

Teztan Biny and Surrounding Area of British Columbia as a Cultural Keystone Place for the Tsilhqot'in Nation

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I am pleased to provide you with this assessment of the ecological and cultural importance of **Teztan Biny** (Fish Lake) and surrounding area for the Tsilhqot'in Nation. I am basing my assessment on past experience of working with Tsilhqot'in elders and cultural specialists, dating back to about 1985, and on my knowledge and research concerning the inextricable link between First Nations' cultures and ecosystems in British Columbia, and specifically in the Interior Plateau of the province.

I was qualified as an expert witness in ethnoecology and ethnobotany and I provided expert testimony, accepted by the BC Supreme Court, in the *Tsilhqot'in Nation v. BC* court case.

Introduction

Interdisciplinary research in social and ecological systems has shown that these systems are inextricably linked and inseparable. They exhibit similar mechanisms for retaining resilience and both social and ecological systems can be changed permanently due to cumulative stressors imposed on them (Berkes 2012; Berkes and Folke 1998; Berkes et al. 2003). Increasingly, researchers are recognizing the inseparability of ecosystems and cultural systems through using terms such as "biocultural diversity" (Maffi 2012; Maffi and Woodley 2010). In many cases, cultural knowledge and wisdom, if applied in locally situated contexts, can actually help sustain biological diversity, just as biological diversity sustains diverse cultures (Anderson 2005; Berkes 2012; Cuerrier et al. 2012a; Deur and Turner 2005; Minnis and Elisens 1999; Nazarea 1999).

For many years I have been investigating the linked processes and characteristics of cultural systems and ecological systems here in British Columbia, noting many conceptual and real parallels they exhibit. For example, "ecosystem health and well-being" is a conceptual parallel to human health and well-being. Other counterparts include the "edge" effect in ecological systems and cultural systems (Turner et al. 2003),

¹ Please see Appendix 1 for a discussion of my qualifications.

and the concept of Cultural Keystone Species as a metaphorical counterpart to ecological Keystone Species (Cristancho and Vining 2004; Garibaldi and Turner 2004).

Most recently, drawing from our previous work on “Cultural Keystone Species,” and with the recognition of “sense of place” as an important construct (Basso 1996; Thornton 2008), my colleagues and I have been focusing on the concept of “Cultural Keystone Places” – places of high cultural salience for a particular group of people at a particular time, and critical to their identity and well-being (Cuerrier et al. 2012; Gomes 2012; Turner 2012). This phrase identifies more than simply habitation or use of a place or territory. Rather it reflects a deep attachment of people to a given locale, cemented by historical ties, sense of identity, associated cultural practices, affiliated communities of plants and animals, and particular geographical features.

Based on our work, *Teztan Biny* and the area surrounding it is an exemplary “Cultural Keystone Place” for the Tsilhqot’in peoples. The impact on this highly valued place that would occur should the development of the proposed New Prosperity Mine be permitted would be immense. Not only would there be irreparable ecological damage, but there would also be equivalent harm to Tsilhqot’in people’s physical and emotional well-being and to their cultural integrity.

In the following sections, I first define the concept of “Cultural Keystone Place” more fully. I then present the features of *Teztan Biny* and surrounding area demonstrating that this locale fully qualifies as a “Cultural Keystone Place.” I outline the critical losses, both direct and “invisible” that Tsilhqot’in people would face if the proposed New Prosperity Mine is developed. I focus on concerns over cumulative effects, both ecological and cultural, that inevitably occur with such developments and conclude with the suggestion that the cultural and ecological integrity of the *Teztan Biny* area is at stake, and that any short term financial gains that might be made through developing the mine would be greatly outweighed by the negative consequences of the development to the Tsilhqot’in people and their future.

The Cultural Keystone Place Concept

Humans all over the world have formed deep attachments to particular ecosystems and landscapes (UNESCO 2010). Many of these important places are within the homelands of Indigenous Peoples who directly depend upon them and the resources they provide for their sustenance. Often these special locales have evolved under the joint influence of natural processes and sustainable human cultural practices, which have tended to maintain biodiversity and productivity over generations (SER 2004).

The values people hold for these places are both tangible and intangible. The tangible values – landscapes and ecosystems as sources of food, materials, shelter, and other “goods” – can to some extent be measured and quantified as “ecosystem services”, but their importance may still go unrecognized to outsiders.

Furthermore, the intangible attachments that people have to particular places – emotional or spiritual connections – are often exceedingly difficult to convey to others. The inability to communicate the depth to which particular places are cherished makes them vulnerable to destruction by those who do not understand, recognize or share others’ attachment. In such cases, metaphors that transcend different cultures can be helpful in conveying meaning and value. “This place is my cathedral,” or “this place is our grocery store,” communicates at least some appreciation of the significance of such a place even for those who do not directly experience the same attachment (Raymond et al. 2013).

“Cultural Keystone Place,” my colleagues and I suggest is another metaphor that can help convey the centrality of a place to a people’s lifeway and identity. “Cultural Keystone Place” represents an extrapolation of the previously described concept, “Cultural Keystone Species” – *culturally salient species that shape in a major way the cultural identity of a people, as reflected in the fundamental roles these species have in diet, materials, medicine, and/or spiritual practices* (Garibaldi and Turner 2004). Examples of Cultural Keystone Species would be Pacific salmon (*Onchorynchus* spp.) for most B.C. First Nations, bison for the Siksika, or Blackfoot peoples of the Great Plains and wild-rice for the Menominee *Anishinaabe* peoples of the Great Lakes area.

“Cultural Keystone Place” can be defined as *a site or location with high cultural salience for one or more groups of people and which plays, or has played in the past, an exceptional role in a people’s cultural identity, as reflected in their day to day living, food production and other resource-based activities, land and resource management, language, stories, and social and ceremonial practices*. The designation gives explicit recognition of culturally significant landscapes as critically important social-ecological systems, through which awareness and understanding of cultural knowledge and perspectives and associated ecological processes in a rapidly changing world can be emphasized. The concept has potential utility in land use planning and decision-making, and biocultural conservation and restoration.

Cultural Keystone Places (CKPs) are also generally high in biological diversity (cf. Cuerrier et al. 2012a, Gomes 2012; Turner 2012). Simply describing or listing the different species, geographic features or particular utility of place, however, does not convey the degree to which it is interconnected with a people’s culture and identity, and cherished as a “living” landscape, a source of cultural identity, direct sustenance, spirituality and associated wisdom (Brown et al. 2009). Applying such a categorization can help to bridge the gap of understanding that frequently exists when some individuals, often from outside an area, regard a place merely in terms of its economic potential, oblivious to its deep cultural meaning for others.

As in the CKS concept, the CKP designation is a relative one, applicable over a range of temporal, geographical and social scales. Assessing CKPs requires inclusion of diverse

aspects ranging from the history of the place (based on archaeology, oral history and memory), associated vocabulary, social-economic features, spiritual and ceremonial values, role in cultural knowledge transmission, and ecological function and processes. In our paper, we (Turner et al. in prep. 2013) propose assessing the overall importance of a place through ten general indicators. The relative importance of a given place can then be further assessed using a numerical rating scale (e.g., 5 – very high, to 0 – low, or not important) in evaluating each of these parameters:

- 1) **Agreement within a cultural group about the importance of a place:** frequency with which it is identified by members of a particular cultural group as a place of high importance to them.
- 2) **Occurrence in language and discourse:** existence of a particular name or associated vocabulary for a place, and the extent to which it is discussed in day-to-day conversation.
- 3) **Intensity and frequency of use:** extent to which a place is or has been visited, occupied, or involved in cultural activities such as food harvesting and processing, harvesting materials and medicines on an annual, seasonal or permanent basis.
- 4) **Diversity of use:** the range and variety of cultural activities carried out at a place, including ceremonial and spiritual activities.
- 5) **Antiquity of use:** as reflected in the existence of associated archaeological sites (e.g. burial sites, rock art, shell middens, pit-cooking depressions, groves of culturally modified trees,) and its inclusion in cultural narratives, origin stories, songs and/or ceremonies.
- 6) **Extent of traditional management undertaken:** the intensity with which the landscape, habitats or plant and animal species are managed or tended at a place, for example with fire, pruning, fertilizing or planting as well as fishing, trapping, hunting techniques.
- 7) **Uniqueness:** the extent to which a given place is unique in its role supporting cultural identity and survival, particularly in comparison with other places in a people's homeland or territory.
- 8) **Ecological diversity:** the diversity of species (including identified "Cultural Keystone Species") and different habitats represented at a given locale.
- 9) **Role in trade and cultural exchange:** the position of a locale as a meeting place where groups come together for economic and social exchange, allowing a group to obtain new products and share extra resources with others.

- 10) **Role in cultural protocols:** extent of associated customary proprietorship and control by individuals, lineages, clans or communities at a given place, as well as customary stewardship practices, rituals, taboos, cultural beliefs and various management practices.

We suggest that these elements characterizing CKPs are universally applicable, and therefore, can be tested as a framework for CKPs in different geographical locations. We also recognize that there are different scales of “keystoneness,” and that these different characteristics attributed to particular places and the diverse activities that occur there, or have occurred in the past, may intersect or become superimposed, rendering some locales exceptionally rich in the practices, resources and features they embrace. **Teztan Biny** and the areas surrounding it reflects all of the features of a Cultural Keystone Place.

Teztan Biny and Surrounding Areas as a “Cultural Keystone Place”

The profound cultural and spiritual importance of not only **Teztan Biny** (Fish Lake), but also **Y’annah Biny** (Little Fish Lake) and the surrounding meadows at **Nabas** is undeniable. These areas, collectively, meet all ten criteria of CKPs:

- 1) **Agreement within a cultural group about the importance of a place:** The Xení Gwet’in and other Tsilhqot’in people identify this area as having major importance to their lifeways and culture, as evidenced in the testimonies provided and in the subsequent report of the Panel during the first Prosperity Mines hearings (Federal Review Panel 2010):

“First Nations people of all ages told the Panel that Teztan Biny (Fish Lake) was integral to the Tsilhqot’in culture” (p. iii);

“The island in Teztan Biny (Fish Lake), which would be destroyed by the mine waste storage area, is a place of spiritual power and healing for the Tsilhqot’in...” (p. iii);

“During the public hearing, the Panel heard extensive information on the deep ancestral connection that the Tsilhqot’in had to Teztan Biny (Fish Lake), Y’annah Biny (Little Fish Lake), and to Nabas.” (p. 192);

“... the Panel concluded that the area of Teztan Biny (Fish Lake) and Y’annah Biny (Little Fish Lake) was an important cultural and spiritual area ...” (p. 244)

“The area is of significant historical value to the local people. The William family and others who have heavily used the Little Fish Lake area have a strong spiritual attachment to specific locations, such as areas where cabins have provided a home base for the cultural and economic lifestyle” (Ehrhart-English report: EIS 2009, v. 8, p. 2-46);

There is also ample evidence that this area has been continuously, actively and extensively used to the present day (Ehrhart-English report: EIS 2009, v. 8, p. 2-48).

- 2) **Occurrence in language and discourse:** The lakes and a number of surrounding areas and features are explicitly named in the Tsilhqot'in language and feature frequently in discourse, conversation and stories.
- 3) **Intensity and frequency of use:** For generations, Tsilhqot'in families have travelled annually to **Teztan Biny** and surrounding areas to stay for significant periods of time and engage in a range of cultural practices; as noted by the previous Federal Review Panel (2010):

“The Panel heard from First Nations people ranging in age from 7 to almost 90 years old regarding their current use of the Teztan Biny (Fish Lake) and Nabas area, particularly the Xení Gwet'in (Nemiah Band). Over the course of the public hearing, the Panel heard a substantial volume of information regarding how much of the Tsilhqot'in population continue to use the Project area for activities such as hunting, fishing, gathering of berries, plants and medicines, as well as for various cultural and spiritual ceremonies and activities” (Federal Review Panel 2010, p. 179).

See also the Ehrhart-English Report (EIS 2009, Appendix 8-2-B).

- 4) **Diversity of use:** As noted above, Tsilhqot'in people participate in a wide range of cultural practices, from fishing, hunting, trapping, berry picking and harvesting materials and medicines, to hay-making, grazing horses and cattle, camping, story telling and training children and youth (Federal Review Panel 2010, pp. 8, 182). From her research, Dr. Bhattacharyya (personal communication 2013) states, “The landscape, plants, animals, habitat, water courses and ecosystems within the project area for the proposed mine are core parts of the local cultural library, archive, and education system for the Tsilhqot'in people.”

The Federal Review Panel acknowledged the particular importance of the **Teztan Biny/Nabas** area as an increasingly rare “one-stop shop” where the Tsilhqot'in could engage in an extensive range of traditional activities in one location, and that such areas have been increasingly diminishing from development and could not be replaced or mitigated (Federal Review Panel 2010, pp. iii, 195).

- 5) **Antiquity of use:** The **Teztan Biny** area has deep ancestral connections by all accounts (cf. Federal Review Panel 2010, pp. 126, 178). Tsilhqot'in use of the area has been found to predate contact with Europeans (*Tsilhqot'in Nation v. BC*, 2007 BCSC 1700, para. 893).

Ehrhart-English (1994) states “*Ethnographic records demonstrate that historical settlement at Little Fish Lake dates back to the 1920s, although some records state that the area has been used since 1860 or earlier*”; “*Traditional Land Use sites include cabins and camp sites, burial sites, trails, culturally modified trees, hunting sites, gathering sites, fishing sites and other geographical locations that are of particular importance for cultural, historic and spiritual reasons*” (EIS 2009, v. 8, p. 2-46; cf. also Federal Review Panel 2010, p. 178).

“*First Nations have continued to occupy and use the Project area for traditional purposes since pre-European contact*” (Federal Review Panel 2010, p. I, p. 182).

Former Chief Roger William noted that historically the **Teztan Biny** (Fish Lake) and *Nabas* areas were also used as a refuge for the Tsilhqot’in people; during the Spanish Influenza epidemic in 1918, many people went there to avoid exposure to “the big flu” (Federal Review Panel 2010, p. 193).

- 6) **Extent of traditional management undertaken:** It is evident from the intensity of use and known stewardship practices of Tsilhqot’in people (cf. Smith 2008) that plant and animal species were, and are, treated with great care and respect. The Tsilhqot’in have taken the role of *caretakers* of **Teztan Biny** and surroundings. Culturally modified trees also reflect traditional resource management, since they represent trees that have been deliberately kept alive even while parts of them were being used. Tsilhqot’in people also sometimes carried trout and other fish from lake to lake and this would be another form of resource management that was likely practiced at **Teztan Biny** and adjacent lakes (cf. Federal Review Panel 2010, p. 181).

As noted by Bhattacharyya et al. (in press): “Xeni Gwet’in and Tsilhqot’in First Nations have a long tradition of successfully managing the natural resources in their territory. The prevalence of fresh water systems, wildlife, fish populations, and intact forest systems are outcomes of traditional Tsilhqot’in management systems. Many of the current plans that the Xeni Gwet’in have for ongoing and future resource management, economic development, and community well-being are rooted in traditional management systems.”

- 7) **Uniqueness:** The lands and waters of the **Teztan Biny** area are irreplaceable; there are no other areas that are both accessible and comparable in terms of the opportunities this area provides for diverse cultural activities. The Federal Review Panel explicitly acknowledged the uniqueness of this area in a number of places in its report, as summarized in its concluding statements:

“*In the Panel's view, the ability to practice these [cultural] activities in one location, together with cultural and spiritual values and the archaeological importance of the Teztan Biny (Fish Lake) area, contributed to the special value*

*of this area for the Tsilhqot'in. The Panel heard that the cultural importance and spiritual value of the Teztan Biny area **could not be replaced or mitigated.*** (Federal Review Panel 2010, p. 3).

*"The Panel heard that the land and resources of the Teztan Biny (Fish Lake) and Nabas areas were still being used by the Tsilhqot'in for traditional purposes. ...[that a] significant number of Tsilhqot'in members ...continued to use the area of the proposed mine site for activities such as hunting, fishing, gathering of berries, plants and medicines, as well as for cultural and spiritual ceremonies and activities. ...that the ... area had substantial cultural value due to its pristine environment and inherent spirituality. ...[and] that medicines from this area were more powerful and the area was ideal for cultural ceremonies. The Panel acknowledges that the Tsilhqot'in used different areas in their territory depending on the season and the subsistence resources available to support their current use activities, and that many of the resources in these areas may be under increasing pressure from other activities such as forestry, grazing and private land ownership. Further, the Panel notes that **while the Tsilhqot'in may utilize other areas in their territory to support their current use activities, these areas may not necessarily have the same connection expressed for the Teztan Biny (Fish Lake) and Nabas areas**"* (Federal Review Panel 2010, pp. 202-203).

*"... the Panel is convinced that the Teztan Biny (Fish Lake) and Nabas areas are **unique and of special significance** to the Tsilhqot'in ..."* (p. 203).

In short, the Panel acknowledged the particular importance of the **Teztan Biny/Nabas** area as an increasingly rare "*one-stop shop*" where the Tsilhqot'in could engage in an extensive range of traditional activities in one location, and that such areas have been increasingly diminishing from development; no other place has the range of required resources that the **Teztan Biny** area offers (Federal Review Panel 2010, p. 193).

- 8) **Ecological diversity:** The **Teztan Biny** area encompasses a wide diversity of habitats and species, including many that are culturally important as Tsilhqot'in foods, materials and medicines. The complex of lakes, creeks, wetlands, meadows, grasslands, and upland forests is particularly productive and supports a wide range of species. **Teztan Biny** and adjacent lakes are habitat to genetically distinct Rainbow Trout, and the watershed supports a widely recognized, consistent sockeye run. Other fish species of the area's lakes and rivers include: chinook salmon, bull trout, mountain whitefish and white sucker (Federal Review Panel 2010, p. 78).

The area is rich in game, utilized by the Tsilhqot'in, including: "moose, [mule] deer, caribou, elk, squirrel, beaver, duck, geese, swans, grouse, and 'wild chickens'" (Federal Review Panel 2010, p. 183). There is also a populations of

grizzlies, classified by the Province as “threatened” (Federal Review Panel 2010, pp. 105-6), as well as wolves and other key predator species.

Native Plant species in the area are similarly diverse, and over 50 species were identified by the Tsilhqot’in National Government as having cultural importance (Federal Review Panel 2010, p. 184).

9) Role in trade and cultural exchange: Teztan Biny serves as a social meeting ground for Tsilhqot’in families, who continue to exchange many food items and other products, as well as innovations and ideas, stories and ceremonial events (Federal Review Panel 2010, p. 83).

10) Role in cultural protocols: Teztan Biny and surrounding lands and waters do indeed represent an area of “strong spiritual attachment” (Ehrhart-English 1994), and serve as a site for the teaching and enactment of cultural protocols (see Bhattacharyya et al. in press). Many of these practices are considered private and would not be expected to be known outside the peoples and families involved (Smith 2008; cf. also Federal Review Panel 2010: p. 184, p. 192, pp. 202-203).

Moreover, *“The Panel heard that Teztan Biny (Fish Lake) was valued by First Nations ...as a location for teaching and the transfer of cultural knowledge between generations. The Panel heard from a number of youth, particularly in the community of Xeni Gwet’in (Nemiah Band) who indicated that they caught their first fish at Teztan Biny. The youth also mentioned how they enjoyed the time spent at Teztan Biny camping and fishing with their families”* (Federal Review Panel 2010, p. 83), and, *“The Panel heard from educators in many of the communities that Teztan Biny (Fish Lake) was identified as an important teaching environment and that many trips were made to the area to teach the Tsilhqot’in language and cultural practices to Tsilhqot’in youth”* (Federal Review Panel 2010, p. 182).

The Panel also reported on testimony from many Tsilhqot’in about the importance of this area for cultural gatherings, and: *“...how adults would work with the youth to teach values, culture and language. Family and social gatherings, including camping trips, fishing trips and recreational use were also identified. Catherine Haller noted that Elders Gatherings, food gathering ceremonies, youth ceremonies, and bathing ceremonies all occurred at Teztan Biny. She stated: ‘[It is] important that we have gatherings because those gatherings are our traditional values. Spiritual values. It’s where we are teaching the youth, teaching parental skills, how to survive, how to live from the Earth, how to get back to hunting and fishing. It is important to have the gatherings where the ancestors and Elders lived. We had our Elders’ Gatherings in July on Jidizay, Onion Lake, and Teztan Biny, because those are some of our most*

traditional grounds” (Federal Review Panel 2010, p. 193).

The importance of the area as a cultural gathering place was also recognized by Taseko (Federal Review Panel 2010, also pp. 178-179).

It is not surprising, given the range of cultural associations with this special place, that it features in Tsilhqot’in traditional narratives. As recounted by Tsilhqot’in cultural and language specialist Linda Smith (personal communication, 2013):

Lhindsch’oysh [an ancient Transformer being], his two sons, and a woman named **K’ulebi** (also **K’unlebi**) came up Taseko River to Taseko Lake, and **K’ulebi** died at the shore of the lake\river below Fish Lake. The mountains all around are also ancient people who are still very much alive according to mom [the late Helena Myers] and other elders. Catherine Haller [a Tsilhqot’in cultural expert] mentioned one mountain in particular to the south of Fish Lake who she said was like Mt. Tatlow – a mountain that people are not supposed to stare at. There were numerous ceremonies done in the area.

There is no question, from our definition, that **Teztan Biny**, and adjacent areas, including **Y’annah Biny** (Little Fish Lake) and the **Nabas** meadows region, constitute a “Cultural Keystone Place,” a place of unique and special significance.

Anticipated Losses Associated with Proposed Mine development

The proposed New Prosperity gold-copper mine development would cover a substantial portion of the **Teztan Yeqox** (Fish Creek) watershed. This watershed, which drains to the **Dasiqox** (Taseko River), includes **Teztan Biny** (Fish Lake) and **Y’annah Biny** (Little Fish Lake) and the surrounding meadow area called **Nabas** (Federal Review Panel 2010, p. i). The development as proposed would destroy **Y’annah Biny** (Little Fish Lake) and much of the **Nabas** meadows region and would change the character of **Teztan Biny** and the entire surrounding area permanently and irreversibly.

The mine and its associated activities thus pose a serious threat to this very special locale and its biocultural integrity – to both the people and the ecosystems on which they depend. By the proponent’s own account, the *direct* MDA footprint alone would destroy from 50% to over 90% of areas actively used in the **Teztan Biny/Nabas** region for harvesting a number of traditional food and medicine plants, including Labrador-tea, subalpine fir, cottonwood, blueberries, strawberries and crowberries. For the Tsilhqot’in the impacts of development would be extremely serious. The losses they would incur would affect them in many different ways, including (but not limited to):

- impacting their self-determination and negating their rights to meaningful consultation and decision-making regarding use of their traditional lands and resources;

- endangering their ability to sustain their cultural identities and lifeways;
- imperiling their Indigenous food systems and therefore their health and well-being;
- impeding their ability to sustain their communities and to educate their children and youth;
- reducing their ability for environmental stewardship through effects on the health, diversity and productivity of resources and habitats;
- precluding future opportunities for Tsilhqot'in people (e.g. for ecocultural tourism, for obtaining healthy food; for teaching youth and children about land and survival, cultural values). (cf. Turner et al. 2008, 2013)

Each of these losses can be characterized in greater detail; potential impacts on Indigenous Food systems serves as one example. **Teztan Biny** and adjacent areas represent a key component in Tsilhqot'in people's traditional food systems, providing a wide range of healthy indigenous foods and supporting healthy lifestyles that accompany the harvesting and processing of these foods. The area is well known for the quality of its salmon and trout, and for its game, as well as for its berries and other plant foods. Significantly, too, **Teztan Biny** (Fish Lake) and adjacent lakes are used by the Tsilhqot'in as a reserve food supply, for lake trout, in the event of poor salmon runs (Federal Review Panel 2010, pp. ii, 67, 180).

In terms of plant foods, the Federal Review Panel reported, "During the community hearing sessions, numerous participants from both the Tsilhqot'in and Secwepemc Nations confirmed past and current plant gathering activities in or around the Project area. In the **Teztan Biny** (Fish Lake) area, many Tsilhqot'in members, especially members from the Xeni Gwet'in (Nemiah Band) reported the use of the **Teztan Yeqox** (Fish Creek) watershed for plant gathering, including: berry picking (blueberries, chokecherries, crowberries, frog berries, huckleberries, raspberries, Saskatoon berries, soap berries, strawberries); [as well as] bear tooth [*Erythronium grandiflorum*], kinnikinnick, Labrador tea, pine mushrooms, wild onion and wild potatoes..." (Federal Review Panel 2010, p. 187)².

Increasingly, we are recognizing that Indigenous Peoples have suffered when their diets transition away from ancestral foods towards increasing use of marketed, highly processed foods from the globalized economy (Kuhnlein et al. 2013). Known as the "nutrition transition," this trend has been caused by multiple, cumulative factors, but among them, loss of access to traditional food harvesting and processing areas is key (Turner and Turner 2008). Wild berries, wild greens, wild game are more than just

² The Federal Review Panel (2010, 187) also noted the importance of "...medicine gathering (Indian Hellebore, Pine pitch, Dark willow, scrub birch or dwarf birch, alder, juniper and aspen, Fireweed root); and other harvesting (Balsam fir)...." As well as the food species harvested in the area. A further listing of culturally important plants of the **Teztan Biny** (Fish Lake) and surrounding areas is provided by the Tsilhqot'in National Government (2009, Pp. 32-36).

“luxury” or “specialty” foods; they have been essential for Indigenous People’s health (as demonstrated by the research of Kuhnlein and colleagues at CINE, Centre for Indigenous Peoples’ Nutrition and Environment at McGill University (cf. Kuhnlein et al. 2009, 2013).

Tsilhqot’in have been leaders in maintaining and using their traditional foods, and have still retained their ages old harvesting practices in many cases³. The loss of potential opportunity to maintain and renew traditional food systems in the **Teztan Biny** area – one of the key food production areas in Tsilhqot’in territory – would be immense and far-reaching.

This was acknowledged by the Federal Review Panel: “It was noted by Ms. Hughson and members of the communities the importance of traditional foods to health, in terms of fitness, nutritional, cultural and social values. It was noted there was a health risk associated with a shift in diet to store bought foods, which was due to numerous factors, including that store bought foods were not as high in nutritional value. Health Canada in their presentation at the public hearing noted that a switch to store bought foods could cause health problems such as an increased prevalence of diabetes” (Federal Review Panel 2010, p. 198). “Ms. Hughson spoke of food self sufficiency as being a key element in the cultural healing process. Harvesting traditional foods was stated to provide exercise and cultural connection to the land” (Federal Review Panel 2010, p. 199).

Blueberries, soapberries, wild strawberries and other wild fruits are increasingly recognized for the health giving properties of their nutrients, particularly the vitamins, minerals and anti-oxidant flavonoids they contain. Not only are these foods healthful but their gathering and consumption are part of people’s cultural identity. Berries are often used as gifts from one family or individual to another, and are valued foods during gatherings (most recently On August 25th and 26th, 2012) and feasts (Kunkel 2013). It is also important to note that certain populations of berries like soapberry and blueberries are preferred over others and therefore it is not just a matter of finding another place where these food plants grow; those at **Teztan Biny** are recognized for their special quality and cannot really be substituted with those from other places.

Ecological and Cultural Cumulative Effects

It is impossible to separate completely the various effects and impacts of a development

³ Shari Hughson, RN, BScN, MBA, a Community Health Nurse working at ?Eniyud Health Services (Xeni Gwet’in Health Centre in Nemiah Valley) undertook a nutritional survey with 120 Xeni Gwet’in members, and found that Xeni Elders had a diet that consisted of greater than 75% traditional foods, and that most household diets consisted of at least 50% traditional foods (Federal Review Panel 2010, p. 183).

like the proposed mine, since there are so many different threads woven into the fabric of cultures and ecosystems. Reading and Wien (2009: 17) note, for example, that environmental stewardship is strongly tied to people's health and wellbeing, but that:

...Unfortunately, the past 500 years have witnessed a rapid transition from a healthy relationship with the natural world to one of dispossession and disempowerment. Aboriginal peoples are no longer stewards of their traditional territories, nor are they permitted to share in the profits from the extraction and manipulation of natural resources. Finally, contamination of wildlife, fish, vegetation and water have forced Aboriginal peoples further from the natural environments that once sustained community health.

As other parts of Tsilhqot'in territory have been alienated and changed through development, the **Teztan Biny** area has gained in importance for Tsilhqot'in people from all communities, and harvesting of food and medicine there has increased. It is valued as a prime gathering area because it is relatively untouched by development, and is considered as an area of high spiritual value. As noted previously, just turning to other areas to acquire the resources people need is not really an option (cf. Federal Review Panel 2010, p. 192). Tsilhqot'in elder Alice William expressed a commonly held concern about potential loss of plants if the development proceeds:

We would run out of boreal forest plants if the mine goes in, The only other boreal plants available to us would be Edmunds Creek, Falls Creek, Beece Creek and can't be accessed by elders, and we would have go into other people/cultural lands. We need permission to do that. The need to ask other cultures permission to use their medicine wouldn't sit very well with the elders (Alice William, pers. comm. to L. Smith; cf. also interview with Kunkel 2013).

The Federal Review Panel (2010, p. iii) acknowledged the impacts that the mine project would incur:

While there are other areas where some activities such as hunting, trapping and gathering of plants and berries could occur, the availability of such areas has been reduced due to logging, ranching and private land ownership in the area. In the Panel's view, the ability to practice these activities in one location, together with cultural and spiritual values and the archaeological importance of the Teztan Biny (Fish Lake) area, contributed to the special value of this area for the Tsilhqot'in. The Panel heard that the cultural importance and spiritual value of the Teztan Biny area could not be replaced or mitigated.

As noted previously, some of the cumulative *cultural* impacts include: loss of access to and declines in valued and healthy traditional food, loss of spiritual places and the ability to practice stewardship in the area, loss of places to educate children and youth (with consequent impacts on Tsilhqot'in language retention), loss of places to gather

and share stories and cultural events (cf. Federal Review Panel 2010, pp. 134, 138, 187, 190, 196, 197).

Even if some use of the area is, as argued by the mining company still possible with the development in place, the expected dust from the mine development, concerns about contamination, and the noise and light pollution would seriously impact the experience of those harvesting and processing these foods, even if they are still present around the site. These intrusions would also affect the quality of people's experiences at gatherings, spiritual and ceremonial events, and educational events. Tsilhqot'in members are best placed to speak to this issue on their own behalf, but from my experience, I would expect that cultural and spiritual value of this area to the Tsilhqot'in, once it is in such close proximity to an operating mine, would be largely or wholly negated.

David Setah summed up the perspective of many Tsilhqot'ins: "*The biggest thing is you've got to sustain everything on your land. You've got to make sure it's intact, it's well sustained for the future generations*" (Bhattacharyya et al. in press). Marilyn Baptiste raised a similar point:

We were taught to respect Mother Earth, to respect the water, not to be throwing things into the water or dirtying the waters for no reason. We were taught not to be breaking branches off trees for no reason, not to be carving into the trees, because it does damage the trees, and it affects them! They're alive! It's obvious, if you listen and you learn ... And not only that, from a very young age, we learn that the bears also feed on those berries, not only us. So you have to be respectful of what is around you and observe what is around you.... A part of that, too, is the teachings of our legends. The rivers and the waters are sacred. They are cleansing, and they are healing. Chilko Lake, Chilko River, and Taseko River – they're very, very valuable bodies of water because they also carry our wild salmon and our wild Spring, Chinook [salmon]. And then there are the other fish species as well, in all the lakes. We can drink out of almost all of our waters, except for the beaver waters!... You don't necessarily drink out of swamps, even though the moose do! (Bhattacharyya et al. in press).

Many of the losses, such as the grief that elders and others would feel at having one of their special and sacred places irrevocably damaged – and the loss of control over this occurrence – are what might be called "invisible losses" (Turner et al. 2008). Although they may not be as directly recognized or acknowledged as, say, loss of a favourite food species, they are equally devastating, perhaps even more so. "Invisible losses" have been categorized as follows: Cultural and life-style losses; Loss of identity; Health losses, Loss of self-determination and influence; Emotional and psychological losses; Loss of order in the world; Knowledge losses; and Indirect economic losses and lost opportunities. Each of these can have profound impacts and, cumulatively, they can cause irreversible harm (Turner et al. 2008).

The Federal Review Panel (2010) explicitly acknowledged the potential of deep impacts on people's health and well-being occurring should the Prosperity mine development proceed. They recognized the testimony of Shari Hughson, Community Health Nurse, who emphasizing how coping with the threat of mine development is part of a long series of emotional traumas and impacts for Tsilhqot'in people, leading cumulatively to overwhelming personal challenges and struggles for many, resulting from loss of land and loss of self-determination, among other losses. "Ms. Hughson spoke of food self sufficiency as being a key element in the cultural healing process. Harvesting traditional foods was stated to provide exercise and cultural connection to the land" (Federal Review Panel 2010, p. 199).

The Panel heard that the Project may have a negative impact on the personal and community healing processes that were ongoing in the First Nation communities. The Panel acknowledges the importance of being able to practice current use activities for the physical and mental well-being of the Tsilhqot'in communities. Further, the Panel notes that due to the perception of contamination, it is likely that the mine site area would be avoided even after closure and reclamation. Given the reliance on traditional foods and the communities' commitment to improved health and traditional well-being, the Panel finds that the Project's impacts on the physical and mental health of the Tsilhqot'in communities would be long term (Federal Review Panel 2010, pp. 202-203).

No discussion of "cumulative effects" would be complete without reference to climate change impacts. Notably, the **Teztan Biny** area supports a unique and "pristine" wetland and riparian ecosystem (Federal Review Panel 2010: 60), with multiple values, both ecological and cultural. Reduced snow pack and increased droughts have occurred recently throughout the region, resulting in the devastating mountain pine beetle epidemic, and a range of other impacts, particularly affecting water regimes (Pojar 2010). At the Federal Review Panel hearings, Marilyn Baptiste raised questions regarding whether the flow inputs from **Teztan Yeqox** to the **Dasiqox** increased in importance during drought conditions as a result of climate change (Federal Review Panel 2010, p. 54), and fisheries biologist Dr. Gordon Hartman expressed concern that warm seasonal temperatures may negatively affect fish survival (Federal Review Panel 2010, p. 91). The wetland systems of the **Teztan Biny** area are key to the threatened grizzly population and migratory bird populations (Federal Review Panel 2010, pp. 106, 112), and will certainly take on an even more important habitat role in the future; the impacts of their loss or contamination would be multi-fold.

Conclusions

Biocultural diversity is defined by Maffi (2005: 602) as: "*the diversity of life in all of its manifestations – biological, cultural, and linguistic – which are interrelated (and likely coevolved) within a complex socio-ecological adaptive system.*" Biological and cultural diversity are often inextricably linked and express a positive correlation (Posey 1988).

The UN's Environment Program has incorporated the concept into its discourse: *"Biodiversity also incorporates human cultural diversity, which can be affected by the same drivers as biodiversity, and which has impacts on the diversity of genes, other species, and ecosystems"* (UNEP 2007: 160).

Loss of biocultural diversity is a worldwide trend (Maffi and Woodley 2010), driven by the same processes of change that are degrading ecosystems and driving some into novel configurations. Also at risk are associated cultural landscapes and social-ecological knowledge systems. Protection of these landscapes, including conservation and restoration of their unique biocultural features, is a vital component to provide a sustainable and resilient future landscape in the face of drastic environmental change (Posey 1999; UNESCO 2010).

Consideration of the metaphor "Cultural Keystone Place" is one way of conveying to others the critical importance of a particular place to the identity and lifeways of a cultural group. It serves as a designation for a place of exceptional ecological and cultural value, allowing the depth of its role in a people's cultural fabric to be more widely appreciated. Both the UN Convention on Biological Diversity and the Declaration on the Rights of Indigenous Peoples recognize cultural significance of particular places and habitats as being important and legitimate. Labeling a culturally valued and ecologically rich locale as a "Cultural Keystone Place" can enable more effective and meaningful communication about a people's close ties to a particular landscape to policy makers and decision-makers who might otherwise choose options that would destroy such places.

Here, I have proposed that ***Teztan Biny*** and surrounding lands and waters are indeed a "Cultural Keystone Place" for the Tsilhqot'in peoples. The findings of the Federal Review Panel (2010) that reviewed the original Prosperity Mine Proposal support this proposal, for example, in their concluding statement, *"the Panel is convinced that the Teztan Biny (Fish Lake) and Nabas areas are unique and of special significance to the Tsilhqot'in"* (Federal Review Panel 2010, p. 203). Generations of Tsilhqot'in people have developed a close relationship with this place, a reciprocal relationship in which they have invested their own knowledge and energy to its care and maintenance, in return for the many benefits this place has provided.

As well as being a place for humans to live and thrive, ***Teztan Biny*** and surrounding area is recognized as a home for our non-human relatives, both plants and animals, and therefore it takes on multiple meanings, including deep spiritual attachments which are often difficult to express to those outside of the culture. This designation carries a sense of homeland, the *oikos* (house) in the landscape (see Johnson and Hunn 2010), encompassing cultural, historical, social, ecological and economic value.

Because of this role, it has a disproportionate or irreplaceable effect on the continuation of a people's culture and, ultimately, on their social-ecological resilience. A CKP is a

place that is central to the safeguarding of the cultural identity of a people, generally for representing a locale with a vital historical and cultural role, where cultural memory and practices can be accessed, allowing for renewal of cultural, ecological and socioeconomic processes. As concluded by the Federal Review Panel: “*The Panel has determined that the loss of the Teztan Biny (Fish Lake) and Nabas areas for current use activities, ceremonies, teaching, and cultural and spiritual practices would be irreversible, of high magnitude and have a long-term effect on the Tsilhqot’in*” (Federal Review Panel 2010, p. 203). In short, the destruction of **Teztan Biny** and surrounding area, as a “Cultural Keystone Place,” would in my opinion have major, lasting negative impacts on the Tsilhqot’in people.

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Appendix 1. Nancy J. Turner qualifications and area of expertise

I am an ethnobotanist and ethnoecologist, and Distinguished Professor and Hakai Professor in Ethnoecology in the School of Environmental Studies at the University of Victoria, British Columbia. My curriculum vitae summarizes my experience, recognitions of my expertise, books and peer-reviewed publications I have authored or co-authored, and addresses I have given in academic contexts. In summary, I have been an ethnobotanist and ethnoecologist since 1973 when I was awarded my Ph.D. in Botany (ethnobotany) from the University of British Columbia. From 1975 until 2012 I have been a research associate with the Royal British Columbia Museum, formerly the British Columbia Provincial Museum. Since 1991, I have been a faculty member in the School of Environmental Studies, Faculty of Social Sciences, at the University of Victoria, British Columbia. I became a full professor in 1993, and a distinguished professor in 2004 (a position that has been extended until my retirement from the University of Victoria). As of July 1, 2011, I was appointed a five-year research chair position as Hakai Professor in Ethnoecology.

I have been an elected fellow of the Linnean Society of London (a society of professional biologists) since 1992, and a fellow of the Academy of Social Sciences and Humanities in the Royal Society of Canada (a society of academics of distinction), since 1999. In 1995 I received the Richard Evans Schultes Award in Ethnobotany, an international award, and in 1999 I received the Order of British Columbia for my work as an ethnobotanist and educator. In 2002, I received the George Lawson Medal from the Canadian Botanical Association in recognition of lifetime research achievement. In 2005 I received the Lieutenant Governor's medal for best BC Historical non-fiction of the year (for my book *Plants of Haida Gwaii*, published 2004). In 2006 I received the Craigdarroch Gold Medal for Career Achievement in Research (University of Victoria's top research award). In 2007, I received a two-year Killam Research Award (\$70,000 per year; one of ten awarded across Canada that year), administered by the Social Sciences and Humanities Research Council of Canada. Also in 2007, I received the E.K. Janaki Ammal medal for the year 2006 by the Society of Ethnobotany (International). In 2008, I received the William L. Brown Award for Excellence in Genetic Resource Conservation from the William L. Brown Center, Missouri Botanical Garden, St. Louis. In July 2009, I was appointed Member of the Order of Canada. In January 2011, I received an honorary doctorate degree from Vancouver Island University, and in May 2011, I received an honorary Doctor of Science degree from the University of British Columbia. In July 2011 I was named Distinguished Economic Botanist of the year by the Society for Economic Botany at St. Louis, Missouri. In March 2012, I received the Queen's Diamond Jubilee Medal and I was presented with the Traditional Ecological Knowledge Mentor Award by the Ecological Society of America.

In my career as an ethnobotanist and ethnoecologist, to date, I have conducted field research with various coastal and interior Indigenous peoples of British Columbia. From 1993 to 1995 I served on the Scientific Panel for Sustainable Forest Practices in

Clayoquot Sound (Scientific Panel 1995), an independent panel of scientists and Nuu-chah-nulth experts appointed by the Government of British Columbia to develop recommendations for best forest practices in the Clayoquot Sound.

In all my research as an ethnobotanist and ethnoecologist I have worked in accordance with recognized scientific procedures for collecting, reviewing and recording ethnobotanical and ethnoecological data. Ethnobotany and ethnoecology are highly interdisciplinary fields, and require a breadth of knowledge of methods and approaches, both qualitative and quantitative, from many different areas: biology and ecology, phytochemistry, linguistics, archaeology, history, and ethnography. My publications reflect my familiarity with these various fields in relation to my research in ethnobotany and ethnoecology and how different methods are integrated in this research. I have always followed accepted traditions of academic inquiry and the opinions expressed here are my own, as based on this inquiry. The opinions expressed in this report are, to my knowledge, consistent with general understandings of Cowichan plant use and knowledge in ethnobotany and ethnoecology, and fit within established and accepted practices in academic research.

I have published various academic and non-academic articles and books on ethnobotany and ethnoecology, listed in my *curriculum vitae*. These publications include the following books that I have authored, edited, co-authored or co-edited: *Some Important Plants of the W̱SANEĆ' (Saanich) People of Southern Vancouver Island*. (co-authored with Richard Hebda) (2012); *Ethnobiology* (co-edited with E.N. Anderson, Deborah Pearsall, and Eugene Hunn) (2011); *Food Plants of Coastal First Peoples* (2010, revised; first published 1975; reprinted on many occasions); *The North American Guide to Common Poisonous Plants and Mushrooms* (co-authored with Patrick von Aderkas) (2009); *Traditional Plant Foods of Canadian Indigenous Peoples. Nutrition, Botany and Use* (URL version Published online by FAO, March 2009; originally published 1991, co-authored with Harriet Kuhnlein); *Resetting the Kitchen Table: Food Security, Culture, Health and Resilience in Coastal Communities*, coedited with Chris Parrish and Shirley Solberg (2007); *The Earth's Blanket. Traditional Teachings for Sustainable Living* (2005); *"Keeping it Living": Traditions of Plant Use and Cultivation on the Northwest Coast of North America*, coedited with Douglas Deur (2005); *Plants of Haida Gwaii* (2004); *Plant Technology of BC First Peoples* (1998); *Food Plants of Interior First Peoples* (1997, republished 2006), *Thompson Ethnobotany* (1990) and a number of other ethnobotanical studies of BC First Peoples. My book manuscript, *Ancient Pathways, Ancestral Knowledge: Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America* has been accepted for publication by McGill Queens University Press and is forthcoming for spring 2014.

Documenting botanical and ecological knowledge, including which species of plants are named and used by different peoples and groups, has lead me to

further understanding of peoples' attitudes towards these plants and towards their environments and resources. I have also researched and written about the traditional plant management and cultivation by BC First Peoples.

Based on my academic training and field research I have been previously qualified as an expert on the ethnobotany and ethnoecology of the Indigenous Peoples of British Columbia.