CHAPTER 10

High Elevation Archaeology and Cognitive Ecology in the North Cascades of British Columbia With a View to and From *Lhílheqey* (Mount Cheam)

David M. Schaepe
Stó:lō Research & Resource Management Centre, Stó:lō Nation

Legend of Mt. Cheam (Lhílheqey) as told by the late Amy Cooper to Oliver Wells on February 8, 1962:

> "Well, Mt. Cheam is a lady and Mt. Baker is a man - this is an old legend - Mt. Baker comes over and looks for a wife and he finds Cheam is a nice looking girl, so he takes her over to this country. They live there and they have three boys – Mt. Hood, Mt. Shah-sta and Mt. Shuk-sahn and they have three girls. But the boys are the oldest ones - after the boys grew up; then she had three little girls, she says "I had better go back home" she says - to my people on the Staw-loh - so she comes back and she says "I'll stand and guard" she says "I'll stand and guard the Staw-loh, that no harm comes to my people and no harm comes to the fish that comes up to feed them;" – Then she takes her three children and she stands up there. If you are coming down from up the road there are three little points and those three little points are her children. They say she holds the smallest one, I-oh-wat, in her hand, and behind her – towards the south is the dog's head – the head of the dog that followed her. She told the dog to go back home – but it stood there and stayed there. So now if the snow isn't all off you could see the dog's head. It's really and honestly a dog's head when the snow is just off, you can see it. You can see the ears and it looks like it's just above water. It's really a dog head but it wouldn't go back to the family – the man family." (Wells 1970:12).

Introduction and Background

High elevation land-use patterning is a niche in archaeological research that developed within the 'human behavioral' or 'culture ecology' milieu of processualism during the last 35 years (Winterhalder and Smith 2000; Madsen and Metcalf 2000). Beyond this niche, archaeological theorizing and practice have witnessed the rise of alternative perspectives embodied in post-processual interpretation and discourse. Adherents of post-processual and processual positions often find themselves separated by opposing and seemingly unbridgeable views of the relationships between individuals and society, culture and nature, humanities and science, relativism and positivism, ideology and economics. This paradigmatic divide extends into the archaeological investigation of high elevation land and resource use.

This chapter examines and integrates cultural ecological and cognitive approaches for reconstructing behavior associated with high elevation archaeology of the North Cascade Mountains of British Columbia. The argument presented here is that archaeologists studying the complex inter-relations between humans and resources in high elevation mountain settings and elsewhere should recognize *both* materialist and ideationist platforms in gaining a fulsome understanding and basis for explaining human behavior. The cultural landscape, an amalgamated materialist and ideationist environment, becomes the necessary framework within which human activity is carried out, identified and understood.

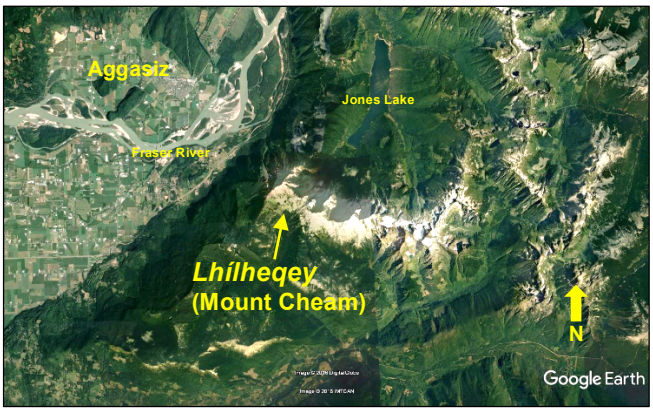

Figure 1. Aerial view of *Lhílheqey* (Mount Cheam) and the Cheam Range southeast of Agassiz, B.C. Google Earth image 2016.

This chapter focuses on the Stó:lō use and perspective of *Lhílheqey* (Mount Cheam) as a significant cultural landscape feature. *Lhílheqey* is a prominent peak (2,080 meters above sea-level) located at the northernmost extent of the Cheam Range of the North Cascades (Figures 1 to 3). It overlooks the central Fraser Valley in the Lower Fraser River Region. This locality is called *S'ólh Téméxw* (Our land; Our world) by the Coast Salish, *Halq'eméylem*-speaking Stó:lō (People of the River). Stó:lō oral history (Galloway 1975; Stó:lō Nation 1998) identifies campsites on three lakes on the northeast slope of the mountain.

Archaeology of the Lower Fraser River Region
Edited by Mike K. Rousseau, pp. 87-94
Archaeology Press, Simon Fraser University, 2017

Hillsides adjacent to these lakes were a popular berry picking ground. The name *Lhílheqey* refers to the practice of soaking dried food, particularly dried fish, in these lakes during summer berry gathering expeditions.

Figure 2. A view of *Lhílheqey* (Mt. Cheam) near the peak (2,104 m elevation) overlooking the Central Fraser Valley, looking north.

Alpine and parkland ridges were also visited by men and boys in the spring to collect Mountain Goat wool. Women wove this wool into blankets called *swōqw'elh*, which held significant value. Hunting, gathering, camping and other activities are recorded on *Lhílheqey* as with other high elevation area within *S'ólh Téméxw*. Rather than attempt to explain Stó:lō indigenous land use of *Lhílheqey*, I identify factors that affect land-use and suggested for consideration in the high elevation archaeology of the North Cascades of British Columbia and *S'ólh Téméxw*.

Archaeology as Cultural Ecology

Materialism dominant in the culture ecology paradigm is explicitly formulated by the founders of this theoretical perspective by anthropologists and archaeologists that include Leslie White (1943), Julian Steward (1955), Lewis Binford (1962) and Marvin Harris (1979). These prominent theorists adopted and re-oriented the materialist foundation of their structural-functionalist predecessors, inciting a neo-evolutionist resurgence in North American anthropology of the mid- to late-twentieth century (Trigger 1998). This approach emphasizes techno-economic and techno-environmental aspects of the relationship between humans and environment, particularly as it relates to settlement patterning (Binford 1980). Numerous assumptions underlie cultural ecology, including an understanding of humans as biological organisms with biological needs akin to animals. The ecosystem acts as a determinate of social structure with humans taking a passive adaptive position in this relationship. Energetic systems and energy flows comprise the determining factors of social systems as they evolve and relate to variable resources in the ecosystem. Social systems develop as adaptive mechanisms functioning to maintain the health of the human biological organism(s). The adaptive, systemic relationship between humans and resources is founded in supply and demand economics, with energy expenditures representing a widely recognized form of currency. Evolution of social systems is a measure of biological adaptive success within the bounded limits of the eco-system, that is, a measure of success in harnessing energy by controlling 'nature' (Butzer 1982; Jochim 1981).

Figure 3. A view of *Lhílheqey* in the central Fraser Valley sub-region looking south from Seabird Island Reserve.

These qualities of ecology and human health, measured in caloric terms, make the culture ecology approach easy to understand, investigate, quantify, adopt, apply and compare within the material constraints of archaeological research. This approach adopts the theoretical 'Law of Least Effort' (Boserup 1965) fundamental to 'optimal foraging theory', 'central place theory', and 'diet-breadth models' (Hawkes and O'Connell 1992; Layton, Foley and Williams 1991; Stephens and Krebs 1986). While the Law of Least Effort has proven ineffectual for adequately explaining regional settlement patterning (Kowalewski et al. 1989), recent high elevation research persists in this tradition (Madsen and Metcalf 2000; Zeanah 2000). The influence and importance of 'ideology' which includes a wide-ranging set of non-material variables, is often overlooked or ignored in cultural ecology.

Archaeology as Cognition

While ideology may not be easily integrated with the material orientation of archaeology as a discipline, recent trends in post-modern anthropological archaeology are drawing more attention to this matter within the context of religion and ritual (Rowan 2012). Cognitive archaeology emerged as part of the post-processual movement of the 1980s and 1990s. Hodder (1982, 1986, 1987), Renfrew (1982, 1994), and Wylie (1982), and many others, all participated in the definition of the cognitive approach that ultimately links to the French structural anthropology of Levi-Strauss (1963, 1966), the ethno-science and cognitive anthropology of the 1960s (Tyler 1969), the Prague School

of Linguistics, von Humboldt's (1836) linguistics, Marx and Engels (1846), and the Greek philosophers.

Cognitivists maintain five key assumption: (1) individuals are empowered with agency and creative capacity; (2) individuals exercise a power of choice; (3) the material world is a construction of symbolic form and order (i.e., the objectification of ideology); (4) relational systems and structures among and between objects and people are cultural constructs, and (5) ideology is recognized within the definition of 'praxis'. As with cultural ecologists, cognitivists are concerned with systems of relations, but with an emphasis on internal rather than external origin. Their search for generalizations is derived from comparison of relativistic case studies and contextual histories that are sensitive to qualitative data and characterized as an inductive rather than deductive process - much like 'relative positivism' of Boas (1896**,** 1932). Though humanistic in approach, the cognitivists are primarily concerned with science as a methodology as opposed to an epistemology. Socio-politics and socio-ideology pervade the realm of economic and other forms of relations explored by cognitive archaeologists.

As applied to landscape anthropology, the landscape is one of cultural form to which humans relate (Basso 1996**;** Bierwirt 1999**;** Bender 2002; Schaepe 2007), within their fuller system of relations, out of need to survive and remain healthy on terms relating to ideological origins and symbolic relations rather than biological measurements. Conditions of biological health are central to this view, but not necessarily linked to nutritional factors, as 'spiritual' considerations may be included as a component of physical health (Schaepe 2011). Evolution in this sense is measured by success and longevity in competitive symbolic relations by maneuvering within, developing, and controlling human-resource interaction, that is, success in organizing and controlling 'culture'.

Cognitive archaeologists are often criticized for lack of substantive material foundations in their investigations. Rooted in ethnography and hindered by taphonomic processes affecting material remains, cognitivists have difficulty supporting their arguments successfully with empirical archaeological data. The most successful cognitive studies are those played out in the realm of cultural anthropology, not archaeology, and are sometimes embedded in cultural ecology (Rappaport 1967; Cruikshank 2005). The questions addressed here include those that relate to 'if' and 'how' cognitive approaches can be successfully applied within the discipline of archaeology, with specific reference to high elevation archaeology in the North Cascades.

High Elevation Archaeology in the North Cascades of British Columbia

High elevation archaeology in the North Cascade Mountains is in its infancy (Franck 2000). All currently known alpine and subalpine archaeological sites were recorded since 1997 (Schaepe 1998; Franck 2000; Schaepe and Franck 2003; Franck, Schaepe and Mierendorf 2005). Some of these localities are shown in Figures 4 to 8. More work has been conducted outside this region, recognizing the contribution of archaeologists working in high elevations located more widely throughout British Columbia (Reimer 2001; Pokotylo 1978; Fladmark 1984, 1985). Other high elevation sites have been identified in the North Cascades of the United States, mainly by Mierendorf (1997, 1998).

Figure 4. Stó:lō Nation archaeology crew member Larry Commodore at the Williamson Lake site located at 1,680 m ASL in a cirque basin at eastern extent of the Cheam Range.

At present, only eleven pre-contact period archaeological sites are known within the vast mountainous ecosystem of the Canadian North Cascades. These sites include a few small lithic scatters, a couple of roasting trench features, and a campsite. In addition, inventories of Aboriginal trail sections networking throughout the North Cascades have also been undertaken (Boxberger 1996; Boxberger and Schaepe 2001; Schaepe 1999, 2001a). To the south in the North Cascades of Washington State, greater attention has been focused on high elevation archaeological inventory (Mierendorf 1997, 1998**;** Mierendorf, et al. 1998; Mack 1992; Mack and McClure 1996, 2002).

Figure 5. The late Riley Lewis standing in a cultural depression identified at the Williamson Lake site in 1997, looking south across the Chilliwack River Valley.

A limitation to archaeological fieldwork in this region is the extreme verticality of the local mountains that boast vert steep slopes often gaining 1,000 m elevation in less than a horizontal kilometer. As has been noted, the distribution of usable flat ground surfaces and abundant resources strongly correlate with the observed spatial pattern of archaeological sites between subalpine/alpine and valley bottom settings (Schaepe 1998; Golder 1999; Schaepe 2001b). While acknowledging that there is a considerable upland data gap (Equinox Research 1997), it is clear that resource abundance and site locations are less common in the intermediate mid-montane portion of the landscape.

Figure 6. Stó:lō Nation archaeology crew surveying at the Williamson Lake site in 1997.

Two additional aspects of the North Cascades of *S'ólh Téméxw* / British Columbia that could prove advantageous in developing and evaluating pre-contact indigenous land-use models include: (1) availability of a comparatively large amount of existing documented archaeological information from the Fraser River lowland and tributary watersheds with which to compare upland data; and (2) considerable oral historical and ethnographic information available from Stó:lō. Oral history is essential in providing a cultural perspective on the significance of the North Cascades and a cultural context for understanding the social systems relating to this ecosystem. Stó:lō perspectives on the high elevation portion of the North Cascades are presented and discussed below, focusing on the *Lhílheqey* of the Cheam Range in the Central Fraser Valley. For descriptive comparison, I provide a brief ecological description of *Lhílheqey* with specific reference to environmental variables deemed significant to the development and application of cultural ecological models.

Figure 7. View from a parkland ridge on *Tamihi* (Mount McGuire) overlooking the upper Tamihi River, looking south east across typically steep terrain of the North Cascades.

An Ecological Description of *Lhílheqey*

Ecologically, the uppermost 400 m of Lhílheqey is classified as Alpine Tundra, being mostly barren and rocky, with patchy snow-pack usually remaining year-round (Pojar and Mackinnon 1994). The Mountain Hemlock biogeo-climatic zone occupies altitudes between 1,200 and 1,600 m ASL, with this zone, 'subalpine parkland' predominating between 1,400 m ASL and 1,600 m ASL. Glacial melt-water flows through the center of the large cirque basin on the south face of *Lhílheqey* at 1,450 m ASL. Annually, heavy snow-pack would have restricted pre-contact access to the basin for all but the four months between July and October. This said, a set of redcedar snowshoes of pre-contact Aboriginal origin (ca. AD 1784) found in a rock-shelter at about 640 m ASL in the North Cascade mountains near Hope, B.C. is challenging our understanding of seasonal winter use of the uplands by Aboriginal peoples (Franck and Schaepe 2002).

The mosaic forest surrounding the basin is comprised mostly of mountain hemlock, mountain ash, subalpine fir, redcedar, yellow cedar, and pacific yew. Significant flora include grasses, an array of berries (spp. *vaccinium*; spp. *rubus*), and a few types of tubers (mostly lilies). Significant fauna include marmot, black bear, grizzly bear, black-tailed deer, elk, and mountain goat (*Antilocapra americana*). These fauna were all locally inventoried and available into the early 20th century. Grizzly and elk have since been hunted out of the Cheam Range of the North Cascades.

Figure 8. David Schaepe taking a break from surveying at Williamson Lake, eastern Cheam Range.

This ecosystem and its resources are characteristic of the Cheam Range and other mountains in the North Cascades more broadly. Variation and complexity in the regional geology provides lithic resources that were not available elsewhere in the North Cascades, including Hozomeen chert and Mt. Rahm 'obsidian' (Meirendorf 1997). Also, oral tradition relates that native copper and quartz crystal have been found on Foley Peak at the east end of the Cheam Range, but this remains to be confirmed. This ecological description presents a standard 'foundation' data set basic to starting of a culture ecology-based model for the human use of *Lhílheqey*. All resources were, or continue to be, used by the Stó:lō as indicated in various archaeological contexts, ethnographies, and/or traditional use studies (Stó:lō Nation 1998; SFU 1994; Stó:lō Sitel Cirriculum 1982). From a culture-ecology perspective, the geo-topographic form, ecology, and seasonality of the *Lhílheqey* local present some restrictions and limitations to access and use of available resources. These biological and environmental factors are associated with impediments that represent elements of the economic-energetic system affecting human behavior, relating to alpine-subalpine land-use on *Lhílheqey*.

Cultural Significance of Lhílheqey – A Stó:lō Perspective

Lhilheqey is the *Halq'eméylem* place name of the Stó:lō for Mount Cheam (McHalsie 2001a). Stó:lō oral tradition relates that this name is that of a Stó:lō woman who was transformed long ago into her name-sake mountain by *Xexá:ls* (the Transformers) after returning to her homeland in the central Fraser Valley (Boas 1894; Wells 1970, 1987). As told by the late Amy Cooper and other Stó:lō elders, *Lhílheqey*, her dog, three daughters, and some of her sisters were all transformed into the Cheam Range. Mount Baker was her husband (Figure 10) and her three sons are volcanic peaks in the North Cascade Mountain Range of Washington.

Approximately 100 cultural landscape features throughout *S'ólh Téméxw* and the Canadian North Cascades are attributed to supernatural powers of the Transformers as they journeyed throughout *S'ólh Téméxw* 'making the world right'. The morphology of the modern world is the result of the 'fixing' of the imbalanced world as it existed long ago, in 'time immemorial,' remembered in the specific Stó:lō narrative form of *sxwoxwiyam* that accounts for a time in the distant past when the world was 'mixed up' and things were 'not quite right,' as well as the actions of *Xexá:ls* in that period of history.

Discussion

At its most significant level, *Lhílheqey* is regarded as a living soul. Its vaulted and folded shale is the transformed 'flesh' and body of *Lhílheqey*, a former living ancestor of the Stó:lō. Such features of the living landscape set traditional Stó:lō perspective apart from those of modern Western ideological traditions. Connection with these places is religious in the sense of the Latin root 'religio' meaning "to bind back" (Griffins 2003). Direct personal interaction with these transformed places links or binds people to the actions of the Transformers, physically affirming their existence, and spiritually affirming their powers by explaining the origins of the world. *Lhílheqey* is one such religious conduit, and thus is spiritually significant. Its full meaning and contextual significance exists as a semi-autonomous identity linked to a much broader and comprehensive account of the Stó:lō world and perspectives. A complete understanding of each place is dependent on its interconnected relationship with all other Transformer sites and associated narratives. Context is provided by position within this 'system' of linked places that extend throughout Stó:lō territory.

Figure 9. View over the central Fraser River Valley from the top of *Lhílheqey*, looking northwest over Agassiz.

Alpine vantage points and peaks like *Lhílheqey* are the only places on the landscape where the route of the Transformers' journey can be best viewed in its entirety depending upon perspective (McHalsie et al. 2001). Alpine places such as *Lhílheqey* are of tremendous significance and importance in the cultural process of teaching *sxwoxwiyam,* and for ensuring continued survival of the complete Transformation narrative in Stó:lō oral tradition. This teaching process requires experiencing high elevation landscapes, and is fundamental to the process of perpetuating Stó:lō cultural identity at its broadest level,

reaching across watershed boundaries to link people through shared origin, narrative form, language and worldview.

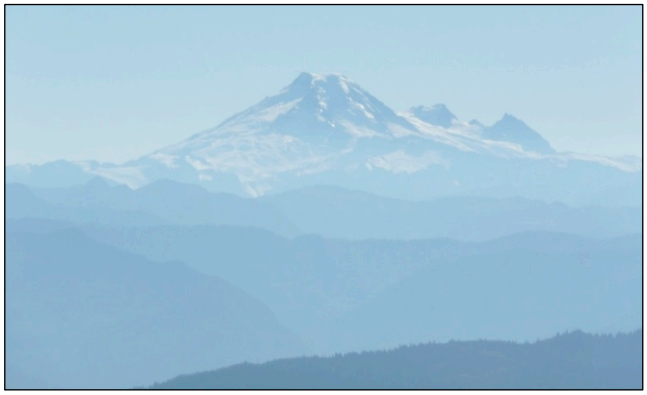

Figure 10. View of Mount Baker looking south from the top of *Lhílheqey* to her transformed husband mountain.

Naxaxalhts'i (Albert 'Sonny' McHalsie**)** (Stó:lō Nation Historian and Cultural Advisor) has often told me of the difficulties of being Stó:lō outside of Stó:lō Territory, emphasizing a strong connection between people and place in the formation of cultural identity. While *Lhílheqey* can certainly be viewed (and strikingly so) from the valley bottom, this perspective relates only to a portion of the fuller Transformer narratives that may serve to inform local rather than pan-regional identity and social interaction (Figures 11 to 12).

The term 'worldview' requires some explanation in that Transformation narratives often involve the equivalent of a 'moral' lesson. Places associated with these narratives mark the landscape with meaning and core values and principles of behavior relevant to Stó:lō society. They are profound places of knowledge that are intangible and invisible from a western perspective of understanding the physical landscape. As a prominent Stó:lō cultural practitioner and leader, Steven Point explains:

> "The Creator, in his wisdom, decided to take certain people and make an example of them. So throughout the Nation you have these stone figures which represent rules or values... Our Constitution has always been here. Our rules of conduct, our rules of behavior, the way that we think, our moral values... and they are actually situated around the Stó:lō Nation. They not only define our Nation but they define how we are supposed to conduct ourselves. Our Constitution has been there and it really is written in stone. The T'xwelátse Stone [a transformed ancestor from the Chilliwack Valley] is part of that that complex of these written rules which are very important." (Schaepe et al. 2012).

People were often transformed into stone and other resources (e.g., sturgeon), after losing to *Xexá:ls* during altercations over wrongful actions, or as punishment for wrongful deeds or bad behavior. *Lhílheqey* was transformed into a mountain. She stands as a lasting lesson of 'morality' and a highly visible tribute to the awesome power of *Xexá:ls* (Boas 1894). Thus, the record of proper behavior lies written 'on' the landscape as viewed from a traditional Stó:lō perspective, as per the title of Basso's book, *Wisdom Sits in Places* (Basso 1996; also see Schaepe 2007). The North Cascades include a few chapters of this narrative accounting from numerous places with resident wisdom. These Transformation sites, of which *Lhílheqey* is a part, manifest an important, ancient structure of Stó:lō worldview and social order. They also exist as places of power in a living landscape, where people seek spiritual power through various Stó:lō ceremonial and ritual activities (e.g., fasting). Thus, the cultural significance of mountains is far greater than just being viewed as bounded ecosystems offering a unique set of seasonally available, nutritionally ranked resources.

With respect to high elevation land and resource use, Stó:lō conceptualization and notions of world order include and pervade specific resources as well as specific places. Western redcedar, grizzly bear, black bear (with white chest spot), and mountain goat are particularly significant resources of 'divine' origin, resonating with strong ancestral relations connecting communities of the distant past and today, the Transformers, and the Creator (*Chíchelh Siyá:m*). Grizzly bear and red-headed woodpecker were the mother and father, respectively of the collective *Xexá:ls* (Boas 1894). *Xexá:ls* is the collective name for the three black bears – three brothers and a sister – comprising the collective Transformers (*Xál:s* in singular form) (Boas 1894). Black bear (with a white patch on its chest) is also of particular significance to the Ts'elxwéyeqw (Chilliwack) Tribe as an ancestral being (Hill-Tout 1904; Wells 1987).

Western redcedar is traditionally observed by the Stó:lō as *sxoxomes* – a 'gift of the Creator' – given as a useful resource, planted in a divine act of recognition on the grave of an extremely sharing and accommodating Stó:lō man who lived long ago (Gwen Point, interview with David Schaepe, 2001). The redcedar is symbolic of sharing and generosity. Behavioral protocols are still observed in association with harvesting redcedar bark, wood, or roots (ibid.). Interaction with redcedar, however abundant, is steeped in religious interaction and significance.

Mountain goats are of particular importance and directly linked to the actions of *Xexá:ls* and *Lhílheqey*. As recounted in *sxwoxwíyam*, a source of conflict in the distant past was the imbalance of human-animal relations, whereby either form could be assumed by certain individuals. In 'making the world right' *Xexá:ls* 'fixed' people and animals into their immutable forms. At least one example of this occurred on *Lhílheqey* where ancestors of both the *Pelho'lhxw* and Tít Tribes were fixed in mountain goat form while atop the mountain after having climbed up the mountain from the villages below (Semelanuxw and Naxaxalhts'i, personal communication, 2014). The popula-

tion of mountain goats inhabiting the Cheam Range remains linked to these communities at what might be called a 'local' or 'tribal' level. Mountain goats occupying the subalpine and alpine ecosystems of *Lhílheqey* embody and inform local identity as an element of the broader levels of inter-tribal Stó:lō identity. To the broader Stó:lō populace, mountain goats on *Lhílheqey* are recognized as having significance to people of particular families, villages or tribes, and help define such distinctions among the broader collective Stó:lō identity.

As a 'resource', mountain goats offer meat, horn, hooves, bone, and wool. All of these were utilized in the past; some still today (although goat hunting is banned for local conservation reasons). The late Allen Guiterez, a 20th-century Stó:lō hunter from the Chawathil First Nation near Hope, B.C., described goat meat as having a particular juniper-taste if taken in the late winter (Allen Guiterez, interview with David Schaepe and Sonny McHalsie, 1999). Mountain goat wool was, and remains, especially significant and highly valued – bearing symbolic capital and utility - as a material for weaving blankets. As in the past, wool blankets of various designs are worn as capes signifying people of high status (*siyá:m*) socially, politically, economically and spiritually.

Siyá:m know their history, are wealthy, maintain a connection to spiritual beings and carry important names (Carlson 1997; Duff 1952). These qualities are linked to alpine and subalpine land-use with regard to land tenure, acquisition of wealth and resources, and rights associated with use of mountain berry and root patches and wool gathering areas. Resource locations were typically attached to lineages founded on transferal of names, often inherited through females (Carlson 2001; Suttles 1987). As recounted through lineal genealogy, restrictions and exceptions for general use of some resource patches required adherence to cultural protocols paying homage to the people/lineage carrying the name(s) that historically -- as recounted through lineal genealogy -- linked them to specific resources patches including those in the mountains.

Linked to the regulation of resource patches is the role of *stl'aleqem*, powerful spiritual beings inhabiting *xaxa* (powerful 'taboo') places in the landscape (McHalsie 2001b). *Stl'aleqem* effectively restricted general access to various resource locations, in the lowlands and uplands through consequence of spiritual sicknesses or death. Cultural protocols permitted some folks selective access to these areas while effectively keeping the 'uninitiated' out. Numerous *stl'aleqem* sites are commonly known throughout Stó:lō Territory, including at least one subalpine site in the area of Frozen Lakes near Yale, B.C. Other types of beings such as *shxwexwo:s* (thunderbird) and *mimestiyexw* (little people) inhabit the mountains and influence Stó:lō subsistence and settlement behavior and use of the landscape.

A main point here is that portions of the landscape were controlled and access restricted in various ways through cultural comprehension and protocols that are fundamentally embedded in intangible knowledge. Maintenance of resource control required a regulatory feedback mechanism linking social centers and socio-political-economic interactions in the valley bottom with resource patches in alpine and subalpine environs. The political economy of the valley basin required constant justification of position, power, and prestige via display and potlatching of food and material goods. The unique and highly valued resources of the uplands, such as goat wool, meat, horn and hooves, yellow cedar, and dried berry cakes, certainly played a role in this ongoing round of inter- and intra-community feasting and commodity exchange dynamics (Carlson 1996; Dietler and Hayden 2001; Suttles 1987). Restrictive access rights and privileges for upland resource 'tenures' were/are legitimated in part by names with ancestral links to places and resources, highlighting the central importance of the upland North Cascades in the spirituo-political economy of the Stó:lō.

Thus, while available upland flora and fauna can be ranked to form a hierarchy of nutritional value from a culture ecology perspective, this ranking is superseded by cultural values derived from the cultural accounts of resource origins and symbolic value. Though numerous other applicable cultural phenomena are either not included or not fully explained in this chapter, I have presented some of the cognitive, cultural factors and socio-economic mechanisms of alpine and subalpine land-use associated with *Lhílheqey*.

Conclusion and Directions for Future Research

This chapter defines a 'cognitive-ecology' interpretive framework integrating five factors of a cognitive landscape: people, knowledge, agency, resources, and place. This explanatory approach combines 'ecology' and 'cognitive' perspectives in understanding human interactions with the 'environment' based on these five factors. Resources can be classified and evaluated in factors that are both tangibly 'biological', and intangibly 'symbolic-,' 'ritualistic-' or 'knowledge-' based. There is practical utility in extraction of both 'biological' and 'symbolic' factors that are integral to the health and well-being of individuals and communities along natural and cultural lines.

Human health is a central factor often considered in explaining human behavior, and is common to both cultural ecology and cognitive approaches. Cognitive ecology recognizes physical, mental, emotional, spiritual, and interconnected frames of reference as integral aspects of human health, both individually and collectively. These are all aspects of Stó:lō principles of health. These frames of reference become useful for viewing and explaining human behavior, even for researchers rooted in material culture.

Culture and nature mutually inform one another in the minds and hands of people who objectify and materialize their ideologies. The artifacts of past human activity are tangible products of such cognitive-ecological realities. The reality of cognitive-ecology is the manifestation of a complex system of tangible and intangible factors and interactions that cannot be separated, and is fundamentally human in nature.

When I began this research in 1997, I had very little understanding of the cultural landscape in the Lower Fraser. After 20 years of working closely with Stó:lō elders and colleagues, my education on cultural landscapes led me to recognize a need for a cognitive ecological model and practice in local and regional archaeological investigations. Interpretations of lithic scatters and features found by our team throughout the North Cascade Mountains would be limited at best without the benefit of a fulsome understanding of their situation within the surrounding cultural, cognitive-ecological landscape.

At its core this chapter draws attention to the importance and need for more high elevation archaeology in the North Cascades of British Columbia and elsewhere in the Pacific Northwest. Such work will expand our understanding of pre-contact period land-use through time throughout the entire landscape. This approach is necessary in developing a comprehensive understanding of cultural relationships and interactions linking the full range of elevations within mountainous cultural landscapes.

A few specific things to pursue in the future include predictive modelling of potential site locations, together with ground-truthing; examining receding glacial exposures; mapping resource distributions (flora, fauna, lithic); excavating and radio-carbon dating cultural deposits; inventorying available traditional ecological knowledge and personal histories of high elevation use; conducting additional oral interviews with elders and cultural practitioners; collecting place names and sx̱wō x̱wiyám. Pursuit of high elevation Cascadian archaeology will surely enhance our understanding the complex social, political, spiritual, and economic activities and motivations of people who interact along multiple planes of reference – between village centers in valley bottoms and plains and peaks of surrounding watersheds.

Acknowledgements

The true experts and sources of cultural information I present in this chapter are the many Stó:lō knowledge holders alive and deceased within the Stó:lō community. I pay the greatest respect and acknowledgement to these individuals, my teachers, colleagues and mentors, including Naxaxalhts'i, Siyemches, T'xwelátse, Eylisoluc, Xwelixweltel, Shóyshqelwet, Eyteluc, and Semelanuxw, Clarence Pennier, Joe Aleck and numerous others not named here. I particularly thank Larry Commodore, Dean Jones and the late Riley Lewis for their friendship and initiation into archaeology in *S'ólh Téméxw*, together.

I made every effort to be as accurate to the Stó:lō teachings shared with me. My understanding remains comparatively rudimentary. I claim full and sole responsibility for any errors or omissions in my attempt to introduce and integrate this rich history and understanding of the Stó:lō cultural landscape into the theory and practice archaeology. Much of the cultural information presented above was passed to me in an oral manner. I have tried my best to remember and represent this knowledge correctly.

All photos were taken by David Schaepe.