

Metchosin Talk&Walk 2019
Metchosin Municipal Hall
January 18, 2019, 7:00 pm



“Wild Cultivation”

Traditional Plant Management

Northwestern North America



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With respect and appreciation...



To the Straits Salish peoples
(*Songhees and Esquimalt*
(*Lekwungen*), W*SÁNEĆ*
(*Saanich*), *Scia'new* (*Beecher*
Bay) and *T'Sou-ke*, and other
First Nations of southern
Vancouver Island, whose
ancestors have lived here
and cared for this place for
millennia! *Hych'ka! HÍSWKE!*

Thank-you!



- To all the organizers: Metchosin Biodiversity Project: Andy MacKinnon, Kem Luther, & Joel Ussery, & to Fiona Hamersley Chambers, who is always there for me;
- To Drs. Eric Peterson and Christina Munck, Tula Foundation; SSHRC; Doug Deur, Pamela Spalding, and all my esteemed colleagues and collaborators
- To Robert D. Turner, my personal photographer and so much more!

In loving memory of Moralea Milne, who did so much for so many!

With Deep Gratitude to all my Indigenous teachers and collaborators:



(clockwise): Ida Jones, Clan Chief Adam Dick (*Kwaxsistalla Wathl'thla*), Selina Timoyakin, Helen Clifton, Joan Morris (Sellemah), Gordon Planes, Dr. Mary Thomas, Dr. Ron Ignace, Dr. Margaret Siwallace, Elsie Jacob, Alice Tallio, Felicity Walkus... and so many more.



My talk today...

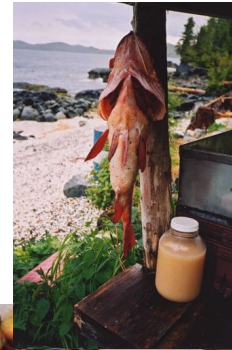
- Introduction to Ethnoecology, Traditional Ecological Knowledge, and Traditional Land & Resource Management
- Overview of traditional management practices
- A few examples from NW North America: prairies, berries, marine and root gardens
- Concluding remarks; looking to the future...



Dr. Mary Thomas,
Secwepemc, with
alumroot (*Heuchera
cylindrica*; **legmín**)

Ethnoecology...

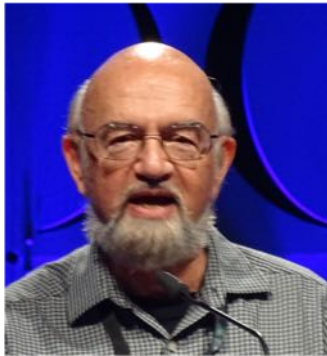
The study of cultural ecological knowledge and of the interactions between human societies and their environments, including other species



Tom Child (top
rt); Seliliye
Claxton above

Ethnoecology, an interdisciplinary study....





Traditional Ecological Knowledge

“A cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission” (Berkes 1999:8)

Above: Fikret Berkes,
author of *Sacred Ecology*



Helen Clifton teaches granddaughter Janelle
to pound halibut at Gitga' at seaweed camp

Aspects of Traditional Ecological Knowledge

- **Practical strategies** and observations (what, where, when, how?)
- **Worldview**, belief systems (respect and gratitude)
- **Communication** and passing on of knowledge (language, stories, experience, participation)
- **Governance institutions** (specialization, division of labour, leadership, ownership)
- **Cyclical time frame** extending far into the past



Florence Davidson, Massett, harvesting cedar bark for basket, 1972 (R.D. Turner)

Diverse within and across different communities



Men's knowledge (Sam Mitchell, Xaxl'ep (St'at'imc))



Specialist knowledge



Women's Knowledge (Alice Paul, Hesquiaht)

Children's knowledge;
Gitga'at children
picking seaweed





e.g., Birch bark for Baskets

“You can't go and just take bark from any old place; you have to really look for it. And it takes you maybe a whole day of searching to get the right texture. The shorter the eyelets, the better, and it doesn't crack easy. If you get the long eyelets, it will crack; in no time at all your basket is ruined.... (Dr. Mary Thomas, February 27, 2001)



Betula papyrifera

When to harvest...

*“You can only gather the birch bark, say, late May, June, and then it starts to stick back. Once it sticks, you can't get it. So you have to get your supply when it's ready . . . **when it's ready all you have to do is cut - and you just touch it a little and it just pops right off....** according to the weather the old people would know when to do it....”*
(Mary Thomas, 2001)



Birch-bark baby cradle,
made by Mary Thomas

The thin part of the bark



*“[On] a cold winter night, it's freezing, below zero, you'll hear a loud pop, out in the wilderness. It's the birch bark splitting. And **it always splits on the north side of the tree.** If you go and look at a birch tree, you'll notice the one side has the **little fluffs all the way up.** And that's the thin part of your bark. So if you cut on the opposite side, you going to get that thin part right in the middle of your basket and your basket's going to be ruined in no time.”*
(Mary Thomas 1994)

Passing on the Knowledge

- Experiential learning



Gitga'ata Children
picking edible seaweed
(*Pyropia abbotiae*) at
K'yel; drying seaweed
on the rocks; eating
dried seaweed



Passing on knowledge: e.g. How Raven Brought *Nuxwski* to Bella Coola Valley



“Long, long ago, *Slllexlhekwalhix*, a mountain in the Carrier country above Burnt Bridge, was a chief possessing human characteristics. Soapberries [*Shepherdia canadensis*] flourished on his slopes and he wanted to keep these as food for his guests...” (T.F. McIlwraith, *The Bella Coola Indians*, 1948, Vol. 1: 88)

Transmitting Knowledge: e.g. Saanich Song of Swainson's Thrush (*weweles'*; *Catharus ustulatus*)



- ***nenel'q'xeliqw*** ('the little black/dark red-headed ones')
 - ***nenel'pq'iqw*** ('the little white-headed ones')
 - ***nenel'kwemiqw*** ('the little red-headed ones')
 - ***nenel'pxwiqw*** ('the little blond/golden-headed ones')
 - ***"xwexwelexwelexwelexwesh!"*** ('ripen, ripen, ripen, ripen!')
- [from Elsie Claxton, Tsawout]



Rubus spectabilis, and the
salmonberry bird, Swainson's
Thrush



Photo by Glenn Bartley

Transmitting Knowledge: Ceremony, Dance, Songs...



Songs and dances
embody lessons:
respect, care,
appreciation,
relationships....

Grouse, in the *Atla'qimma* "Spirits of
the Forest" Dance, performed under
the authority of Kwakwaka'wakw Clan
Chief Adam Dick

Traditional Land and Resource Management: part of any Traditional Knowledge System

- Practices to maintain, sustain and enhance resources and habitats
- Working with natural processes (e.g. succession, regeneration, nutrient cycling)
- Often grounded in beliefs and worldviews: responsibility and contingent proprietorship



Florence Davidson Haida, harvests western redcedar bark, 1972



Some refs to TLRM

Dr. Kat Anderson

- Anderson, M. Kat. 2005. ***Tending the Wild: Native American Knowledge and Management of California's Natural Resources***. U. California Press, Berkeley
- Deur, D. and N. J. Turner (editors). 2005. ***"Keeping it Living": Traditions of Plant Use and Cultivation on the NW Coast of NA***. U. Washington Press, Seattle /UBC Press, Vancouver, BC.
- Minnis, Paul E. and Wayne J. Elisens (editors). 2000. ***Biodiversity and Native North America***. U. Oklahoma Press, Norman
- Turner, N.J. 2014. ***Ancient Pathways, Ancestral Knowledge***, MQUP, Montreal



Dr. Doug Deur, film-maker
Richard Boyce, and Clan Chief
Adam Dick (*Kwaxsistalla*)

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, scattering and transplanting propagules



Black huckleberry (*Vaccinium membranaceum*)

Land and Resource Management Practices, cont.



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

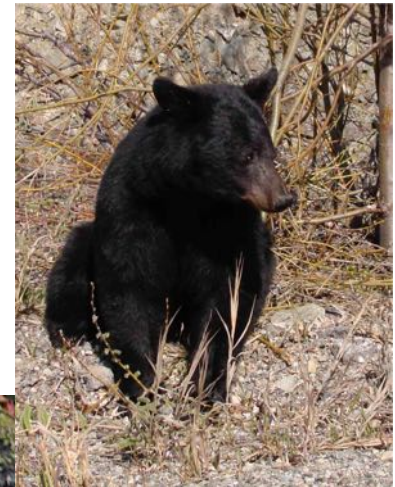
- Creating habitat through structural alterations
- Ownership and proprietorship
- Distributed use and harvesting across landscapes and over time
- Multi-generational monitoring of plant and animal populations

Based on generations of observation and familiarity with local species and places



Grizzly dig, Kitlope Valley, 2007, showing scattering of northern riceroot bulblets (*Fritillaria camschatcensis*) (**Note:** Swiss army knife for scale; not used by grizzly)

Black bear (rt);
bear- scattered
red huckle-
berries (below)



Learning about plant regeneration from the beaver...



Beaver-pruned willow re-sprouting; Ridgefield National
Wildlife Refuge

“Keeping it Living” Philosophy: back to Mary...



*“And you have to be very careful that you don't cut through that thin pulp that covers the tree -- if you cut right through the sap will start to come out of it and you deprive the tree of the sap. . . . Once the bark is taken off it will ...turn into a hard surface and that protects the tree; the pulp, the juice will still go up and make leaves and **it keeps the tree alive.**” (Mary Thomas)*

“Kincentric” Beliefs: Harvesting from living trees

*“A standing tree from which boards have been split is called **keto’q** (‘begged from ’), and it is said that, since trees are believed to have sentient life, the ancients before obtaining boards in this way would look upward to the tree and say: **‘We have come to beg a piece of you today. Please! We hope you will let us have a piece of you’**. The same request was made of a yew tree before cutting off a piece for making tools” (Curtis 1915, p. 11, Kwakwaka’wakw)*



*Pacific Yew (*Taxus brevifolia*),
tree and wedges from wood*

Cultural sanctions against killing trees...

“...They do not take all of the cedar-bark, for the people of the olden times said that if they should peel off all the cedar-bark... the young cedar would die, and then another cedar-tree near by would curse the bark-peeler so that he would also die. Therefore, the bark-peelers never take all of the bark off a young tree” (Kwakwaka’ wakw: Boas (1921: 616-617)



Western redcedar (*Thuja plicata*)
with bark strip removed



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!**



Examples of TLRM from Northwestern North America

- Fire-maintained prairies/subalpine meadows
- Berry/fruit production



Soapberry, or soopollalie (*Shepherdia canadensis*)



←Camas patch; burned Old Growth Douglas-fir on T'Souke Nation territory↑

“Burning Mountainsides for Better Crops”

*“When it gets too bushy,
then the ripe berries
disappear and the roots
like **sk’ám’ts**, **skím’uta**,
skwənkwína, disappear...
Then they burned. It was
marked out and there one
did his own burning....”*

(Baptiste Ritchie, Lil’wat,
Mount Currie, in *“Burning
Mountainsides for Better
Crops”*; Turner 1999)



skím’uta (*Lilium columbianum*);
skwənkwína (*Claytonia
lanceolata*), **sk’ám’ts**
(*Erythronium grandiflorum*) -
edible roots



Baptiste Ritchie, in conversation

"When they used to burn that grass above timberline they used to say the Indian Potatoes [Claytonia lanceolata] were as big as your fist. Now they are only that big [i.e., small, marble sized], because they are not cultivated."
(Baptiste Ritchie, Mount Currie Lil'wat speaker, transcription from taped interview with Dorothy Kennedy, May 1977)





“Time to Burn”: Annie York (Nlaka’pamux), Spuzzum

*“They wait until close to fall. They know just when to burn. And then two or three years after, lots of huckleberries, lots of blueberries... And the **sk’am’ets** [Erythronium grandiflorum], that's when it grows, when you burn. I've seen it, when the old people used to do it. I was just a little girl. I'd go up the mountain with granny. After we'd pick berries, my uncle would say, 'It's going to rain pretty soon; time to burn.' [so the fire will not spread too much.] He stays up [after we finished]. Then, we go back the next year, it's all burned. (ca. 1990)*



Sam Mitchell *(Stl'atl'imx), nr Lillooet*



*“They would burn every five or six years.... Now it's only timber grows. It takes away from the other.... They burned at Lillooet to make the
←raspberries and west of Lillooet for huckleberries ↓.” (ca. 1974)*





Robert Sam,
Songhees Nation



Camas Prairies: fire-maintained anthropogenic landscapes



Remnant Camas Prairie, Castlegar, BC



Edible blue camas (*Camassia
quamash*), a staple root
vegetable of past generations

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



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

Yew-wood digging stick; a key implement

- 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

Blue camas (*Camassia* spp.)



Camas bulbs, from a 1 m² plot (Kate Proctor's MSc research, Garry Oak Preserve, Somenos Lake, Duncan, Vancouver Island; note different age classes)



Many other species enhanced by periodic burning

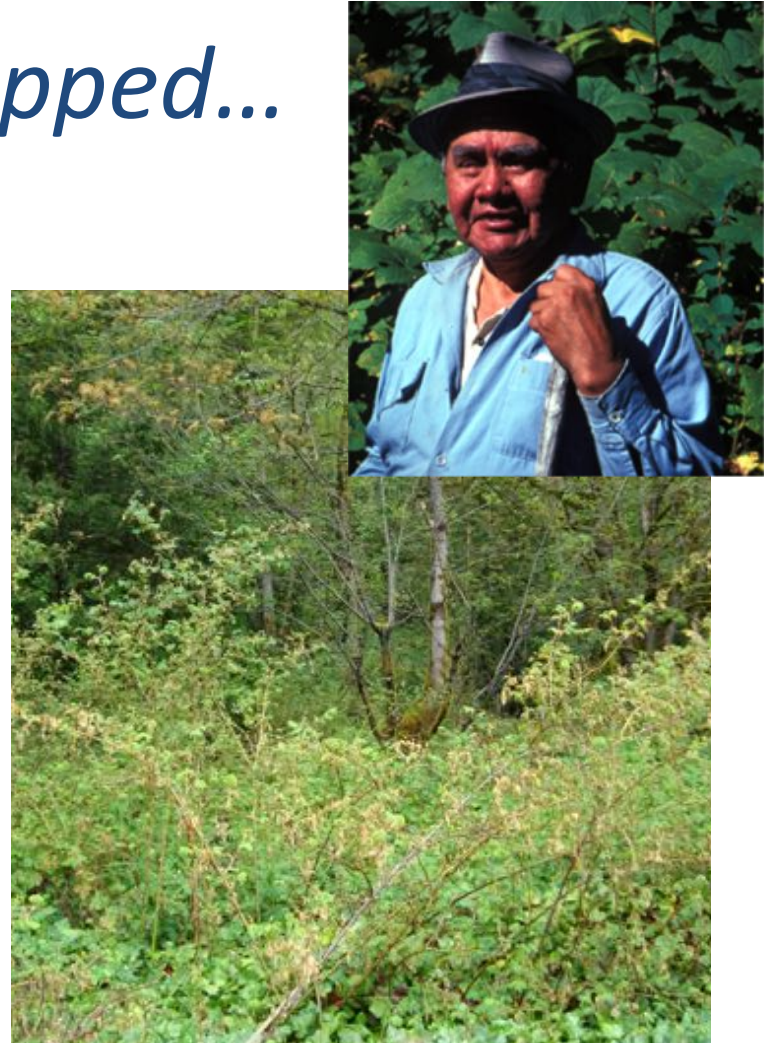


e.g., Nodding onion (*Allium cernuum*); chocolate lily (*Fritillaria affinis*); trailing blackberry (*Rubus ursinus*); blackcap (*Rubus leucodermis*); soapberries (*Shepherdia canadensis*); gooseberries (*Ribes divaricatum*)



When burning is stopped...

*“We named other grounds of ours around here; called them 'The Picking Places' because that is where we went to pick berries. **Now you will not find one single berry there.... Now they have disappeared because the hills grew weedy and no-one seems to tend them, no-one clears there as our forefathers did so thoroughly.**” (Baptiste Ritchie, Lil’wat, Mount Currie: “Burning Mountainsides for Better Crops”)*



Annie York, cont.



Oval-leaved blueberry (*Vaccinium ovalifolium*)

*“Now, it turns into bush.
That's why we don't get
many berries any more.
We're not allowed to burn....”
(ca. 1990)*

Management: Berries & fruits, cont...

*“As soon as they pick all the berries], we **tl'exw7id** (break off), we breaks them so...[the berries would grow plentifully later]. See, **a lot of people think we never touched the wild... berries. But we did. We cultivated it. We pruned it...** Especially that **gwadems** (red huckleberries), when they finished picking the **gwadems**, you know, they pruned them. They break the tops off”* (Chief Adam Dick, pers. comm. to NT).



Ownership & Responsibility...



*“Everybody had their own berry patches, just like everybody had their own clam beds. Things like [salal patches], Yeah, salmonberries and all that, all kinds of berries, wild crabapple, you just don’t go [out and pick] There’s a certain places that a certain family goes, especially that wild crabapples. Our family used to go over here. And the other families go over here. They got markers too, for **tsalx^w** [crabapples]. Oh, yes, they have pegs, you put pegs all around the tree.... **Anything that’s pegged, you know it’s someone’s.**” (Chief Adam Dick, pers. comm. to NT, 1997).*

Detailed knowledge of plants & places:

e.g. Saskatoonberry, *(s-)tsáq^wəm*; varieties recognized in the names (Stl'atl'imx)

- *stsaq^wəm-ʔúl* 'real/original saskatoons' (main type);
- *(s)páqpəq* 'white' (cf. *páq* 'white') (low variety);
- *(s)wətk^waʔúʔsaʔ* 'red-berries' (red-berried variety);
- *(s)tł'əxl'ús* 'sweet-eye/face/berry' (cf. *tł'əx* 'sweet') (sweet var);
- *təxl'ús* 'bitter-eye/face/berry' (cf. *təx* 'bitter') (bitter var.);
- *nəq'-nəq'úq'saʔ* 'rotten-berries' (cf. *naq'* 'rotten') ("rotten" var.)



Hazelnut (*Corylus cornuta*)

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

Armstrong CG, Dixon M, Turner NJ. *Forthcoming*, 2017. 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.





Transplanting: Nass Valley (Nisga'a')



Emma Nyce's grandmother at Gitwinksihlkw was blind. She still loved picking berries, so her grandfather transplanted berry bushes (Saskatoons, blueberries, elderberry, crabapple, black hawthorn) behind her house to make them more accessible to her. Some are still growing there (Emma Nyce, pers. comm. 2014)



Transplanting, Nisga'a



“People used to do that all the time; they would bring plants and plant them around their houses.”

Emma's grandfather also transplanted Kinnikinnick (*Arctostaphylos uva-ursi*) (for smoking) and soapberries down by ancient river petroglyphs below their house.

Highbush Cranberries (*Viburnum edule*)



- Pruned, Transplanted
- Patches owned by chiefs
- Important traditional food
- Associated with Origin stories

Orchard Gardens of Dalk Gyilakyaw (Robin Town; Gitsm'geelm Ts'msyen)

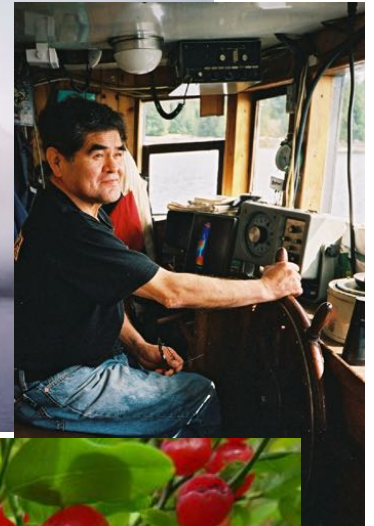
Crabapple, hazelnut, highbush cranberry, Saskatoonberry, red elderberry, nettles, riceroot and many more....

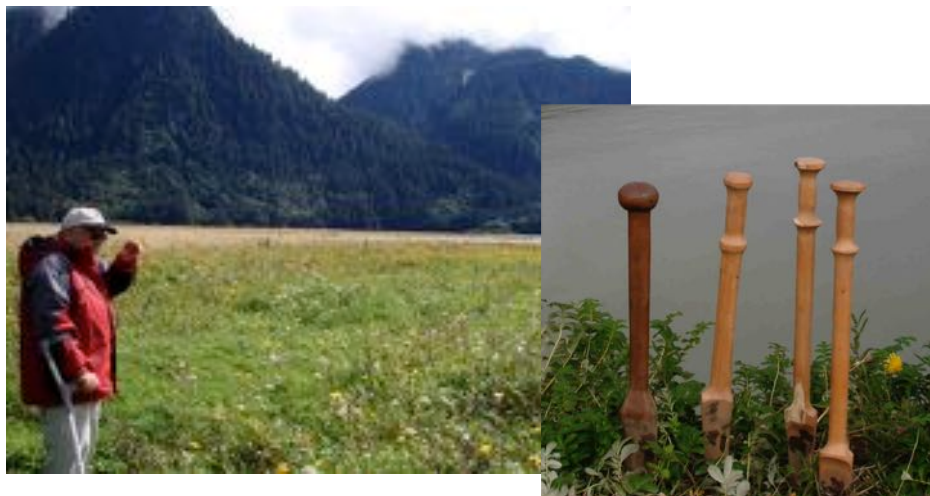


The berry gardens of Roscoe Inlet (Heiltsuk Territory)

Cyril Carpenter and Pauline Waterfall (pers. comm. to NT, April, 2002). They were each told by their grandmothers, Bessie Brown and Beatrice Brown (who were sisters-in-law)

- Special sites, sunny, beside waterfalls
- Berry bushes fertilized with fish remains, clamshells and ashes
- Berry bushes sometimes transplanted to these sites
- “*You could pull the berries off by the handful...*”



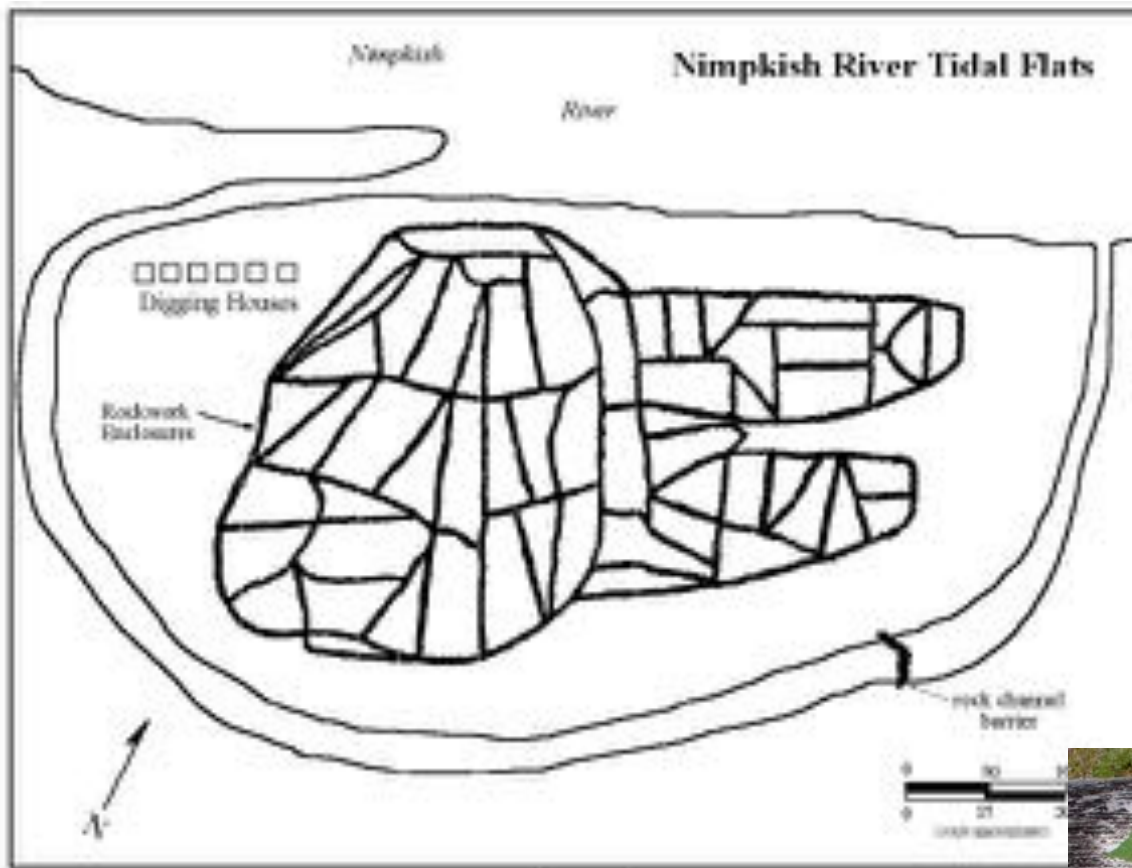


Tidal Root Gardens of the Kingcome River estuary: *t'ekkillakw*

*“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)

Major *t'ekîlakw* species: riceroot (*Fritillaria camschatcensis*); Springbank clover (*Trifolium wormskioldii*); Pacific silverweed (*Potentilla pacifica*); Nootka lupine (*Lupinus nootkatensis*)





← Similar *t'ekkillakw* layout, Nimpkish River estuary, Vancouver Island, re-drawn from ethnographer Franz Boas' sketch, by Doug Deur (2000)

Bundles of springbank clover, silverweed and riceroor, ready for cooking ➔





Northern Riceroor (*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”

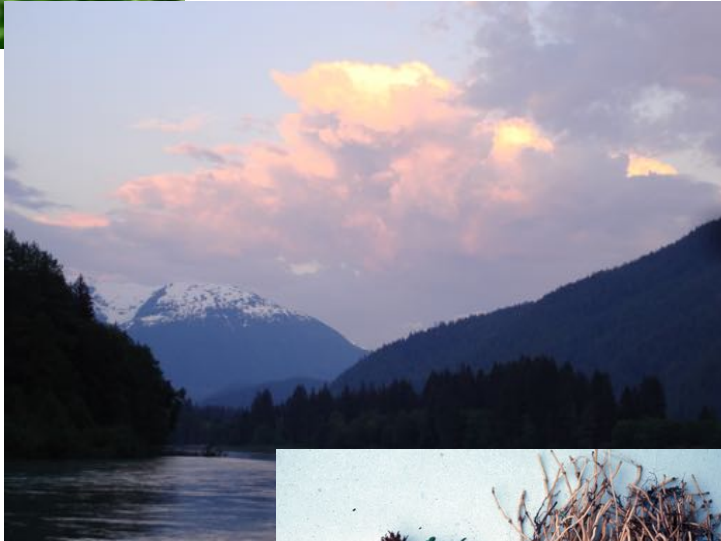
Springbank Clover

(*Trifolium wormskioldii*)



- “[**clover plots**] ...have been in the family for many generations. These hereditary possessions cannot be sold nor given away; to do so would be to rob unborn descendants. If an owner does not choose to harvest her clover-roots, nobody else would touch the ground.... ***Clover land is very valuable, because the roots... are regarded as indispensable to good health and hence can readily be sold at a high price. For this reason the land is well cared for.*** The main root stocks are never taken, and such pieces as are not deemed good for food are put back into the ground...”(E.S. Curtis 1915, *The Kwakiutl* p. 43)

Transplanting springbank clover



Margaret and Steven Siwallace of Bella Coola are credited with introducing springbank clover to the Kitlope Valley from Kimsquit ca. 1925 (Ken Hall, pers. comm. 1995) (Margaret d. 1985 age ~78) as a young woman [ca. 1925]

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

Similar practices for management of animal resources...

- Salmon streams carefully tended & salmon selectively harvested
- Sometimes eggs and adults transplanted
- Ceremonially managed (First Salmon Ceremonies)
- Same with oulachen, herring, etc.



Spring or Chinook salmon

Transplanting salmon eggs (Dr. Arvid Charlie, *Luschiim*)

*“Gee, from the stories I used to hear, sometimes, our young ladies would end up somewhere where there was no fish. So when it happened - and they mentioned some names, places - **they got some salmon eggs and they transplanted them, and they started a new run...** [That goes] Way, way back... Seseyitsa7, Agnes Ely, told me this]... a great, great grand aunt... I was already a youth [when she told me], and when I mentioned it to Mother, she confirmed it [and] mentioned the names.” (1999)*



(See also Gilbert Sproat 1868)

Lo-kee-way (clam gardens): the “ancestors’ gift”



Clan Chief Adam Dick
(Kwaxsistalla)



Hundreds of clam gardens, especially in the Broughton Archipelago and vicinity, created by rolling large rocks to the lowest tide line, building up the beach and creating ideal surface for butter clams and others

Dr. Daisy Sewid-Smith (Kwakwakaka'wakw)



“People didn’t believe that we did this...They think that Nature just grows on its own. But our people felt to get more harvest and bigger berries, they did these things - same thing a farmer does.” (Mayanilth)

Conclusions: Traditional Land & Resource Management Systems

Indigenous peoples in NW N America and elsewhere have developed sophisticated systems of sustaining the species and environments of their home places.



- These systems generally enhance overall ecological and biological diversity
- Until recently, they have been little recognized outside Indigenous communities
- They are part of peoples' cultural identity, language and belief systems
- They often act cumulatively

Traditional Management Systems



Leigh Jospeh (*styawat*),
ethnoecologist, *Sk̓wx̓wú7mesh*
(Squamish) First Nation, with northern
riceroot *gagemp's*

- are as relevant today as in the past, and have excellent potential in ecological restoration, food production, permaculture and biodiversity conservation

Thank-you!



