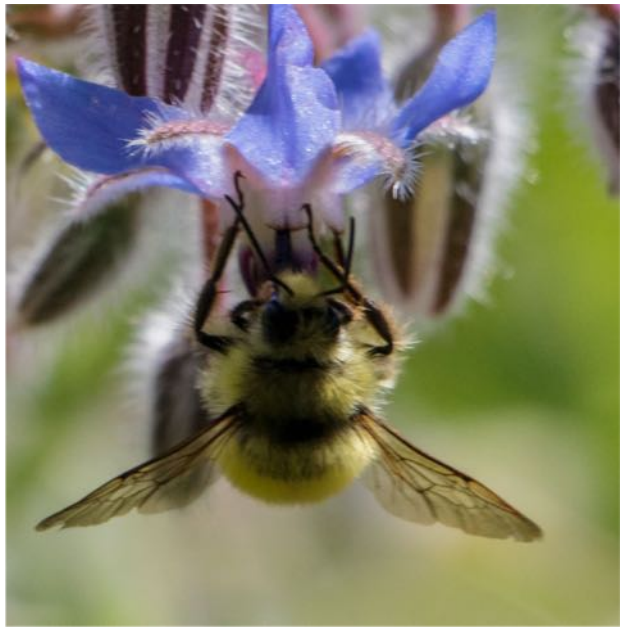
Mule deer enjoying saskatoon berries

- Many of these plants that are food for people are also food for many types of mammals, birds and other animals

Black bear – loves root vegetables and berries; above: Columbia groundsquirrel

# And don’t forget the pollinators!!





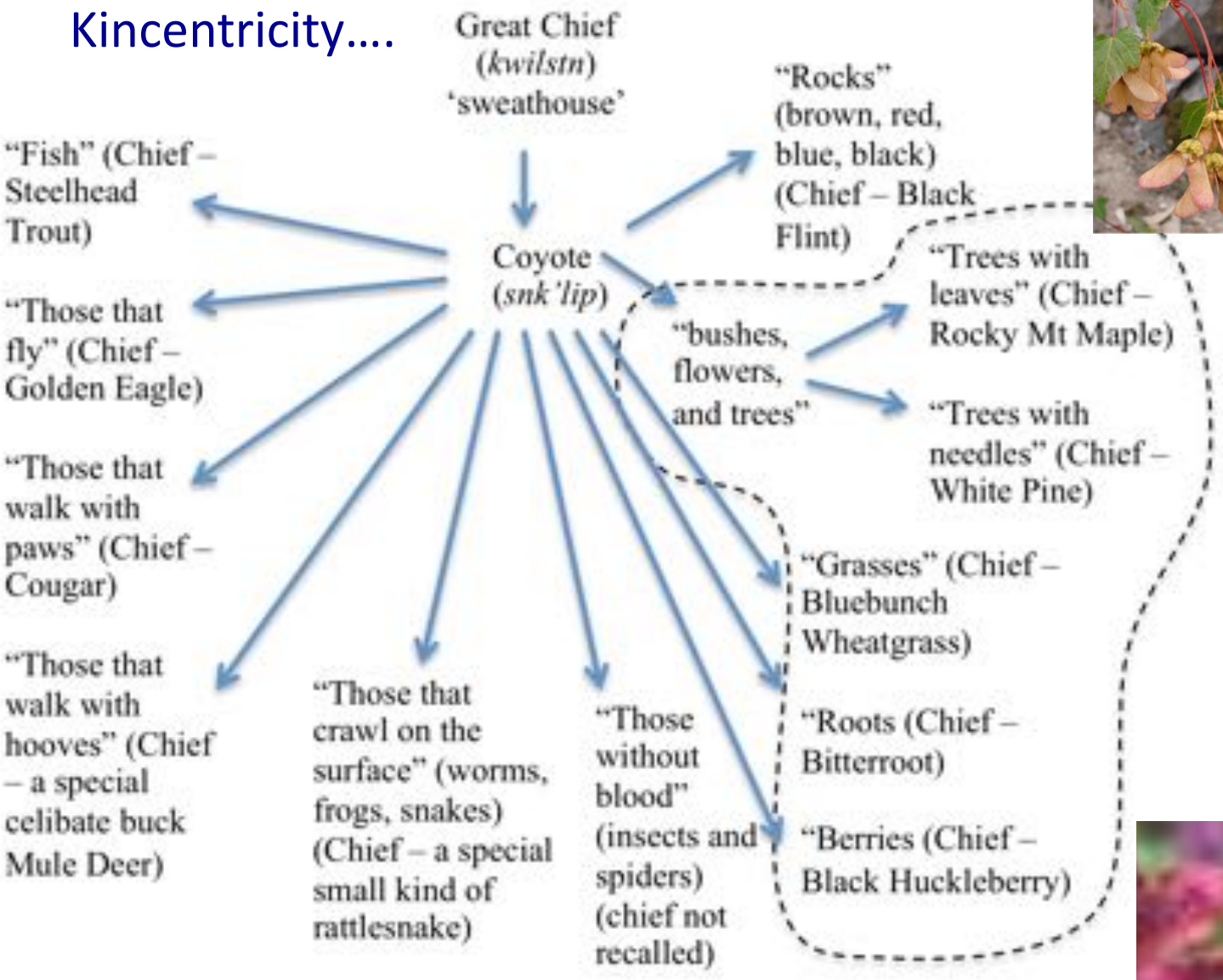
- The plants need them and so do we!

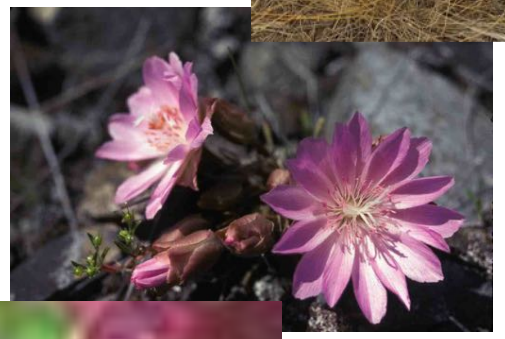
# Some of the Key Plant foods of Indigenous Peoples of south central BC

- Greens (shoots, leaves)
- Inner bark of trees
- Berries, seeds, nuts
- Root vegetables
- Mushrooms & lichen
- Beverage teas

***smúkʷaʔxn*** ‘lump on the foot’ (Sylix name); balsamroot or spring sunflower (Balsamorhiza sagittata); edible taproots, green shoots, budstalks and seeds)

# Kincentricity….





Okanagan Domains (Selina Timoyakin 1974)

# Greens (shoots, leaves)

- Approximately 20 different kinds of greens; mainly eaten when young, in springtime
- Contributed Vitamins A, C, folic acid, minerals such as iron, calcium, magnesium; and dietary fibre
- eat raw or steamed (more recently with sugar and salmon eggs or other condiment)

Edible shoots of thimbleberry (*Rubus parviflorus*) [Sylix ***pelpelqníłml'x***], and "wild celery" (*Lomatium nudicaule*) leaves. [Nlaka'pamux: ***ts'ewéte?*** (Lytton), and prickly-pear cactus; Nlaka'pamux: ***skəz'káz'***; Sylix: ***sx$^{w}$iyína?*** 'packing one's food along'

# Green vegetables…

**Cow-parsnip (*Heracleum maximum*)**

Nlaka’pamux: ***hékʷu?***

Secwepemc: ***x̲ʷtélp***

Sylix: ***x̲ʷux̲ʷtílp***

Delicious springtime food: ***BUT***
***Eat only the young leafstalks and budstalks and always peel them***

***Contains phototoxic compounds***

# Cambium & Inner bark

Above: Helena Myers, Tsilhqot'in, harvests "pine noodles"; photo by Linda Smith, her daughter. Centre: Lodgepole pine (*Pinus contorta*) ***chendi*** – one of the main edible cambium species

[Secwepemc: ***stiʔqʷʼəlʼq*** (E) (edible inner pine bark)

- The cambium and secondary phloem of about 10-12 different tree species was eaten, usually by harvesting a patch of bark and scraping the edible part off the wood or inside of the bark; creating "CMT's" or "culturally modified trees"

Scot's pine CMT in Sweden, showing harvesting by Sami Indigenous Peoples

# Berries, seeds and nuts…

## Saskatoon (*Amelanchier alnifolia*): Many varieties

Sylix: ***síya?*** (fruit, gen.; also grapes); ***si?íłp*** (bush, gen.);

- ***słaq*** (“regular saskatoons” – berries bigger, leaves darker);
- ***siyíya*** (dry rocky habitat variety; sweeter and drier berries),
- ***sk’ek’sáła?q*** ‘bad little fruit’ (“poor” variety);
- ***t’et’q’íłmel’x*** ‘short bush’ (“short” variety);
- ***lex$^{w}$ús*** ‘face/eye of basin’ (“basin” variety);
- ***łeq’ałpákst*** ‘wide leaved plant’ (“wide-leaved” variety);
- ***wusxeníłeml’x*** ‘tall bush’ (“tall” variety);
- ***sk$^{w}$’lk$^{w}$’lqin*** ‘high mountain-top’ (“mountain” variety);
- ***sq$^{w}$’ets’q$^{w}$’ets’wi?háła?q*** ‘chipmunk’s little fruit’ (“chipmunk” variety);
- ***t’et’ík$^{w}$t’ek$^{w}$t*** ‘always bursting’, OR ***kt’et’ík$^{w}$s*** ‘burst eye’ (“bursting” variety);
- ***s<u>x</u>$^{w}$etł’<u>x</u>$^{w}$ítł’a?st*** (cf. ***<u>x</u>$^{w}$itł’*** ‘break (plural)’

# Wild strawberries – always a favourite

*Fragaria vesca, F. virginiana*

Secwepemc: ***tqítq'e*** (W, E) (berries)

Sylix: ***tq'imtq'm*** (berries)

Stl'atl'imx elder Sam Mitchell used to reminisce about horseback riding up in the mountains, when he would cross over a certain ridge in early July and be overwhelmed with the fragrance of fully ripe wild strawberries wafting up from the slopes below.

Marianne Ignace & "little strawberry": ***Tqiqtq̓e***

# Soapberry (*Shepherdia canadensis*)

- Ancient and widespread shrub
- Most widely overlapping names – in nw North America
- A unique frothing food
- A feast and party food with whippers, special dishes and utensils
- Featured in Nuxalk origin story and other narratives

Above: Dr. Ron Ignace and Dr. Kelly Bannister harvest soapberries

# Soapberry innovations…

- When did people start making soapberry whip?
- Where did they start this practice?
- Who “invented” soapberry whippers, soapberry spoons?

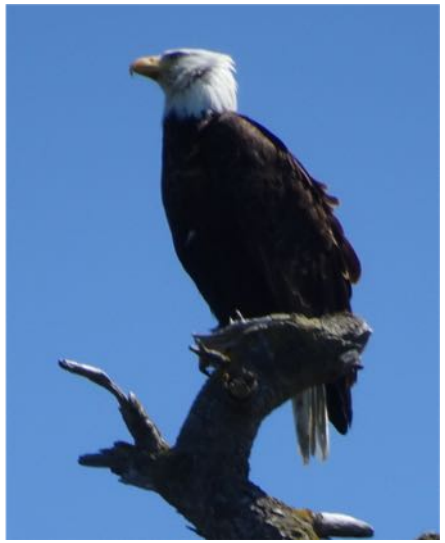
Soapberry paddle spoon (Tsimshian), whipper (Nlaka’pmx), spoon case

# An ancient food…
# [cf. Proto-Salish ***xwus*** ‘to foam’]

- Sekani: ***niswhush*** (berries)
- Witsuwit’en: ***niwis***
- Dakelh (Ulkatcho): ***nawus, nowus***
- Tsilhqot’in: ***nuŵîsh***
- Nisga’a, Gitxsan, Tsimshian: ***is***
- Haida (Skidegate): ***as*** (S)
- Kwak’wala: ***nəxwəskən***
- Nuu-chah-nulth: ***muxwashkin***
- Ditidaht: ***xuusim***

- Nuxalk: ***nuxwski***
- Saanich, Straits Salish: ***sxwésm***
- Halkomelem, Upriver: ***sxwō´sem***
- Stl’atl’imx (Fraser R): ***(s-)xʷúsum***
- Nlaka’pamux: ***sxwúsm***
- Secwepemc: ***sxusem*** (W), ***sxúse*** (E)
- Okanagan: ***sxʷusm***
- Snchítsu’umshtsn: ***sqhusm, sxʷúsm***
- Spokan: ***sxʷúsm***
- Flathead/Selish: ***sxwúsəm***

# Black Huckleberry (*Vaccinium membranaceum*): Sinixt (Lakes) tradition



- story told to anthropologist William Elmendorf in 1935-36 by Sinixt elder Nancy Wynecoop:

  *"Eagle was a very beautiful young woman who lived at Kettle Falls…"*. [A race was set to determine which of her suitors would marry her]

# Many suitors, a race was set…

"…the winner of the race to be her husband. Mountain-goat sent his sons to compete in the race. The eldest Mountain-goat son was one of those courting Eagle, but she and all the others despised him, because of his ugliness – his bony legs, big horns and thick body. Old Mountain-goat sent a gift of huckleberries with his sons…

# …but because the goats were so unpopular, their contribution was set aside.

- The eldest Mountain-goat brother was sitting there despondently. Then, his younger brothers *planted one of the huckleberry bushes* they had brought from home in front of him. He ate all the berries off it, and in doing so he felt much better and regained his self-respect because of his brothers' kindness.

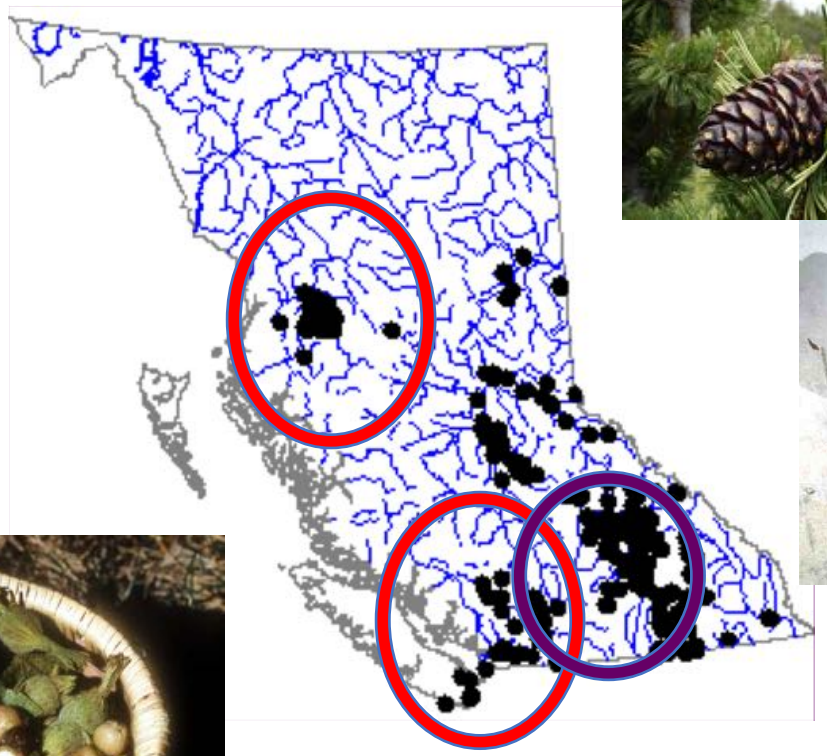
# They won the race!

- When they came to the cliff, …, the goat brothers were able to race right across the face of it, … and by this, they easily won the race. … The grandmothers then brought the choice gift basket of huckleberries over to the girl for her to taste and name – she named it “sweet berry.”

  Nlaka’pamux: ***ts’əlts’ále***
  Secwepemc: ***wenéx*** (W), ***wənéx*** (E)
  Sylix: ***st’<u>x</u>ałq*** ‘sweet fruit’

# Hazelnut (*Corylus cornuta*) and whitebark pine (*Pinus albicaulis*)

Sylix: ***q'íp'xʷaʔ*** (hazelnut, nuts in gen.; cf. Protosalish ***q'əpxʷ*** 'to crunch')



Proto-Salish: ***s-ts'ik'*** ('nut, seed'; Hazelnut: Squamish ***ts'ichn;*** Gitxsan ***ts'ek';*** Stl'atl'imx: ***s-ts'ə́k'*** (whitebark pine seed)

# So many others! (40-50 kinds…)

- Rosehips, highbush cranberries, blackcaps, gooseberries, thimbleberries, chokecherries, blue elderberries, red-osier dogwood berries

# Root Vegetables [roots, corms, bulbs, tubers ]…

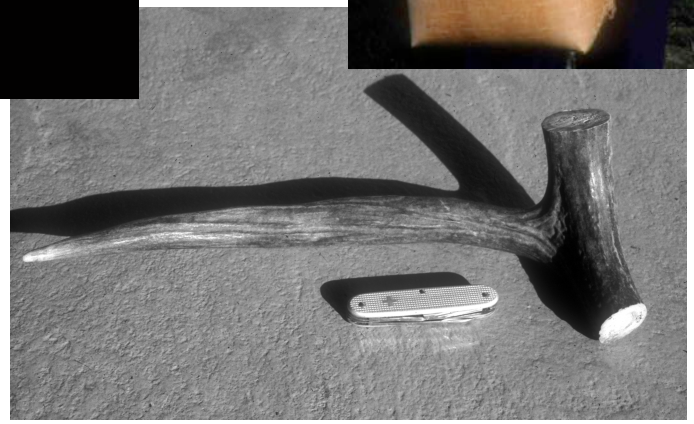
- Needed special root digging implements
- Pack-baskets for transport and storage
- Often cooked in underground pits
- Often dried before or after cooking
- Used for regular meals, feasts and trading

20-30 different species

Dr Mary Thomas, with ***tséts'elq*** , balsamroot (*Balsamorhiza sagittata*) of the size to be pit-cooked and eaten (S. Peacock photo, ca 1998)

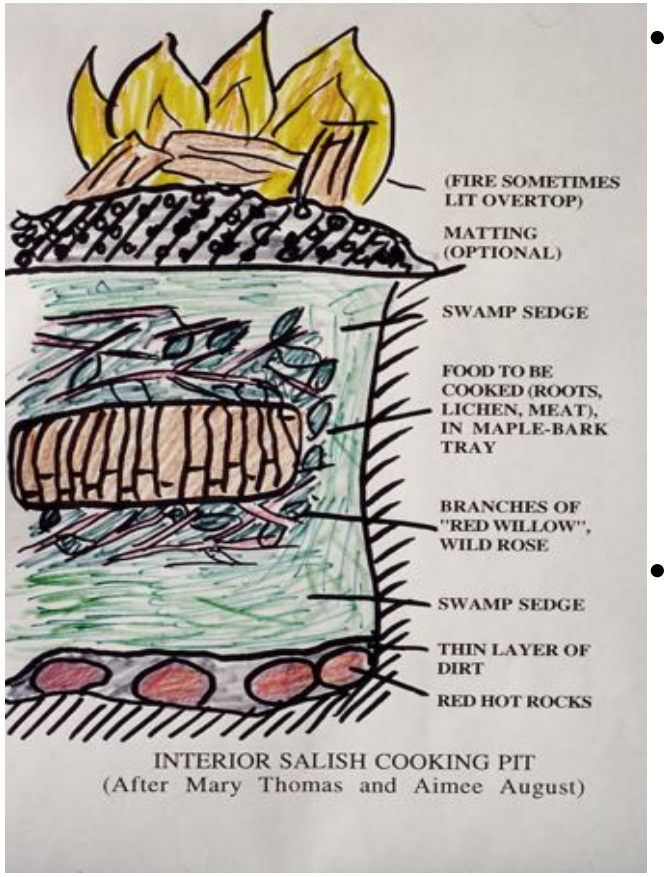
Sam Mitchell, Xaxl'ep digging balsamroot, ca. 1974

# Interior-style digging sticks and baskets



Digging stick of black hawthorn wood, made by Dr. Mary Thomas; digging stick of mule deer antler, made by Sam Mitchell; Mary's birchbark baskets; split cedarroot pack basket (Stl'atl'imx)

# Many cooked in underground pits, for eating and before drying for winter use




- wild rose branches, saskatoon berry, ponderosa pine needles, Douglas-fir boughs, wild strawberry vines, fireweed
- Sometimes food wrapped in cattail or maple bark trays

Arthur Adolph, Xaxl'ep, covering food in cooking pit with thimbleberry leaves

# George Dawson, 1892: 9

Nodding onions (*Allium* cernuum) and Tiger lily bulbs (*Lilium columbianum*) for pit-cooking

Dr. Sandra Peacock photo

"Root-baking places.--In baking various roots, more particularly those of the lily [*Lilium columbianum*], a spot is first cleared and a fire built upon it. When the surrounding soil has become sufficiently heated, the roots, enveloped in mats or green herbage, are laid upon the bed of the fire, and the whole is covered up by piling together the earth from all sides upon the mass of roots."

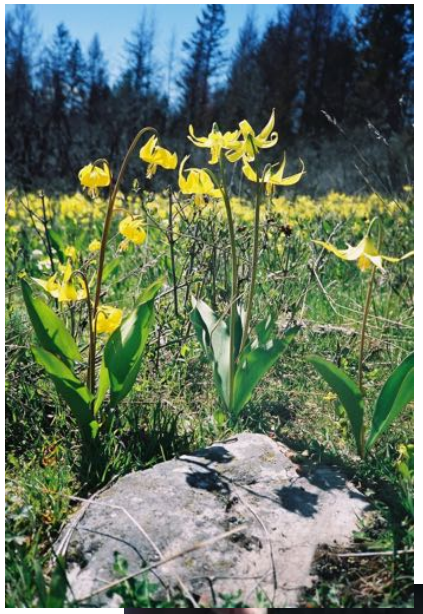
# Dawson, cont.

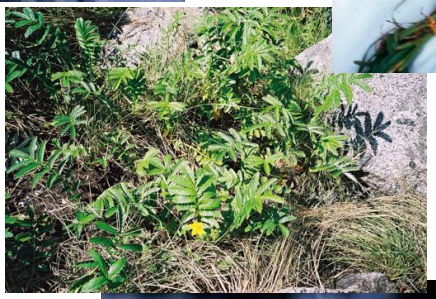
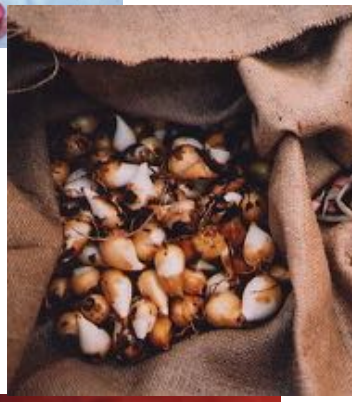
"After the lapse of a sufficient time the roots are dug out in a baked or steamed condition, and either at once eaten or dried for future use. Such root-baking places are usually in the vicinity of root-gathering rounds, and after some years appear as low cones from fifteen to twenty feet in diameter, with miniature craters in the middle…."

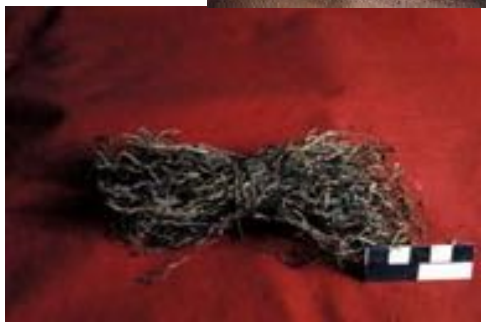
Roasting pit depressions, ~1000-year old: Komkwenatkwa (rt); Botanie Valley (left); Keatley Cr. (top)

# Pit-cooked foods

Glacier lily, spiny wood fern, nodding onion, camas, Pacific silverweed, tiger lily, balsamroots, ***wila*** lichen, wapato, springbank clover





# A few examples: yellow glacier lily (Erythronium grandiflorum)

Hilda Austin,
Nlaka'pamux, Lytton

Stl'atl'imx: ***(s-)k'ám'ts***; Nlaka'pamux: ***sk'ém'ets***
Secwepemc: ***sx$^{w}$ix$^{w}$*** (W, E); Okanagan: ***sx$^{w}$ix$^{w}$***; Ktunaxa: ***máx̲a***

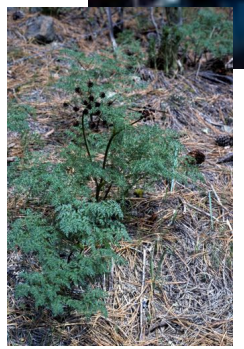
~115-225 kg bulbs/ family/ yr

# Arrow-leaved balsamroot, or “spring sunflower” (*Balsamorhiza sagittata*)[Sylix: ***smúkʷaʔxn*** ‘lump on foot’]

- In the Interior Plateau, one species that was considered particularly sensitive to inappropriate cooking and preparation techniques, and therefore subject to a number of different rituals and taboos.
- Effective cooking of balsamroot takes a long time; converts the carbohydrate inulin into sweet-tasting fructose

Komkwenatkwa, or Scheidam Flats, sidehills - *lots* of balsamroot; evidence of pit-cooking from 1,000 to 2,000 years ago; note bear!

# Desert parsley or biscuitroot (*Lomatium macrocarpum*) & related spp.



Desert parsley (*Lomatium macrocarpum*) ***qʷ'əqʷ'íla, smetsná*** & chocolate tips (*L. dissectum*) ***təx̲qín***, ***ʕayú?***

*Lomatium cous*; ***qaws*** ***(***Smithsonian Institution photos, "root harvesting" 1960s, Nez Perce, Kimiah, Idaho, Sven Liljeblad photo)

*Lomatium cous* and other spp.): ~ 30 kg /day/persom

# Mountain potato, or spring beauty (*Claytonia lanceolata*): *(s-)kʷən-kʷín, tətúwn’, skʷenkʷínem, sken’kʷín’em*

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

Carefully and selectively harvested; sometimes seeds scattered and corms transplanted

# Bitterroot (*Lewisia rediviva*)

Selina
Timoyakin, 1974

# e.g. Bitterroot

- Proto-Interior-Salish ***s-p’atɬ’-m*** ‘bitterroot’ – Kuipers 2002)
- Stl’atl’imx (Fraser River): ***łəkʷ’pín***
- Nlaka’pamux: ***łkʷ’ápn*** (cf. *łkʷ’áp* ‘pierced, impaled’ (U); OR ***spítl’m*** (cf. ***pítl’m*** ‘rub on rough rock to remove skin’)
- Secwepemc: ***łekʷ’pín*** (W); ***spítɬ’em, spit’m*** (W, E), OR ***spítɬ’e*** (E)
- Okanagan: ***sp’itɬ’m*** (cf. ***p’itɬ’*** ‘to peel off the outer covering of a root’)
- Snchítsu’umshtsn: ***sp’i̲t’em, sp’ít’m***
- Selish, Kalispel: ***sp’étɬ’əm***
- Columbian: ***sp’átɬ’m***
- Ktunaxa: ***nəqamtsu, nəqámtsu***

# Wapato (*Sagittaria sagittata*)

Nlaka’pamux:
***q$^{w}$’aq$^{w}$’úls,***
Secwepemc:
***tsexk$^{w}$elk$^{w}$elúl’s***

Joe Thomas Ignace with wapato

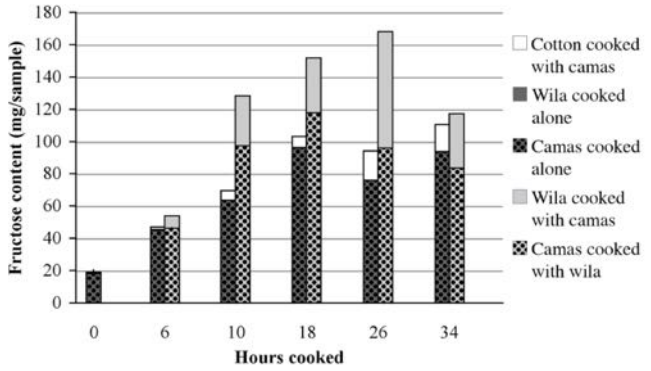
# Black tree lichen (*Bryoria fremontii*)

Stl’atl’imx (Fraser River): ***(s-)qʷl’íp*** Nlaka’pamux: ***wiʔe***; Secwepemc: ***wíle*** (W, E) Okanagan: ***sqʷel’íp***

Harvested from evergreen trees; always tasted; bitter, potentially toxic look-alikes; “Coyote’s hairbraid” (story by Mourning Dove)

# Research by Stuart Crawford…

"lichen cooked with camas captured 6 times more fructose from the camas carbohydrate than was captured by the same amount of cotton"; "Cooking the lichen with the camas could almost double the amount of available digestible carbohydrate"; (Crawford 2007: 200, 161).



*Ethnolichenology of* Bryoria fremontii*: Wisdom of Elders, Population Ecology, and Nutritional Chemistry*. Department of Biology & School of Environmental Studies, University of Victoria, 2007.

# ← Pine mushroom (*Tricholoma magnivelare)* & Cottonwood mushroom (*T. populinum*) ↓

- Habitat, colour, the way the skin peels off the caps and… *scent*. "They smell good." (best mushrooms I have ever tasted!)

Hilda Austin, Nlaka'pamux, October 1982, harvesting & cooking ***metl'qi7***

- Eaten by Interior Plateau peoples (Nlaka'pamux, Stl'atl'imx, Secwepemc, Sylix)

# Teas & other beverages

- 15-20 different species are used to prepare teas
- Beverage teas contribute vitamins and minerals to the diet; some are believed to have medicinal qualities

Labrador tea (*Rhododentron* groenlandicum), Trapper's tea (*Rhododendron neoglandulosum*) Secwepemc: ***sexʷsqéqx̲eʔten*** (W), ***səxʷsqéqx̲eʔtən*** (E) 'dogs wash nose' ; Sylix: ***x̲ʷux̲ʷtɬ'm'íɬp*** 'small breaking-limbs plant'

and field mint (*Mentha arvensis*); Nlaka'pamux: ***tsʔéle, tseʔtsʔéłe*** Secwepemc: ***xʷexʷʔúʔxʷ***, ***xʷʔexʷʔúʔxʷ*** 'smell-smell'

# Plant foods: Part of a healthy Indigenous diet over thousands of years

Many families would have a dozen or more 10-15 litre (3-4 gallon) baskets filled with dried berries, dried roots and other plant foods (e.g. Turner et al. 1990, Thompson Ethnobotany)

Large split cedar root and cattail leaf pack-baskets (3+ gallons)

# Back to the "Nutrition transition"….

White flour for potlatch "give-away"

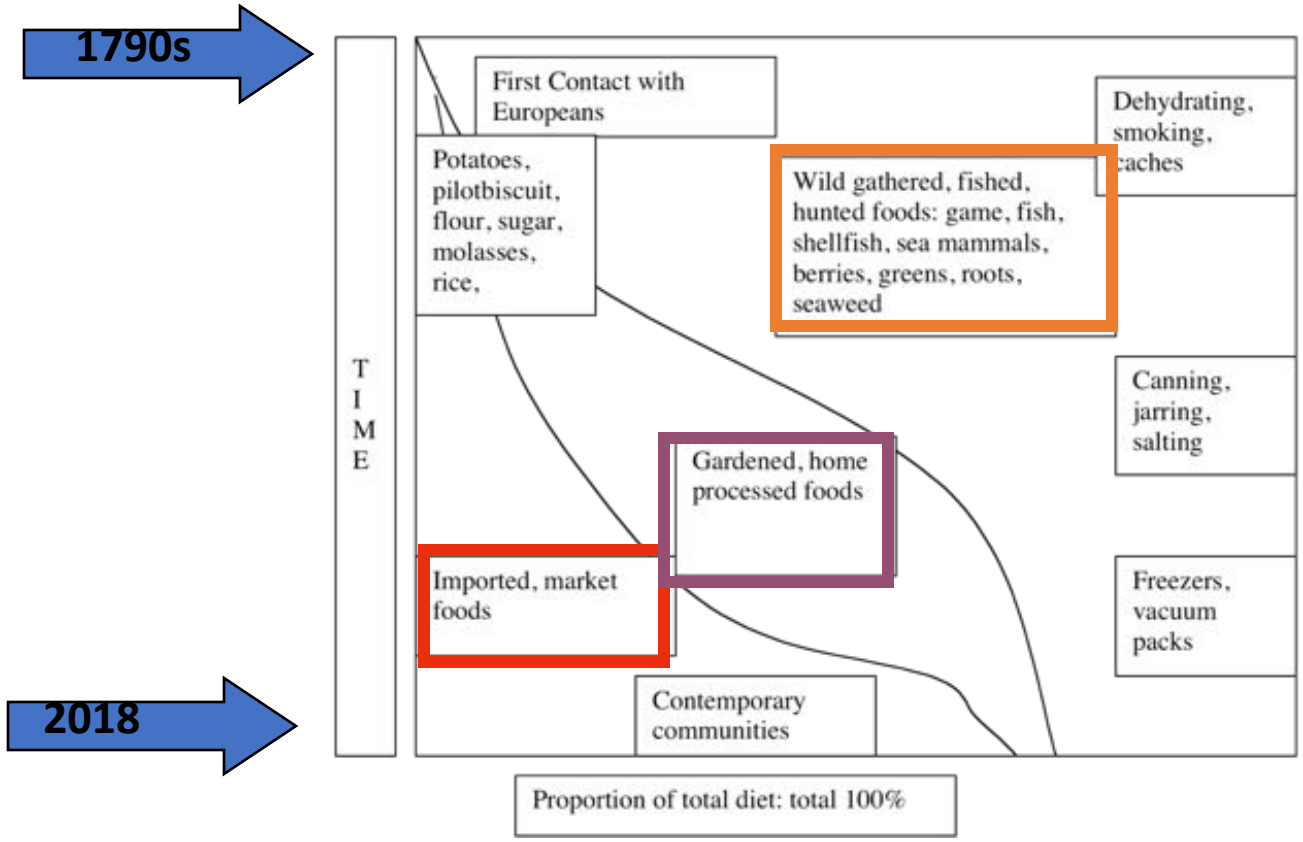
- Trend in local and Indigenous Peoples' food systems: from healthy local food towards more processed and marketed foods generally high in unhealthy fats and refined carbohydrates.
- increased risk of diabetes and heart disease and other health problems

REFERENCE: Kuhnlein, H. et al. (2006). Indigenous Peoples' Food Systems For Health: Finding Interventions that Work. *Public Health Nutrition*, 9(8), 1013-1019.

# From Traditional Food to Imported, Refined Food

- Dietary change is common to the human experience
- But: too much change, too quickly can be harmful
- Impacts on peoples' food security and food sovereignty

# e.g., Changes in foodways: from traditional to gardening to imported processed food. But… still some original food



# Cumulative losses, cumulative restoration of food & culture!

Loss of land/habitats

loss of access

residential schools

wage economy

language loss

loss of teachings

colonial attitudes
loss of identity

reclaiming land

renewing access

*use* the schools

*use* local economy

language revitalization

reconnect with elders

instill pride &
identity!

Cumulative impacts need to be combated with cumulative activities and practices to bring back the use and knowledge of traditional food

# What can be done?

- Re-introduce tending and management systems (pruning, coppicing, burning, replanting propagules. Selective harvesting)
- Forestry & agricultural practices that take berries and other Indigenous foods into account
- Control invasive species like knapweed that replace Indigenous plants
- Use indigenous species in plant breeding programs
- Innovative methods of propagation & production
- Do all you can to reverse climate change
- Recognize the importance of the plants, the knowledge holders who know how to harvest and use them sustainably, and the learners and knowledge holders of tomorrow!

Dr. Mary Thomas, Amanda Karst, Bonnie Thomas and baby Joe Tomas

Thank you!