



# Indigenous concepts of habitat and vegetation in Northwestern North America

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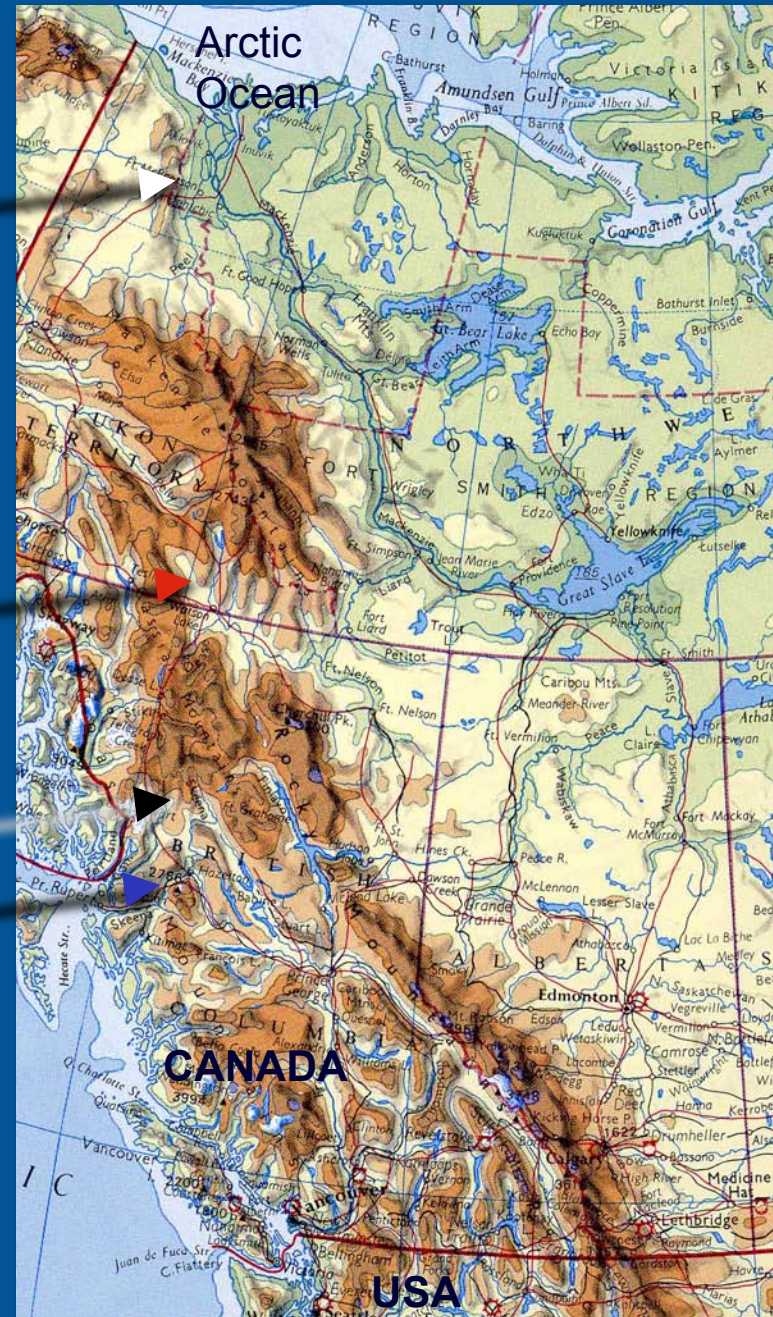


**Gwich'in**

**Kaska Dena**

**Gitksan**

**Witsuwit'en**





Kaska

# landscape knowledge as a trail linking significant sites



*atane trail*

*swamp  
and  
beaver  
lodge*



*tutsel and ts'a k̄*



*k̄  
camp*



# *Parsing the landscape*



*ts'i'winhl sqa'nist*

*lax 'aamit*

*gakslax sqa'nist*

*laxsqa'nist*

*spagayt gan*



*Some habitats and landscape terms in a Kaska landscape*



Kaska

Dolly Varden Creek/ Logan Mountains, Yukon



*“brush”* –  
tshedle



Kaska



—*willows*

chu kineli  
gule da'a  
'along the creek  
willows down  
there'

...

gule cho tah  
'among big  
willows'





Witsuwit'en

*'among big willows' -*



k'indlihcota

willow thicket along Owen Creek with Nēdin'a



Witsuwit'en



photos AS Gottesfeld

*'willow area where moose go'*

*k'indlihensiy*



**k'ii chah**  
*'willow flat  
by the river'*



this site was marked **“moose country”**  
on my field map in the Road River area





*Peel River  
below  
Teetl'it Zheh*

*place  
through  
season*



Witsuwit'en

*burn*

*“Swiss Fire”,*

*Morice River/Widzin Kwikh*



*wik'in k'it*

Pat Namox 1998



*Berry Habitat: Black Huckleberry patches are seral and must be maintained by burning for high productivity*



Gitksan and Witsuwit'en

*Vaccinium membranaceum*  
*sim maa'y* the “real” berry; *digì*



Witsuwit'en

*'edge' as a concept in landscape: timberline*  
(lit. 'edge of mountain alder')



wize begh

*subalpine forest, south end of Morice Lake/ Widzin Bin*

Dan Michell 2005



*concepts of habitat:  
shore/bank—*

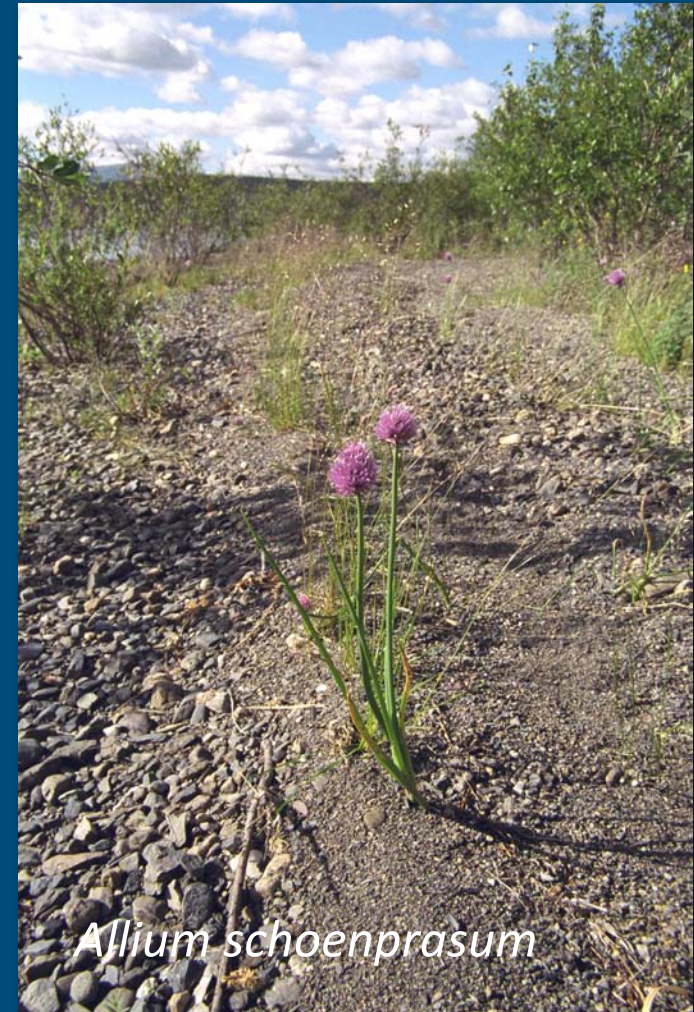
*tama -shoreline, river bank*



*'bear roots' tsas grows on the  
riverbank*

**Kaska**

*manma/ menma—  
'lakeshore'*



*wild chives grow on gravel shore*



*back channel without current*



ts'oolixs

Gitksen



*the hunter's view—  
landscape, habitat  
and the availability  
of animals*



stone sheep and  
woodland  
caribou



Kaska

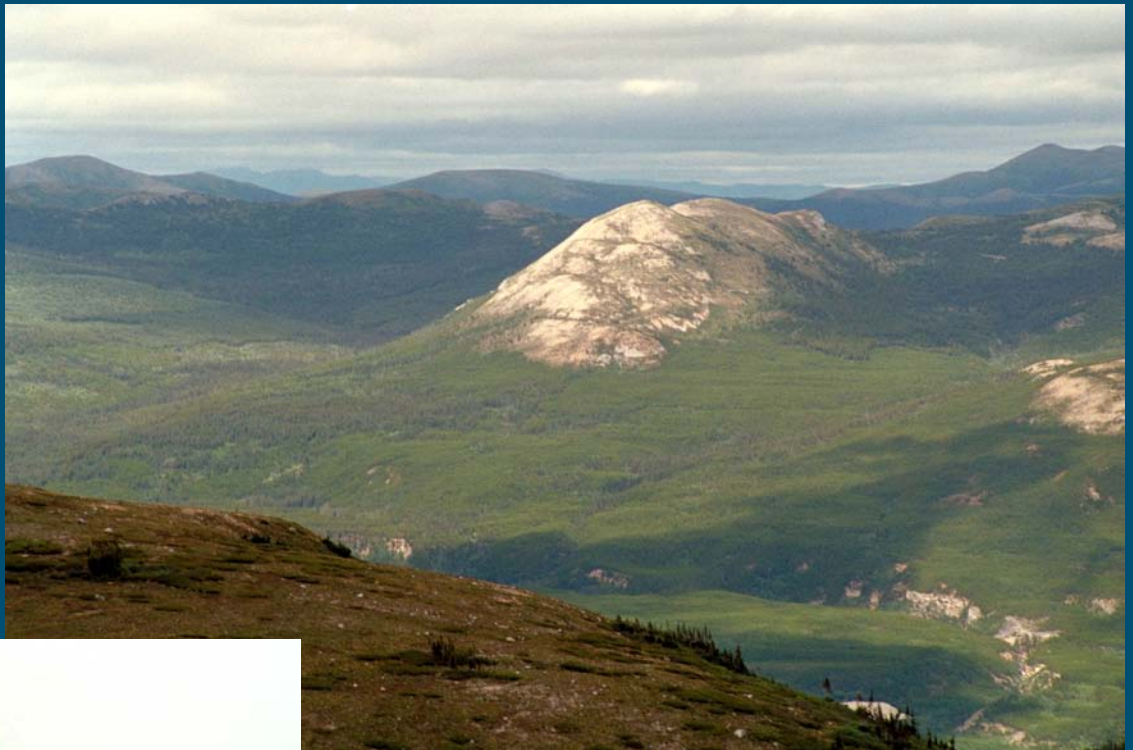
heskage— *‘on mountain’ (alpine)*



Mida Donnessey on top of Tse Dek'ese (Jade Mountain), Yukon



*'Rock Mountain'  
Tse'*



*Tse' dzeh  
bluff*

*escape habitat for sheep*

Kaska

*slope with green growth—  
“gopher” habitat*



“gopher” burrows  
tseilidei ‘gopher food’



# ales “lick”

Kaska



*‘habitat’ or feature of habitat?*



# tutssel 'swamp'

Kaska



Mida Donnessey 2002- identified at the sites



# *spruce and berries—*

*“Lots of ts’ibe,  
dahba lots.  
Always you go in  
there you get  
dzidze’.”*

In Kaska country, blueberries  
(*Vaccinium uliginosum*) are  
found with black spruce  
(*Picea mariana*)



tutsel *'slough'*

Kaska



identified at the site by Mida Donnessey 2002



Witsuwit'en

**tl'otl'is k'it—**

*'meadow, marsh' (where large grass grows)*



sedge tussock fen along Peter Alec Creek

Witsuwit'en

*swamp,  
marsh*

*(also c'iyē)*

Pat and Lucy Namox 1998



witsil k'it

*wetland along Seeley Creek, South Hazelton*



Witsuwit'en

*swamp, marsh* [cranberries grow here]



c'iye (k'it)

*swamp on Argil Creek*

Lucy Namox 1998, Pat Namox 1999



Witsuwit'en

*meadow* (lit. 'on grass')



tl'o k'it

Ts'en co Tanedilh– (lit. 'swans land in the water')

Pat Namox 1998



*Designation of vegetation-*



One of the terms that can be translated as meadow or open place



*open area, also above timberline; bare  
ground with nothing on it'*

wizulh k'it

Sweeny Ridge 1987

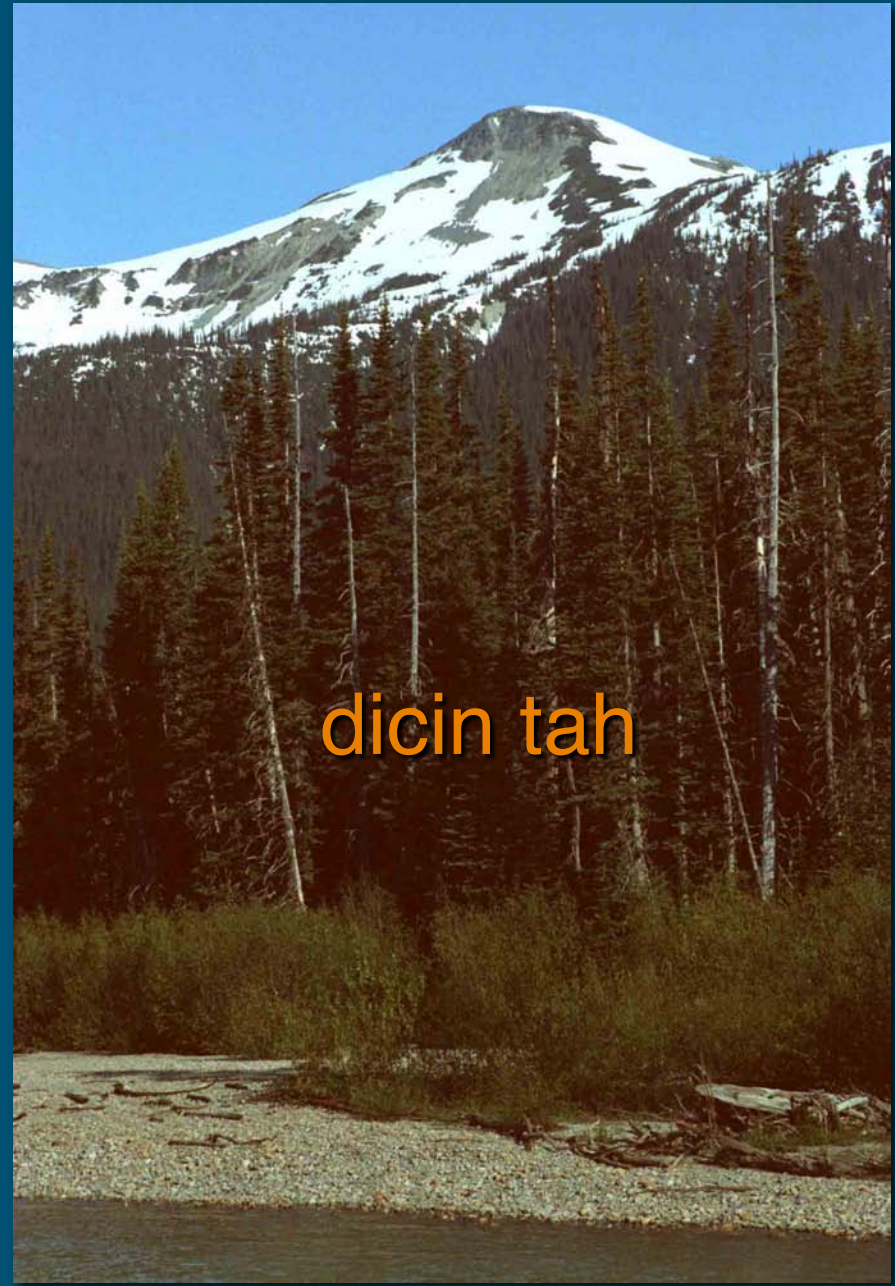
Witsuwit'en



Witsuwit'en

*(in the)*  
*“bush”*

*subalpine forest,*  
*Widzin Bin*



dicin tah

Dan Michell 2005

Witsuwit'en



ts'o co tah—  
*'among big  
spruce trees'*

*Picea engelmannii* forest near Collins Lake



gōdze tah—  
*‘among the pines’*

Kaska



*Pinus contorta* stand- good for caribou with lichen groundcover

# *cranberries*

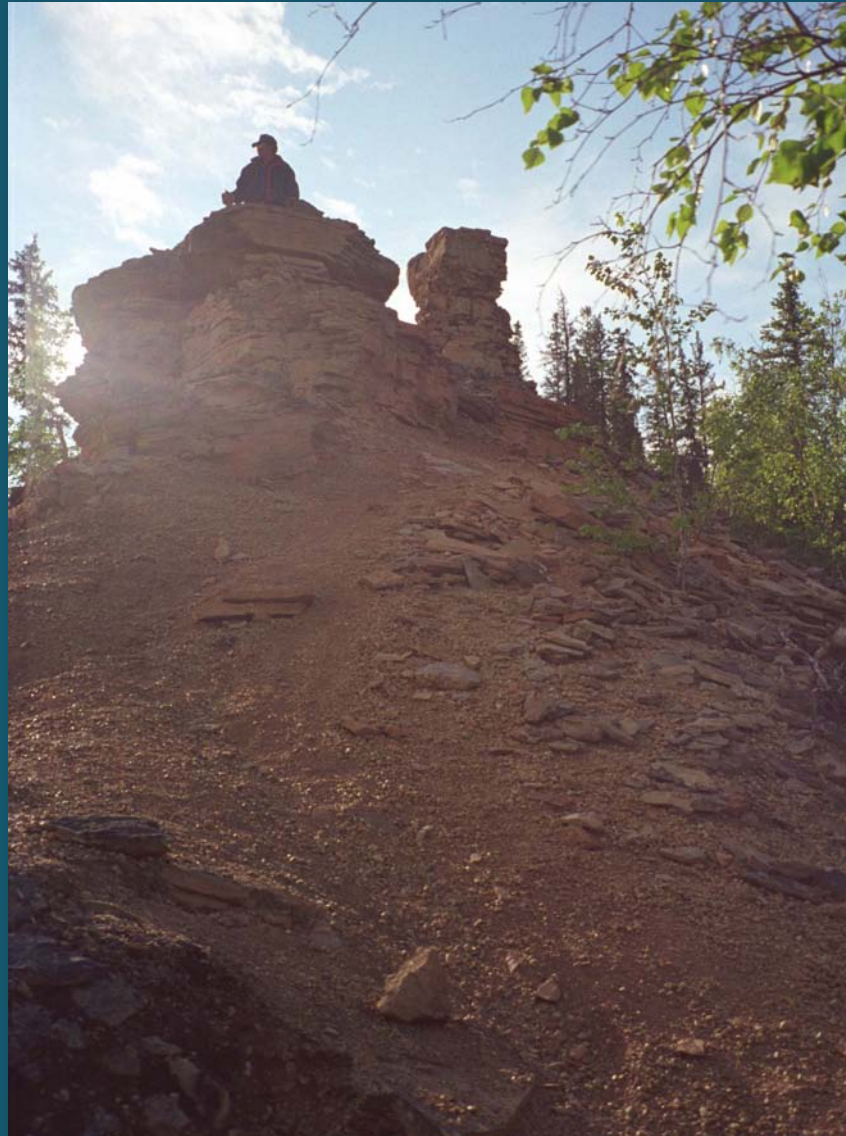
cranberry likes  
godze tah with nisul-  
a pine stand with  
moss understory—  
but not too dry or you  
will get  
dzis gede  
(kinnikinnick)  
instead



*Vaccinium vitis-idaea*



*sacredness  
and  
landscape*



Shiltee Rock, Peel River

# Thank You

A scenic landscape photograph of a lake with a forest and a rainbow. The image shows a calm body of water in the foreground, reflecting the sky and the surrounding forest. In the middle ground, there is a dense forest of evergreen trees. In the background, a large, rounded hill or mountain is visible, with a faint rainbow arching across its peak. The sky is filled with soft, white clouds. The overall scene is peaceful and natural.

I would like to thank my teachers in the communities, my colleagues, and my funders (SSHRC, CCI, ARF, GRRB, NNADAP). Thank you for listening today.



## Indigenous concepts of habitat and vegetation in Northwestern North America –

text to accompany slides from presentation at ISE May 21, 2012

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please contact author before citing or reproducing photographs

### Title Slide:

In this talk I'm going to present a synthesis of concepts of habitat and vegetation by Indigenous people in Northwestern North America.

### Slide 2 Map

My discussion here is based upon fieldwork and observations with Gwich'in, Sahtu and Kaska people in northwestern Canada, and with the Gitksan and Witsuwit'en in British Columbia. Their homelands range from about 53° to about 67° latitude, from northwestern British Columbia to the subarctic and low arctic. General vegetation is characterized by forest, in the south forests are transitional between the coastal cedar-hemlock forests and the sub boreal spruce forest. The cedar is *Thuja plicata*, and the hemlock is *Tsuga heterophylla*. The Kaska homeland is with the Boreal Forest and is dominated by black and white spruce (*Picea glauca* and *P. mariana*) with tamarack (*Larix laricina*) and pine (*Pinus contorta*). The Gwich'in landscape is in the taiga, and woodlands are *Picea glauca*, *P. mariana* and *Larix laricina*.

### Slide 3 landscape knowledge as a trail linking significant sites

There are contrasting ways of conceiving of landscape. One which is culturally very relevant is to think of landscape in terms of trails and sites. This is a path based perception based on journeying, of human interaction and movement on landscape, rather than a polygon based areal perception. Trails can be conceived of as routes taken over land through time; these can be repetitive journeys, as in a seasonal round, or other forms of travel across the landscape.

### Slide 4 Parsing the landscape

One can also attempt to describe the significant types of places, or habitats in the landscape. Such culturally recognized kinds of places can be quite diverse in their characteristics and may include many terms whose referents are not necessarily strongly biotic in content. However, for our purposes today, we are focussing on traditional knowledge related to *habitat*. We can define "habitat" in ethnoecology as where something lives, a "kind of place" that is associated with a specific type of plant or animal. *Habitat* involves a judgement of *relationship* between place and organisms, and an abstraction of the biophysical *and* temporal characteristics of places in relationship to some set of perceived requirements of specific focal organisms. Habitat is not equivalent to a simple description of places.

Habitat scales differently for plants and animals, and also varies in the degree in which a habitat may be fixed in space and season.

This example is Gitksan. *Lax' aamit* is a word for an open area, and can refer to alpine meadows above timberline. It apparently carries a connotation of deep soft snow in the winter time. Other terms on this photo include a general term for forest, which translates as 'among the trees'. The word on the hillslope is used "when a forested area is on a

mountain' and indicates a mountainslope. *Gakslax sga'nist* is the term for timberline, and finally, *ts'i'winhl sga'nist* is the term given for a mountain peak.

#### Slide 5 Kaska landscape

Here you see a Kaska landscape in the Logan mountains of the Southern Yukon. I've labelled the creek with the term for water, and I've tagged two vegetation types, "big willow" and "big trees/sticks" and a physiographic type, "mountain".

#### Slide 6 tsedle brush

An important aspect of "habitat" is *prediction*; it allows people to discern, through past experience of place, or through reasoned abstraction of the characteristics of places, whether this is a likely place to encounter specific species and what future conditions of a site are likely to be (e.g. predicting seasonal changes). All of these insights are integrated in the minds of experienced actors (harvesters, herders, travellers) with long familiarity with specific landscapes (homelands). This is an example of one kind of habitat as perceived by my Kaska teachers: *tsedle*, glossed in local English as "brush" which is focally scrubby coniferous or mixed growth, and contrasted with "willows" *gule*. Thick, brushy pine stands with small trees, *tsedle*, are good for snaring rabbits and may provide habitat for grouse. (diacritics omitted)

#### Slide 7 Willows

'Willows' as an ecological type grow along watercourses and in openings, provide food and cover for bears and moose, and are difficult to get through. They are also the place to encounter willow ptarmigan in winter. They can be called *gule cho tah* 'among big willows'. Here "willow" comprises more than shrubby members of the genus *Salix*; it can also include shrubby *Alnus*, and young *Populus* or tree Birch (*Betula papyrifera*). (diacritics omitted)

#### Slide 8 Nadina Country

In Athapaskan languages, Willows as a vegetation type are named among 'big' \_\_\_\_\_. Describing taller vegetation positions people among the stems of shrubs or trees in many languages. In Witsuwit'en *dicin* refers both to trees and to large woody shrubs.

#### Slide 9 willow and moose

Associations between vegetation cover and animals is important for many groups. The Witsuwit'en, in common with other Athapaskan speakers, recognize the obvious association of willows with moose, and the Nadina country is a good moose hunting area.

#### Slide10 willow flat

The association of willow areas with moose as good habitat is also evident to Gwich'in. William Teya, with whom I was staying during this part of my Gwich'in fieldwork, shot a cow and calf moose in February at the edge of a stand his wife Mary had identified as "moose country" from a boat on the river the previous summer. Use of habitat for



prediction has both spatial and temporal components; we need to know both where and when.

#### Slide 11 envisioning place through season

At high latitudes seasonality is paramount in perception and interaction with landscape. These two photos are of the same place on the Peel River below Ft. McPherson, or Teetl'it Zheh. In July the willows and horsetails (“goose food”) were green and the temperatures about plus 25 Celsius. In February, the temperatures were closer to minus 30 Celsius. The temporal aspect of habitat involves both regular cyclical changes in the land (e.g. *seasonality*, which becomes extreme in the Arctic) and stochastic events whose temporal and spatial occurrence is at irregular intervals, and which must be understood as probabilistic.

#### Slide 12 burn

Occurrence and intensity of wildfire, land slippage, flood scour, and so on cannot be predicted exactly in either time or space, though these disturbance events can be integrated into our understanding as “disturbance regime” that is associated with fixed locations, or more generally as shifting events over a broader area of land. These events, once they are localized in time and space, then have consequences flowing from their occurrence that are of strong significance for other species, e.g. vegetation succession, response of animal species to the shifts in available plant species, their palatability and digestability, and so on, the patchy occurrence of specific species of interest that may require disturbance to flourish.

#### Slide 13

Black huckleberries are large, juicy and sweet, and on good sites yield a large amount of berries. These sites have high cultural importance for Gitksan and Witsuwit'en and are called in English berry patches. Huckleberry is a seral species, meaning it thrives on relatively open sites, and will be shaded out if tall shrubs and young forest trees overtop it.

#### Slide 14 edges

Areas are important in terms of habitat, but edges are also salient. Edge as a concept in ethnoecology : The edge of this alder thicket was described by Dan Michell as *wize begh*, a word he also used to refer to timberline at the top of the mountains. It means ‘edge of the mountain alder’ . Shorelines in Witsuwit'en also are designated with *begh*, as in *bin begh*, ‘edge of lake’ or lakeshore.

#### Slide 15

*concepts of habitat:*

*shore/bank*

Kaska also described lake or river shores with a basic term *ma*, which is cognate. In a Kaska language class, fluent speakers had no difficulty listing the plants which grew on shorelines such as bear roots, *tsas*, which grows on river banks, or wild chives *sundli*, which grows on gravel beaches. (diacritics omitted)

Slide 16 Aquatic habitats are also significant, though questions of “habitat” or “part of habitat” can be a challenge. My Gitksan teacher Art Methews explained that *t’aamiks*, a side channel, has slow current, but *ts’oolixs*, a back channel (shown here), has no current as it does not connect to the river at its upstream end. To fish, you need *luuguuksbax* a real back eddy, with current, where you set net

Slide 17 *the hunter’s view– landscape, habitat and the availability of animals*

I found when talking about the land that people were highly attuned to the relationships of animals to plants and place. People described the significance of habitats to animals such as caribou, moose, rabbits and ptarmigan, knowing both the seasons of animal activity and which plants were food sources, important information if you rely on hunting for a significant part of your food.

Slide 18

The alpine is called *héskage*, or ‘on mountain’ by Kaska. Mountains are strongly associated with caribou and caribou hunting for Kaska, and with certain plant resources. As we walked up the steep alpine meadow on the top of Tse Dek’ese, Mida commented on disused caribou trails, and remembered coming up here to hunt caribou by foot when her children were small and there was no mine road. Mountains, I learned, can be divided into grassy mountains,

Slide 19

and stone mountains with steep bluffs. Caribou and sheep feed particularly on the grassy mountains, but sheep use the steep rocky slopes for escape habitat.

Slide 20 *slope with green growth– “gopher” habitat*

We came to Tudziye because the alpine *héskage* was described as where you find “gopher food” *Silene acaulis*. Green moist meadowy slopes are recognized as gopher (*Spermophilus arcticus*) habitat.

Slide 21 eles

Licks, mineral lick areas which are visited by animals such as moose, caribou or mountain sheep, are another key ecotope for hunting people, of very specific location and limited extent. Are these focal areas “habitats” or parts of habitats?

Slide 22

tutsel ‘swamp’

The term tutsel, usually glossed as ‘swamp’ covers a wide range of wetland habitats, including both moss and sedge dominated sites.

Slide 23 association of species

This site was identified as tutsel. The association of open black spruce and dwarf birch sphagnum area and productive *Vaccinium uliginosum* was recognized by my Elder teacher.



Slide 24 tutsel slough (oxbow)

This old abandoned channel (oxbow) of the Liard River, characterized by low flows, beaver activity, and sedge meadow development is also designated tutsel, and is a good site for gathering medicine.

Slide 25

The Elder and I both knew this specific place which he labelled *tl'otl'is k'it*. Linguist Sharon Hargus provided the gloss for the term: 'meadow, marsh' (where large grass grows).

Slide 26-

Pat and Lucy Namox called this wetland or swamp area in the Hazelton area of British Columbia *witsil k'it*. Dan Michell told me in 2006 that it means a place that is damp.

Slide 27

Lucy Namox called this sphagnum and black spruce swamp area *c'iyek'it*.

Slide 28 *tl'o k'it*

Vegetation is often named \_\_\_\_\_ on it, or place of \_\_\_\_\_. *Tl'o k'it* has entailments (here goose habitat)- and we also see place kind in the generic co-existing with specific locale, also carrying ecological information.

Slide 29 *lax 'aamit*

Open area

This is a Gitksan term for a type of *opening* in a largely forested landscape. This site would be a relatively dry type.

Slide 30

*Wizulh k'it*- 'nothing on it'- indicating sparse or absent vegetation, here in the alpine, another part of this largely forested landscape *without* trees. In the past woodland caribou would have utilized these alpine areas.

Slide 31 *dicin tah*

The open vegetation types in northwestern British Columbia contrast with the prevalent forest cover, especially on mountain slopes and more distant from settlements in the valley bottom. Showing one Witsuwit'en Elder this photograph of dense subalpine forest, he described it as *dicin tah*. One could describe this word as meaning 'among the sticks' and is the generic term for being out in the bush, in the forest in Witsuwit'en.

Slide 32 *ts'o co tah*

If you want to specify that you are walking in a spruce stand, you can say *ts'o co tah*, 'among big/lots of spruce trees'. This unites people with habitat and describes the environment from the perspective of a person on the land, and also the scale of the vegetation (as tall as or taller than the human traveller).

Slide 33

A lodgepole pine stand is *godze tah*, 'among the pines'. Pine stands which have white moss *ajú* understory are frequented by the woodland caribou in winter when they descend from the alpine. (diacritics omitted)

Slide 34

Cranberries- (here I refer to *Vacciniuim vitis-idaea*) prefer pine stands with moss understory. However, if the site is too dry, kinnickinnick *Arctostaphylos uva-ursi* will prevail.

Slide 35

For Dene the land itself is sacred, and things that come from the land, such as medicinal roots or red ochre, must be taken with prayer and payment. The land contains reminders of moral lessons and past events in the relationship of people with place. These aspects of land are beyond the concept of habitat but nonetheless very important.

Slide 36 Thank you and Conclusion

The concept of habitat in my estimation necessarily includes a relationship between species, and is not simply a designation of land cover. Ethnoecological understandings of habit include human use and movement as well as the biophysical requirements of plant and animal species.

I would like to acknowledge my teachers from the communities and my colleagues who have broadened my understandings over the years. I would also like to acknowledge my funders without whom this work could not have been carried out. Thank you for your attention.