

Huckleberries, Food Sovereignty, Cumulative Impact and Community Health: reflections from northern British Columbia, Canada

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by

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Abstract:

For many communities around the world, ability to access healthy and culturally valued foods is compromised by cumulative impacts of a wide range of activities on the local or regional land base which impact the landscape ability to provide these foods. Our paper reviews the intersection of traditional Gitxsan/Gitanyow food resources and their management and allocation systems with a series of challenges presented by commercial forestry and impacts of other forms of development (e.g. pipeline or power transmission corridors) on the land base traditionally managed by the communities of Gitwangak and Gitanyow (British Columbia, Canada), with particular attention on black huckleberry (*Vaccinium membranaceum*, Sim Maa'y) availability and management. We argue that these impacts affect social, cultural and ecological health and are issues of food sovereignty. Effectively, the land base itself is treated as a commons where traditional rules of management, responsibility and access to resources have been disrupted and overlaid by a series of historical and contemporary changes mediated by colonial, provincial and federal governments and global industries. In recent developments, commercial harvest of black huckleberry further threatens local access to this most significant traditional plant food, whose Gitxsan name means 'real or true berry'.

Keywords: Food sovereignty; Commons Management; Traditional Territory system; Community well-being; Gitxsan or Gitanyow

INTRODUCTION

Protecting and reclaiming our traditional foods is an important priority for First Nations. Ensuring our access to traditional foods honors and fosters our cultural heritage. Huckleberries are highly valued for their life giving sustenance and spiritual sense of place. There is a moral truth that is “valued and based on *si wilayinsxw* “teachings” (Morgan 2013). that when you drop your berries you are supposed to leave them where they dropped because it means your ancestors are ‘hungry’. Picking berries provides a sense of continuity with the past and a spiritual kinship with ancestors and to the land; past, present and future. Increasing our reliance on traditional foods also reduces our dependence on the industrial food system, a system that is increasingly recognized by mainstream culture to contribute to poor health and to ecological damage through its non-sustainable farming practices.

Food sovereignty and food security are increasing concerns in many areas of the globe (e.g. Kuhnlein et al 2009, Via Campesina 2007, Schiavoni 2009). Food sovereignty and food security are strongly linked to individual and community health and well-being. *Food sovereignty* can be defined the ability to make substantive choices about food consumption - what types of foods are eaten, and where, how, and by whom they are produced. (from World Food Summit 1996 cited in Turner 2015⁴). *Food security*, according to Turner, is when all people, at all times, have physical and economic access to safe and nutritious food, which meets dietary needs and food preferences, in sufficient quantity to sustain an active and healthy lifestyle.

The integrity of the regional landbase, the “foodshed” is required to enable sustainability of the food supply. This is particularly critical for non-agricultural resources, such as the berry crops, wild meat and fish which are the traditional sustenance of the Gitxsan and Gitanyow people. Traditional knowledge and cultural institutions to ensure sustainability of the food supply and its equitable and culturally appropriate distribution are elaborated in the traditional territory system (*Laxyip*). Distribution, harvesting and maintenance of key cultural resources are governed by traditional practices organized through the reciprocal activities of Gitxsan/Gitanyow Houses (*Wilp*, plural *Huwilp*) (see Daly 2005; Johnson 1997, 1998; Johnson Gottesfeld 1994a,b; Beynon). It can be argued that these traditional corporate property regimes of *Huwilp* headed by *Simgiget* (Chiefs) constitute a system of management of common resources of the land base (*laxwiiyip*) of the Gitxsan and Gitanyow people (see discussion in Johnson 1998).

Food Sovereignty and food security are integral parts of ensuring community health and well-being that is rooted in strong cultural identity (Morgan 2013). In community health planning undertaken in Gitwangax in the *Dim Wila Dil Dils'm* Project, healthy diets based in traditional foods were identified as of high importance, and the linkage of people and their social groups to the traditional territories (*laxyip*) was recognized as critical to support the traditional food system. Many forms of disease are linked to lack of access to nutritious and culturally significant foods (e.g. diabetes, heart disease, obesity, cancer). Psychological, social and spiritual aspects are also inherent in the relationship of people to these foods. Wild meat (moose, caribou, deer), fish (salmon species, trout), and berries, especially the black huckleberry, are the most significant traditional foods found on the Gitxsan and Gitanyow *laxyip*.

⁴ Given in keynote talk by Nancy Turner at the Wisdom Engaged: Traditional Knowledge for Northern Community Well-being, February 15, 2015.

In this paper we focus particularly on management of huckleberry on the Gitksan and Gitanyow *laxwiiyip*. *Laxyip* means ‘traditional territory or ancestral land’, it is usually a watershed and makes a good administrative and ecological unit in which to plan for sustainability and food security. The focus of our planned summer activities will be in Guksen’s *laxyip*, located in the headwaters of the Kitsegukla River and area of Kitsegukla Lake. Huckleberry (*Vaccinium membranaceum*) was traditionally and is still the most highly valued plant food, and was subject to intensive management in the past (cf. Trusler 2003, Trusler and Johnson 2008, Burton et al 2000). Key threats to productive huckleberries within the Gitksan and Gitanyow *Laxyip* and the need for direct action to ensure food security and *Laxyip* sovereignty are discussed below. The paper highlights the inter-relationships between *Huwilp*⁵ cumulative effects to land and Huckleberries, and suggests opportunities for new huckleberry management strategies. The response to huckleberry threats must be tailored to the food security strategies of each *Wilp* in the context of cumulative impacts and sustainability within a territory.

PERCEIVED THREATS TO THE HUCKLEBERRY HABITAT

Climate Change

First, the future health of huckleberries in Gitksan and Gitanyow lands is tied to changes in climate. These largely anthropogenic changes are beyond the control of local people, and constitute a significant threat to non-cultivated food sources. Increased climate variability, rapid shifts in temperature and precipitation year to year and within years, and loss of glaciers and glacial runoff (IPCC Synthesis report 2014) promise significant changes in all Gitksan/Gitanyow land based resources. Within 80 years all of BC’s glaciers will be gone⁶. The Ministry of Forests, Lands and Natural Resource Operations estimate that by 2080 the climate will have changed dramatically (Ministry of Forests 2014). Current land use plans will be insufficient to maintain quality and quantity of water in ecosystem networks and riparian buffers; where they exist. It is important to note that these land use designations were created after the timber industry collapsed. There is neither baseline data nor monitoring to check if these networks or buffers are sufficient to protect water quality and quantity into the future. For instance, medicinal plants such as *wa’umst* (*Oplopanax horridus* or Devils’ Club) require high humidity, shade and ground water. Too often plants are stressed when the buffers are too narrow which in turn causes wind throw decreasing a buffers function even more⁷. More hurricane force winds are expected with climate change.

In a 2015 United Nations report on Water for a Sustainable World (WWAP 2015) the report states that “It is now universally accepted that water is an essential primary natural resource upon which nearly all social and economic activities and ecosystem functions depend, water makes life possible. We must never take it for granted”. Each water source within a territory must be evaluated and monitored over time to determine adaptive strategies to protect water quality and quantity into the future.

⁵ (plural of *Wilp* or House, a fundamental unit of social and territorial organization among the Gitksan, Gitanyow, and related nations Daly 2005, Johnson 1997, Johnson 1999, Burda et al 1998, Sterritt et al 1998)

⁶ CBC Radio April 7, 2014

⁷ Vegh, D. 1992-2013 personal field observations

Climate change affects huckleberries in a number of ways. Snow depth is related to global warming. When growth buds are above the snowline, they are subject to overgrazing by wildlife; mainly rabbits, moose and deer. Other related factors to climate change and exacerbated by human activity can include; persistent drought conditions, especially in cut blocks where the hydrology has changed quality and quantity of water, extreme fluctuations in freeze thaw cycles and by an imbalance between ecological and biological functions caused by extensive clear cuts and road networks. Timing of spring warming initiating flowering and subsequent chaotic fluctuations in temperatures may cause flower drop and crop loss as well. By 2080 huckleberries may not be able to grow in current habitat due to global warming (Ministry of Forests 2014). With climate change as an ongoing contextual backdrop, the greatest *local* threat to productive huckleberry areas are the transformation of vast areas of forest converted to early seral stages through industrial logging and; the absence of huckleberry management over the past 80 years. These threats are discussed in more detail below.

Impacts to the Territories and their productive capacity

Industrial threats to landscape integrity include forestry practices, ‘developing’ pipelines, transmission lines and mining development in or near Gitxsan and Gitanyow territories. For example; the Gitanyow Laxyip is 140km north/south and 60km east west; there are 1400 km of logging roads within this small territory. The Northwest Transmission Line (NTL) is a north/south corridor and the Liquid Natural Gas (LNG) proposed route is an east/west corridor. Hwy 37 bisects the territory (north/south). These industries open new and old roads where wildlife and humans are at risk from industrial traffic and bring in an influx of human hunters. Many of these abandoned roads have become wildlife movement corridors that lead to critical life cycle needs, such as berry areas⁸. Cumulative impacts in the region started with construction of the “Stewart Cassiar” northern segment in the 1940s and 1950s; the connection to Highway 16 was completed in the early 1970s and road upgrading and associated activities continue to impact the environment along the highway corridor (e.g. powerline development and routing). Most of the logging roads were ‘developed’ over 60 years and abandoned by the forest industry; many were re-opened within the last 8 years with the NTL and LNG industries. Water contamination is an on-going threat from industrial development and; because there are no facilities along these roadways, water is contaminated by human waste, industrial waste and garbage. Global industries have left the land in similar states throughout the Gitxsan Laxyip.

The majority of logging cutblocks ranges in age from 0 to 70 years but most are between 20 and 70 years of age. The greater parts of cutblocks are over the optimal berry producing age due to canopy closure. Optimal huckleberry production happens when trees are between 10 and 15 years old in stands not specifically managed for huckleberries (Burton et al 2000). There are older cutblocks that were logged through small scale selective logging prior to about 1940. Very few cutblocks are under the age 10 years due to industry collapse and the fact that all the easily accessible timber is gone. Opportunistic huckleberry picking is decreasing as well. Ancestral berry patches are too old and have become even-aged stands with a closed canopy (e.g An Sim

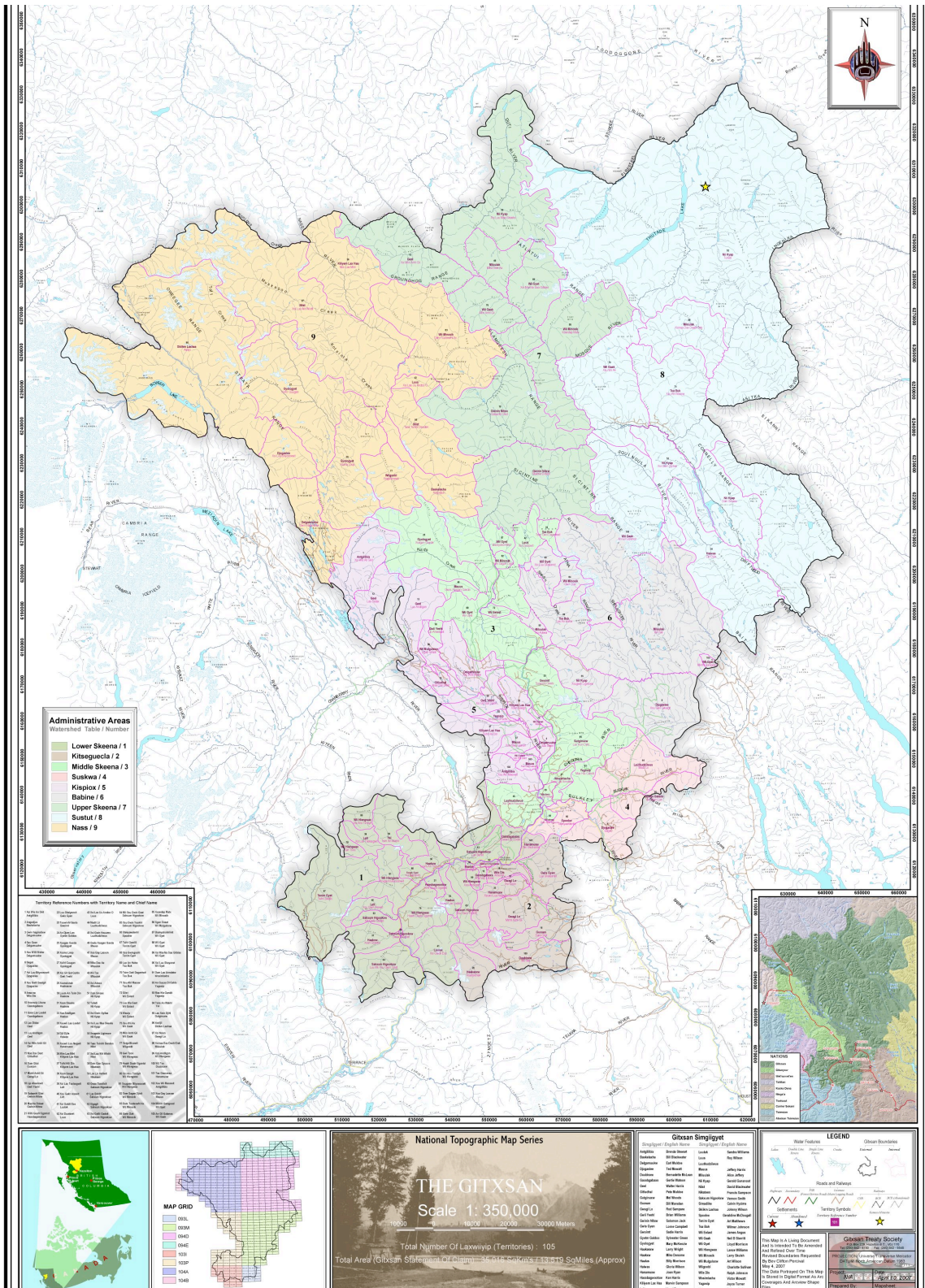
⁸ Vegh, D 1994 – 2015 personal field observations

Maa'y, a berry patch near Gitwangax as described by the late Olive Ryan, Gwaans in Trusler and Johnson 2008)

Commercial Harvest of Huckleberry on "Crown Lands"

A new threat to existing huckleberry areas is the commercial encroachment of BC's wine making industry. In the past 2 years this industry has imported bus loads of pickers from the lower mainland of BC's Sunshine Coast. (Vegh, personal observation). These pickers aggressively harvested the berries and left the area denuded in Wilp Djogaslee Laxyip (Figure 1 just below number 4). This huckleberry patch/cut block is the only area in all the Gitxsan and Gitanyow territories that wilp members consistently pick berries to ensure food security for the coming winter. The effect is that many people did not get enough berries. Bears also depend on this resource; it is a learned activity from parent to young. Evidence was left in the area by bears that were looking for the berries but settled for log and stump ripping searching for insects and grubs. This is the first time this activity was observed, to this extent, in this berry patch over the past decade⁹. It was evident in the amount of ripping and digging that the bears were hungry and perhaps 'angry'. Before the commercial pickers came bears and humans shared the berries. For the Gitxsan, this commercial activity is not acceptable. It is an insult and abusive to the people and the bears. It is considered similar to the "rape and pillage" mentality of the logging industry from the 1970s through to the late 1990s. This activity is a clear threat to Gitxsan/Gitanyow food security and food sovereignty.

⁹ Vegh, D 2000-2013 personal field observations



Huckleberry health in cut-over lands

A large area of the traditional Gitxsan and Gitanyow lands exists in areas that have been managed for commercial forestry. Large numbers of old cut-blocks, and old logging roads occupy much of the land below subalpine forests. Huckleberry production in these cut blocks is decreasing each year. Very few new cut blocks are being created for opportunistic picking and blocks are not managed for berry production. Forest licensee obligations are released when plantations reach “free-growing” status. A silviculture prescription (pre-logging) determines the status and obligation to a particular cutblock; however the original licensees are no longer here so many of these cutblocks have reverted to provincial Forest District control, creating a backlog in brushing and weeding programs, and rampant brush in most cut-blocks. Specific management for high value huckleberry production is absent.

In the 1970s to the late 1990s most cutblocks were planted to pine because they reached “free growing” status before other tree species, hence releasing the licensee from obligation to a cutblock. Many of these cutblocks also contain non-productive huckleberry shrubs. However, the viability of pine stands has decreased dramatically with a range of recent ecological changes, consequences of the large areas of uniform aged single species stands, and climate change, which has promoted huge outbreaks of bark beetle (mountain pine beetle). Numerous pine plantations are diseased or dying from *dothistroma* needle blight, *tomentosis* root rot and the mountain pine beetle, shifting both ecology and future timber values. Some of these stands are good candidates for re-introducing cultural burning practices¹⁰. A case in point; on the proposed 60km LNG route through Gitanyow Laxyip there are 29 cutblocks that have the potential to be managed for huckleberries (D. Vegh personal observation).

Because the forest industry is almost non-existent in the Hazeltons (Skeena Stikine Forest District); except for whole log exports to China from high elevation old growth and cedar to regional mills, there is now little management activity in “free-growing” cut blocks. When brushing and weeding programs are done they take out all competing vegetation to commercial trees, which includes berry species. The effect of non-management for huckleberries is that very few cutblocks are optimal for berry production. Spontaneous and productive huckleberries occur rarely as they are usually out competed by other vegetation, especially false azalea (*Menziesia ferruginea*), wild rose (*Rosa acicularis* and *R. nutkana*), willow *Salix* spp.), alder (*Alnus crispa* and *A. incana*), thimbleberry (*Rubus parviflorus*), fireweed (*Chamaerion angustifolium*) and boxwoods (*Pachystima myrsinites*).

Loss of Traditional Fire Management Practices

Cultural fire management of huckleberries was practiced through millennia to maintain productive huckleberry patches (Johnson Gottesfeld 1994a). The huckleberry shrub is fire resistant¹¹ and needs a low intensity fire regime to thrive (Minore 1972). In the 1930s, the provincial government forced the Huwilp to stop cultural burning practices for maintaining ancestral huckleberry areas (Johnson Gottesfeld 1994a). These areas are now non-productive for

¹⁰ Vegh, Darlene personal field observations 1993-2013

huckleberry harvest but are still identifiable¹² on the ground and through oral histories (see Trusler and Johnson 2008). A few have been mapped or documented since the Delgamuukw decision¹³ in various Laxyip. Some of these areas have either been logged or have reached a growth stage where huckleberry production is low to non-existent. During the decades after 1930 the people were forced off the land and confined to reserves thus breaking the patterns of huckleberry maintenance. Further separation occurred through residential schools and Indian hospitals. The effects of dependency cycles distanced the people further from the land.

The loss of traditional fire management practices is a key threat to the huckleberry habitat. Prior to contact, ancestral fire management created diverse and healthier cultural landscapes; these practices could help mitigate some aspects of climate change. This absence of fire management has contributed to declining berry production because many plants, especially huckleberry, require fire and the resulting potash:

‘When potash and water combine it becomes potassium hydroxide. This chemical becomes a fertilizer; it protects plant cells from tissue damage. It is water soluble and available for uptake to feed a new crop. It is a fungicide and insecticide that keep pathogens low’ (Beresford-Kroger 2010 in Hobby and Keefer 2010). Spring and fall fires are low intensity so that roots are dormant or wet enough to be protected from fire. Huckleberries are fire resistant (Miller 1977 in Hobby and Keefer 2010).

Rampant brush is now the dominant understory throughout the Gitxsan and Gitanyow Laxyip caused by the absence of fire (D. Vegh personal observations).

In order to ensure food security and food sovereignty based on traditionally based Gitxsan and Gitanyow Laxyip, we present an aboriginal Huckleberry Management Strategy which can be a stand-alone addendum to First Nations Land Use Plans similar to the Gitanyow Wildlife Management and Food Security Strategy, the Gitanyow Land Use Plan, The Gitwangax Land Use Plan, and the Gitsegukla Land Use Plan¹⁴. Gitanyow Land Use Plans were developed in cooperation with the provincial government to legalize plan components through negotiations under the Recognition and Reconciliation Accord.

Land use plans for First Nations land management include a number of components. These plans are designed to manage the common territory (*laxwiiyip*) of communities and specific houses, and are a contemporary elaboration of traditional management strategies for these lands. Components of Land Use Plans include: Ecosystem Networks, Hydro-riparian Buffers, Old Growth patches, Critical Moose Winter Range, Critical Winter Mountain Goat Habitat, Special

¹² Vegh has GPS coordinates of many berry areas found throughout the years. (SWAT data files 1994 – 2002) A selected listing with locations and Wilp territories includes: north side of the Babine (Millulak); Hwy37 north, Gamlaxyeltxw; Hwy 37 south Gwaashlam; mountain above Gitwangak; Gwinin Nitxw at Slamgeesh Lake; a site above and south of Juniper Creek in Gwis Gyen Laxyip; west of Salmon River Road near Skeena in Gwoimt laxyip.

¹³ The Delgamuukw decision was a Supreme Court of Canada decision in the landmark land claims court case brought by the Gitxsan and Witsuwit’en Chiefs against the Federal and Provincial Crown; the ruling said that Aboriginal title had not been abrogated, providing the impetus for a round of modern treaty negotiations among British Columbia First Nations.

¹⁴ The Gitsegukla Land Use Plan as written does not contain provisions for berry management, despite its aboriginal importance (personal communication Fred Philpot 2015).

Habitat for General Wildlife, Community Watershed Management Units, Cedar Stand Reserves, Hanna Tintina Watershed Conservation Area, Grizzly Habitat Areas, and Pine Mushroom Areas. Land Use Plans are the framework on which to build food security and sovereignty for each Wilp.

Opportunities for Huckleberry Management

Many options for active berry management have been researched throughout the years, (Burton et al. 2000; Keefer et al 2010) both on and off the Timber Harvesting Land Base (THLB). Selected options for active huckleberry management are discussed below. The options emphasize the need for active monitoring and assessment activities combined with selected direct intervention strategies.

According to GIS specialist Marilyn Freel (pers. com 4/21/15) a simple GIS exercise could stratify a territory/watershed to show the decade by decade the progression of cut blocks with an overlay of the Biogeoclimatic Ecosystem Classification System that would show potential huckleberry producing cutblocks for co-management and picking opportunities. The BEC overlay would show potential areas outside the THLB. Taking into account that future BEC maps will change with climate warming. The Kootenay Forest Region is already adjusting their BEC maps for adaption to global warming. Potential sites could then be selected for cultural management according to Wilp criteria, e.g. near ancestral burns, roads, villages, camps, trails, land use plans or the ease of re-introducing aboriginal burning practices.

Gitksan and Gitanyow both hold forest licenses. The silviculture prescriptions could be tailored to document a site's potential to produce huckleberries and the management required to maintain or enhance the shrub. Provincial stocking standards are a pre-set stocking regime for each BEC unit and would require working with Forest Lands and Natural Resource Operations to manage for huckleberries. The "free to grow" surveys could assess how the huckleberries are doing and if the silviculture prescriptions were successful in managing for huckleberries.

Huckleberries in the context of other species

Huckleberry management must be integrated and be adaptable to wildlife management and food security programs. Ecological functions are out of balance because of the prevalence of plantations across the land which means that biological functions are also out of balance. The moose population has declined by 68% (DeMarchi 2011 in Koch n.d) over the last decade in Gitanyow Laxyip, mostly through over-hunting but also due to declining browse species in aging cut blocks (D. Vegh personal observation). Gitksan experience a similar decline in moose numbers. Willows and red osier dogwood are the favored browse species of ungulates which are succumbing to succession or over browsing. Ungulates will eat the huckleberry shrub if favored species are not available (D. Vegh, personal observations). Fire would re-energize browse species that re-sprout after fire.

An overabundance of rabbits can decimate the production of berries through overgrazing; rabbit browse on huckleberry shrubs must be mitigated and managed within food security strategies once a site is chosen for active management. Marten, fisher and bear depend on huckleberries for sustenance. Huckleberries can be considered critical to the bear's life cycle and as such is arguably a "keystone" species (Hobby and Keefer 2010). Grizzly bears are an indicator species

that tell you how healthy an ecosystem is, if the grizzly bears are not doing well there is a good chance it will impact people too (Canadian Geographic April 2015). Cultural Resource Inventories¹⁵ in spring and fall would determine how wildlife is using a potential huckleberry management area.

Case Study: Wilp Djogaslee Laxyip

Landscape and wildlife changes and a lack of active huckleberry management are bringing the situation to a crisis point throughout the territories of the Gitxsan and Gitanyow. Fire suppression and active suppression of traditional management have made pervasive ecological changes (Johnson Gottesfeld 1994a). The few spontaneous and productive huckleberry patches are being lost to succession. In Wilp Djogaslee Laxyip in the Suskwa River watershed, the current picking area is being lost to canopy closure. This is the main area where the communities throughout the three Hazelton's and six Gitxsan villages pick berries. The dramatic loss of the historic huckleberry patches (extending 1740.8 hectares) compared to current huckleberry patches (extending 504 hectares, most of which is mature forest; only 44.9 hectares are cutblocks with higher productivity) has been well documented (Burton and McCulloch, 2000). This loss will continue without active intervention. The trees in this area are between 15 and 30 years, the canopy is closing, and false azalea (*Menziesia ferruginea*) and other brush is taking over parts of the huckleberry patch (see also Trusler 2002).

Introduction of active management for huckleberries is now urgent to avoid loss of the berries. Indeed, *Vaccinium membranaceum* is a seral species which cannot be maintained in a productive state on the landscape in the absence of active management (Trusler 2002), suggesting that management is a key component of Gitxsan and Gitanyow food security. Numerous areas have reached optimal growing conditions for huckleberry production in Djogaslee Laxyip. Intervention is required immediately to maintain the productive capacity on this one site and throughout the Suskwa watershed.

Monitoring active berry use could also be a useful management strategy and foster engagement by Wilp members. In Luutkudziiwus territory, July 2014, the wilp erected a blockade of the main logging road that leads to the huckleberry patch in Wilp Djogaslee Laxyip. The purpose is to block the LNG industry from going through the Laxyip and to assert sovereignty¹⁶. A side benefit may be that commercial wine picking, a recent impact, is impeded or stopped this year by the blockade, which continues to be manned.

Proactive Berry Patch Management: Ecocultural restoration

There are ancestral berry areas that could be brought back into production with various methods from selective logging to clear cuts while retaining some old trees for future genetic legacies. In *The Global Forest* Beresford-Kroeger (2010) describes how old healthy trees contain the genetic messengers that will help trees adapt to climate change; if seed trees are left after logging. Many older cutblocks could also be managed for berry production. For example, from east to west on a 60 km line within Gitanyow Laxyip there are 29 potential sites in cut blocks where the huckleberry shrub could be managed with various methods like brushing and weeding, low

¹⁵ Strategic Watershed Analysis Team 1994-2002; Field Codes 1994-2013

¹⁶ Wright, Richard April 28, 2015 personal communication.

intensity burns and removing parts of the canopy so that huckleberry shrubs receive between 60% to 90% irradiance (see guidelines in Burton et al 2000; D. Vegh, personal observations).

The subject of combining huckleberry management with timber management has been researched extensively. The Gitanyow have attempted to negotiate Environmental Accords and Cumulative Impact Trust Funds with lineal development industries like BC Hydro or LNG companies or area based with the forest industry on the premise that there is reciprocity in co-existing and thriving in the place we call home; Xsan (Gitxsan means people of the Skeena River). The Huwilp, Industry and Government must develop ways and means to maintain and enhance food security and ecological integrity within the Laxyip.

A Food Security Framework:

The reasons for developing a territory data set are to place a potential huckleberry site within the spatial context of Laxyip so that decision makers have the best available data on which to plan for food security (see discussion later in paper). It provides an awareness of cumulative effects already in situ or imminent. It effectively becomes a learning and management tool. It will place a potential huckleberry site in relation to other objectives for wildlife management or for adapting to maintain water quality and quantity into the future.

Data sets also provide a learning tool for wilp members to use geo-referencing as a holding place for traditional ecological knowledge; and for monitoring, evaluation and adjustment.

Global Positioning Systems (GPS) and data collection can then be undertaken to determine a site's potential. GPS field work will provide estimates of forest cover, huckleberry shrubs (quality and quantity), competing vegetation, wildlife use of the vegetation, water availability and climatic conditions within and surrounding the potential site. Fire history, fire ecology and frequency of ancestral burns can also be recorded and mapped along with the stand attributes. An ecologist can determine if Ericoid mycorrhizal fungus is present; it is very important to huckleberry nutrition.

Preferably before a site is chosen Geographic Information Systems (GIS) will need to be employed to gather existing spatial information such as:

- Land Use Plans
- Biogeoclimatic Ecosystem Classification
- Topographic with elevations
- Water layer (rivers, creeks, streams, lakes)
- Earth imagery
- Traditional infrastructure (ancestral berry areas, trails, villages, seasonal resource gathering camps/areas, culture camps)
- Terrestrial Ecosystem Mapping or Predictive Ecosystem Mapping (Licensee or Forest District, if available)
- Roads
- Cut blocks with year logged, BEC site series information (contained in the silviculture prescription, if available) and free growing status

Once the data is mapped, it can be checked against the overview maps for conflicts or managing other objectives. Recommendations from the data will determine what type of work will achieve the best results in a particular site. The data can also be used for delineating greenways and connections to other Laxyip.

The stand alone nature of this strategy means that neighboring communities and first nations can adopt and implement the plan. It is hoped that the strategies outlined will provide a foundation from which each Wilp can negotiate with industry and government. While internal initiatives develop the plan, actual implementation will require Huwilp cooperation/negotiation with the mainstream world from local governments to global industries and NGO's (Non-governmental organizations). The plan is designed to engage community/wilp members with all aspects of this initiative. Wilp engagement with this plan should be periodically validated with the following principles (Koch n.d.) to ensure Wilp sovereignty and food security:

- A Wilp based focus
- Ensures compliance with Land Use Plans
- Monitoring, survey and inventory work focuses on Wilp member participation for employment and resource stewardship empowerment
- Be practicable, affordable and marketable

- Provide direction for discussions/negotiations pertaining to huckleberry habitat enhancement, maintenance, mitigation or compensation associated with resource development on the Laxyip, past-present or future
- Be accountable to traditional governance
- Be conducive to partnership funding and collaboration with provincial and federal governments, research institutions, NGOs, universities, resource development corporations
- Tie into other cultural initiatives/programs such as economic development and connecting people to place

This huckleberry management strategy can serve as a template for others to use, becoming a living document. It can be added to and developed as neighboring First Nations communities implement components of the plan. What strategies have been adopted, what lessons have been learned, and what has been accomplished?

Wilps Guxsan, in the Gitsegukla watershed, has initiated a huckleberry management plan through their health program. Educational funding has been applied for for summer of 2015 and it is hoped to begin training and assessment this year.

Ecological Constraints on Huckleberry Management Sites (berry patches)

According to Hobby and Keefer (2010) black huckleberry has a soil preference of pH 5.0 – 5.5. Hard clay is not hospitable for huckleberry. Typically, sandy and loamy soils are the best host. Sites in mid-range of moisture are most common for successful huckleberry growth. Not full sunlight, but somewhere around 90% is most conducive. Hobby and Keefer found trembling aspen can be complementary to huckleberry. Huckleberries need the right weather. Early spring

frost is a major problem. In low snow years, huckleberry foliage above the snow line is killed. Fire intensity is the key to a successful burn – cooler fires on sites with less slash on top are best. High moisture content is also important to fire intensity. Fire intensity which is too great will damage rhizomes (Minore 1972). Other fire projects have had a high variability of results from prescribed burning in the Kootenays (Hobby and Keefer, 2010). Ericoid Mycorrhiza is extremely important to capturing nutrition for the *Vaccinium membranaceum* after the fire. False azalea (*Menziesia ferruginea*) is the more common successional plant in unmanaged fire sites as it is fire sensitive (Hobby and Keefer 2010, Trusler 2002). Cutting down or girdling trees in order to reduce canopy cover is one of the fastest ways to get more productive berries (Burton et al 2000) Disc trenching is dangerous to huckleberries and encourages noxious weeds (Hobby and Keefer 2010).

There are different levels where a Wilp can engage with industry or government. The Wilp can chose to develop a watershed atlas for large and small scale management that would open negotiations with the best available information and provide an overview on the status of an entire territory. The overview technique would determine Laxyip capacity for huckleberries now and into the future. Or a site can be simply picked at random and restoration techniques selected but management would be hampered by the site being isolated from the rest of the Laxyip and any cumulative impacts. This method would provide content but not context. A long planning horizon will enable sustainability. It is thus highly recommended that planning extend at least to 2080, roughly one forest rotation. Adaptive strategies are the least expensive to implement while reactive strategies are the most expensive in land management activities. Adaptive strategies are more economical of both monetary and human resources, and more capable of meeting goals for social and ecological sustainability, and holistic goals of community well being.

SIM MAA'Y, COMMUNITY HEALTH AND THE GITXSAN¹⁷ WAY OF LIFE

The context of “cumulative impact” includes not only a series of changes to the land and to land management, but also impacts to the communities and their ability to follow their traditional practices and management. Colonization is a destructive force that undermined the Gitksan way of life and a state of oppression so severe, that to practice Dim Wila Dil Dils'm -the way we live- would mean jail time or worse. Residential School and the “60s scoop”¹⁸ proved that if you take the Gitksan away from the Laxyip, the person, the family and the community no longer have the necessary foundation from which to live a good clean life. This history created chaos and imbalance for all Gitksan: the removal of children obstructed traditional grooming and transmission of knowledge , practices and beliefs. This trauma caused a loss of identity, a loss of self-esteem, affecting mental wellness, physical ailments, addictions and suicide, domestic violence and disease.

¹⁷ The Geets dialect spells the name of the people Gitksen; Gitwangax is a Geets village, but for sake of consistency, we have spelled the ethnonym Gitksan, the Gigeenix spelling which has become standard for the entire Nation. The name was formerly spelled Gitksan, and that is how Johnson has spelled it in previous publications.

¹⁸ The 60s scoop refers to the dramatic rise in apprehension of First Nations children and their removal from families and the community social net to foster care, usually with non-Indigenous foster parents.

Each Wilp (House) and Pdeek (Crest) has a very sophisticated Ayuuk' (Hereditary Laws), which guide relationships, behaviours and participation within the wilp (see Figure 1), Within the Gitxsan traditional and ethical values, the extended family or clan structure was once a very strong internal mechanism to overcome adversity, but the post contact experience has caused the breakdown of the traditional systems to create dysfunction at the individual, family and community level.

In order to preserve and protect their *daxget* (strength, spiritual power), the hereditary system is solely responsible for the affairs and the well being of the total Wilp membership. A complex interaction of obligations, sanctions and mutual respect serves to maintain our society and territories in relative harmony. There is equal access to resources, the house system and consensual decision-making. (This system Johnson (1998) has described as communal corporate property, neither individual private property or a village level commons. This traditional system results in coordinated management of the entire Gitxsan or Gitanyow Laxwiiyip- a landscape level approach to commons management).

In 2006 the Gitwangax Simgiget (Hereditary Chiefs) did a survey of the Wilp members and found that those who had a more traditional upbringing, participating in feasts, language, traditional foods, the traditional supports in-place; there-by knowing who you are and where you come from, tended to be more successful in education and careers.

Traditional strategic planning is the basis for best practices within the Gitxsan territories. Given that the Gitxsan traditional structures still remain and are valid in the communities, and through the traditional consensus driven processes the community is given the opportunity to speak and be heard, there-by, a planning process for the entire community is supported.

Not only to empower individuals and families, but communities, *wilps* and clans are also taken into account in this process. This type of planning allows the Gitxsan to initiate and support plans that are built upon the strengths and resources of the community. Planning for food sovereignty, and food security with reference to traditional foods of the land is a part of this strategic planning process as people strive to regain self-sufficiency, autonomy and community health.

The Traditional Health Plan (Morgan 2013) spoke about the responsibility of the community as a whole to be healthy and the tendency for Gitxsan is to look at healing and well-being from a traditional concept. The health plan uses "Gitxsan Best Practices" in designing, developing and delivering, appropriate training and education programs based on Gitxsan concepts of health, illness, medicine and treatment.

Sip'xw hligetdin

Demonstrating the Strength and Education to Speak in the Feast Hall - Ready to take Responsibility



Figure 2 Illustrating the interconnected, reciprocal relationships that are uniquely Gitksan. - a strong person is the result of a interconnected, interdependent, reciprocal system. The person is supported by and in-turn supports the system.

In Figure 2, note that the territory, Laxyip, surrounds community, Galts'ep, which in turn envelopes groups of related houses with their reciprocal relationships. Within these larger kin based structures, the individual Wilp or House, which directly manages its own territories, including resource areas such as berry patches and fishing sites, is situated, and each Gitxsan person has a position in a Wilp and its overarching kin groups. This diagram was originally elaborated to illustrate the relations of individual health and community health in a Gitxsan view. In discussions, we described how traditional foods, and access to them, found on the Laxwiiyip, were crucial to community health.

The Laxyip (territory) is imperative to the state health of each and every Gitxsan, who live in the community and those that live away, as the hereditary system is responsible for all membership regardless of their location. Therefore, a Gitxsan land use management plan must recognize the Laxyip as integral to the protection and preservation of Gitxsan cultural/territorial resources, which is essential to maintaining the identity, integrity and well-being of Gitxsan Huwilp members. As Napoleon wrote:

In other words, Gitxsan people are Gitxsan in today's world – enduringly connected to their land and history, and inclusive of all their experiences and societal changes over time. (Valerie Ruth Napoleon, LLB, University of Victoria, 2001)

For the Laxyip to be used in ways that are unsustainable, would be an assault on the physical/dietary, mental health, and emotional and spiritual needs of the individual, family and community, and would mean a deviation from the Gitxsan traditional holistic perspective. For the Gitxsan to be reconnected in a foundational way once again to the Laxyip would substantially improve the standard of life and state of health for the membership.

Am.ma wil

One of the action items from the Traditional Health Plan is to develop and protect traditional territorial economic opportunities. Taking care of territorial assets through traditional practices, to understand and further develop how traditional trading practices have evolved.

Before a person crosses another's *laxyip*, he visits the Sim'oogit [Chief] and states: this is where I will go. Is it alright if I go here? If I shoot (take) anything, I will give you half. If I don't shoot (take) anything, I will keep walking by. (Sim'oogit Sakum Hiigokw)

Land management for all non-forest products include:

- Salmon
- Animals
- Mushrooms
- Berries
- Medicines

The Gitxsan view these resources important to our very health and that they should be benefiting the community. As Gitxsan it is important to be able to protect and maintain the value of what we have. Reclaiming resources is thereby reclaiming our health. This constitutes *Sagyit ha'hle'alst - All Working Together*, which we see as Gitxsan Best Practices in planning and

implementing. Gitxsan have been implementing best practices (preventative health care, land management, food security etc.) since Gwal yee “time immemorial ” that have been shown to be effective within our own communities.

A recent initiative that speaks to the connections of food security with social well-being is found in the Senden project, an agricultural and housing project of the Upper Skeena Development Centre (Anonymous 2015). Phase I created a farm house and market garden; phase II will expand facilities to include a commercial kitchen. Traditional foods as well as healthy local garden foods will be able to be processed there.

We cite not only our own experiences as Gitxsan and Gitxsan best practices, but also refer to Chandler and Lalonde (2008) who detail the importance of cultural continuity as a protective factor against suicide in First Nations youth. Although this is an important paper to speak to the strengths and intelligence of our first nations long established best practices, it is also a sad indicator of trying to educate non-first nations who are apparently so damaged and lost as a people they no longer recognize these traditional infrastructures as the foundations and strengths that they are for our communities. Unfortunately even today there are those in positions of power and beaurocracy who un-knowingly (or consciously) display this Colonial attitude and continue the fight, “to assimilate or eliminate the Indian Problem”.

HUCKLEBERRY (*SIM MAA 'Y*) MANAGEMENT

We are engaging in a planning effort for a five year huckleberry management pilot project focussing on Wilps Guksen, a Gisga’ast House whose Laxyip encompasses the headwaters of the Kitsegukla River watershed around Kitsegukla Lake. This project will have two interrelated aspects, the Family Yuulhlamx Anjok-Gitxsan Wisdom Camp and the Huckleberry Land Management project. This project shows how traditional huckleberry management, in the past and still today, plays an important role an important in community health, education, economy and is considered a Gitxsan responsibility. We are attempting to re-anchor the land management/food security/economy of huckleberries back into the community after a 50-80 year lapse. It is important that we all work together with communities to support already long established and proven infrastructure.

To create a 5 year pilot project would require dedicated funding for this time period to ensure a good foundation to evolve from. We need to engaged in six months of traditional planning. This is facilitated traditional strategic planning involving the community, youth, leaders - both hereditary and Band Council, health, education and economic development. In today’s context, we also need a dedicated project coordinator, a territory management specialist, and a traditional advisor of equal authority to the coordinator, who will work with a huckleberry land management committee which will liaise with House groups and clans.

This “Huckleberry Traditional Land Management plan” as a living document will assiste with facilitating partnerships through educating government and corporations to enable a Gitxsan driven land management initiative, providing a basis for them to work with and support the project. This was an outcome from the Traditional Health plan (Morgan 2013): exploring and envisioning partnerships and service delivery with government, educational institutions and

corporations based on who we are, thus truly investing and rebuilding capacity in the community as Gitxsan.

It is easy to see the traditional huckleberries (*sim maa'y*) harvest once again becoming an economic driver for the Gitxsan, as Gitxsan huckleberries are still sold along the Grease Trail and at local farmers markets. The local co-op Wilp Sa Maa'y also demonstrated the potential for local huckleberry product development, and could be reactivated.¹⁹ There are other modern examples of berries being an economic success story; several Ontario and Quebec First Nations communities are successfully involved in harvesting wild blue berries. “Wild” has been adopted as a marketing term for harvests of managed native stands of low bush blue berries. The bushes are not planted or genetically manipulated, but they are pruned or burned over every two years, and pests are managed through the traditional practices we seek to reinstate.

Family *Yuulhlamx Anjok* Family Gitxsan Wisdom

The family on the land camp, which is the second aspect of the combined plan, illustrates the holistic nature of Gitxsan community health, and shows how engagement in traditional on-the-land activities not only affects food security, but also creates positive social benefits. This will comprise a one month long camp on the territories focusing on healing family violence. The focus will be how traditional Gitxsan wisdom and the traditional rules of land management and responsibility of huckleberry (*sim maa'y*) fields, can inform strategies and pathways to enhance individual, family and community, wellness and safety.

The mentor's role helps in re-establishing our Elders as leaders and supporting inter-generational relationships that historically have supported all areas of individual and community health and wellness – physical, emotional, psychological and spiritual. Camp activities will increase connectivity of youth and Elders in the community, and create a greater awareness among youth of health and wellness related issues and their ability to contribute to a healthier community. Planning and developing a program that includes supporting and building capacity for the traditional framework and existing community infrastructure will be undertaken by training service providers and community leaders in these areas. Involving individuals, families and community members through active participation in traditional activities, connecting to local resources and assets, existing strengths, and assisting to achieve and support their wellness objectives are key foci of the camp.

This preventative work allows for mainstream service providers to be integrated with Gitxsan culture and traditional practices and existing social infrastructure, so intervention does not start with a report to RCMP and/or MCFD; rather it will start earlier with identification of root causes. Prevention means earlier community supports in place, that are more effective and less costly for families and communities. Facilitators from Northern Society for Domestic Peace and EVA BC (End the Violence BC) will conduct workshops for the community, families, leadership, service

¹⁹ Wilp Sa'Ma'ay is a co-operative created by the Strategic Watershed Analysis Team and Forest ecologists Phil and Carla Burton. It is presently inactive, but the organizers (including author Darlene Vegh) would like to resume its activities.

providers and will do individual and family assessments to continue and maintain the supports long after the camp is over.

The success of bringing youth out on the land was demonstrated in 2014 at the Culture Camp held near Gitwangaḱ (Morgan n.d.) Traditional activities included, as a baseline support, *Gitsxan "Fine Arts"*, which were facilitated by qualified teachers at the elementary, secondary or college level, Elders, and/or instructors who had worked with youth at drug and alcohol rehabilitation centers. In camp activities, participants learned Gitxsan language, genealogy (who is who in the community), the Feasthall (*li'liget*), Gitxsan songs and dances (key aspects of cultural performance linked to identity and to territory), Gitxsan theatre and performance, and cultural activities including cedar weaving, net mending and design and carving. This summer's camp will include ecological knowledge and huckleberry management and is key to ensuring the resumption of traditional management of the berry patch resource in today's context.

In addition, we will deliver workshops that address family violence as an important aspect of a holistic wellness, that includes the person in the context of kin, community and land (see Figure 2). First and foremost we will approach social wellness from a traditional and community perspective, as these are the supports available in the community. These involve community education awareness and outreach, safety planning, communication and mediation skills, anger management and conflict resolution, life skills, financial literacy (modern and traditional), and parenting and Elder care. When people have a strong sense of self and community in the context of traditions and the territory, coupled with practical skills, the foundations for well-being are in place.

SUMMARY AND CONCLUSIONS

For many communities around the world, ability to access healthy and culturally valued foods is compromised by cumulative impacts of a wide range of activities on the local or regional land base which impact the landscape ability to provide these foods and the human resources needed to manage or procure them. This is the case with Gitxsan and Gitanyow communities in northwestern British Columbia. We have reviewed intersection of traditional Gitxsan/Gitanyow food resources and their management and allocation systems with a series of challenges presented by commercial forestry and impacts of other forms of development (e.g. pipeline or power transmission corridors) on the land base traditionally managed by Gitksan and Gitanyow communities with particular attention on black huckleberry (*Vaccinium membranaceum*, Sim maa'y) availability and management. We argue that these impacts affect social, cultural and ecological health and are issues of food sovereignty. Effectively, the land base itself (*Laxwiiyip*) is a commons where traditional rules of management, responsibility and access to resources have been disrupted and overlaid by a series of historical and contemporary changes mediated by colonial, provincial and federal governments, and global industries. Social and cultural disruption and trauma form part of the cumulative impact the communities have experienced, and also affect ability to manage common resources. We conclude by considering the potential of the joint promotion of holistic community health through land based activities within the traditional Wilp system, and through resumption of traditional huckleberry management. We present a plan for a culture camp on Wilps Guksen Laxyip near Kitsegukla Lake which would present cultural and practical training on the land and give experience in hands on ecological

management in the effort to regain holistic community health and effective management of common territory (*Laxwiiyip*).

REFERENCES CITED

- Anonymous. nd. Upper Skeena Development Centre -Senden Agriculture Resource Centre Phase II Project. 2015.
- Beresford-Kroeger, Diane. 2010 *The Global Forest*. Penguin Books.
- Burda, Cheri, Russel Collier and Bryan Evans. 1999. *The Gitksan Model, an alternative to the destruction of forest, salmon and Gitksan Land*. University of Victoria, Eco-Research Chair of Environmental Law and Policy
- Burton, P., C. Burton, and L. McCulloch. 2000. *Exploring Options for the Management of Wild Berries in the Kispiox Forest District: Phase One of a Pilot Project Focusing on the Suskwa River Area*. Prepared for the B.C. Ministry of Forests, Kispiox Forest District, Hazelton, BC. Symbios Research & Restoration, Smithers, B.C. iii p.
- Canadian Geographic April 2015
- Chandler, M. J. and Lalonde, C. E. (2008). Cultural Continuity as a Protective Factor against Suicide in First Nations Youth. *Horizons* 10(1): 68-72.
- Hobby, T and M.E. Keefer 2010. A black huckleberry case study in the Kootenay Region of British Columbia. *BC Journal of Ecosystems and Management*.
- IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.
- Johnson Gottesfeld, Leslie Main. 1994a. Aboriginal burning for vegetation management in northwest British Columbia. *Human Ecology* 22(2):171-188.
- Johnson Gottesfeld, Leslie Main. 1994b. Conservation, territory and traditional beliefs: an analysis of Gitksan and Wet'suwet'en subsistence, Northwest British Columbia, Canada. *Human Ecology* 22(4):443-465.
- Johnson, Leslie Main. 1998. Traditional tenure among the Gitksan and Wet'suwet'en: its relationship to common property, and resource allocation.
<http://www.indiana.edu/~iascp/iascp98.htm>
- Koch, Kevin n.d. *Gitanyow Wildlife & Food Security Management Plan 2011/2012* (unpublished report on file with Gitanyow Nation)

- Kuhnlein, H. V., B. Erasmus and D. Spigelski, eds. 2009. Indigenous Peoples' Food Systems: the many dimensions of culture, diversity and environment for nutrition and health. <ftp://ftp.fao.org/docrep/fao/012/i0370e/i0370e00.pdf>
- Ministry of Forest Lands and Natural Resource Operations; Pacific Climate Impacts Consortium, Plan to Adapt 2014
- Minore, Don. 1972. The wild huckleberries of Oregon and Washington—a dwindling resource. *USDA Forest Service Research Paper-143*. Portland: Pacific Northwest Forest and Range Experiment Station. 20pp.
- Morgan, Ruby E. 2013. Dim Wila Dil Dils'm the way we live; Gitwangax Traditional Health Governance (prevention). Gitwangax: Gitwangax Education Society.
- Morgan, Ruby E. n.d. Yuuhlamx Anjok Gitxsan Widsom Culture Camp Final Report 2014
- Schiavoni, Christina. 2009. The Global Struggle for Food Sovereignty: Nyeleni to New York. *Journal of Peasant Studies* 36(3): 682-689.
- Trusler, Scott. 2002. Footsteps amongst the Berries: The ecology and Fire History of Traditional Gitxsan and Wet'suwet'en Huckleberry Sites. MSc Thesis, University of Northern British Columbia.
- Trusler, Scott and Leslie Main Johnson. 2008. "Berry Patch" as a Kind of Place- the ethnoecology of black huckleberry in Northwestern Canada. *Human Ecology* 36(4): 553-568.
- WWAP (United Nations World Water Assessment Programme). 2015. The United Nations World Water Development Report 2015: Water for a Sustainable World. Paris, UNESCO.
- Via Campesina. 2007. Declaration of Nyeleni. Via Campesina. February 27. <http://www.nyeleni.org/spip.php?article290> accessed July 1, 2014.