

ENDNOTES

CHAPTER 1

- 1 The release of the United Nations report *Our Common Future* by the World Commission on Environment and Development in 1987 marked a turning point in popular global awareness of a number of interrelated issues of environmental quality and economic development. *Our Common Future* brought the concepts of sustainability and sustainable development into every day discourse. It is often known as the Brundtland Report in acknowledgement of the role of former Norwegian Prime Minister Gro Harlem Brundtland as Chair of the Commission when the report was released. Its publication set the stage for the 1992 Earth Summit and the adoption of Agenda 21, a blueprint for sustainable development, the Rio Declaration on Environment and Development, and the Convention on Biological Diversity which together established the international framework for promotion of sustainable development and which were signed by more than 178 governments. (Agenda 21 for Change, a Plain Language Version of Agenda 21 and the other Rio Documents, <http://www.iisd.org/rio%2B5/agenda/default.htm>.)

CHAPTER 2

- 1 This conception of “the Land” is in sharp contrast to “land” as a quantifiable mass noun as discussed in Ingold 1993:153, where he contrasts generic, quantifiable “land” with qualitatively rich, lived-in “landscape.”
- 2 In the same vein, I was recently struck by a statement in Scott (1998), where he muses on nature, free gifts of nature, and natural resources. Scott writes,

. . . utilitarian discourse replaces the term “nature” with the term “natural resources,” focusing on those aspects of nature that can be appropriated for human use . . .

But the moment it [common property] becomes scarce (when “nature” became “natural resources”), it became the subject of property rights in law, whether of the state or of the citizens. The history of property in this sense has meant the inexorable incorporation of what were once thought of as free gifts of nature: forests, game, wasteland, prairie, subsurface minerals, water and watercourses, breathable air, even genetic sequences into a property regime. (1998: 39, emphasis added).

- 3 A recent paper by Istomin and Dwyer (2009) explores contrasting theoretical perspectives on mapping and mental maps, and reports significant empirical studies of orientation and mapping in two adjacent reindeer herding groups in Russia, finding significant differences in mapping between the Komi and Nenets, and between genders within each group.

- 4 Two strong examples of this phenomenon are given in Tsing 2005 and Scott 1998. Tsing details the transformation of the Meratus Dayak homeland in Kalimantan, socially and ecologically, into a “resource frontier.” Scott provides a detailed and informative case history of the transformation of the German forests into monocultural managed *Normalbäum* growing timber for the state, completely eradicating the relationship of local communities to the previous diverse old growth forest landscape.

CHAPTER 3

- 1 The spelling of “Gitksan” is somewhat problematic; this was the former standard spelling. Gitksan was used by the Gitksan Treaty Office and is frequently found in publications, but Gitxsan (Gigeenix dialect) and Gitksen (Gyeets’ dialect) are also frequent, and are the spellings used by the Gitksan Dictionary Committee.
- 2 In other published works (e.g. Marsden 2008) and in the Delgamuukw Court Case documents, this name is spelled T’anim Gyet. The orthography I use here is a newer practical orthography used by the Gitksan Dictionary committee, and is the spelling I have used in previous works.
- 3 For a detailed discussion of Gitksan social structure, traditional governance, and economy, see Richard Daly’s 2005 *Our Box Was Full, an Ethnography for the Delgamuukw Plaintiffs*.
- 4 The two spellings given are for the eastern or Gigeenix dialect, and the western or Gyeets’ dialect.
- 5 Art Mathews, Dinim Gyet, explained that the Elders prefer to keep that knowledge secret, because these are places of risk and power, and people who do not understand or respect such places, like most Whites, may “mess around” with them—which could harm themselves or others, or the land.

CHAPTER 4

- 1 The name is pronounced roughly “Wadzín Kwah.” My orthography follows linguist Sharon Hargus.
- 2 The name Hagwilget is a Gitksan word that means ‘quiet man’; the Witsuwit’en name Tse Cäkh (often spelled Tse Kya) means ‘under the rock.’
- 3 The Court Case referred to here is the landmark land claims case *Delgamuukw vs. the Queen*.
- 4 This term is spelled three different ways in the excerpts from the interview transcript, reflecting my uncertainty about the correct transcription. The spelling of this term has not been checked by a trained Witsuwit’en linguist.
- 5 The spelling in brackets is the corrected spelling provided by Dr. Sharon Hargus.
- 6 The new white inner bark of the lodgepole pine is edible and nutritious (Gottesfeld 1995). It is called *k’inib* in Witsuwit’en, and often referred to as ‘pine sap’ in English.

CHAPTER 5

Some of the material in this chapter was previously published in a co-authored article with Scott Trusler entitled “‘Berry Patch’ as a Kind of Place—the ethnecology of black huckleberry in Northwestern Canada” *Human Ecology* (2008). I have cited that work where pertinent.

- 1 Productivity for black huckleberry is high in the Gitksan and Witsuwit'en territories. Burton (1998) reports yields of 200 grams per square meter in for sites with 60-80% full sunlight, almost ten times the productivity reported by Minore et al. (1979) for Washington state.
- 2 This map represents a general overview, as it is not a complete inventory of traditional berry patches, nor does it show several village sites that are no longer occupied, nor the numerous fishing sites and smokehouse locations along the rivers.
- 3 One of the factors that is not clear is whether “packloads” refer to fresh or dried fruit. The volume ratio of fresh-to-dried fruit is 10.25:1, which could create a 10-fold error in the projections. However, ethnographic information from interviews suggests that in the nineteenth and early-twentieth centuries, fruit was usually processed and dried on site and transported in dry form (L.M. Johnson field notes; People of Ksan 1980).
- 4 Spellings of Witsuwit'en place names here are after the spellings in the Delgamuukw court case documents and do not represent the current practical orthography for Witsuwit'en. Other Witsuwit'en language terms are represented in the practical orthography. I acknowledge the assistance of Dr. Sharon Hargus of the University of Washington with spellings; any errors that remain are my own.
- 5 As I describe in Chapter 4, the fishing site at Hagwilget Canyon was first utilized when a rockslide blocked migration of salmon to the falls on the Bulkley River at present day Moricetown in the 1820s. Since the Federal Department of Fisheries blasted the rock that made fishing possible in Hagwilget Canyon in a misguided salmonid enhancement project in the late 1950s (Cassidy 1987), the Witsuwit'en fishery takes place only at Moricetown. Spring (chinook) salmon are the most important fish resource of the Witsuwit'en at present. Sockeye from the Nanika Lake stock have dwindled over the past century (Gottesfeld et al. 2002:95).
- 6 *Digi* is the correct spelling of the name for huckleberry in the present practical orthography.
- 7 *Sis Kwikh* is the spelling of the Suskwa River in the Tsë Cäkh Wit'en book (The Hagwilget [Tse-Kya] Band 1995).
- 8 I believe Maryann is referring here to the hunting sequence in the film Hugh Brody released in 1988 about the Gitksan-Wet'suwet'en Land Claim.
- 9 This spelling is in the Gigeenix dialect. It is *Ksa'endilgan* in the Gyeets dialect.
- 10 Thornton (1999, 2007) explicitly discusses Tlingit berry patch ownership and enhancement in terms of economic defendability.

- 11 Moss also discusses the influence of gender and status on the prominence of shellfish utilization among the Tlingit in the ethnographic record. It is possible that gender bias has also contributed to the relatively low emphasis in the traditional ethnographic record for berry resources as opposed to more male and charismatic enterprises such as salmon fishing and, for coastal peoples, sea mammal hunting. Gendering of knowledge around berry patch management and harvesting would be an interesting topic to investigate; to date, only scattered and suggestive data on this topic are available for Gitksan or Witsuwit'en. It appears that women may have had substantial input into deciding when a patch needed to be renewed by burning, and perhaps that men usually carried out burning of montane berry patches, possibly in the course of hunting activities as suggested by Sim'oogit Tsii wa's narrative. Women and children are certainly prominent among harvesters, but I did not get the sense that men avoided picking. In mixed resource utilization from montane or alpine base camps, it is likely that women would be more likely to pick berries while men were engaged in hunting mountain goats or procuring groundhogs, as suggested by Mary Ann Austin's narrative.

CHAPTER 6

- 1 Elephant is the term consistently used in English for this fearsome monster.
- 2 A version of the Sisters Who Married Stars told by Mida's cousin Clara Donnessey, with whom she was raised, is included in *Dene Gudeji, Kaska narratives* pp. 358-367 (Patrick Moore, Ed, 1999).

CHAPTER 7

- 1 William Teya tragically disappeared in 2005, and Alice Andre passed away in 2006. I honour their memory and am grateful for time shared on the land.
- 2 Alestine Andre earned a Masters in Environmental Studies at the University of Victoria in 2006, and in 2007 received an Aboriginal Achievement Award for her research in Gwich'in traditional knowledge of land, culture and healing, and her efforts to ensure that this knowledge will be available to future generations.

CHAPTER 8

This chapter is based upon a co-authored paper written with Daniel Andre, originally presented at the 2000 IASCP meeting at Indiana University, and has been updated to reflect subsequent changes in the economy and resource development.

- 1 These changes highlight the sensitivity of caribou to landscape disturbance. Such changes will be of significance if, or more likely when, the proposed Mackenzie Valley pipeline is constructed. The route crosses the entire area from the Inuvik area to the eastern edge of the Gwich'in Settlement Area, where the course of the Mackenzie resumes its southward course, and passes close by the northern edge of Travaillant Lake, which the Gwich'in have proposed be designated a protected area.

- 2 The figures for country food consumption by Inuvialuit from Aklavik, a Mackenzie Delta village that also has a large Gwich'in population are indicative of the importance of country foods in local nutrition (Wein and Freeman 1992). The replacement cost figures for Yukon First Nations given by Wein (1994) can be taken as an indication of the magnitude of the dollar value country foods represent for Northern peoples.

CHAPTER 9

- 1 This is the hoary marmot or 'whistler,' *Marmota calligata*, locally called "ground-hog," a formerly important food species of comparable significance to the "gopher" or Arctic ground squirrel *Spermophilus parryii* in the economy of Dene in the Yukon.
- 2 Although there is no local access to salmon in the Liard River system, Pacific salmon run in the Yukon River and its tributaries and in the Stikine River. Kaska and Tutchone fish for salmon on the Pelly River, and Tahltan have access to chinook and sockeye salmon on the Stikine River below the Grand Canyon of the Stikine, enabling people with social connections to obtain fish from people in these adjoining regions.
- 3 In the 1950s dynamiting of The Rock in Hagwilget Canyon in a misguided salmonid enhancement effort completely eliminated the productive fishing sites that had prompted the establishment of the village in that location (Morice 1904; Morrell 1989).
- 4 Many more storied places are detailed in the Sahtu Atlas, a compilation of land-based knowledge published for the people of the Sahtú region (Auld et. al 2005). See also the website for the Iḁàà Trail, Prince of Wales Northern Heritage Centre <http://www.lessonsfromtheland.ca/IndexLNg.asp>
- 5 The sense of a dynamic world with agency, and the necessity to treat the world with respect to avoid dangers is eloquently explored in the recent monograph by Julie Cruikshank entitled *Do Glaciers Listen?* which describes Tlingit and Tutchone (another Dene nation) interactions with the glaciated landscape of the Glacier Bay/ Mt St. Elias region.
- 6 A Moss house is a traditional Gwich'in dwelling, which is constructed of poles covered with moss, and partially dug into the ground. It was a warm winter dwelling in the period before log cabins, and canvas tents with stoves (Andre and Kritsch 1992).

CHAPTER 10

- 1 These names are Ts'ii Dejj or "Stone Age" names, names in an older form of the language; the meanings of such names are not entirely understood by contemporary Gwich'in speakers.

- 2 Tim Ingold (1993: 156) commented, “places have centres—indeed it would be more appropriate to say they *are* centres—they have no boundaries.”
- 3 There have been shifts in the popular orthography in Witsuwit’en; the terms formerly written Cakh and Kwah are now written Cikh and Kwikh.
- 4 I include mammals in the term “animal” and exclude fish and birds.
- 5 Interestingly, the term ‘rabbit’ here is a loanword from Athapaskan languages, as are other important animal terms such as that for moose, which speaks to long contact between language groups in the region (Rigsby and Kari n.d.).
- 6 *Xsi-* is a variant of the term for water which translates as ‘creek, river.’
- 7 Dinim Gyet described how the water repellent liverwort or moss could be used and thought it resembled a particular leafy liverwort figured in a plant guide; the plant remains unidentified.
- 8 In Barbeau’s text the spelling is Kwunekstaet.

CHAPTER 11

- 1 Raster data, in geographic information systems, is data coded to cells of a regular gridded field, like pixels, while vector data consists of points, lines, and formally defined polygonal spaces. Converting data from one type to another, or matching layers of vector and raster data is an important area of geographic information systems (GISs), and much has been written about the implications of choosing one type of representation or the other, and on the resolution of spatial data coded in raster form.
- 2 Angela Wheelock and Pat Moore were conducting land use and occupancy work for the Liard First Nation.
- 3 For a careful discussion of the social effects of introducing GPS, its benefits and downsides, and the effect on self-sufficiency of powerful but expensive units that cannot be locally repaired, see Aporta and Higgs 2005.
- 4 It is so naturalized in the contemporary world that in the rare instances when north is not depicted at the top of a map of an area of the land, it can make a statement, the momentary disorientation the map reader feels serving to challenge received truths and graphically emphasize that a distinct perspective is being represented. The plaintiffs in the Delgamuukw court case used this tension to give impact to the Atlas they presented as evidence regarding their occupancy and ownership of their lands.
- 5 For example, river or stream in Witsuwit’en is *-kwikh*, while for Dalhkeh or Carrier, the cognate form is *-ko*.
- 6 This is of course, a rather glib simplification of a complex process of technological development. For further discussion of the steps involved in the ‘cartographic revolution’ see David Turnbull’s *Mason, Tricksters and Cartographers* (2000), Chapter 3. Accurate chronometres that would work at sea also had to be developed to

measure travel in an east/west direction to be able to determine longitude, and continued refinement of navigational instruments and techniques has taken place from the Renaissance to the present, when the GPS/GIS revolution is supplanting earlier techniques of navigation. GPS/GIS can deliver very accurate positions with the aid of satellite data and highly sophisticated computer software, and has become the norm for navigation in the air and at sea, and is quickly becoming widespread, at least in Europe and North America, for navigation on the ground.

CHAPTER 12

- 1 Ingold (2000) discusses these issues at length in his chapter on mapping and mapmaking, where he asserts that mapping is fundamentally different from mapmaking, and that the metaphor of a bird's-eye view actually obscures the work and movement that go into producing a map, rather than being a "natural" way to represent landscape. I wonder, in this era of GoogleEarth and mapping derived from satellite view if this any longer strictly true. Since the invention of the airplane and aerial photography, it has in fact been possible to view, and map, the landscape from this disembodied, disengaged perspective.
- 2 Nadasdy (2003) terms maps and databases which transform traditional ecological knowledge while purporting to preserve and record that knowledge, "TEK artifacts."
- 3 Another prophet's drumhead design depicting the Trail to Heaven is figured in Ridington 1981, page 354, Figure 3.
- 4 GIS and mapping subsequently moved to the Gitksan Watershed Authority, and have been employed particularly in fisheries issues, and for some specific Chiefs' House territory planning.
- 5 The Whorfian hypothesis, also often referred to as the Sapir-Whorf hypothesis, deals with the notion that how we think and understand the world is influenced by aspects of the structure, grammar and lexicon of our languages. This is in fact one of the arguments for the need for the conservation of the diversity of the world's languages, as it implies that unique ways of understanding the world may be conditioned by the particularities of structure and vocabulary of the language one uses to think about and communicate about the world. In its "strong" formulation, it would be impossible to think in ways novel to the speaker's language, or to translate between languages, a notion no longer considered credible, but in its "weak" formulation, the Sapir-Whorf hypothesis suggests that language structure and lexicon influences or facilitates certain ways of understanding the world, and makes others less natural.
- 6 Eleanor Rosch, a psychologist at the University of California at Berkeley, pioneered a theory of category formation based on prototypes, rather than on definitions comprised of lists of traits, which has been very influential in subsequent cognitive and ethnoscience research.

- 7 When the decision of Justice McEachern in the original Delgamuukw case judgment was appealed, the Court of Appeals ruled that the Gitksan and Wets'uwet'en did not retain title to the land, but stated that they did have unextinguished use rights in the land. In its implementation of this ruling in the early 1990s, the Province of British Columbia undertook a program to facilitate the identification by British Columbia First Nations of sites of aboriginal significance for heritage or land use which related to their unextinguished aboriginal use rights. The Province provided funding to Bands for these studies, called Traditional Use Studies, and universally referred to as TUS.

CHAPTER 13

- 1 In GIS, raster data is the form of spatial data that exists in the form of a geo-referenced grid of cells, which is a very frequent form of GIS and remote sensing data. The other main form of GIS data is vector data, which is comprised of an array of points, lines and polygons, that is, of geographic objects.
- 2 Mackenzie-Scott was replaced as Chair of the review board in March 2008, shortly after I heard her speak, suggesting the fragility of such hopeful efforts. Her replacement followed the rejection of two mining developments (Drybones Bay and Upper Thelon) by the MVEIRB in 2007, primarily because of the strong cultural significance of the areas where development was proposed. Concern regarding the loss of her voice on the committee was expressed by the office of Dennis Bevington, MP for the Western Arctic.