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Recovering our Roots: The Importance of Salish Ethnobotanical Knowledge and Traditional Food Systems to Community Wellbeing on the Flathead Indian Reservation in Montana.

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RECOVERING OUR ROOTS: THE IMPORTANCE OF SALISH ETHNOBOTANICAL KNOWLEDGE AND TRADITIONAL FOOD SYSTEMS TO COMMUNITY WELLBEING ON THE FLATHEAD INDIAN RESERVATION IN MONTANA

By

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This thesis provides a culturally-comprehensive review of the plants utilized for food in the Bitterroot Salish tribe of northwestern Montana. As part of the larger Confederated Salish and Kootenai Tribes (CS&KT) of the Flathead Indian Reservation, the Bitterroot Salish historically utilized hundreds of plants for food, medicine and hygiene. This thesis aims to highlight food plants and their important cultural components. The information herein is a combination of history, ethnography, linguistics, ethnobotany, and first-hand experience with the current Salish community to provide a holistic framework of understanding traditional food plants today. A comprehensive plant list is provided with Latin, Salish and common names as well as an in-depth look into ten plant species and their ethnobotanical components complete with pictures and nutrition information.

The information presented suggests that a cultural framework in ethnobotanical research is necessary in understanding the Indigenous connection to the natural world and traditional foods to support a pathway for improved community health. Using a combination of Indigenous and scientific methodologies this thesis compiles information from the community in the form of interviews and surveys with relevant literature to facilitate an introductory framework of components necessary in understanding Indigenous relationship with food. These components are food sovereignty, Traditional Ecological Knowledge, culture, health and healing, as well as scientific understanding of plant foods in identification, harvesting, processing, cooking, and environmental ecology, botany, nutrition, and environmental science. In support of the belief that "food is medicine" this work looks at the deeper contexts that are involved in how Salish people relate to food, historically and present day and what reintegration of those foods can do for future tribal and community health.

Recovering our Roots: The importance of Salish ethnobotanical knowledge and traditional food systems to community wellbeing on the Flathead Indian Reservation in Montana

By M. Rose Bear Don't Walk

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To my mother Eldena, a beautiful source of support, strength and love.

To my grandparents who inspired many and to whom I will always be "Baby Rose".

To my relatives and friends for all they do and all that they are.

To my ancestors for this way of life.

Lemlmtš

Chapter 1

Time in memoriam. The peaks and valleys of northwest Montana are teeming with life. Moccasined feet traverse hundreds of miles in this landscape. Hunting. Gathering. In the spring, herbs. Bright green shoots that have survived winter. Renewal. Flowers bloom.
Signs of sustenance.
First the spring beauty's, then the yellowbells, followed by biscuitroot. The air smells of grass and wet dirt. These small edibles will keep, but not for long… enough to feed a hungry body after bone chilling winter. The red winged blackbird calls out amidst the robin's song, "ǰičǰaaa"
Time goes on. Gathering season has begun.
Flowers bear juicy fruit alongside tubers that have grown thick with stored starch. Wild onions, camas, and Indian carrot below, plump juneberries, huckleberries, and chokecherries on branches above. Known sources of carbohydrates and glucose; energy for foraging.
Pick, preserve, eat a couple on the way. Summer's dry heat makes a great environment for drying. Chokecherry cakes are laid on hot rocks.
Winter storage, famine fighters.

When the spring comes, there's much work to be done in the months before the first snow, before the Salish eventually retire to their tipis to tell stories as they wait out the harsh Montana winters. Before winter ends, they will go to their Medicine lodges and their spiritual leaders to pray that things will always be this way.

Bear Don't Walk. 2019. Excerpt from "Traditions."
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1.1 Introduction:

On the Flathead Indian Reservation of northwest Montana two things are naturally abundant: the landscape and tribal culture. The land of the Confederated Salish and Kootenai Tribes (CS&KT) is home to freshwater lakes, vast forests, and remnants of a thriving wilderness. The reservation houses three tribal entities that make up the government confederacy: the Bitterroot Salish whom this thesis is concerned with (see Appendix A), the Upper Pend d'Oreille (upper Kalispel) who are culturally similar, and the linguistically and historically different Kootenai bands. The territories of these three tribes cover what is now western Montana and areas of Idaho, British Columbia (BC) and

Wyoming (Confederated Salish and Kootenai Tribes 2019). Despite the people being removed from their ancestral territory in what is now the Bitterroot Valley, it is all around this region where Salish people find a plethora of wild plants, game, and medicines that have been part of the culture for millennia.

The landscape of what is now the northwest borderlands of Canada and the United States (called the Columbia Plateau, fig. 1) includes the Northwest Coast, the Interior Plateau, and western Montana (Ibid). This region exhibits both tribal unity and ecological biodiversity. Aside from the ocean inlets and coastline of the Pacific Northwest and near the Columbia river, most of the region remains blanketed in forest. Woodlands, meadows, and grasslands suffuse the dominance of conifers. Lakes, rivers, and marshes supplement the land providing the opportunity for life to take shape in the region. And rugged mountains along the Continental Divide mark challenging terrain that is a no less vital landscape than the rest. Prior to colonization these regions linked indigenous groups through shared land, a network of trade, Traditional Ecological Knowledge (TEK), and in some cases related familial and cultural ties as well as linguistic capabilities (Turner 2014, V1 5).

This thesis concerns itself with the Interior Plateau. This particular sub-region serves as the ancestral grounds of the Bitterroot Salish peoples. Historically, the Bitterroot Salish were a band of Interior Salish belonging to a larger Salishan language group that occupied territories that span the Pacific Northwest, Canada, and Montana (fig. 1). Linguistic anthropology suggests that various Salishan bands lived together in the Pacific Northwest several thousand years ago before branching off into separate bands and moving across the region (Fahey 1965, 6). Today, these bands are known as the

Salish, Pend d'Oreille, Spokane, Colville, Coeur d'Alene, Okanagan and many others. Of these bands, the Salish and Pend d'Oreille people found themselves crossing various landscapes and mountain ranges before their eventual settlement in (what is now) western

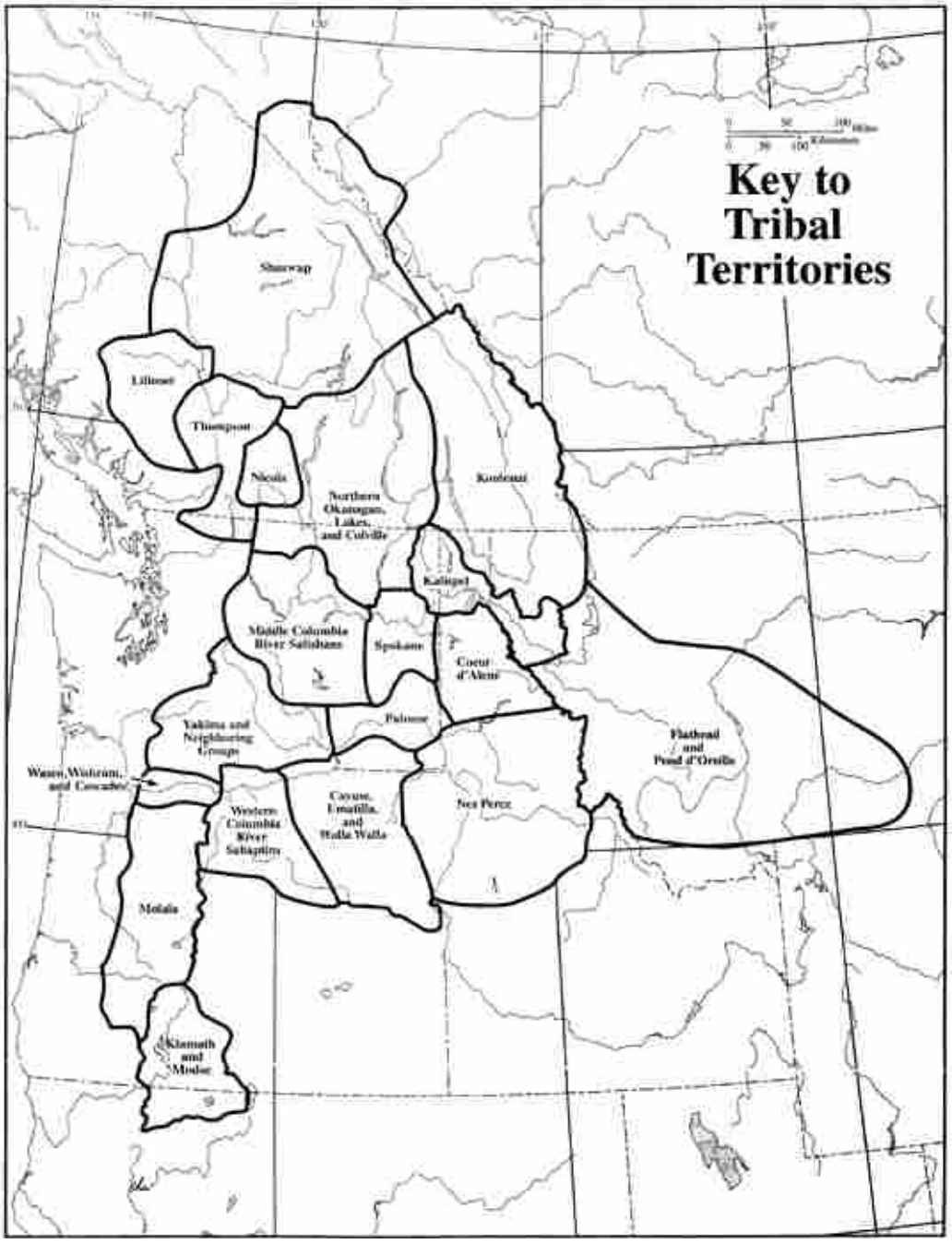
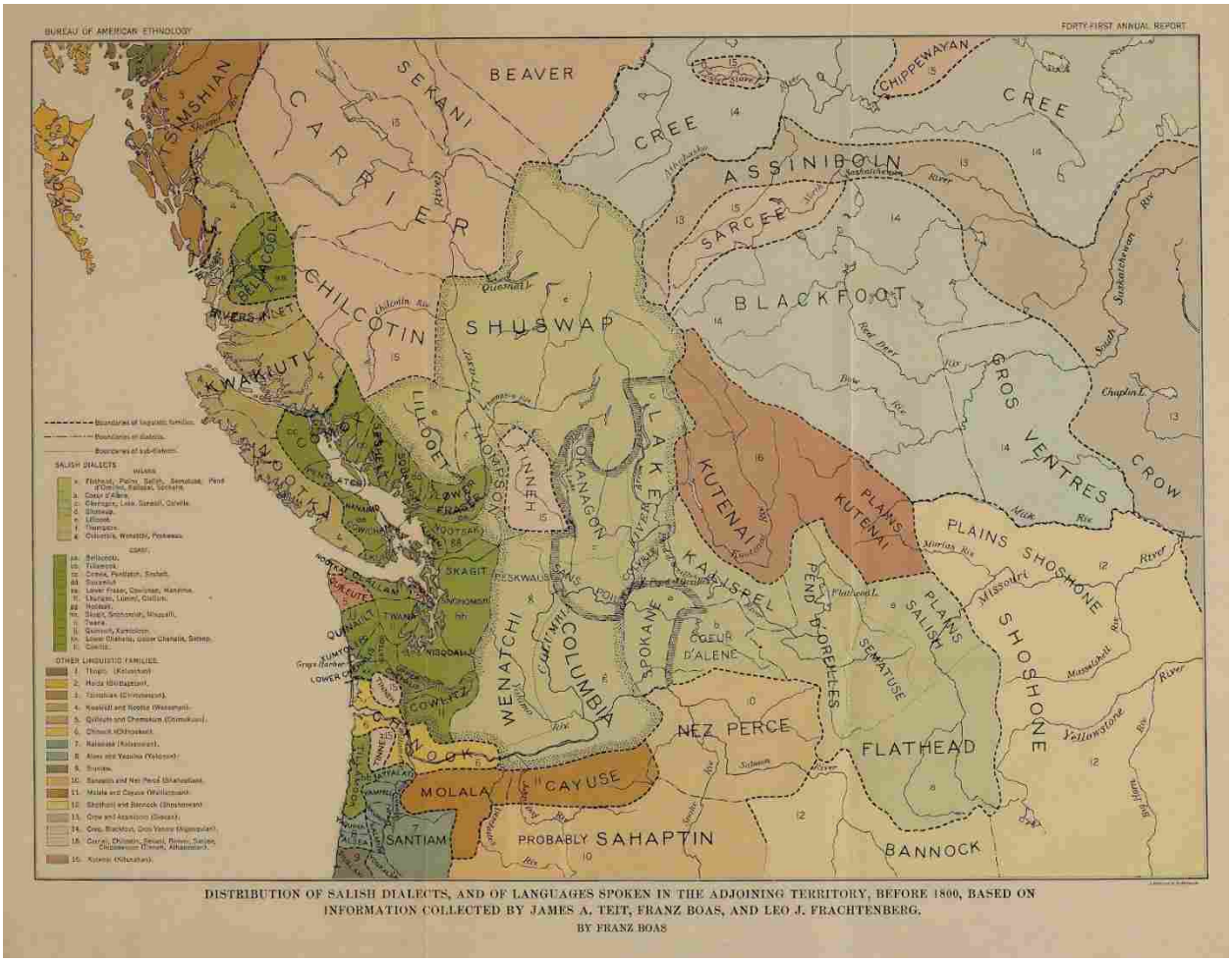


Fig. 1 Columbia Plateau Tribes and Ancestral Territories (Walk 1998).

Montana (fig. 2).



DISTRIBUTION OF SALISH DIALECTS, AND OF LANGUAGES SPOKEN IN THE ADJOINING TERRITORY, BEFORE 1800, BASED ON INFORMATION COLLECTED BY JAMES A. TEIT, FRANZ BOAS, AND LEO J. FRACHTENBERG.
BY FRANZ BOAS

Fig. 2 Distribution of Salishan dialects (Boas 1928).

It's also worthwhile to note that some Salish people argue that cultural stories and cosmology suggest that they have occupied this region since the beginning of time. Neither perception is wrong, however, should be included in understanding tribal history.

While the modern name of the Bitterroot Salish pays homage to their original encampment, it is not their preferred name. For the Salish, the Western idea that one should be named based on "confinement" to place is abstract and doesn't address the level of movement the Salish sustained across the land. It also doesn't allow them to speak for themselves.

The English word "Salish" as we commonly hear today is an anglicized version of *Séliš*. While these two names sound almost identical, to use *Séliš* allows for a closer usage of the very language that Salish ancestors used when referring to themselves long before conceptualizations of endonyms and exonyms were even created. To discuss this differentiation further, many *Séliš* refer to themselves as *Sq̓elix*^{w}. This name is a conglomeration of two words, *sq̓eltč* referring to meat or flesh, and *stulix*^{w} or land (*Séliš nyoʔonuntn: English to Salish Translation Dictionary* 2010, 290). To be *Sq̓elix*^{w} colloquially means that you are meat of the earth and flesh of the land. However, a more in depth explanation is that you are literally the top of the animal world through growth, learning and enduring viability on the land (see more in chapter 4.3) This is perhaps the most conceptually close and traditionally accepted version of what the Bitterroot Salish refer to themselves as and it highlights their deeply spiritual connection of nation, land, and existence.. For the purposes of this thesis, I use the English term "Salish" informally and "Bitterroot/Interior Salish" to differentiate from other bands of Salish.

1.2 Research question

The subsistence practices of the Salish developed over generations of observation, experimentation, and spiritual interaction with the natural world to create a body of knowledge about the environment (CS&KT 2019). Suffused with a rich oral and cultural history, the people learned to respect the animals, plants and other elements of the natural world. Within the cycles of the seasons, Salish people and traditional food plants have a cultivated relationship that highlights the biological, botanical and cultural diversity of the regions they inhabit. My research question(s) for this thesis are as follows: *"What is the intergenerational relationship between the Salish people of the Flathead Indian*

Reservation and traditional food plant usage and practices? And what are the critical cultural components involved in traditional plant knowledge? What do these practices mean for health and wellness for contemporary Salish people?"

1.3 Research problem:

Over time the relationship between Salish people and food plants has become strained and difficult to maintain. Due to American settler colonialism, forced removal, residential boarding schools, assimilation, intergenerational trauma, loss of cultural knowledge, and transitions to westernized life—traditional Salish lifeways have been hampered. This has created distance and dissonance within tribal people concerning maintenance of culture, language, and cosmology. It has also had adverse effects on the physical, mental, spiritual, and emotional health of tribal people.

Across Indian Country, and the colonized world, this disruption in cultural continuity is a story many Indigenous people are familiar with. The consequences of settler colonialism and westernization are far-reaching and ever-present especially for indigenous communities. When referencing Indigenous peoples, I prefer the definition proposed by Sisseton-Wahpeton Oyate (North Dakota) scholar Kim Tallbear (2013), who states that being Indigenous is "grounded in political status and biological and cultural kinship constituted in dynamic and long-standing relations with each other and with living landscapes" (510). That is, indigeneity is defined by the group or individual respectively and stems from a combination of bloodlines, ancestral connection, and cultural ties to the land and culture. Throughout this thesis I will use "Native American", "American Indian", "Indian" and "Indigenous" interchangeably maintaining this definition.

While there are some significant differences in lifeways and circumstances, scholars argue that the 400 million indigenous peoples worldwide are united by the common thread of low standards of health compared with national and proximal nonindigenous groups within the same regions (Stephens et al. 2006). Additionally, epidemiological trajectories have mostly been similar across all indigenous nations. Post-colonial health patterns of disease follow a similar path infectious disease, malnutrition, followed by obesity, cancer, heart-disease, diabetes and depression (Durie 2004). As Native Americans assimilated to Western standards of living in the United States, health indicators revealed a deep decline in overall health (Cajete 1990). American Indians manifest the highest rate of diabetes, compared to other racial minorities in the U.S as well as an increasingly high prevalence of obesity (First Nations Development Institute 2014, 34). Modern Western medicine finds direct links between obesity, diabetes, cardiovascular health and mental diseases, to nutritional deficiencies (Popkin, 2009, Uauy et al. 2001, Zienczuk et al. 2012, Barnes et al. 2010). For Native American people whose food system was in place for thousands of years, the sudden shift in dietary and movement patterns has devastated the health of the people.

In the Bitterroot Salish nutritional diseases run rampant in modern society. While the Flathead Indian Reservation currently has the highest quality of life of all the tribal reservations in Montana, the childhood obesity rates are comparatively very high (Howard 2014). Modern Western medical research has pointed to a persistence of childhood obesity that is compounded as age increases (Maffeis and Tato 2001). Adult onset diabetes, hypertension and obesity are also prevalent in the Salish community alongside depression and mental illness. Life wasn’t always this way.

The traditional food systems of indigenous peoples have value beyond nutrition and calories. Since time immemorial food has played a central role in the development and sustenance of indigenous communities. Food systems were cultivated and understood to involve systems of wealth, trade, politics, and ecosystem management. Today we understand that food reflects environmental, economic, social and political values currently and historically. Scholars also make the connection between humans and their symbiotic relationship to non-human beings (i.e. plants and animals) as well as local ecosystems (Whyte 2017).

Food sovereignty is the right of peoples to healthy, nutritious and culturally relevant foods produced through sustainable methods (Nyėlėni 2007). Recently food sovereignty movements have blossomed across Indian Country. People are coming to recognize the complicated and troubled relationship that Native Americans currently have with food that is related to chronic illnesses. The history of colonization and assimilation created barriers between traditional food systems and indigenous people. They also fragmented tribal relationships with food sources. Because these sources were found in the local ecosystem, disconnection with the surrounding environment continues to be a barrier when it comes to accessing traditional foods. When it's easier to access processed, packaged, and convenient western foods than to engage in the prior methods for obtaining foods, the former will almost always reign in today's society.

Within the framework of food sovereignty, revitalizing traditional plant knowledge (TPK) and foods allows for reconnection with ancestral values, adaptation to current ecosystems, as well as building collective capacity to motivate modern institutions to return to traditional methods. It is my assertion that the incorporation of

traditional foods and practices, can help restore the health of the people. I discuss in greater depth the extensive history as to why indigenous peoples have lost touch with their overall health and wellness (in the "Health" section) but the place to start is the loss of connection to traditional lifeways. Since contact, American settlers and their governments have systematically relocated the Salish from their ancestral home base to reservations or urban areas. This distancing of the Salish from land-based practices has transitioned them to American standards of living (such as the use of a cash-economy, jobs, U.S. citizenship). This has occurred all while the Salish have fought to retain their culture, religion, and languages.

1.4 Relevance and thesis layout:

Traditionally, Salish lifeways were dictated by food plants and their place in the natural world. The Salish calendar and seasonality are marked by the coming and going of traditional plants. There is a month for the buttercup and chokecherry and for storytelling and coming together. The plants were a gift from the Creator *Amotqn* (It Who Sits Ahead). And they came to the Bitterroot Salish people in times of famine, hardship, and through the careful teachings of spirit guides and animal beings. Before human beings existed the world was full of the plants and animals. They were the original innovators and acted as our teachers and connectors to the world. Salish cosmology comes populated with numerous stories of how the plants came to be and how they are to be treated with respect and care by humans. Similarly, plant practices consist of many rituals of reciprocity and reverence; plants are greeted as relatives and treated as gifts by humans. Plants represent incredibly intimate relationships between the Salish and the natural world. Seasonal gatherings and harvests are guided by ritual and observation.

Ritual is guided by cosmology and ancestral teachings. These teachings and lessons were historically carried out in the traditional Bitterroot Salish language. Everything is interwoven and it's been that way since time immemorial.

The important roles and relationships that plants and people (including non-human people, like teacher animals) play in Salish life, highlights the encompassing nature of the culture; there cannot be one without the other. Individuals cannot understand the plants and their uses without understanding the land, animals, the people that know them, the language that carries them and the stories that guide them. Similarly, a person cannot heal the people without healing their relationships to the land and animals. Cultural aspects surrounding food and food practices as well as reminders of the importance of maintaining both health *and* culture can be the means of inspiring people to return to traditional foods (Cajete 1999). However, for traditional food plants to be reincorporated, people must be reminded of the importance they hold in their lives.

This thesis seeks to remind people of the way Salish people connected with their food and to revitalize those food systems, and connections, to improve community health. This effort combines research and ethnobotany, ethnohistory, and language. To lay a foundation for healing involves a concentrated effort to understand and reinvigorate the timeless relationship Salish people have with food plants. By discussing the various cultural and botanic knowledge of Salish food plants, this thesis can serve as a resource by and for the Salish community. Highlighting traditional foods by indigenous people for indigenous people, can jumpstart a revival of our roots. Those roots can supplement our spiritual and physical selves on a road to wellness and cultural revitalization.

Language and culture are incredible sources of information regarding understanding how tribal people view the world. The Salish pronunciation guide and phonetic alphabet will be provided such that words in the Salish language can be identified within the text (Appendix B). I use the Salish language throughout this thesis as part of this approach. In Chapter 2 I address my research methods as a Salish academic and a Western university scholar. What does it look like to do research in Indigenous communities as a member of that community? This chapter delves into a unique role as a Salish citizen and Western academic, and the precarious nature of science research in Indigenous communities. In addition to interviewing Salish community members about Traditional Plant Knowledge, I have also conducted a community survey, asking questions about historic and contemporary food plant uses and Salish food systems. The Confederated Salish and Kootenai Tribes are a sovereign entity and research involving human subjects (i.e. tribal citizens) follows a different research protocol than conventional university processes. With an eye towards Indigenous methodologies and perspectives, I provide a framework for conducting respectful research protocols in Native communities regarding Traditional Plant Knowledge (TPK) with human subjects.

I then review the available literature of the many frameworks I have utilized in this thesis: community/indigenous health, Salish culture and history, traditional cosmology and language, ethnography, ethnobotanical literature, scientific studies, plant nutrition, and landscape ecology. Through my research, it has become clear that there are many resources available for people interested in food-plants of the Rocky Mountain region. In addition to taking Western scientific coursework, such as general botany, I have also read general audience botanical field guides. Biological information on

traditional food plants is readily available. There also have been a few academic studies done on Salish food-plants (particularly the Salish of the Pacific Northwest) as well as nutrition on select food-plant species. Few of these sources were written by Salish people. While these resources have helped me build a knowledge base of plants available for further cultural research, this thesis is as much about the people as it is about the plants; both need each other to survive. Therefore, having a Salish-specific approach that adequately covers cultural, ethnohistoric, and ancestral aspects of Traditional Plant Knowledge (TPK) can advance the research that has already been conducted as well as serve the community I am very much a part of.

Chapter 3 will address the cultural background of the Salish. That is, who they are and where they come from, in their own words. I take pieces of tribal history, oral stories, and traditional practices to showcase that culture, language, and lore are all symbiotic pieces of what constitutes the Salish people today. Culture largely dictates how the Salish people view themselves in the landscape. Salish culture says the landscape provides what the people need, if the people treat it respectfully. I provide a brief look at the ancestral landscape of the Salish, biologically and culturally, detailing the movement of the seasons and the migration patterns of the people as well as the ecology of the region and how it has shaped Salish worldview. Last, I overview the political history of the Salish from contact, Westernization, creation of the Flathead Indian Reservation, to forced removal and present day. With a strong cultural backbone and an adequate political grounding, I hope to show readers that there are a multitude of things that go into how tribal food systems shift, change, and adapt over time. Explorations of culture and language will be necessary to build a cultural-competency so when I discuss plants and

their ethnobotanical properties, the reader will gain a deeper understanding of the Salish people. This can help contextualize the essence of the plants themselves and highlight the important nature they hold in Salish lifeways.

All these aspects inform the section titled, "*Sq̓elix*^{w}: Indigenous perspective and the "ecological triangle" in chapter four. The ecological triangle is the confluence of health, culture, and Traditional Ecological Knowledge (TEK) of the Salish. Traditional Ecological Knowledge is a term that encompasses a subset of traditional knowledge maintained by Indigenous peoples particularly involving the relationships between people and the natural environment (Finn et. al 2017). This term has been recently adopted by Western science, though this knowledge precedes it, to inform culturally relevant and scientific research with tribal nations.

Traditional Ecological Knowledge concerns itself not with one single focus or environmental factor but rather with a broader holistic approach to understanding humans and nature in an ecosystem. This meets with health and culture in chapter four. In "Salish health; then and now" I look at aspects of historic health markers in Salish lifeways as well as current Salish citizens' view of their health today. I also examine the role that Salish plants play in what constitutes good health in today's Salish perspectives. Following tribal conceptualizations of health is the framework that culture provides in Salish understanding of the role of traditional food plants. Specifically, the linguistic insight that the Salish dialect informs in the lexicon surrounding food plants. The Interior Salish dialect of the Salishan language family (with its many associated cultural groups) has its own history of association with landscapes and vegetation that has influenced its patterns of using and naming plants (Turner 2014, V1 167). Additionally, each language

group (like the Interior Salish dialect) has its own methods of word generation and mechanisms in place for conserving, transmitting, and innovating plant names. I use language as a method of plant inventory and understanding Salish taxonomy.

The intersection of Salish conceptualizations of health and linguistic patterns of plant taxonomy, ultimately build on Traditional Ecological Knowledge and can serve as valuable underpinnings of modern life. Points of the ecological triangle come together in the last section of chapter four, “Traditional ties”, where all aspects of Salish perspectives on health, language, culture, and identity come into focus regarding traditional food plants and their relationships moving forward in a present and future context.

Chapter five is where the plants themselves shine. The format for this chapter is distinctive. This section stands alone within the thesis for the purpose of community use. In field-guide fashion, this chapter is intended for the Salish people to use to bolster their own knowledge of traditional Salish food plants. I run through the etymology of plant terms (roots, leaves, etc.) in the Salish language for cultural context as well as a general overview of traditional Salish food plants in list format. I discuss the importance of the grateful harvest, plant reciprocity, and Salish lessons for plant practices. Following sections are parceled out as seasons and a handful of plants from the list are be featured in each season. The “plant pages” includes the botanical information (identification, environment, growth stages, etc.) as well as cultural information (gathering practices, traditional names, stories, processing methods, recipes, etc.). Each page features full-color photos highlighting key stages and morphology. Infusing science and Salish plant knowledge within this chapter forms a culmination of my research for the greater purpose of the community.

The final chapter details the potential for Salish plant knowledge to exist and permeate modern Salish life. Realizing that indigenous knowledge is cultivated and created through scientific methods, it is important that space be made for it to flourish and exist in the current worldviews. I advocate for plant revitalization and reclamation of traditional ecological knowledge as a valuable tool for combating issues of food sovereignty. Food-plant potential and continuing collaborations touch on ideas and future projects that can be instituted in the Salish community so that this knowledge can continue. This thesis aims to create space in academia for Indigenous voices but to also recognize traditional Salish knowledge as valuable and necessary for the future of science, community health, natural resource management, tribal longevity and cultural maintenance. Re-connecting with these Salish roots is the first step in improving all these areas and being closer to our ancestors.

1.5 Conclusion:

There was a time that the Salish people lived wholly according to landscape. The comings and goings of seasons marked valuable times of harvest, hunting, celebration and ceremony. While many Salish people do not live this way anymore, the landscape, for the most part, continues to follow a seasonal cycle. With this cycle, plants and animals follow correspondingly. Even with the vast changes that have occurred in the ecological and cultural landscape of the Salish people, recognition and nostalgia associated with these lifeways and traditional life cycles remain present. While not all Salish people participate in hunting, gathering and ceremony, there is a distinct familiarity and want for these ways to perpetuate into the future. These facets of TEK are still alive today.

Traditional food ways, tribal ecological knowledge, history, and intergenerational knowledge are all intricately tied together to make up the fabric of the Salish culture. You cannot have one without the influence of another; likewise you cannot understand the breadth of a single issue without accounting for a multitude of factors. In this way, all of the aforementioned components are critical in mitigating tribal health and ensuring cultural longevity.

With the loss of traditional knowledge keepers and encroaching modernity there is a need to revitalize and maintain traditional plant knowledge. Therefore, this thesis serves to re-connect the botanical to the cultural and facilitate the restoration of community health and wellness through traditional Salish food practices.

Chapter 2: A Salish Researcher in Salish Country

"*All Native groups in North American were whole complete societies before contact. We had doctors, medicine, navigators and spiritual leaders. Our question is to pursue that wholeness again. To regain our health, to understand our environment, to know how to take care of it, and to know how to get it to take care of us-- that is what we seek."*
-Cliff Atleo 2001

I would like to believe that my ancestors were the original scientists. Long before the concept of science was even created the Salish people were out observing and experimenting in the land. Yet they also loved and respected it. Science is a new love of mine, but I have loved traditional plants my whole life. With my prior education focusing on the politics of food sovereignty for Native Americans, I never thought that a career in botany was in the cards for me. Even still, understanding the immense political and societal barriers that have been put in place by colonization that limit Indigenous people's access to healthy, nutritionally adequate and culturally appropriate food was what got me to where I am today. Plants were among the original foods of the Salish people and as I learn more about the ecology, biology, botany and science of them I understand that all my knowledge is connected to this work.

Growing up on the Flathead Indian Reservation I have come to appreciate the immense amount of beauty there is here. Not just in the mountains that protect us but in the tribal memory that is situated here. My family, mentors, and elders remind me of a time when the whole valley was full of Salish camps. The people were on the land constantly; moving, seeing, and doing. Those things were carried on but carried out in different ways. Things today move at a faster pace, the busyness of work, family, society clamoring for our attention. People are on the land a lot less than they would like; time limits, money limits that, knowledge limits that. I'm a part of that system and like many

other Salish people, when I do find time to be out on the land harvesting, walking, appreciating I feel anchored and more connected to myself and the world around me than in any other facet of my life.

There are elders I know that stayed active their whole lives: up until the very end they were out in the mountains, participating in ceremony, passing their knowledge to the next generation. They were my role models. There were women who brought me out to gathering events, jump dances, and into their homes to learn and be a part of things; eventually I was asked to take on a larger role in these functions. This is not something I take lightly; I do my best to honor those who brought me up and the knowledge they've entrusted in me to carry on. Traditionally, women were the primary caretakers of our society and fulfilled important roles as herbalists, cooks, and keepers of traditional plant knowledge.

Through the wishes of my mother and my family, I was purposely situated in a world where I could be an active participant in my culture. From cooking at wakes to helping prepare the meals for ceremony. From learning the Salish language in school to teaching it. From placing camas in traditional baking pits, to digging it. This is women's work; it always has been.

Salish women traditionally watch over our plants. Ancestrally women in the community would go out to notable digging sites to routinely check-up on the plants growing there. The most prominent plants watched over by women are the Bitterroot and Camas. When they were ready, they would alert the tribe and a harvesting event would ensue. Nowadays we rely on our elder women to watch over the Bitterroot; once it's ready, a day is set for the annual Bitterroot dig. There the older women choose a handful

of young girls to dig up the first few roots of the season. This practice was to give the next generation of women an opportunity to carry on our traditional practices. I was one of those little girls at one point, a moment I will never forget.

In the case of camas, the whole process was women's work. Men weren't allowed to be a part of the process (see Camas in "Traditional food plant pages"). A Salish interviewee told me about her grandmother's fondness for the camas bake. It wasn't for the camas itself but for the process of it all.

"*Her favorite part was digging the camas and getting the pit ready. She [*her grandmother*] would say, 'this is women's work, we take care of this.' She would show us girls and other community women how to dig the pit and how big.*"

-Interview with the author 2019

Although many traditional practices are no longer dominant in Indigenous communities, there are still valuable plant harvesting and processing traditions featured in modern Indigenous societies. In the case of the Salish, women still play key roles in these practices such as the Bitterroot dig and camas bake.

The importance of women's roles in traditional society cannot be stressed enough. Not only were they the primary caregivers for families and children, they were also the primary foragers for the community. Men were usually designated as hunters and fishers as those tasks would take weeks out of the year at a time. Meanwhile to keep the home fires burning, literally, and take care of the people young and old, women took on the roles of observer, gatherer, processor, cook, and life giver. The complexity and sophistication of the knowledge that women have held and applied as food producers,

healers, and resource managers should not be overlooked in research as it previously has in Western academia (Turner 2003).

A single Salish woman harvested around 2160 kg of camas annually (Hunn 1981). With each woman in the tribe following this trajectory, their capacity to provide food for their people was immense and was exemplified in the high value for Salish camas in Plateau trade networks (Ibid 130). The fact that Columbia Plateau tribes of North American obtained 70% of their food energy needs from plant foods harvested by women (Ibid 132) highlights the importance of women's roles in tribal society. For the Salish, this role is no different. When the people were gifted with bitterroot it was a woman who was designated as its keeper (see Bitterroot in "Traditional food plant pages"). When we refer to our sweat lodge, we call it *t̓úpye? snlaq̓i* directly referencing our great grandmother. It is generations of women that have been keeping it living for the Salish people for centuries.

From our original Mother Earth, to our great-grandmothers, grandmothers, mothers, aunts, young women, and girls there is something salient in knowing that each generation has contributed to where we are today as a tribe, a society, and living culture. I am honored to be a small piece in the intergenerational transmission of all the work of women before me. Even though I have just recently come into my own as a Salish woman studying plants through science, I realize that my dual role as an Indigenous scholar and woman in STEM means so much more for the future of our people.

Many universities promote hierarchical, linear, and rational ways of thinking into their institutional framework of learning, research, and study. Other approaches tend to

be seen as unscientific and less valuable. There were many times during my undergraduate career where I felt like Indigenous perspectives and methodologies were unsupported in the institution. While many indigenous frameworks follow the principles of sustainability, democracy, economy, and science, I had to constantly insert Indigenous voice into the conversation in higher education. I did this by offering my perspective as a Salish woman and bringing Salish ideologies to my papers and projects. Not only did this help me understand myself better but it also showcased the value of Salish knowledge and how important it is to perpetuate it. My former institution was not perfect. No university is. But I was able to be exposed to a world outside of the reservation borders. I was thrown into rigorous academics that made me a critical thinker and a diligent researcher. I exchanged conversations and ideas with people whose backgrounds were far different than mine, but we found common ground in friendship and community. Without this educational experience I don't know if my outlook on life what would be it is today: open to ideas and innovations but firmly rooted in the culture that shaped me. This guides me in all my work.

I have been an active consumer of the Traditional Ecological Knowledge of the Salish people all my life. This does not mean that I understood the importance of the knowledge that was shown to me by elders, mentors, family or that I observed at community events, ceremony, and in the landscape. As a kid you don't really realize the enormity of the world situated around you until you get older. All of the stories I heard, the plants I gathered, the food I cooked had a purpose to transmit the knowledge that's been in our culture for centuries. For the most part, what I have learned has been equal parts from the literature I've read in my life and the hands-on work I've done with Salish

people. Combined, both offer me incredible knowledge and tools to make myself and my community better.

Science and Indigenous knowledge do not have to be mutually exclusive. They share similar traits in a sense that they are dynamic and ever evolving. They emphasize feedback learning with methods for dealing with uncertainty and unpredictability (Finn et al. 2017). Indigenous science and Indigenous research can help situate science in a social, cultural, and ecological context. In Alaska, a STEM program based science courses on Inupiat educational philosophies and worldviews to create institutional frameworks that bridge Western and Indigenous knowledge systems (Ibid. 2) This approach was highly successful and avoided Indigenous knowledge being absorbed by the dominant system by recognizing both as valid and complementary to each other for understanding the local environment.

I choose to imbue the Salish principles and Traditional Plant Knowledge into my research alongside frameworks of botany and ecology. By doing so, my work integrates Salish traditional ways of knowing and Indigenous perspective into the bigger picture of plant science and understanding. Salish knowledge is not linear; it follows a cyclical pattern. Wisdom is not created and rectified by institutions; rather it is the combination of all events and experiences to inform the world we see today. *Pxp̓axt* is the word for wisdom in the Salish language. Tachini Pete, a Salish linguist and someone who has been studying the language far longer than I have, let me in on a discovery he made in 2019. The root of *pxp̓axt* is *pax* which translates to the action of striking a flint stone together and it produces a spark. In all his time knowing the word, Pete couldn't quite figure out how *pax* was related to wisdom.

In his career of working with the language Pete iterated that asking questions and learning about culture while learning language at the same time "really helped solidify the things he didn't remember as a kid… it's really through learning the language is what opened up a view of how our ancestors looked at things as far as how we interact with the world" (Pete 2019). He realized as an adult working with language that our life path is a shape, like a long tube and that is the shape of your life. As we are going along, all the events in your life take on that same shape. Simple events like work, or breakfast or an activity you do (beading, exercise, reading) builds up in our life shape. All events and relationships in our life are now within this tube. As we go along, these events, activities, lessons and information gathered start to rub against each other. When different aspects of our life, past and present meet each other, that is what makes up your wisdom as a person. In other words, all things in our life that contribute to who we are and what we know, create the spark within us that is our wisdom.

This principle of Salish wisdom is a guiding force in how Salish understand the human and ecological world. Our knowledge source is its own body of wisdom, collected over time. Recognition of the value of Indigenous knowledge, not just in research capacities but Western institutions, can be an effective foundation for addressing health disparities, especially those arising from environmental and social factors; while being a means for preserving traditional language and maintaining cultural traditions that promote resilience and well-being. Thus, not only does Indigenous knowledge enrich our understanding of complex systems but it can be integral to a more comprehensive understanding of factors that affect, support, and preserve health (Finn et al. 2017, 4). Regarding the health of the Salish, the integration of both Western science and

Traditional Plant Knowledge can complement each other in the hopes of improving the health of the community, landscape, and people.

Following a linear process and creating a controlled environment to achieve statistical significance in the local environment has it merit, especially in the study of medicine. However, Traditional Plant Knowledge is not situated in a linear context or a controlled environment. Understanding the relationships formed over time to contextualize the changing social and ecological environment is the purpose of incorporating Salish knowledge into my research. As a Salish woman that is deeply tied to the land, my role in facilitating this knowledge builds on the ancestral wisdom of all the women before me.

To consider the ongoing changes in the Salish community means going back in time and looking deeply at the conditions then, conditions now, and the potential for enacting change in the future. All of Salish history is contained within its own frame of reference. Its own tube, so to speak. All the important events, lifeways, and activities that the Salish have experienced over time as a people are contained there; that is our *pxpaxt*. As a Salish researcher in Salish country, I am taking the *pxpaxt* of my own experiences, knowledge and tools to bring the knowledge of the Salish forward.

2.2 Research ideologies regarding Indigenous Peoples and research methods:

> "*Indigenous research and methodologies should reflect and respect the cultural, political, and economic foundations of Indigenous nations, while addressing the issue of their future sustainability.*"
> Duane Champagne (2015, 59)

Throughout a majority of Western academic and scientific theory, American Indians are usually seen as subjects or objects of research (Ibid). "Research" includes collecting information on, engaging in investigation or experimentation with the intent of discovery and interpretation of facts (Porsanger 2004). Investigation and experimentation are conducted to look deeply into a research question or problem. In relation to Indigenous people, it is often that their existence poses a problem or a question to researchers (Smith 1999). Being problematized by or piquing curiosity of researchers has been a colonial and historical problem for native peoples, particularly in the realm of plant knowledge.

Upon reaching the Americas, European explorers encountered Indigenous nations who had been utilizing the local environment for centuries. Gathering, recording, transmitting, and incorporating knowledge about plants was a method of survival and an expression of their culture. Europeans sought to document and observe Native peoples and their plant knowledge not only to record a "vanishing" information base, but to use it for medicine, food, and aid for their expeditions to and advance Western society.

Traditional knowledge was recorded in expedition reports from the 1500's and continued to be operationalized in colonial expeditions for the next few centuries (Geniusz, 2006). In *Science and Colonial Expansion,* Lucille Brockway (1979) posits that the search for botanical knowledge in the forms of medicinal treatment, food, and materials by explorers rectified European colonization of the world and its Indigenous inhabitants. Not only did this ideology bolster European knowledge bases but it set the

tone for gathering information in the pursuit of knowledge and science. Almost all colonized Indigenous peoples have had their traditional botanical knowledge recorded, used, and often, exploited by colonial pursuits. Although they exist in different histories and locations, their similar circumstances unintentionally bolstered the pursuit of knowledge by explorers, scientists, and academics alike.

This phenomenon occurred for the Salish people as well. Their first contact with explorers in the pursuit of "scientific inquiry" was with the Lewis and Clark expedition in 1805-06 (Salish-Pend d'Oreille Culture Committee, 2005). While in their ancestral homelands of the Bitterroot Valley, the Salish came across Lewis and Clark in Kʷtíɬ Ṗuʔm̓ or "Coming out into a Big Open Place" now known as Ross's Hole (Ibid, 35). The Salish graciously helped the expedition and provided them horses, supplies and food as customary when encountering new guests. They did so without receiving full disclosure of the expedition's intent, and it ended up coming back to bite them. Not only did the Lewis and Clark expedition contribute to the ongoing assertion of dominion over land and Indigenous people but also the exploitation of native resources found on the Salish land base.

Merriweather Lewis wrote extensively about the flora and fauna encountered in their expedition, taking samples from various species as he went. While his scientific findings are considered an incredible contribution to science, little to no accreditation is given to the Native American tribes that helped him along the way. Even though in his notes about the expedition's time in Ross's Hole he discussed the foods prepared for the explorers (namely bitterroot and wild game), the "discovery" of these foods (namely plants) is accredited to Lewis. The bitterroot's scientific name *Lewisia rediviva* pays

homage to his “discovery”. What’s more is that while in the Bitterroot Valley, Lewis sampled and recorded around 40 different plant species (Earle and Reveal 2003) and hundreds more overall without providing any cultural context or tribal accreditation to how these plants were known and used. In the name of science, all physical plant samples are housed in Philadelphia at the Lewis and Clark Herbarium in the Academy of Natural Sciences of Drexel University (The Academy of Natural Sciences at Drexel University 2018). At the time of their arrival and brief stay in the land of the Bitterroot Salish, tribal leaders were unaware of the future consequences the expedition would bring to their people. In “The Salish People and the Lewis and Clark Expedition” the Salish Culture Committee (2005) notes that the years following the expedition brought an onslaught of colonial powers and influences into their region and that Salish leaders ultimately felt betrayed by the lack of transparency of the expedition and its true mission.

Since this time period and the centuries of colonial impressions and changes in the landscape and Salish people, science has continued its expansion. Lewis and Clark mark the initial “discovery” of traditional food-plants and regional flora, but many years down the line research and science continues to be a tricky subject for the Salish people.

This general distrust is a common vehemence in many tribal communities in the United States and beyond. Usually because the trajectory is as follows researchers are piqued by a problem or curiosity, come into communities and request information, take information and use it in their studies, publish articles, dissertations and/or books while having little stake in the community and the issues their looking into. Many do not return to the community, and many view Native people as objects rather than collaborators in their studies. Additionally, concepts of objectivity are often not present in Indigenous

ideologies or ways of thinking. In fact, subjectivity is important in Indigenous ways of seeing the world. That is, how the subject perceives the world and its happenings depends wholly on their experience and outlook. Science, on the other hand, seeks to be objective, and looks at relationships and issues in an unbiased way, extrapolating evidence to support claims.

In the chapter 4.3, it is made apparent that the way the world is interpreted through Salish lexicon is based on subjectivity. It is up to the individual using the object, or another entity using an object to determine its qualities. Again, this is not wholly the way that Salish people view the world or describe it since English is our primary source of communication. However, understanding pre-colonial notions of worldview informs us in the present day on the importance of seeing methodologies through an Indigenous lens. While some Indigenous knowledge is gaining attention in academia and society, other highly specific knowledge bases are left untapped. Medicine is exploring holistic practices and pharmaceuticals historically have been based on observations of Indigenous usage of plant-medicines. Policymakers are attempting to bring Indigenous perspectives into their work. Lastly, traditional ecological knowledge is making its way into the environmentalist sphere as activists realize that many Indigenous populations manage land bases that house a majority of the earth's biodiversity (Sobrevila 2008) as well as centuries of intergenerational knowledge structured around sustainability within the landscape. This research seeks to look at all aspects of those knowledge bases and the interplay between modern Salish ideology on traditional plant knowledge by Salish people, for Salish people.

The overall goal of this project is to reconnect traditional food practices of the Salish people through knowledge revitalization and field engagement. For continuity purposes, this research is part of a larger project to create educational materials that highlight Salish traditional ecological knowledge. This could be in the form of a Salish botany curriculum, a Salish food-plant field guide, and/or educational posters to be utilized in schools or presentations. All these future projects will lean on the traditional plant knowledge gathered in this study. This research lays the foundation for these future ideas to build on while also gauging community interest in the continuance of Salish knowledge.

This project then has four parts: the preliminary gathering of traditional plant knowledge on the Flathead Indian Reservation, engagement of Salish people with this knowledge through interviews and surveys, compiling evidence and using this thesis as a guide for future ethnobotanical work in the Salish community (and beyond), followed by the creation of materials to ensure that the invaluable properties of traditional foods can be available to all Salish people regardless of time and space post-publication.

My research is a combination of perhaps all those viewpoints as I look at food-plant medicine, Indigenous perspectives on what that means to them, as well as different practices within the landscape. By situating myself as an Indigenous researcher, respect for my people's cultural, political, and societal frameworks is critical to my work. This research is primarily composed of two disciplines; ethnography and ethnobotany. Ethnography, or the systematic study of peoples and cultures, is the base methodology in this research project. Because this study largely concerns the Bitterroot Salish people, understanding their culture and ultimately the lifeways that shape their knowledge is

critical in interpreting their relationships with the natural world. This is where ethnobotany comes in. John Harshberger in 1895 gave a speech to the Pennsylvania University Archaeological Association coining the term “ethno-botany”. In this speech, Harshberger used ethnobotany as a means to distinguish native tribes from being primarily agricultural to nomadic (Harshberger 1896). However, his words were not as forgiving. Ethnobotany was used to describe studies of “plants used by primitive and aboriginal people” (Balick and Cox 1996, 3). This new term and its usage by anthropologists, archaeologists, and botanists has widely been concerned with recording the use of plants rather than the interactions between plants and people within a group. (Geniusz 2006).

Much of ethnobotany deals with goals similar to cultural anthropology, to see how other people view the world and their relation within it. While plant knowledge is useful in this study, botanical literature on many of the plants utilized by the Salish is readily accessible. There are volumes of books, field guides, and literature on flora of the Rocky Mountains. And while these texts have the identifying, botanical information on plants that were largely used by Indigenous people of the Rocky Mountain region, many of them do not contain information of that usage or cultural concepts at all. The way that plants are incorporated in Salish cultural traditions, spirituality, and cosmology reveals so much more about the people themselves than just studying plants previously used by them in a scientific text. Therefore, this research study seeks to approach the Salish relationship with plants in an interdisciplinary manner. Indigenous knowledge systems can guide the ethnobotanical focus of this master’s project while supplementing scientific knowledge bases lacking in this information.

This research project seeks to use all available resources but also to incorporate knowledge bases previously neglected. Having assessed the available material in my literature review and examining the gaps in information, this section is dedicated to highlighting the ethnography portion of this ethnobotanical study. Namely, it moves through the process of how to conduct research with human subjects in Indigenous communities. This community-based research project incorporates Indigenous knowledge systems, extracted from Salish citizens and fused with pre-existing information on the cultural, spiritual, and emotional relationships formed with traditional plants. This research project was a two-year long process, conducted in tandem with gathering literature. The following is an overview of my research methods, reasoning behind methodologies and study findings.

Research methods:

Initially in the first year I collected and analyzed written knowledge on subjects pertaining to traditional ecological knowledge, community health, Indigenous issues, and ethnobotany. The materials gathered are in the form of previous master's dissertations, journal articles, books, ethnographies, and data collections. The second year I continued to gather written materials but did research on human subjects. Planning for this endeavor also took place in year one.

In this portion of gathering information and knowledge there is a strict format on the research on human subjects that is addressed through an Institutional Review Board (IRB). Usually an IRB is reviewed, accepted, and regulated by the University from which you are obtaining the degree. For the University of Montana, this is no different. As is, "The mission of the University of Montana (UM) Institutional Review Board (IRB) is to

ensure the protection of human participants in research, maintain federal regulatory compliance, and facilitate research at the University of Montana." (University of Montana, n.d.) However, because the human subjects that I wanted to be involved in this study were also affiliated with the Confederated Salish and Kootenai tribes there were additional protocols to complete.

For this situation in particular I had to follow the criteria of the Salish Kootenai College's Institutional Review Board process. Their website states; "All researchers proposing research activities involving human subjects OR the cultural or other resources of the Confederated Salish and Kootenai Tribes are required to undergo training in ethical research practices before their proposed research…" (Salish Kootenai College n.d.). It's important to recognize that research involving citizens of a tribal entity and/or cultural resources from said tribe requires different policies because of their distinct status as a sovereign entity. Tribal citizens are under different legal status and cultural resources are governed by a different body than state and/or county. Therefore, my research with Salish people underwent a different IRB protocol than a standard University research project involving human subjects.

While I was still affiliated with the University of Montana as a student researcher I submitted an initial inquiry to the SKC board describing my project. Because Salish Kootenai College subscribes to the Collaborative Institutional Training Initiative (CITI) training prior to any submission of a research project, they needed proof of completion as well as contact with my thesis advisor at the University. Having completed the training for research on human subjects in 2017, I submitted my certification of completion of

training with the Collaborative Institutional Training Initiative (CITI) program to the Salish Kootenai College Institutional Review board in 2018.

For the purposes of this research project, I identified as a Social and Behavioral Researcher. Completion of this program and proper certification allowed for submission of a research proposal to the Salish Kootenai College's Institutional Review. Within this proposal I overviewed interview processes, prior and informed consent practices, as well as initiatives to ensure protection of human subjects, and purpose of research on the Flathead Indian Reservation. My approval period for conducting this research was between September 2018 to August 2019.

Research Timeline:

- November 2017: preliminary meeting with the Séliš-Qlispé Culture Committee. Gauge interest in food-plant academic exploration.
- December 2017: preliminary research proposal at State University of New York Syracuse Environmental Studies and Forestry School (SUNY ESF) and complete online CITI training.
- Spring 2018: transfer to the University of Montana, present research proposal to new thesis advisor, gain approval by advisor and Environmental Studies graduate program.
    - Submit research proposal for the Salish Kootenai College Institutional Review Board. Receive approval, create a plan for interviewing human subjects.
- Summer 2018: field research; begin photographing food-plants in natural habitat, observing the stages of growth, and plant morphology. Continue gathering information, community insight, and cultural resources.
- Fall 2018 and following: build collection of traditional plant knowledge research through
- academia, community engagement and field work.
    - September 2018: SKC's IRB approves of the project, research window is granted for one year.

    - September 2018: Propose research project and interviewing process to Séliš-Q̓lispé Culture Committee, receive approval. From this point on research with Salish subjects can commence.
- Spring 2019: complete all graduate studies coursework and continue research and writing for thesis. Continue interviewing.
- Summer 2019: hold last interviews with Salish informants. Release survey for the Salish community on their relationships with food-plants. Close survey and analyze data.
    - August 2019: Salish Kootenai College IRB ends, submit closure documents and process
- Fall 2019: write a master's thesis to be reviewed by the graduate board and cultural representatives.
    - December 2019: Defense and graduation. Submit drafts to members of Séliš-Q̓lispé Culture Committee to review and approve of information before it is published on University of Montana ProQuest online database.
    - January 2020: Final draft of the thesis is submitted to the University of Montana's online database.

Limitations:

Historically in anthropological and ethnobotanical work on the Flathead Reservation, traditional plant knowledge has been abused by researchers. The few recorded works of Salish plant knowledge by researchers only reflect scientific thought and wholly ignore the cultural, spiritual and ceremonial aspects of traditional plant knowledge. This has created a general hostility or distrust of "researchers" and research-based projects. My dual role as researcher and Salish descendant puts me in a unique position to mitigate historic malpractices by incorporating traditional Salish values in my studies and assuring community collaboration in the procession of my research.

There are other cultural limitations to this work as well. In my preliminary meetings with the Salish and Pend d'Oreille culture committee many valuable things

were revealed to me about traditional plant knowledge. The first is that it is sorely needed in our community. An elder expressed that the very foundation of who we are as *sqelix*^{w} (Salish people) is our connection with the land and the plants. Without that we are only Indians on paper; meaning that we are not living with the same purpose or ethics as our ancestors. This elder continued to state that there is a need in our community to unveil and work with this knowledge but that there are tricky, intermediate steps to getting there. The culture committee expressed that Salish plants are to be treated as gifts or cherished visitors. When we mistreat them or use them for money, they will go away. This is not my intent with this research project and therefore making sure that this research and subsequent work adheres to these principles is important.

Additionally, seasonal plant engagement in the field was limited to a variety of ecological and social factors. There were two critical factors I was concerned with in my data collection. First, was the availability of traditional Salish plants during the spring/summer 2018-2019 field research season. Like many things in nature it can be difficult to pinpoint if there will be plants available or ready to harvest in the summertime, climate induced seasonal changes have shifted the natural patterns of plants and animals as well. Careful attention to weather patterns, temperature changes, and ecological shifts were important in field engagement.

Ron Stubb's (1966), offers a comprehensive list of all recorded traditional Salish-food plants in "An Investigation of the Edible and Medicinal Plants Used by the Flathead Indians". Due to the scarcity and time-management of some plant species, I was not able to take pictures of all plants listed. Therefore, the plant section of this thesis is a sample

of the different ways plants were used, their botanic components, and their traditional properties. It offers a general, "lay of the land" so to speak, of Salish life and food plants. It also gives the reader an overview of what future educational materials will look like.

Second, scientific thought values large sample sizes in studies that highlight the diversity of the population and offer key insight into the topic the researcher is studying. While the reservation is home to approximately 5,000 tribal members, there are 7,753 tribal members in total, not counting descendants (Montana Governor's office of Indian Affairs, n.d.). My research is concerned with the Salish population as a whole: youth, middle-age, elders, descendants, enrolled members, and those who identify as Salish. Ensuring an adequate sample size that reflected my target population was highly dependent on access to Salish individuals and if they were willing to participate. Success in these studies usually stems from a large sample size involved in the research process. This study had six interview participants and twenty-seven survey respondents. Those involved in this study represented a wide range of age groups (see chapter 4.4) as well as a good mix of gender in my interviews. While small, this sample-size is the perfect snapshot into the Salish population with its diversity in age group and variety of perspectives on traditional food plants.

The ecological limitations as well as the small-sample size posed minimal issues in the overall research study. I have been able to gather a multitude of photos and information regarding traditional-Salish food plants and their biological backgrounds, as well as invaluable qualitative data from the Salish community in my interviews. These

data sets influence the overall ideology that there is a need for this information to be accumulated and shared with the broader community.

My duty as an Indigenous researcher is to ensure that these protections remain in place throughout the entirety of this project but also that my informants feel that my intentions are valid. I share this sentiment with Lillian Dyck (2001) in "A Personal Journey into Science, Feminist Science and Aboriginal Science." Dyck, as a neuroscientist, promotes that science should be done in a social context (26). In other words, to be done by the people and for the people. Because in Indigenous communities, including the Salish; science should serve the community, rather than damage them. Mason Durie, in "Understanding health and illness; research at the interface between sciences and Indigenous knowledge" (2004) shares this sentiment. Durie poses that Indigenous researchers are the "agents of interface" of science and Indigenous knowledge. This group, I included, are contributing to the evolution of Indigenous academics and research methodologies in both Western academic and Native American contexts. The interviews with Salish community members in this research are ultimately to accomplish that goal. To inform the science that will serve the community.

While botany may be a more fitting approach to this study since its predominantly about plants, the primary reason for conducting this research in an ethnography format is to cultivate a more culturally comprehensive understanding of Salish plant knowledge. There are many available texts on the botanical, scientific aspects of these plants already but many are limited in the scope of Indigenous ecological knowledge and what that entails. Broadening this scope to include Indigenous perspectives creates depth and offers a critically informed view of the interactions between human and landscape.

Collaborations:

In addition to the thesis committee that will oversee the academic content of this paper, I enlisted in the help of Salish specialists in language/history to ensure that I have spelling, concepts and cultural ideas correct. The use of Salish language is necessary and useful for the continuation of this knowledge and to maintain Indigenous methodology.

Additionally, prior consultation with interviewees and survey respondents before research processes was necessary as well as continued consultation with key stakeholders such as the Salish culture committee, elders, and the tribal council of the Confederated Salish and Kootenai Tribes. In the closing of this project after graduation, further meetings will be scheduled in the hopes that community-based initiatives and facilitation of knowledge gathered can be available to all tribal people.

Interviews:

Gathering intergenerational knowledge from elders, community members, and professionals that belong to the Salish tribe was a critical facet of this project. The ethnographic portion of this study involves me interviewing and engaging with these knowledge keepers in person, through media, or on the phone. In each interview I ask a series of questions (see section 4.4) and engage with the informant in a conversational setting. Gifting is an important component of the interview process. Champagne writes, "while the tribal community presents the researcher with the gift of access, the researcher should reciprocate" (2015; 78). In Indigenous communities, reciprocity is a driving force behind many relationships in the natural world. "You can't take something for nothing" attitude is applicable to human relationships as well. Thus, at the end of each interview, I

provided a small gift to each interviewee. Because money is not something that is to be involved when traditional food plants are involved, as far as Salish people are concerned, material gifts and/or gift cards were given out.

The interviews took place over the 2018-2019 research period. In total I completed six interviews with Salish community members. The interviews lent 10+ hours of transcribable content and were fairly balanced in demographics. Four interviewees were women, between ages 30 and 60. Two interviewees were male between the ages of 40-50 (see section 4.4). It was seemingly difficult to obtain interviews with elders due to schedules, no access to phones, as well as general interview fatigue accumulated over the years. Elders, particularly Salish elders, serve on the elders committee, the Séliš-Qlispé Culture Committee, and oversee/inform on many projects on the Flathead Indian Reservation. While approaching a handful of elders to participate at our initial meetings, and following up, the interviews never seemed to work out for us. This unfortunate circumstance limited the participation of some key knowledge keepers of the community. Despite this, I remain hopeful that as this project continues, I will be able to interact more with them in the future. While there is some valuable insight not included in the results of this study, the interviews I did accomplish were equally as riveting.

Traditional Plant Survey:

In addition to the interviews I released a Traditional Plants survey to the general public in July of 2019, hoping to garner responses on individual relationships of Salish community members to traditional food plants. The survey was for Salish respondents age 18 and up. The respondents were declared anonymous with no identifying

information required to participate in the survey. Data collected from this survey is needed to understand trends and collect valuable insight from community members. The survey was 10 questions long and the questions are as follows:

1) Question of consent to participate in this survey.
2) What is your age?
3) Which of these best describes your knowledge of traditional food plants?
4) How often do you interact with traditional food plants?
5) What areas of wellness do you think are impacted when you engage with food plants?
6) What aspects of knowledge about traditional food plants would you be interested in knowing more about?
7) On a scale of 1-5 please rate your interest in engaging in traditional food plant knowledge in the future.
8) Consent to the usage of survey data in master's thesis.
9) How important do you think Traditional Plant Knowledge is to Salish culture and lifeway?
10) Additional comments.

Each question also had additional text boxes for questions, comments and further elaborations on respondents answers. The survey garnered 27 responses and accumulated many comments. This survey was a great tool because it was readily available and easily accessible to more of the general population than an in-person interview. It was fast, anonymous, as well as feasible for community members to complete.

Overall the survey offered great insight to how people relate to traditional food plants, their views on their value, how they believe it impacts their overall health and wellbeing, as well as what they would like to see happen to Salish food plants in the future. Survey central themes, key responses and important data will be discussed in greater detail in chapter 4.4.

Conclusion:

For several minorities in the United States, mistrust of research comes rooted in general mistrust of mainstream society, where exploitative or unethical treatment remains

a serious problem (Hoover 2017). Historically, research conducted on Indigenous people has seldom been used to contribute to community empowerment. For the Salish, this is no different. Of the handful of research studies that have been conducted with human subjects on the Flathead Indian Reservation, few researchers have returned to the reservation or used their findings to further Indigenous knowledge systems. Research findings and data have not been sufficiently explained, compiled or returned to the community to advance cultural longevity, community health, or traditional knowledge systems. Few community members have access to dissertations and theses written about their community and only a few remain in contact with researchers.

Shifting the pattern of research exploitation and opening new pathways to engage academic research in Indigenous communities comes as an indirect goal of this research project. Connecting with Salish people and further understanding their conceptualizations of traditional food-plants and knowledge associated with them is the primary goal. However, knowing the past of research done on Indigenous communities leads me to approach this project with respect, decorum, gratitude, and critical thinking. Using Indigenous methodologies and creating space in academic rhetoric for Salish knowledge to exist, breathe, and live on, promotes my Salish community and Indigenous scholarship.

Following the timeline of my research project from initial information collection to data analysis one aspect remains unchanged. To an Indigenous researcher who is a part of this community, this research feels intimate and personal. Connection created through knowledge acquisition as well as conversational interviews created an environment where learning and Indigenous perception were engaged in research methodologies. Being

Salish allows me to relate to comments, feelings, and ideologies associated with Traditional Plant Knowledge. And it has helped me foster a community/researcher relationship that advances previous notions about research projects in the Salish community. This creates more space for Traditional knowledge, Salish input, community-engagement, science, and research methodologies to coexist. And ultimately this creates change in academia laying a foundation for future projects on the Flathead Indian Reservation.

The language of science does not have to be only a language of power or objectivity. Science and research can play a supportive role in the development of healthy and sustainable tribal communities (Hicks 2009). While the data represented in these methods remain small, they can be used to inform the community that traditional knowledge can act as cultural framework that the community seeks to revitalize. Such data can be used to create more community members that are "very knowledgeable" in TPK that can build to "experts" over time (section 4.4). Interviews and survey inputs fill in a variety of gaps in terms of positionality of language, culture, accessibility, health, individual relationships, and community wishes for the longevity of traditional plant knowledge. This information can influence and shape the future of traditional food plants in Salish lifeways. Following appropriate methods and protections for research with human subjects as well as gathering community input balances the rationale for science and Indigenous-based methodology. This process has been as culturally-enriching, perspective shifting, and community-building, as it has been a two-year learning process for me as a Salish researcher. Finding value in this work as well as its intended outcomes can foster a place for the continuance of Salish traditional knowledge to live on.

2.3 Literature review:

By positioning this thesis in an indigenous framework, multiple avenues of literature can be explored in order to understand the totality of the task at hand. The most grounding aspects in this thesis are: Salish history, Salish epidemiology, and Salish guiding cultural principles. The information on these came from a mix of half Salish-led projects and half from non-native entities (researchers, anthropologists, etc.). Anthropology texts include: Turney-Highs' *Flathead Indians of Montana* (1937), Fahey's *The Flathead Indians* (1965) and Chalfant's *Interior Salish and Eastern Washington Indians* (1974 I-IV). The information presented comes from an outsider perspective but presents necessary information on the ecological, historical, and sociological world the Salish inhabited before Salish-led research projects produced their own content.

For various aspects involving Salish history, culture, cosmology, and principles there are two books that I used to supplement my own knowledge and the knowledge I gathered from the community. My main source was the significant work of the Séliš-Qlispé Culture Committee and Salish Kootenai College: *The Salish people and the Lewis and Clark Expedition* (2005). This is a compilation of Indigenous knowledge gathered from knowledgeable elders in the community and from ethnohistoric, intergenerational knowledge. My second source is Salish Kootenai College's "Challenge to Survive: History of the Salish tribes of the Flathead Indian Reservation" unit 1 (2008). This resource begins a five-part educational series that looking into components of ancestral Salish life used in school curriculums. Both works come as part of a larger tribal history project launched in the early 2000s as an effort to encapsulate Salish knowledge for the benefit of Salish people and to create a Salish-forward narrative in current literature.

Montana's Office of Public Instruction unit "Montana Indians their history and location" (n.d.) contains a good deal of historical information as well as contemporary statistics on the Confederated Salish and Kootenai.

While these texts contain supplemental cultural information, they're generalized in knowledge of traditional Salish subsistence practices and plants. Additionally, the botanical intricacies are not a prominent part of the cultural components within Salish resources. I seek to give both equal attention; therefore have I used other core ethnobotanical texts for specific plant knowledge.

In review of the primary sources of research on traditional Salish plants, I find two main contributors Ronald Stubbs and Jeffery Hart. Stubbs's master's thesis, "An Investigation of the Edible and Medicinal Plants Used by the Flathead Indians" (1966) remains food-focused and concentrates on the preparation and location of edible plants in the region. Hart, in his master's thesis "Plant Taxonomy of the Salish and Kootenai Indians" (1974), focuses on language aspects of food and medicinal plants but does so phonetically, making it difficult to understand and relate to current Salish language practices. His subsequent guidebook *Montana Native Plants and Early Peoples* (1976) offers a more comprehensive guide of traditional plants used by indigenous people in Montana. It focuses on the biological and ecological properties of plants (where they grow, what they look like). Yet, the methodological frameworks for both texts are similar. For both authors, ethnobotanical research was carried out with a handful of Salish informants who reviewed the work and provided insight in interviews and in the field.

Both researchers rely on methodologies such as sampling, interviews, binomial nomenclature, and biogeography to guide their understanding of plant knowledge. Hart's mounted plant specimens are housed at the University of Montana herbarium today. Both sources, however, lack cultural components that are necessary to understand the broader relationship of Salish people to their plants. These works do not go beyond scientific inquiry for their studies in other areas such as cosmology, ethnography, guiding principles and linguistics.

The only ethnobotanical studies for people that didn't have direct access to elders, land or culture were these theses. Both Stubbs and Hart review Salish food plants through a primarily utilitarian lens. While these theses lay important groundwork for the botanical and functional components of Indigenous food plants (and were among the first places I looked for literature on the subject), both are disjointed in their attention to cultural significance with different intentions for their studies than my own.

Stubbs in "An Investigation of the edible and medicinal plants used by the Flathead Indians" (1966) states that ethnobotany observes "the importance of plants to primitive peoples" and Hart in "Plant taxonomy..." (1974) seeks to review these plants and their names because the Salish people were slowly dying out and this knowledge would be lost. Both these sentiments are reminiscent of old ideas that native people and their knowledge are dying out, and as unchanging, undeveloped with the people themselves are on the verge of disappearing from the world. This general attitude from the time that these studies took place reflects an assimilationist America. Nevertheless, these researchers were some of the few people to discuss these topics with prominent Salish knowledge keepers. As resources, a critical eye must be lent to the intentions for

both works of research. Yet we must acknowledge that some material is relevant and important, as well as necessary, for understanding Salish plant knowledge.

As for the components of informed consent in the research methods that is a different issue. Many stories are told in Indigenous communities of researchers coming in and asking for information or conducting studies. Many such studies ended with the researcher taking their findings, publishing what they needed, never to return. Very little economic or intellectual gain has been returned to the traditional plant knowledge keepers. This is true for the Salish community. In many discussions with the Salish Pend d'Oreille Culture Committee and tribal elders, I heard that many of these ethnobotanical works returned little back to the community, despite the amount of time and information provided to these studies. I was told of experiences between researchers and tribal people where knowledge was recorded, written, produced, and profited from with little to no credit or profit returned to the people who provided the knowledge.

This issue is particularly prevalent in Jeff Hart's *Montana Native Plants and Early Peoples* (1976). An extension of his master's thesis, this work was published by the Montana Historical Society and widely distributed. This action further complicated Salish affairs with researchers because according to the community, Hart did not let any of his informants know that he was making a book from their provided knowledge. The book's success and profits were never adequately given due to the Salish people. The money going back to the tribe was not the central issue, though. The general disregard for Salish cultural knowledge and wishes remained the greatest concern. In Salish structures, plant relatives are never to be used for personal profit or monetary gain. To do so results in the plants turning away from the people. This research controversy is still discussed in the

Salish community and this is a driving force behind the methods and intent for this thesis.

Moving beyond the work of Hart and Stubbs, there are some scientific papers on Native American uses of plants across Montana (Murray 1929; Yanovsky 1936). These texts contain the merest hint of tribal presence and consultation. No full development of the cultural and/or healing properties of traditional foods from these sources occurred. Consultations with elders and tribal members occurred primarily for understanding the tribal usage of plants and their properties but denuded of language, stories, and traditional protocols associated with them.

The relevant resources on species the Salish use are not Salish-specific. Sultany (2007) and Stevens (2001) provide a current comprehensive view on the cultural importance of camas in their research. They touch on the linguistics, ethno-geography, and stories of the variety of tribes that utilize camas across the northwest. Camas occurs as the keystone species for the Interior Salish and many Pacific Northwest tribes. In a similar vein, there exist a handful of articles and papers written about another Salish staple, the bitterroot. One master's thesis was written and dedicated to the bitterroot in science and in history (Murray 1929). But these examples focus on the use of one plant by many tribes or non-natives, whereas my scope is focused on many plants primarily used by the Salish people.

Camas and bitterroot are just two species in the whole hundreds of plant species utilized by the Salish for food, medicine and hygiene. In order to create a more biologically comprehensive list of traditional food plants and their botanical, nutritive and

cultural qualities I have had to investigate research centered on ethnobotany of Pacific Northwest tribes. The most informative of these studies written by Nancy Turner, concentrated on Coastal Salish groups in the Pacific Northwest and British Columbia. Ethnobotanist Turner focused her research on Coastal Salish groups in *Ancient Pathways, Ancestral Knowledge: Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America* (2014). In two volumes, she explores the vast ecological, cultural, and botanical aspects of almost all the tribes in the Columbia Basin. This text helped in going deeper into the specifics of ancestral food systems as well as individual species knowledge. Coupled with the more field-guide-type book, *Food Plants of the Coastal First Peoples* (1995) and a plethora of journal articles, Turner brings a breadth of ethnobotanical resources from Indigenous people to her field.

This work is complemented by a collaboration between Turner and Harriet Kuhnlein in the 1991 book titled, *Traditional plant foods of Canadian Indigenous Peoples: Nutrition, botany and use.* This text provided nutritional components of traditional foods, many of which are shared with the Interior Salish. Much of the nutritional information from chapter five comes from this book. Because of the shared ancestral heritage and similar linguistic groups of Coastal tribes and the Interior Salish, these pieces of literature were very helpful. They focused on the multi-level aspects of traditional plants in tribal life and they showcased the many avenues to research these aspects.

In the pursuit of literature that highlights Indigenous frameworks and ideas, I include other research that centers on Indigenous perspective in areas of ethnobotany, Indigenous communities and science, food sovereignty and traditional ecological

knowledge (TEK). There exist a handful of books whose contributing authors are Indigenous and focus on these aspects. Keith James's (2001) *Science and Native American Communities* presents Indigenous authors covering topics from Science in Education, Feminist Science, to Science and Self-Governance. Another work focuses on food-systems; *A Land Not Forgotten: Indigenous Food Security and Land Based Practices in Northern Ontario* (eds. Robidoux and Mason 2017). This Indigenous-forward scholarship looks at concepts such as food security in rural Indigenous communities, food sovereignty, food-related illnesses in tribal peoples, and the history of settler colonialism in traditional food systems. These two texts offer insight into how to combine science and research into Indigenous issues. They also offer insight into the multi-leveled aspects of today's food systems, exploring the role food sovereignty can play in Indigenous health and resurgence.

A central tenant of food sovereignty is access to culturally relevant and nutritionally dense foods making traditional foods and their makeup an important part of this thesis. Understanding the science of local food sources lies at the heart of originating projects in food composition research. Kuhnlein lent efforts in the area of Indigenous nutrition, food systems, and health research. She served as an editor in *Indigenous peoples' food systems: The many dimensions of culture, diversity and environment for nutrition and health* (2009). This resource helped me develop a holistic framework that includes Salish food plants, traditional food systems and Indigenous dietary health.

Other authors have attempted to identify and quantify the food staples that make up the traditional Salish diet. Nurse practitioner Margit Groessler in "Traditional diet of the Salish, Kootenai and Pend d'Oreille Indians in Northwest Montana and contemporary

diet recommendations, a comparison" (2008) emphasizes that a traditional diet for any indigenous group is one that implies the "handing down of information, beliefs and customs…from one generation to another without written instruction" coupled with "food and drink that is regularly consumed for habitual nourishment" (5). The traditional Salish diet offers pre-colonial sources of food and emphasizes a transition from this diet to the current diet held by the Salish people. Groessler uses metrics from the American Diabetes Association (ADA) as well as medical recommendations for calories, vitamins and minerals for current Salish populations in contrast to ancestral ones.

Groessler is one of the few researchers that have written extensively about Salish epidemiology. There are scores of research studies on Indigenous epidemiological shifts as well as determinants and disease patterns (Gracey and King 2009; Valeggia and Snodrass 2015; Durie 2004). However, only one comes as Salish specific, the 2014 master's thesis "Demographic and epidemiological changes on the Flathead Reservation 1887-1935" by Christina Heiner. Heiner writes about the historical disease patterns and aspects of culture, health, and healing within the tribe from an anthropological perspective. Her information combines well with studies on Indigenous health frameworks (Gwyneira et. al 2018; Martin 2012; Waldram et. al 2006) and makes for a more holistic look at the health of the Salish. Because the health of the people connects to the health of the land, literature on food sovereignty, environmental sustainability, and integrated food systems remains valuable for providing context for the interspace of tribal people from ancestral food and its associated impact.

Conclusion:

Ethnobotany is the study of the relationships between a specific culture and set group of plants they use. Botany, on the other hand, is the study of all plants. As an ethnobotanist, I focus on a select group of food plants, their uses, and cultural meanings for the Interior Salish people. Ethnobotany as a subject is a highly interdisciplinary field weaving ecology, anthropology, history, chemistry, linguistics, and botany together to understand how people interact with their respective landscapes. The many dimensions of ethnobotany make it a valuable resource in looking deeply at how indigenous people have cultivated relationships with the natural world. This thesis reflects the purpose of improving community health using ethnobotanical research.

In order to build on the master's thesis before me, I want to include a variety of perspectives and ideas into my research. I seek to make this thesis a resource on plants and culture for the Salish people. Rather than relying completely on research that was conducted in the early 1900's on Salish plants, I want to bring modern aspects of living, Indigenous movements and frameworks to the mix to recognize the resiliency and existence of the people. The literature presented in this review presents just a small part of the many journal articles, books, and theses I've experienced to broaden the scope towards understanding Salish people and plants.

As a formal discipline, ethnobotany has deep roots in economic and colonial botany (Berkes, 1). These forms of botany aided in the general commercialization of plant matter for trade and the conquest of peoples and their distinct plant knowledge for profit. In many ways, ethnobotany deploys as a western colonial tool utilizing traditional plant knowledge for medicine, food, or scientific pursuits. This phenomenon has

presented itself in much, or all, either overtly or inherently, of the literature I've reviewed. But this colonial activity is not the purpose of this thesis.

Through the inclusion of all these other focus areas that are connected to ethnobotany, I want to operationalize a culturally comprehensive analysis of traditional food plants in Indigenous communities. Ethnobotanical studies do not have to continue the trajectory of settler colonialism and I hope I can address and remediate these notions throughout my research as an Indigenous scholar. This thesis can be qualified as an ethnobotanical study. However, I would argue that it must remain heavily focused on the ethnography of people/plant relationships. Specifically, it asks how the people understand their relationship to the plants, the landscape, cultural traditions, and concepts of health. For these reasons the primary literature creates the foundation of the plants and their biological aspects but the supplemental material I have gathered here brings together research on Indigenous health, epidemiology, food-systems and traditional ecological knowledge. Together, they have helped me weave together a methodological framework that carries the integrity of the Salish culture into my research on traditional food plants.

Chapter 3: The Salish People and Plants

"*Long ago, lush brush and sunshine reflected in crystal streams across the newborn earth. Mountain ranges framed the endless blue skies and yet the creator Amotqn, The Being Who Sits on Top of the Mountains, felt there should be more."*
-Salish Creation Story (Nk̓ʷusm 2012)

Salish Cosmology:

In the beginning, *Amotqn* created tall human beings on the new earth, but grew frustrated when they became vicious and started killing each other. They tried with shorter human beings but had the same problem. After destroying both groups, *Amotqn* consulted their mother who said that they could not keep creating humans to destroy them. Instead, it needed to give them helpers to show the humans how to live in a good way. *Amotqn* breathed life into the animal world and allowed them to live for a period on the new earth to prepare it for human beings. *Amotqn* gave each animal a name and a purpose. The animals, including the very mischievous Coyote and his brother Fox, traveled the land to rid it of monsters, create geographic forms and develop knowledge for the new beings (Nk̓ʷusm 2012).

The stories of Coyote offer a trickster paradigm that many other indigenous groups possess. Stories of trickster beings permeate indigenous oral literature and serve to show the people how to live through their own mistakes or mishaps. A trickster serves as a living lesson to the people. They have many faults, the same faults as humans, those that pervade every culture. The imperfections of Coyote such as anger, greed, jealousy, lust, and hunger embody the more challenging parts of what it means to be human. When Coyote gets lost in these vices, he weaves a narrative created from his mistakes. It is from these woven pieces of story and language, that Salish came to understand how to be

better humans on this earth. At the heart of the Creation stories and Coyote stories, arises the ethics that love and respect for all beings serves as foundation for the Salish people. Without the animal world, the mineral and plant world, there would be no guidance through this life. The Salish regard these beings as teachers, relatives, friends, and gifts to the people. They are non-human persons with full personhood status. With their lessons that show us how to be human, humans come to understand that non-human beings have value and should be regarded with respect.

The story of how food plants came to exist has strong undercurrents of such principles. Yet, the stories of plants and their role in Salish life exhibit more specificity with each plant. The earth provides what the animals and people need if they acknowledge and give back to the land in return. An excerpt from the Creation Story (Nk̓ʷusm 2012, 16) is as follows;

"When there shall be Human Beings, they will always find nourishment in the land as long as the earth and all its creatures live in harmony."
Coyote said this after he learned that he must teach every animal in the new land to survive in order to stop the monsters of the land.
It wasn't long before Coyote came across the Sickness Monster, who hated the animals and caused them all to die from illness.
With nothing to protect him, Coyote became very ill and died. Luckily, his cousin Fox was not far behind and he brought Coyote back to life.
Coyote spent a great deal of time studying the animals that had fallen ill and an idea came to him.
Coyote quickly went to work teaching the animals to gather roots and herbs from the forest in order to heal themselves of any illness that might overcome them. Soon all the animals in the new land were healthy.
Coyote said,
"When there shall be human beings the earth will provide all they need to stay healthy as long as the earth is healthy enough to provide."

This fundamental piece of the larger framework of Salish lifeways, reiterates that healthy land creates healthy people and vice-versa. Roots and herbs work to heal the people, and they also provide humans with the nutrition and sustenance they need.

Amotqn's wisdom fashioned the plants to be both medicine and food, and the Salish people know them as such.

3.2 The ancestral landscape

> "*A long time ago, all over this land, the people's medicine was put here...the land was clean, the air was clean, everything was good."*
> -translation from Mitch Smallsalmon 1978
> (Salish and Pend d'Oreille Culture committee 2005)

The Salish lifeway, prior to contact, was one largely dictated by the changing seasons and the observations of growth and movement in the natural world. They became well versed in what we know as phenology or the timing of events in the life cycles of plants and animals (Turner 2014, V2. 15). Traditional Salish culture followed a hunter-gatherer societal path that subsisted in the woodland and alpine regions of the western United States cultivating an intimate knowledge of this landscape (Turney-High 1937; Anastasio 1972; Malouf 1998; Salish Kootenai College 2008; Thompson and Egesdal 2008). In most temperate regions, much like the one the Salish inhabited, ecological cycles were reasonably stable and followed along a predictable timeline. In the early months after shedding winter's chill, the Salish hunted. Elk, deer, buffalo served as the main large game animals the Salish pursued. Spring and summer fishing provided other protein rich food sources. Roots and shoots became prominent in this time, nature's first showing of life. Edible buds, stems, leaves, and underground root-storages were small but sustentative. Flower blooms and fruiting not only served as an indicator of food in the yearly cycle, they were also used as time markers for future events. When the wild rose blooms in the summer, the buffalo are ready for the fall hunt (Salish Kootenai College 2008, 8).

Today there exists some recollection by Salish community members that their ancestors followed the pattern of the moons. The winter solstice marked the beginning of preparation for the ceremonial Jump Dances. And the summer solstice marked the time for hunting and gathering for winter. Some anthropological records recall a "Bitterroot Moon" (Fahey 1965, 12) that guided harvest times. Currently, those ways of knowing have slowly ebbed from tribal knowledge. Salish informants recall that constellations played a role in understanding the passing of time, but much of that information hasn't survived well (Pete 2019). However, the word for moon and sun is *spq̓ni? (*Salish Kootenai College 2008, 17). Observations of lunar cycles may have influenced the creation of this word historically. Now this word has evolved into the contemporary Salish calendar to signify each month and time.

<u>The Salish calendar:</u>
January-*sčn̓c?ltu spqni?,* shaking hands month
February-*čqʷo̓sqn spqni?,* month of the cold
March- *kʷsixʷ spqni?,* month of the geese
April- *sčiy̓al̓mn spq̓ni?,* month of the buttercup
May-*sp̓e̓x̌m spq̓ni?,* month of the bitterroot
June-*sx̣e̓?li spq̓ni?,* month of the camas
July-*esy̓apqini spq̓ni,* month of celebration
August-*stša̓ spq̓ni?,* huckleberry month
September-*łx̣ʷło̓ spq̓ni?,* serviceberry month
October-*sčɬlip spq̓ni?,* hunting month
November-*sqʷllumt spq̓ni?,* storytelling month
December-*es?acm̓i spq̓ni?,* trapping month
(*Seliš ny?onuntn: English to Salish Translation Dictionary* 2010, 385).

The economic and subsistence cycle of the Salish significantly impacted the day-to-day lives of ancestral people and contributed to settlement patterns, religious ceremonies and gender roles in the tribe (Wood 2014). Although a "calendar" is a new Western paradigm, the cycles iterated by plants, animals, and tribal events were observed and maintained throughout Salish history, and do so to this day. Despite the new "Salish

calendar" seeming to parallel the Western calendar year, the Salish new year does begin around January. The Salish New Year closely follows the winter solstice. Seeing as the winter solstice usually occurs in late December, Salish observed this astronomical phenomenon and used it as a time marker to prepare for New Year ceremonies. These ceremonies were known as jump dances and medicine dances and were hosted by tribal spiritual leaders. They would hold them in medicine lodges in the mountains or in their homes, and handful occurred across the region in longhouses. The medicine dances were originally held by the animals with the purpose of thanking *Amotqn* for the past year and praying for the year to come. Salish medicine and jump dances are held over a span of a few weeks in January. Traditional protocol honors the plant and animal world by dedicating the first three days of the ceremony to these beings, while reserving the last day for the people. The reasoning is that the Salish have only been a part of the world for a snippet of life as far as geologic time goes. This recognizes that all other beings have been here much longer. The Salish recognize and honor that they are just a small piece of a larger moving ecosystem that has existed for millennia. The last day of the medicine dances becomes human-oriented and builds on the tracks made by the animals to forge new paths in the future.

These dances continue to be held and mostly follow traditional protocol. They persisted even after the federal prohibition on Native American religious practices (Weidman 2012, 603). The people were forced to conduct their dances in secret, and so today the tradition survives. And when the winter dances end in early January, that is a sign that a new year has begun, and spring was just around the corner. After the "new

year" Salish people followed the moons as well as bird migrations, plant patterns, and weather changes to mark the passing of time.

The bulk of the Salish calendar dedicates itself to traditional food plants. Months corresponding to roughly April through September are solely concerned with harvesting, foraging, and following food staples. Celebration month and Shaking hands month, signal small hiatuses in the plant and foodways Salish calendar to focus on the people. In July, the Salish people traveled to various powwows and hand game events to dance, sing, and see their relatives. Plants remain omnipresent during these times of celebration and coming together; the people still observed, harvested and ate traditional food plants as they went about participating in inter-tribal affairs. And human celebration is inextricably tied to celebrating successful harvests and food gathering—which makes gathering and celebrating possible.

Summer harvests and fall hunts readied the Salish for the winter months. Sustainable surplus kept families fed during this time. Technologies for drying, preserving, and packing meat and fish required the help of traditional plants such as mint (*Mentha arvensis*), bergamot (*Monarda fistulosa*) and pineapple weed (*Matricaria discoidea*). Bulk processing of plant materials took place during each harvest. The people thought ahead, gathering enough bitterroot, camas, berries, and roots to supplant their diet for times when the land falls dormant under the snow of winter.

To enact respect for the plants and to recognize life they give for the people, the Salish conducted rituals and ceremonies to reflect harvest full of gratitude. Collective tribal prayers at harvesting honored the plant, thanking it for gifting life to the people. Individual prayers went up when Salish people plucked berries from stems or dug roots

from the ground. My Grandpa Louie, a revered Salish elder and knowledge keeper, once said to me “you don’t get something for nothing”. (n.d.) He directly spoke of a relationship of reciprocity owed to the natural world. The Salish exchange prayers and thanks to the plants during harvest. And they also leave a small gift for the plants. A Salish female informant remembers making a string of glass beads as a child as plant offerings (2019). She was taught that a lock of hair, some tobacco or sage, anything small and meaningful to the person, held in prayer and left for the plant beings served as part of the “giving back” owed to the plant world.

Spring, summer, winter and fall are all important harvesting seasons for the Salish. When the critical harvesting periods ended and the first snows touched the earth, the telling of stories can begin and winter ceremonies take shape. These stories and ceremonies helped further along the plant cycle so that it might continue.

Linguistically, the seasons, and everything in the Salish perspective becomes organized within its own event structure (Pete 2019). There exists an origin and beginning in the aspects of the world. There have always been the four seasons. These each present their own markers of origination and ebb. Yet seasons all flow into each other in a cycle. Nothing can be seen as definitive but all flow with the passage of time. Salish people carefully observe the time markers of the landscape that which marks the seasons. These things remain constant, yet everchanging, with firmament and improvisation. The root of the word spring (*sqepc*) is *qep* signifying a form of protection. *Qep* means to put on protection, or be protected, or covered by something. When plants, animals, and people survive winter you have the protection of spring over new life and

coming abundance. Fluent speakers have also said the word *sqepc* could come from the cracking of ice breaking apart in the spring or the idea of things warming up.

The seasons offer a perspective of how language quantifies time. No definitive point exists, but events flow and inform future occurrences. Winter (*sʔistč*) challenged the Salish. If you made it past winter, that was noted as your winter count. Winter count serves as your age— because you survived winter, so you've made it another year of life. The seasons of the land dictated life, with the comings and goings of plants, animals, and people. The Salish learned how to survive and adapt to the natural world in its beauty, harshness, and ability to foster, nourish, and take life. The people adeptly adapted to this world. And tribal teachings and knowledge helped pass on what the Salish needed to cultivate a life acclimated to land. In this way they learned to survive, and to thrive.

3.2 The ancestral landscape:

The properties of the northwest region of Montana became reflected in the extensive knowledge base of traditional food plants that the Salish have today. Ancestrally, the climate of northwest Montana, was both welcoming and often unforgiving. Climate patterns shifted along with seasons. We have some idea of how challenging the landscape was. Known for dry hot summers and bitter cold winters, the region makes the polarity of its seasons known. Coupled with a geographically challenging landbase, Salish lifeways reflected these demands.

At an elevation a few thousand feet above sea-level passable regions were cradled between mountain ranges now known as Sapphires, Bitterroots, Rattlesnakes, and the Missions. Towering mountain ranges held three characteristic life zones of altitudes and environments the Salish used primarily for subsistence practices. Transition life zones

around 2,000-4,000 feet above sea level, were rich in foothills, valleys and plains. Higher up at 4,000-10,000 feet Canadian life zones held mountainous forest areas. The sub-alpine regions called Hudsonian life zones exist at over 10,000 feet (Chalfant 1974, 52). The hunting, fishing, and gathering practices of the Salish were conducted mostly at the lower altitudes of transitional forests, meadows, and woodlands (Ibid). These areas hosted plant foods such as springtime greens, root vegetables, berries and the occasional lichen. Salish occasionally gathered near sub-alpine zones for lodgepole pine, huckleberries, and medicines.

Fruit and vegetal products served as a necessary supplement to the meat/fish diet of the Salish. They provided the bulk of reserves when game was scarce or winter was present (Chalfant 1974, 58). Plant foods comprised an estimated 70% of the diet of the Interior Plateau peoples, including the Salish (Hunn 1981). The remaining 30% included fish, wild game, and animal fat. The Salish utilized hundreds of plants harvested annually and seasonally for food, medicines, hygiene, goods and tools (SKC 2008, 1). Over thousands of years of ancestral occupation, the Salish built an extensive knowledge base of how to survive on the land by utilizing plant products. Salish life was not hampered by the landscape, rather it was enhanced. Traditional Salish peoples knew how to survive and thrive and cultivated a lifestyle of abundance and scarcity. To live the people had to be at times forward-thinking, presently aware, detail-oriented and big-picture minded. Salish people, and many indigenous people lived sustainably for thousands of years on the land, as part of it, before colonization. And this living became understood in deep and rich aesthetic terms. It would disservice their survivance to narrativize *only* their survival. This traditional life contrasted very much with the Western cultural notion of

life as a Hobbesian “state of nature” as “nasty, brutish, and short” (1651).We can understand this life as beautiful, moral, gorgeous, moving, rich, and, even, delightful. The Salish people felt lovingly provided for by Creator and by all of nature. The lessons needed to live already had been set forth prior to human existence by animal helpers acting as human exemplars and avatars. With tricksters like Coyote, even unavoidable human foibles could be understood, accepted, and continually worked on.

Pre-colonial traditional subsistence patterns:

> *“Truly, Amotqn a great and kind God of the Salish gave His children a sheltered, delighted region, bountiful in all the things essential to their welfare.”*
> -Passage, *I will be Meat for my Salish* (Whealdon 2001, 169)

The Salish covered a lot of ground in the northwest region of Montana. From the original migration from the Pacific Northwest to eventual settlement in *Kʷtił Ṗupƛ̓mʷ* (Ross’s Hole) the Salish were not limited to the area and moved throughout the landscape as traveling, ever adapting, resilient people. Now known in the Bitterroot Valley, the Salish foraged bitterroot and other plant materials in a variety of places around western Montana (fig. 3). The most recognized bitterroot foraging areas included *Nłʔayccstm* (Place of the Small Bull Trout), now around the

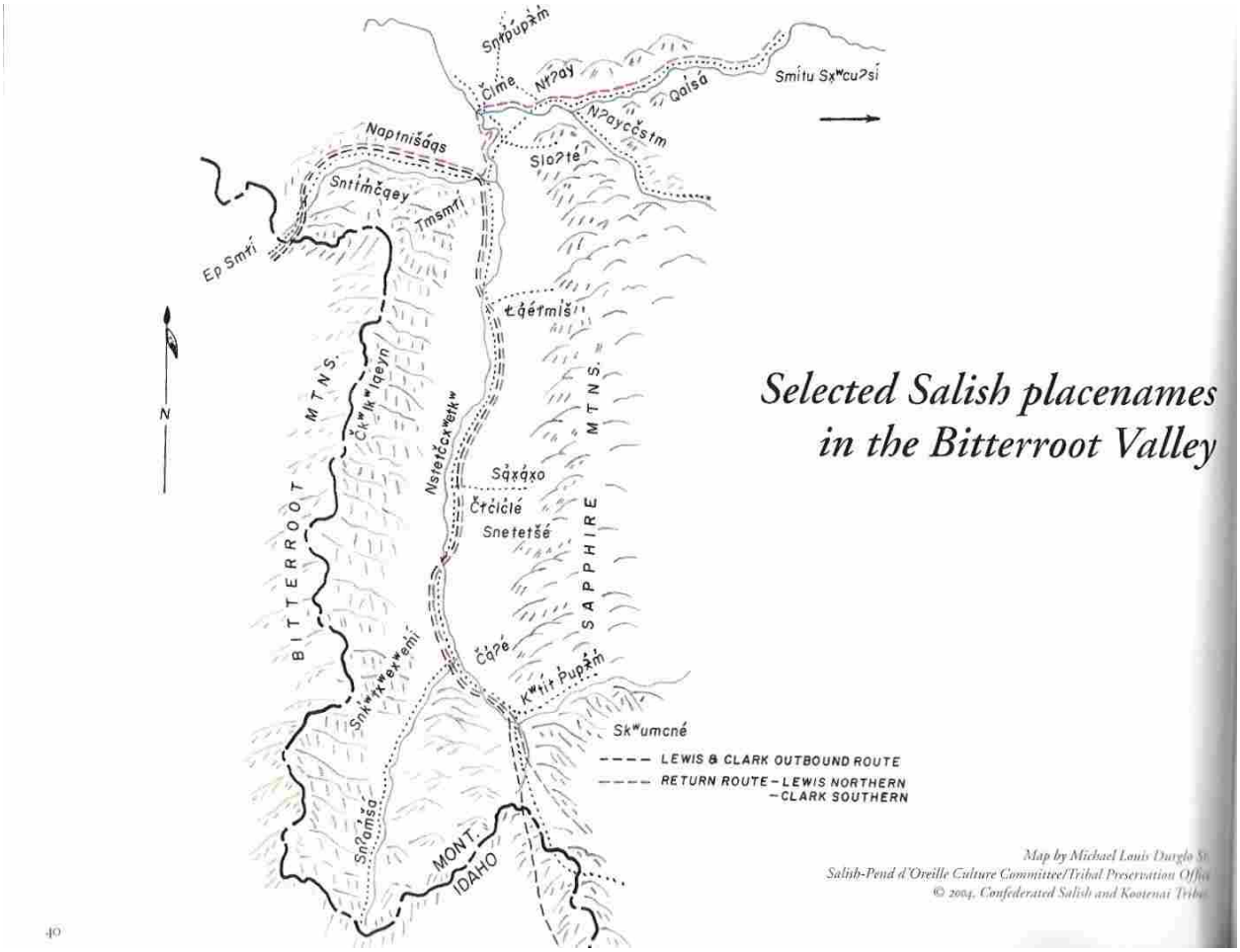


Figure 3. Salish Pend d'Oreille Culture Committee Tribal Preservation Office. 2004. Map by Michael Louis Durglo Sr. "Selected Salish placenames in the Bitterroot Valley" [JPEG].

city of Missoula (Salish Pend d'Oreille Culture Committee, 2005). Large swaths of the Flathead river valley or *Ntx̣ʷétkʷ* were utilized for bitterroot digging as well.

While bitterroot served as a staple food, there were many more herbs, roots, shoots and fruits foraged beyond *Kʷtiɬ Ṗupx̓mʷ.* To support their ever-changing population, the Salish traveled often to harvest, hunt and trade with other tribal nations in the intermontane region (Fahey 1965, 8). The culture sought to acquire enough food materials for family and community, and enough to save and process food materials for trade. Dried game meat, fish, and plants made up part of a trading economy. Salish

trading stock came from bison (Fahey 1965) as well as camas and deer skins (Salish and Pend d'Oreille Culture Committee 2005). Trading networks extended north and west as the Bitterroot Salish hunted and traded with the Blackfeet, Crow and other tribal nations of Montana. They also gathered and traded with their relatives the Okanagans and Spokane of Washington (Ibid). Large networks of tribes connected by food and subsistence. A regional economy based itself on gathering, fishing, and hunting and it supported indigenous populations for 10,000 years in the plateau region (Cressman 1977).

To not exhaust the land of its gifts, the Salish developed rich protocols and gathering technologies to cultivate a relationship of gratitude and reciprocity with their plant relatives. The challenge to survive, allowed for the Salish, and many other indigenous peoples, to move through time creatively with an ability to adapt. A culture with a rich vocabulary and developed language, with salient ceremonies, and sophisticated philosophical approaches reflected a sophisticated approach to living in the natural world. The people's acquisition and development skills and knowledge and the ability to pass that on for generations to come, allowed for the current existence of the Salish people today. The cycle of learning, using, adapting, and transmitting ecological and cultural knowledge has been present since creation (Turner 2014, V1. 1).

Contact:

Before colonization, the Salish way of life was one of movement, trade, cyclical seasons, and ceremony; a shifting composition of continuity and adaptation living on the land. But everything was not well and good all the time. Famine and intertribal war periodically arose, forcing the tribe to adapt. While these events marked significant

portions of Salish history and are alluded to in stories and oral tradition, the biggest changes to Salish lifeway were soon to come.

The Salish's first contact with non-native peoples occurred before the 1700's when they acquired horses (SPCC 2005). These animals greatly influenced their travel and trade throughout northwest Rocky Mountain region. In the next hundred years, firearms came into the picture. Guns and horses shifted the dynamic of hunting and gathering into a new realm of efficiency and competition. Horses and guns increased hunting capacity but also created conflict with neighboring tribes such as the Blackfeet, Sioux and other plains tribes (Whealdon 2001, 3). Newly introduced diseases wreaked havoc on tribal populations who lacked immunity to such harm. The first recorded smallpox epidemic occurred in 1782 (SPCC 2005). This greatly reduced the population and weakened their military capabilities. Between 1789 and 1883 the Salish experienced pressure from intertribal conflict even as they experienced several infectious diseases in their communities.

A handful of these events occurred before Lewis and Clark arrived in 1805. However, movement and adaptation were part of the continually shifting social organization of the tribe. In the half-millennia of existence in the northwest region of Montana before colonization, change remained evident but the last hundred or so years of colonization rapidly accelerated change, and in a way that was overarching and unavoidable. One cannot stress enough how different in number and kind this change would be. This trajectory would only continue to worsen for the people. This conflict, disease, loss, change and hardship all shaped the Salish, their people, their culture, their land and their relationships with the land. A major shift was on the horizon.

"In 1805, all was well in Kʷtiɬ Ṗupƛ̓mʷ. It was early September and the Salish were busy plucking plump ɬx̣ʷɬo̓ from low hanging branches and pounding the cherries until they formed thick cakes to be laid on rocks to dry. They kept for months once dried. Besides the ever-present preparation for winter, today the Salish discovered something new. A group of light-skinned men approaching their homesite. This was their first encounter with white males and the beginning of a new history for them."
(Salish Pend d'Oreille Culture Committee 2005)

The Lewis and Clark expedition sets off the beginning of western history in most historical texts. Despite Lewis and Clark being the first well-known white men to enter the world of the Salish, western influences had already been present in Salish tribal structure. And they had challenged the natural flow of life long before the arrival of these white men. Salish existence from creation to migration to eventual settlement encompasses a vast amount of time. These periods are alluded to in our oral history, traditions, rituals and practices, and ancestral stories. Stories and traditions still existed in the minds and recordings of tribal elders over the course of the 1900s and early 2000s, offering us a window into traditional ways. Information and knowledge have been lost over time due to death, cultural displacement and other inroads. While this loss is stunningly present and encompassing, it comes tempered by how it has been carried through generations of Salish people to reach us today—an equally stunning feat.

Written accounts of Salish history usually begin with the writings of the Lewis and Clark expedition followed by those of fur trappers, miners, Jesuits, and Indian agents. Non-native records understand the Salish as a disappearing race or a primitive people. This view does not see that the Salish have lived here longer than western history can envision. It also cannot see that these people know the lands they inhabit far better than any scientist, colonial explorer, anthropologist or government official can conceive.

Lewis and Clark left the Salish encampment after a short period of time in tribal history, but left footprints that still exist today. The expedition marked the beginning of the Doctrine of Discovery for the western United States for explorers and colonists alike. And it marked the shift away from Salish authority. Lewis and Clark called the Salish "Flat-heads" in their texts, a name that refers to a practice where newborn babies were bound to boards as to flatten them (Fahey 1974, 6). While this practice was common in some quite distant tribal bands, this was not the way of the Salish. This misnaming in many ways represents how the people came to be mistaken, misunderstood and misconceived. Simply put, the name the tribe is called, is not something the Salish people ascribe to. That name is not us.

Despite this denial, the term "Flathead" became the standard used by various explorers and academics in the decades following the expedition. The misidentification and misinterpretation of the Salish people began an era of renaming, re-identifying, and delegitimizing tribal ways of knowing. It encouraged the use of exonyms that established a culture of "othering" for native people. "Flathead" remained the name that non-Indians gave to the Salish and used to identify them well up until the creation of the Flathead Indian Reservation in 1855. And it remains so today.

Reclassification of the Salish was just the first step in the string of impacts woven by the Lewis and Clark expedition. Some would not be felt by the Salish or other tribal nations in the area, until a few years after the expedition passed through the state. These changes critically shaped the histories of tribal people across the region. Yet, for this thesis, I refer to only a few dates and important years on record for the Bitterroot Salish. This history is important; it is not the direct focus of this thesis, though its affects are.

The changes brought by colonization mark a new relationship to the land. Resources, land boundaries, and sovereignty become new worldviews and sources of contention between settlers, Salish, and the U.S. government. These dynamic shifts in history impacted not only the people, but also the plants, animals, rivers, mountains, and valleys. Such was the scope of the colonizer and settler change that courses of rivers were changed, animals and plants dehabitated or eliminated. The very land was altered. While the Salish had always experienced and adapted to change—this new kind of change was more intense, more all-encompassing and more enveloping. The very nature of the people's ability to adapt and thrive would be influenced. And that is what's at stake now, this ability.

Laying out these important dates creates space for future observations of the ebb and flow of transmission of Traditional Ecological Knowledge and its persistence through time. Below is a timeline of the important moments in history because these moments in history influenced, and continue to affect, the transmission, suppression, and differentiation of Salish culture and way of life.

3.3 Important historical moments in Bitterroot Salish history:

1805: Lewis and Clark arrived in the Salish territory on September 4th. This arrival marks the beginning of westernization for the Salish people. On their venture, Lewis and Clark made note of the remarkable beauty, plant variety, and ecosystem diversity of the area the Salish inhabited. It wasn't long before their publications made the region a place of interest for other American settlers and explorers in the early 1800's.

1810-1840's: Fur trade expanded throughout Salish territory, depleting animal populations and upsetting ecological cycles. Missionaries followed and attempted to convert Salish people to agriculture because they did not approve of their ways of life including the buffalo hunts. The Salish refused to abandon their buffalo hunts and created alliances with neighboring tribes to maintain this practice (Whealdon, 3). More settlers arrived and conflict arose between the newcomers and Salish people who were still practicing subsistence hunting, gathering, and fishing.

1854: Treaty negotiations begin with Isaac Stevens, the Governor for the Washington Territory. This territory included what is now Montana and many of the subsistence grounds of the Salish. Stevens met with Salish and Kootenai leaders to discuss establishing a formal land base for the tribes. Stevens, like many other non-natives in Salish territory, sought to stake claims on Salish lands. These negotiations, due to linguistic deceit, in the in-transparency of documents and exchanges, and general misunderstanding on all sides, led to a disconnect on what each party wanted in negotiations. The tribes sought peace with the settlers, while the settlers wanted the tribes to cede their resourceful land.

1855: The Hellgate Treaty created the Flathead Indian Reservation where tribes were to be relocated. This reservation establishment also created the coalition of the Salish, Pend d'Oreille and Kootenai as a single governed and governing body. The Confederated Salish and Kootenai Tribes (CSKT) became a federally recognized tribe in the burgeoning region. The conditions of the treaty formed between the U.S. government and CSKT ceded 20 million acres of land and reserved 1.3 million for the reservation, reducing tribal territory immensely (Ibid). Despite the enormous land loss, tribal leaders reserved rights to continue using the ceded land for subsistence hunting and gathering. This was again met with controversy from settlers and non-natives.

1891: Montana becomes a state in 1889, the impetus for Salish removal from their homelands. After years of political struggle in asserting their rights to forage, hunt and fish in accustomed places, the Salish were forced by state troops from the Bitterroot Valley north to the Flathead Indian Reservation.

1891-1930's: Flathead Allotment Act passed in 1904. Allotment began in 1908 and "surplus" lands were sold to settlers in 1910. This division of tribal lands by the U.S. government built on oppressive strategies and policies meant to destroy the sovereignty of the Confederated Salish and Kootenai Tribes.

1930's-1970's: Assimilation ended as a formal policy of the U.S. in 1934. However, Indian boarding schools and the continued encroachment of westernized life sought to hinder and stamp out tribal culture and ways of life. Language fluency decreased, western influences were adopted, and tribal habitats were changed by settlement, mining, farming, and forestry.

The Bitterroot Salish people have proven to be highly adaptable and powerfully sovereign in their transition from their homelands in the Bitterroot Valley to the Flathead Indian Reservation where they currently reside. These two areas now bound by new political boundaries were tribally known territory. Ancestral subsistence patterns allowed the Salish to be familiar with this region long before the reservation was established.

Many of the traditional practices of hunting, fishing, and foraging could be maintained in this new political and cultural habitat. However, it became increasingly difficult to maintain traditional food ways as western food systems encroached, settlers staked out and bound up the usual and accustomed harvesting places, and the Salish became increasingly impoverished people in their own land.

This is not to say that the relocation did not have a lasting impact on the interactions between Salish people and traditional food plants. There are many factors that played a role in the growing separation between Salish people and traditional foodways. However, ecologically the environments of the Bitterroot Valley and the Flathead Indian Reservation are similar and signify sustenance even in a changing political landscape.

The creation of boundaries, on the land and over the people, in American history has significantly impacted the way that Salish people moved about the land historically and into the present. Not only did the creation of the Flathead Indian Reservation via the Hellgate Treaty in 1855 create boundaries that contained the land that the Salish people controlled and physically inhabited, it also designated spaces where the Salish people were not allowed to legally, socially, or politically occupy. As westernization loomed over the state of Montana, more and more non-Indians found tribal land-bases to be rich in natural resources and sought settlement there.

It would be almost 100 years before the Confederated Salish and Kootenai Tribes exercised their treaty rights (Williams, James 122), while settlers continued to move onto reservation land. This tension between settlers, tribal members, descendants, and the tribal government was compounded by the Allotment Act of 1904 (Ibid) which opened

reservation land to non-Indians for settlement. The result was an established land-base that was checkerboarded with individual tribal member owned land, tribal trust land, and non-member fee lands. In this designation, prior and accustomed gathering and hunting grounds became politically stratified regions that Salish had to navigate and fight to use. The political and biological sovereignty of the Salish people became subject to the conflicting legalities of allotment and the fragmentation of land where many valuable cultural and ecological resources were found. Many elders recall their families being chased off from prior and accustomed hunting and/or foraging grounds by angry and threatening settlers. One goal of possession is the dispossession of others, even, or especially, those with traditional claims to the area and its abundance.

With a fractured land base and encroaching westernization, the Salish people adapted to their reservation home the best way they could. This often involved assimilating to the dominant American culture, eating westernized foods unfamiliar to their ancestral DNA, wearing clothes that did not reflect their Salish roots, and adopting a language that was wholly different than their own. These transitions had a drastic effect on the way Salish procured, processed and ate food as it shifted the dynamic of their traditional food systems. The traditional paradigm was to hunt, fish, gather, and move throughout the land to attain enough food to feed the family or community. This shifted to utilizing the now more feasible, readily available non-traditional foods that were making their way into Salish households via government rations, grocery stores, and trading. Items like flour, sugar, and lard were common in the colonial European diet and became staples on the reservation. While settlers were more accustomed to these foods,

the traditional eons-long Salish diet was far from the typical high carbohydrates, sugars, and animal fats that were introduced to their diet during colonization.

The traditional Salish diet was simple with very little processing. Roots, shoots, and berries supplemented the wild fish, game, and tallow the Salish subsisted on. Often the only ways traditional food could be kept and stored for long periods of time was through drying and re-hydrating or mixing with plants that preserved them. Here, plants served as valuable nutritional contributions in terms of vitamins, minerals, carbohydrates and sugars but also as sources of food preservation.

Bitterroot Salish history, anthropology, politics and linguistics serve as valuable frameworks for understanding Salish identity and connection to land over time. The stories, culture and language provide the fundamental foundation for this way of living, while colonial forces and ecosystem changes marked a new way of living for the Salish people.

The path to modern day arrives riddled with complexity and has challenged the very existence of Salish people. From Creation, to initial settlement in what is now Montana, to contact and forced relocation to the Flathead Indian Reservation, there have been many opportunities for cultural and tribal die-out. Yet, somehow, the tribe survives, and the culture still exists. In the fray, transmission of traditional knowledge exists and trickles down. The valuable pieces of information collected over thousands of years, retained by many Salish people that have understood that the knowledge is worth knowing and passing on to the next generation has not gone from the people. There have been many obstacles that have blocked, reduced, or decreased this knowledge over time, but the Salish people hold strong to their roots and await the cycles of renewal to return.

Chapter 4: *Sq̓elix̣ʷ*: Indigenous renewal and the "ecological triangle"

Despite their history the Salish story is one of resilience and strength. Through all the abrupt changes and shifts geographically, demographically, socially and culturally they have managed to cultivate one of the most successful tribal governments in Montana (Montana Office of Public Instruction n.d.) This is partially due to their exceptional tribal management of federally funded programs following the National Self-Determination Act of 1996. More specifically the Confederated Salish and Kootenai Tribes (CS&KT) have pioneered one of the most accomplished natural resource departments of any local government in the nation (MT OPI 35).

The natural resource department is founded on the ancestral ideology that the natural environment must be properly cared for by the people in order to function for their benefit. The Salish-Q̓ispé Culture Committee expressed that;

"*The Earth is our historian; it is made of our ancestors bones. It provides us with nourishment, medicine, and comfort. It is the source of our independence; it is our Mother. We do not dominate Her but harmonize with her*" (Ibid).

This statement is rooted in the Salish ancestral teachings to honor the earth and care for it as it has always cared for the people. Modern tribal endeavors are guided by tribal teachings which enhances its ability to flourish. Acknowledging the efforts of the tribe to thrive despite their circumstances, showcases their inherited ability to adapt while using ancestral knowledge to lead the way forward.

The words of the culture committee resonate in areas of academia as well. A study area known as historical ecology concerns itself with the interactions through time

between societies and environments and the consequences of these interactions for understanding the formation of contemporary landscapes (Balee 1998b; Balee & Erickson 2006; Redman 1999; Sutton and Anderson, 2004). Within this field is the notion that landscapes contain history and that natural life forms in a given environment are historiographic indices of that place (Balee 2006). Recognizing that the land holds tribal history and memory are the keys to modern success.

It's clear the ensuing health issues of Indigenous peoples derive from the shift in dietary patterns from diminished access to traditional subsistence practices. These are all interconnected. Thus, the renewal of the people is dependent on renewal of relationship to the land. More specifically, relationship to traditional food practices. Honoring the gifts of Mother Earth while dismantling systems of oppression, colonization, commercialism, and assimilation put in place by government repression regimes seems difficult to tackle in just one area. However, the emerging movement of food sovereignty seeks to take a holistic approach to mitigating past harm and restoring food systems.

The term "food sovereignty" was created by women peasant workers in South America as a response to globalization and centralization of local food systems (Cote 2016). At its core food sovereignty calls for "the right of all peoples to health and culturally appropriate food and the right to define their own food and agricultural systems" (La Via Campesina n.d.). Since its inception the food sovereignty movement has taken off. Communities are realizing that there is a stark difference in knowing and not knowing how their food comes to them. What's more, is that people are starting to take a critical lens to the things that they put into their body.

What makes food sovereignty so universal is that it allows any community, group, or society to partake in its mission statement. There are many avenues to get there, whether it's policy changes, control over local food systems, or just being active participants in today's food culture. It's making people aware that they have the ability to make informed decisions about their food, where it comes from, how it gets there, and what it does to their bodies. Having the right to healthy, nutritionally rich food shouldn't have to be a battle, but in a world of commercially produced, globally accessible, highly processed and commodified foodstuffs it is emerging as a new way people are reclaiming their health. It's no contest that ancestral food systems are different than the current food culture we inhabit. While the Salish were deeply dependent on the land and all it provides, we now find ourselves dependent on western medicine, technology, and food to supplant our daily life.

Native nations, particularly in Canada and the United States, have taken to the idea of food sovereignty and utilize it as a framework for exercising of tribal sovereignty. Across the nation Indigenous people are focusing on transparency and authenticity in food production. Not only that but they are also strongly advocating for the return, reclamation, and revitalization of traditional food systems and doing so by their own means. From the Navajo Nation Junk Food Tax (Office of the Navajo Tax Commission 2015) and the Oneida Nation Farm Enterprise (Oneida 2019; Hoover 2015) to the Muckleshoot Food Sovereignty Project that encouraged the return to traditional food practices (Smithsonian NMAI 2016), native nations across the country are reframing the tenets of food sovereignty to fit their respective needs. The fluidity of food sovereignty in

giving tribes, communities, and individuals the power to determine what goes in their bodies is revolutionary.

Food sovereignty has the potential to enact action in revitalizing Indigenous food practices and traditional ecological knowledge (TEK) in the Salish community. The Salish are lucky in the sense that their natural resource management has created continuity regarding the proper management and maintenance of biodiverse lands. There have been some shifts to accommodate a growing population but for the most part the 322,00 acres of forested tribal lands remain ecologically similar to the past environment (MT OPI n.d., 35). The traditional foods that existed long before tribal history began, are still here and they are waiting to nourish the people.

Tackling this aspect of Salish renewal requires a conceptual framework broad enough to understand the totality of the issue they face and the tools in their proximity. Food sovereignty can be a tool in self-determination and reclamation of tribal health, but what does that look like? Traditional ecological knowledge is an interdisciplinary framework and systems-based approach that can be used to advance culturally diverse knowledge systems (Gwyneira, et. al 2018). Structurally it is only one component of the efforts necessary to move forward. Likewise, emphasis on indigenous food sovereignty can be positioned in a restorative framework while encouraging individuals and tribal communities to repair and strengthen relationships to ancestral homelands. In the realm of ancestral food ways, this cannot be done unless the people have adequate access to traditional knowledge.

The broader communication of these native perspectives targets the end goal of improving tribal health. However, conceptualizing a relationship between culture and

well-being is necessary in properly advocating for tribal health. There are many aspects involved in the intended goal of this thesis. Because I'm dealing with such a diverse knowledge system and wish to tackle a variety of problems within the Salish community, demonstrating the interconnectedness of them is paramount in visualizing what sustainable solutions look like.

I have created a model that encapsulates three areas that I believe are necessary in recovering the roots of our renewal. The model mirrors a biology concept called the ecological triangle. The Ecological Triangle model was posed by scientist C.E. Sytron (1977) to better conceptualize relationships within a biological ecosystem. The "points" of the triangle are, biotic (living components of a system), abiotic materials (nonliving components or substances) and abiotic conditions of existence (physical components). All are connected by two-way arrows that symbolize symbiotic reactions. Within a given biota the triangle can summarize ecological relationships and be used as a visual reference for understanding ecosystem function. This model can be developed and modified but serves as a necessary visual for assessing the interactions of an environment. The ecological triangle is adaptable with the three components being interchangeable depending on the in which context they're being applied. Zooming out the triangle can also be used to emphasize the interactions of a population within the total system.

The ecological triangle in this case is the intersection of health, culture and traditional plant knowledge/practices (Chart 1). Each are at a crux in modern Salish life,

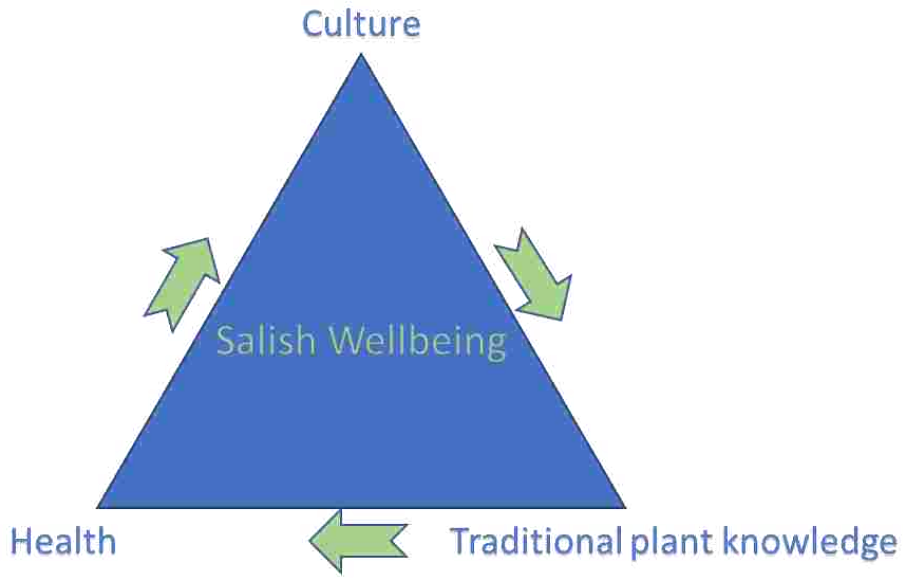


Chart 1. A Salish Ecological Triangle. (Bear Don't Walk 2019) [Chart]

and together, they can coalesce into a model for a brighter tribal future. I argue that bringing all these essential pieces together and striking a balance between them, can bring out the best in the Salish community in terms of improving holistic wellness and cultural longevity. Each aspect of the triangle will have its own section wholly dedicated to its application in Salish society. Following this introduction but below are brief summaries of each.

Health:

Practicing traditional activities increases the likelihood of consuming traditional foods (Chan et al. 2006, Receveur, Boulay, and Kuhnlein 1997; Redwood et al. 2008).

Decrease in possession or transmission of knowledge related to hunting, preparing, and storing traditional foods negatively affects its consumption rates. (Chan et. al 2006; Kuhnlein and Receveur 1996). Small steps in the right direction can yield valuable results. Even just a small amount of traditional food consumption improves diet quality and grants a variety of social and cultural benefits (Kuhnlein and Receveur 1996).

Culture:

Tribal memory holds that all important lessons and teachings came from the natural world. With the land as a guide and a living history, Salish people can reconnect with the landscape. Doing so through traditional food plant practices naturally benefits our health. Without the ability of community members to continuously renew their relationships with the natural world (i.e. gathering traditional medicines, foraging, hunting and fishing, etc.), indigenous languages, traditional teachings, and livelihoods are jeopardized (Corntassel 2008; Cote 2016).

Traditional food knowledge/practices:

Traditional food is part of the historic ecology of the Salish and my data indicates that many Salish people want to pursue traditional food-plant activities (Bear Don't Walk 2019). Research in other native communities suggest that practices around traditional food provide physical fitness, good health, are an essential part of the culture, provide education on the natural environment, and keep people in tune with nature (Food and Agriculture Organization of the United Nations 2009, 35). Therefore, restoration of traditional food practices/knowledge bolsters many aspects of culture while connecting political autonomy and environmental sustainability to community health.

Addressing the needs of the current community involves not only critically evaluating where we're at in terms of culture, language, community-health, and knowledge transmission but also how these aspects can be integrated into future solutions to tribal problems. Our history is just as important as our future and is a necessary component in our revival.

4.2 Salish Health; then and now

"*We all need good medicine. And it comes in so many forms. From traditional smudging medicines to healing plant medicines, from time spent with family and treasured friends to good teachings and time spent with Mother Earth. All important and all to be honored*."
-Natasha Jones (2018)

The Salish way of understanding the world is conveyed through describing various states of being (see chapter 4.3). This is a way we relate to each other and is one of the primary indicators of overall wellbeing, linguistically speaking. To ask someone how they're doing we say, "*kʷeć̓šč̓ə́n̓*?" A root of that word is *čen* which is a way of saying where. But not just where, what state something is in as a question (Pete 2019). The question *kʷeć̓šč̓ə́n̓* literally means "what state are you in?"

For Salish epidemiology, concepts of health and illness have deeper roots than simply states of being. The ancestral Salish view of health is surprisingly binary. It's either one thing or the other with transitions to mark specificities of health. For example, you can be "healthy" or "not healthy" as a general blanket statement. However, if someone were to respond to the question *kʷeć̓šč̓ə́n̓* and say "good" *x̣est* or "bad" *tas x̣*e, that is more of a statement that tells people what you are not. When you are good, you are not "damaged, ill, corrupt, polluted or injured" (Pete 2019). This assessment applies to individual health as well because language is the carrier of health and illness beliefs (Jovchelovitch and Gervais 1999). The language can assist an individual in conveying what ails them, but also provides context when health is discussed generally. When someone is "*x̣est*" their belief in themselves is that they are in the absence of damage or injury.

To go beyond linguistics, understanding Salish health systems means delving into traditional concepts of culture, health and healing. Historically Columbia plateau peoples, like the Salish had diverse medical traditions and ideologies surrounding health and illness (Heiner 2013). For Indigenous peoples cultural practices usually develop in accordance with the climate and resources of the natural environment (Struthers et. al 2004). With Salish beliefs systems leaning heavily on the natural world and the spiritual world, it makes sense that their ideas of health and healing fall in the same categories. Indeed, Salish epidemiology is housed in two realms: the spiritual and the physical. The physical body where disease and illness manifest and treatment comes from the physical world (i.e. plant medicine), and the spiritual body encompasses a variety of healing practices that work on the intangible problems people face. Hardship, loss, hopelessness as well as imbalances with the spirit world are some of these problems. The coexistence of these two realms of health, are important in contextualizing the development of disease patterns and health issues historically.

Spiritually, development of health and healing practices in the Salish were not dependent on the Creator. While *Amotqn* was central to their belief system, the Salish foundation to medicine was based on spiritual power (Cebula 2000, 17). This power was referred to as *sumeš* and takes on many forms. Coming from dreams, vision quests, songs, sweat lodge, and ceremonial dances *sumeš* was imparted on some, but not all, Salish people. The relationship between the Salish and non-human world was the link to *sumeš* although *sumeš* could come from non-human beings as well. Guardian spirits in the form of plants and animals guided Salish people and were often the sources of *sumeš* in many tribal stories still told today.

Spiritual power and medicine were not to be taken lightly though. In order to acquire *sumeš,* Salish people ventured on vision quests, usually fasting for periods of time in traditional fasting sites. The Salish and other tribes (like the related Coeur D' Alene peoples) believed the mountains served as a meeting ground for the human and non-human world (Heiner 2014, 101). Even on these fasting ventures, there was a possibility that *sumeš* would not be bestowed on these individuals. However, in the case that a guardian spirit appeared to an individual or a vision was granted to them, specific powers of hunting, gathering and/or healing would be their *sumeš* (Frey 2001, 53). Instructions to carry out this power were also part of acquisition. Taboos were cited to the individual and if they were broken, they could lose their power (Heiner 2014).

Taboos were a large guiding principle in Salish spiritual beliefs. In the stories of Coyote and other animal beings, lessons on how to live properly were passed down to the people. Taboos were a large part of setting the parameters for Salish living. Not adhering to taboos created spiritual misalignment in an individual and could lead to personal harm. In the realm of health and healing, *sumeš* was granted to a particular subset of Salish people to be medicine men. These individuals would have the knowledge and guidance to cure sickness in the tribe, spiritual and physical. Holding this important position medicine people were sought out in times of sickness or personal ailment for help. The Medicine people were guides for spiritual and physical healing in the people.

Reliance on healers for medical treatments was one of the primary ways that the Salish facilitated healing. Treatments involved medicinal plants, the sweat lodge, and other community rituals and ceremonies to restore health. Yet, in terms of preventative care, a lot of Salish people participated in these activities even when not sick. The

combination of the nutritionally rich and valuable herbal medicines with practices such as sweat lodge and the Medicine Dances allowed people to be active participants in culture but also allow the inherent healing properties of these activities to keep them in good health.

These intricate healing and treatment practices predated European contact but also continuously developed as Columbia Plateau peoples adapted to the shifting environment and political changes brought on by colonization (Waldram et al. 2006, 126). Today, on the Flathead Indian Reservation there are few if any Medicine people still practicing traditional healing methods. Knowledge and usage of spiritual powers and spiritual doctoring has ebbed in the past century. However, knowledge of herbal remedies is still alive and well. While modern Salish people rely on Western medicine and doctors, there are still medicinal plants that are recognized for their healing properties. Even when Jeff Hart (1974) worked with Salish, Pend d'Oreille and Kootenai informants in the 1970's he found that elders could identify at least 71 plants used for medicine. This is one aspect of traditional medicine that remains relatively unchanged and these plants are still with us today.

For Indigenous peoples, the use of plants involved extensive knowledge of not only their medicinal qualities but also botanical pharmacology. Healers knew the proper plants to treat specific ailments as well as how to properly harvest, administer, and store the plants for future use. Transmission of cultural health and illness knowledge is carried by language (Hjelm et al. 2005) and many of the Salish herbal remedies were passed down intergenerationally. As specified above, knowledge of healing can also be attained through dreams, visions, or spiritual guidance.

Healing through plant medicine was careful and critical work. Improper dosage could lead to death. In the realm of Salish healing practices, a common plant that's considered dangerous is water hemlock (*Cicuta maculata*). Known to be violently toxic and easily misidentified, the use of water hemlock in Salish medicine was prohibited unless in the right hands. This is one of the reasons why this thesis is on food plants only. Because I do not possess the proper authority or knowledge base of Salish medicinal plants, I do not believe it is safe to make this knowledge accessible. While there is talk of revitalizing traditional medicinal practices for culture, health, and healing, I'm choosing the safest and most manageable route.

These are just some of the ways that Salish went about health in the past. Traditional healing practices are not fully lost to modernity. Plant medicine still grows within the landscape and there are a few tribal members that have adequate knowledge of their uses. Balance, maintenance of spiritual essence, as well as participation in ceremony, sweat lodge and plant medicine were the primary ways that Salish people were active participants in their own health.

Historic Salish health ideology contextualizes the current conceptualizations of health by Salish people living today. However, before intricacies of current tribal health awareness can be explored, the overall perception of health of American Indians by western and medical standards must be explained and evaluated. This is the common standard used to evaluate health in a majority of Americans. But in situating these standards alongside indigenous perceptions, as well as through a Salish-specific lens, analyzing and assessing what "health" and "healing" means is to take all these perceptions into account.

In the sections following I parcel three schools of thought as they pertain to concepts and systems of health. The first is the commonly accepted Western medicine ideas of health and wellness, followed by the up-and-coming holistic wellness ideologies, ending with the Bitterroot Salish way of viewing health. These various systems and methods of understanding all have something to contribute to our overall perception of what "good" health is and how we can improve the health of indigenous populations. It is paramount that all avenues are explored such that we can truly understand the state of Salish health today, modern and historic perceptions of health, and the potential for healing with traditional practices.

Common perceptions of health:

In English or western thought, health is defined as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." (World Health Organization 1946). The constitution of the World Health Organization states that "the enjoyment of the highest standards of health is a fundamental right of every human being without distinction of race, religion, political belief, economic or social condition." A lofty goal considering that a majority of Indigenous people in the United States live opposite to this ideal.

American Indian and Alaska Native (AI/AN) populations have consistently experienced lower health status when compared with other Americans (Indian Health Service 2018). Studies conducted in 2009-2011 determined that heart disease, unintentional injuries, and diabetes are the leading causes of death in AI/AN people (Ibid.) Additionally, this population group also has a high prevalence and risk for mental health problems, suicide, obesity, liver disease, and substance abuse (U.S. Department of

Health and Human Services 2018). Researchers call this a burden of disease. It is a concept developed in 1990 by the Harvard School of Public Health, and the World Health Organization to describe the "death and loss of health due to diseases, injuries and risk factors for all regions of the world." The burden of disease of an individual or group is calculated by adding together the number of years of life a person loses as a consequence of dying early because of disease and the number of years a person lives with disability caused by disease. Looking at the sums of each reveals a lot about a population's health. For AI/AN populations, the burden of disease is increasingly high, which could account for the generally lower life expectancy (5.5 years less than all the U.S races) and disproportionate rates of health disparities in a relatively small population. Why is this so?

Biomedicine historically has viewed disease as "distinct, discrete, and disjunctive entities that exist within individuals' human bodies" (Singer 2004, 9). It is a singular factor, existing separately from social and political conditions. As social studies and cross-sectionality in science improved, so did one-sided conceptions of disease and illness. Now disease has been understood to exist in a variety of socio-economic spheres. It can be linked to a variety of ailments such as malnutrition, economic insecurity, occupational risks, poor housing, and diminishment of political power (Waitzkin 1981, 98). Infectious diseases and epidemics were the primary health concerns for Indigenous peoples in colonization periods. Yet as indigenous bodies became more immune to diseases, different illnesses crept in as society, politics, and economics shifted with time.

Medical and public health experts attribute high burden of disease in American Indian and Alaska Native populations to inadequate education, poverty, cultural

differences in healthcare, poor social conditions, and systemic inequality. This commonality of chronic disease epidemic is shared with indigenous groups around the world and cumulatively contributes to the international "crisis of public health" (Lobstein et. al 2004). Many native populations do not receive quality healthcare to treat these disease burdens due to geographic isolation, limited access to transportation, low income, and lack of services available. There is a distinct need to analyze and mitigate the many factors that impact the health of native people such that native peoples can enjoy the highest standards of health. It's important to note that the disease burden of American Indian people is a relatively new health development, having advanced in the past century or so, with increasingly higher risk and illness in AI/AN populations in the last fifty years (National Institutes of Health 2016).

While tribal leaders, health care experts, and policymakers are trying to produce solutions to this ongoing problem, it's also important to understand the contributions of history to the poor health of native populations. Merging the biological and social aspects of health as well as the etiology of disease within a respective group can inform the current prevalence of disease and illness in tribal communities. Research on disease and health histories highlights that disease cannot be singularly understood as a solitary medical event (Heiner 2014). Of course, there are a myriad of socio-political factors that contribute to modern illnesses in Indigenous peoples but susceptibility of harm stems from colonial times.

> *"The results of colonization were consistently cataclysmic… loss of culture, loss of land, loss of voice, loss of population, loss of dignity, loss of health, and wellbeing."*
> Durie 2004.

Common to many indigenous groups worldwide are the powerful effects of colonization on their land bases, their physical body and their ancestral ways of living. Colonization dominated societies that were outside the cultural norm (i.e. non-european or western ideal) and separated them from their own ways of life. From the introduction of microorganisms to which traditional peoples had no immunity, to the disruption of the carefully cultivated custodial habits of the indigenous peoples in their environmental health of traditional societies (Gracey and King 2009, 65), the havoc wreaked on indigenous bodies and indigenous landscapes was immense and still can be felt today.

Because this thesis revolves around the role of food, environment, and culture in illness and health, the effects of colonization did more than just destroy a web of interwoven ties between indigenous peoples and their living food systems; it forced foreign food systems and lifeways upon the colonized to use as they attempted to piece together the broken links made strong by the generations before them. Contact between Indigenous people and Europeans was not a single event but rather the beginnings of a series of ongoing encounters and impressions that contributed to the state of Native affairs now (Lutz 2007).

Colonization blocked access to and destroyed traditional farming, food-gathering, and hunting/fishing places and practices for indigenous peoples around the world (Ibid). Ripping apart the very fabric upon which traditional societies were built, not only affected indigenous people physically and mentally, it also increased their risk for political and social marginalization. The institutions of western idealism focused on hierarchy and socioeconomic status. The dispossession of traditional lands impoverished tribal people because it was the very essence of their livelihood. Mason Durie (2004) in

"Understanding Health and illness: Research at the interface between science and indigenous knowledge summarizes this connection as;

> *"The relations between people and the environment also forms an important foundation for the organization of indigenous knowledge, the categorizations of life experiences and shaping of attitudes and patterns of thinking. Because human identity is regarded as an extension of the environment, there is an element of inseparability between people and the natural world"*

The strong sense of unity to the environment, Durie and many other scholars posit, and the disruption of this connection (coupled with impending western ideals of economy, class, and racial inequality) is a strong root cause of why chronic illness plagues indigenous communities. When Indians were removed from their usual and accustomed places, the significance of introduced diseases faded and political events with a variety of implications for health took the epidemiological stage.

Gregory Cajete in *A People's Ecology* (1999) acknowledges that a more complete understanding of the nature of health coupled with relationship to environment is a good place to start in assessing the state of native health today. He attributes its makeup to "ethno-stress" (vii) a term that is promoted by the disruption of culture and land loss in indigenous communities. The sudden shift from land-based food practices to decreased activity and consumption of highly processed, refined foodstuffs largely has had a huge impact on how indigenous bodies function. Non-Insulin-dependent diabetes is a large factor in the morbidity and mortality in Native American people. In fact, it's the most common type of diabetes in the population (First Nations Development Institute 2014). Also known as Type II diabetes, non-insulin dependent diabetes mellitus occurs when the body becomes resistant to insulin and doesn't process glucose or blood sugar properly.

Dietary changes and reduced activity levels in a susceptible genotype contribute to the rise of diabetes prevalence in Native Americans (Gittelsjohn, et. al 1998, 541).

Genes play a role in metabolic functioning because they enable blood sugar to enter cells, aid in food digestion, and help develop tissue. This functioning can be triggered and stymied by environmental factors. Gene expressions influence inherited susceptibility to disease, ability of a population to process certain foods, and adaptation to food tolerance. Meanwhile inherited susceptibility is impacted by environmental exposure, diet, and lifestyle (Eds. Robidoux and Mason 2017, 43). Thus, genes play a role in disease development over time but environmental factors largely shape the exposure and risk to them.

This information begs the question, could the higher prevalence in chronic disease in indigenous peoples be due to our genes being ill-equipped to manage the impactful transition from a traditional diet to a western one? The short answer is yes but there's a lot more to it. A study conducted in Ojibwe communities of Canada called "Specific patterns of food consumption and preparation are associated with diabetes and obesity in a Native Canadian Community" (Gittelsjohn et al. 1998) tell us that genes in many non-indigenous groups have variants in their genes that protect against chronic diseases. Therefore, genetic disposition can increase the likelihood of risk for chronic diseases in some groups while offering protective variants in others. However, this does not mean that the protected gene-variants offer immunity or simply lower risk associated with chronic diseases. This same study also stated that genetic makeup alone cannot explain the high rates of obesity and food-related diseases.

Unlike genes, where inherited susceptibility can take years to develop in expressions, an individual's environment, can shift and change dramatically in a short period of time. It also can set the precedent for the individual habits and lifestyle. The sudden shift of indigenous peoples from land-based practices to consumption of highly processed, calorie-dense food with little movement has a greater impact on the prevalence of chronic illness in indigenous bodies than other populations. The transition from eating land-based foods to store-bought foods also has a significant impact on the overall health of native peoples. Energy expenditure is not as constant or high as it used to be ancestrally. In the world of cars, public transportation, convenience, and purchasing power, it's much easier to get from place to place these days. This means fewer people are expending energy to get and do what they need to do. For tribal groups, whose ancestors spent hours upon hours walking, running, crawling, riding, and moving throughout the day, this transition has had a bigger impact than most.

When Columbus arrived in North America in 1492, anthropologists suppose that American Indians were among the healthiest populations in the world (Cajete 82). This is due to dietary diversity (i.e. eating with the seasons, local foods, variety of fruits/vegetables and protein) as well as consistent movement patterns tied to nomadic lifestyles. The value of a good diet cannot be underestimated in evaluating the health of a population. With many strings and ties linked to food and food access, it's no wonder how the deterioration of health is linked to the transition of traditional food practices to processed, cheap, and nutritionally deficient ones. Studies conducted on indigenous communities worldwide by Dr. Weston Price made the links between colonization,

ensuing dietary shifts in tribal communities to chronic disease and dental decay (Cajete, 86).

Of course, it is also important to point out that food-related illness is on the rise in North America because of this general trend of a sedentary lifestyle. Slowly but surely, we are becoming the fattest, unhealthiest, and unhappiest people in the world. Ongoing chronic diseases affect 133 million Americans as of 2019 (National Health Council 2014) and half of all adults in America have some type of chronic condition. They are usually linked to others and almost a third of the population is living with multiple chronic conditions such as diabetes, heart disease, depression and obesity. Living with one or more chronic conditions impacts overall health and longevity. In 2009, seven of ten deaths in the United States were due to chronic diseases (Ibid). Not all chronic diseases arise primarily from food intake; there are a multitude of factors that play into an individual's relationship to chronic disease such as environment, social status, economics, exposure to toxins, access to healthcare, and genetics. Yet, in examining all these factors, one can't help but wonder about the global food economy's overwhelming contribution to the population of Americans becoming sicker, fatter, and sadder.

Holistic ideology forces us to reconcile with the idea that functionality within the body is all interconnected in some way or another. Thus, health can be seen as not just about the functionality of one part of an individual nor the functionality of the individual to the whole of society but the immense amount of strings that connect them all. To understand the entirety of the web is to understand that a lot of chronic illnesses are connected in the body, and similarly connected across political, social, and economic spectrums of people.

It would be easy for me to point out the status of Native American health in quantifiable measures and deem the race one of "poor health." But that's already been done; what is necessary to outline in this section is that the health of native people is not just a statistic. It is a branch of traditional lifeways that is wilting because concepts and ideologies of Western medicine see health from one lens. This is what Debbie Martin conveys in her article "Two-Eyed Seeing: A framework for understanding indigenous and non-indigenous approaches to indigenous health research" (2012). Biomedicine has already quantified the health problems in indigenous communities yet interdisciplinary research understands in greater depth the complex nature of the causes and consequences of ill-health (23). What a two-eyed seeing framework proposes is that we not do away with biomedical markers of health, but to use them as a reference when pursuing sociological, economic, historic, and political epidemiological causation patterns.

Likewise, finding health solutions to chronic illness in Indigenous populations requires input from the population in question. Historically and currently, Indigenous people have different frameworks in conceptualizing health and wellness within themselves and in broader contexts. In Salish culture the health and healing of an individual comes from the spiritual and physical realms. Additionally, the health of the individual is intricately tied to the health of other Indigenous systems (the environment, the family, connection to identity, etc.). Presupposing the nature of indigenous health does nothing until we ask the people themselves. That is, how do indigenous people evaluate their own health status? How can an indigenous framework shape concepts of health while also contributing to solutions to an on-going problem? Thus, indigenous

health must be defined and understood in two realms; the western medical and the indigenous conceptual.

> *"Indigenous People's concept of health and survival is both a collective and individual inter-generational continuum encompassing a holistic perspective incorporating four distinct shared dimensions of life. These dimensions are the spiritual, intellectual, physical, and emotional. Linking these four fundamental dimensions, health and survival manifests itself on multiple levels where the past, present and future coexist simultaneously."*
>
> -Declaration on the Health and Survival of Indigenous Peoples, WHO International Consultation on the Health of Indigenous Peoples in Geneva, 1999.

The role of food in multi-faceted understandings of Indigenous health:

When evaluating the role of chronic illness in Indigenous populations today, the common epidemiological patterns point to the transition of traditional-to-western lifestyle. Specifically, how the shift in physical movement and dietary patterns led to the rise of chronic illness in tribal populations. Food, I realize, is a critical component of how different communities operate. Each group may have a different cuisine based on their locality but each relies on culture and social structures in dictating their ties with food. We all need food, yet what does it mean to have a relationship with food? What are the parameters of that relationship and how does that affect our diet and nutrition? Especially for Indigenous communities, this means understanding that food is more than just nutrition, but a lifeway that's been part of the culture for millennia. There are few nutrition studies that encapsulate this framework. While keeping in mind Martin's "Two-Eyed Seeing" recommendations, the following is a research study that tried to apply Western solutions to an Indigenous population.

A dietary study conducted through the Center for Nutrition Policy and Promotion in 1999 (Basiotis et. al) evaluated the diet of American Indians by using the Healthy Eating Index (HEI). The HEI, as determined by the U.S. Department of Agriculture

(USDA), was used to measure an individual's adherence to the Food Guide Pyramid. Serving recommendations in the five major food groups (grains, vegetables, fruits, milk, and meat) as well as measurements of fat consumption, caloric intake and diet variety (based on the food pyramid scheme) all contributed to an overall score in the HEI. Based on these quantifiers, American Indians (at the time) scored less than satisfying. With 74% of the 107 surveyed landing in the "diet needs improvement category, the researchers recommended that the American Indian population should improve their consumption of milk and fruits, as well as diversify their eating habits.

This study is skewed and culturally uninformed for a variety of reasons. While the study does recognize that "the diets of American Indians vary by tribe and by personal characteristics (age)", it uses American standards of diet to measure a group who ultimately was not meant to be included in those parameters at all. The USDA's example of a what constitutes a diet is an overgeneralized representation of what all Americans should be eating without taking into consideration the dietary habits of the variety of groups and cultures that make up the fabric of American racial diversity. In other words, the assimilation of the "food-group" mentality fails to recognize ancestral eating habits of Native peoples and nutrition research reflects just that.

Diets vary from tribe to tribe, region to region, and even band to band. Hunter-gatherer societies did not partake in agriculture or domestication of animals. The reason why an estimated 75% of Native Americans are lactose intolerant (American Indian Health and Diet Project n.d.) is because domestication of cows and procurement of dairy products was not feasible for the population. The aforementioned study did get one thing right, the variance of diet from tribe to tribe. For instance, the Coastal Salish of the

Pacific Northwest (while in the same linguistic family as the Interior Salish) have some similarities in fruits (i.e. berries) and some plants (camas and cattails), but their diets are considerably different than the Bitterroot Salish due to the fact that they live in a completely different environmental region. Coastal Salish bands largely depend on the sea and fish for their diet while the Bitterroot Salish depend on meat, fish, and tallow. There are very few nutritional studies that advocate for a return to these traditional diets to improve health when research has shown that traditional diets were intrinsically healthier.

Health experts and doctors *do* agree that chronic diseases and their risk factors need to be countered by promotion of healthy lifestyles, change in food habits, encouragement in physical activity and fostering positive connections between physical, emotional, and mental wellbeing (Strong, et. al 2006). It seems apparent that the link between diet and exercise, or movement and nutrition lay the foundation for development or prevention of chronic disease in the body. However, traditional diet and practices mean so much more than that. Cultural aspects surrounding food and lifestyles as well as the incorporation of physical activity can be the gateway to improving the health of indigenous people today.

The foundation of culturally important and ancestrally life-sustaining foods is inextricably tied to the emotional, physical and spiritual wellbeing in an indigenous society. The relationship between diet, food, practices, and concepts of health and wellness helped cultivate the impressive level of health of pre-colonial indigenous societies. Yet, there are important nuances to recognize in conceptions of pre-colonial and post-colonial health. While ancestral Salish people may have quantified their health

one-way, modern Salish people may follow a different pathway for understanding health both will be explored below.

Modern view of Salish health:

> "*Foo̓d is what nourishes all humans. When having connections to particular foods (like sp̓e̓ƛ̓m or sxw̓ eʔli), you come to understand aspects of creation, oral history, language, and culture.*
> *This benefits people spiritually, physically and emotionally. Food not only nourishes our bodies but established a reciprocal and honorable relationship with our traditional foods benefits us holistically*." (SurveyMonkey respondent, 2019).

Up until the 21st century, nothing had been written on the health patterns of the Flathead Reservation of the early 20th century besides basic overview of disease epidemics (Bigart and Woodcock 1981; Boyd 1998, 1999). Christine Heiner changed this trajectory in 2014 with her master's thesis "Demographic and epidemiological changes on the Flathead Reservation in 1887-1935." She examines the health patterns of the Salish, Pend d'Oreille (Kalispel) and Kootenai using research of early Native American and epidemiological patterns post-contact (Ibid, iii). She follows the trajectory of infectious disease epidemics on the Flathead Indian Reservation (and surrounding tribal communities) to chronic diseases (such as heart disease and cancer) as causes of death. Her research stresses the importance of understanding political and economic factors as the ultimate causes of disease over biological and genetic factors.

In the absence of direct written works on Salish health patterns, Heiner has found there have been a few researchers (Boyd (1998&1999) and (Kelm (1998)) who have researched the health status of Columbia Plateau tribes during the 20th century. One study, by Trafzer (1997, 1998, 2001) tracked the epidemiological changes of the Yakima tribe from Washington. This research offers an important parallel to the Salish because of the shared regional ties between the two tribes. Between the periods of 1888-1964 the

nutritional shifts had the most impact on Yakima tribal epidemiology as they transitioned from hunting and gathering to life confined to the reservation and situated under the control of the Bureau of Indian Affairs (BIA).

When the Flathead Indian Reservation was established in 1855 and the Salish were removed from their traditional homelands in the Bitterroot Valley in 1891, subsistence was drastically changed. Not only was the reservation politically controlled by the Bureau of Indian Affairs, but Native peoples were severely limited in their ability to hunt, fish and forage within reservation boundaries. In the event that they traveled off reservation for these activities, they were usually met with hostility by settlers who now inhabited their usual and accustomed subsistence spaces (Montana Office of Public Instruction n.d, 32). By 1910, heart disease was the leading cause of death for the state of Montana (Anderson and Wilson 1965). While most infectious diseases on the Flathead reservation were in decline by this time, chronic diseases were on the rise. Trafzer and McCoy (2009) attribute this rise to increased stress of removal and drastic changes in diet. The change in diet undoubtedly had a hand in the rise of heart disease on the Flathead Indian Reservation but the socio-political severance between Salish relationships with food is a large epidemiological cause in the change of overall health (Heiner 2014, 187).

The net result of the decline in utilizing traditional foods placed Salish bodies in jeopardy for the following century. From the 1920's and on, the impact of chronic illness on Salish health patterns continued to have critical impacts. Currently, on the Flathead Indian Reservation, disproportionate rates of diabetes, obesity and hypertension plague the people along with skyrocketing incidents of suicide within the past five years. These

alarming indicators of health are the result of the similar trajectories of indigenous peoples across the globe. Factors include: contact, ecosystem shifts, encroaching settlers, removal, relocation, limited access to traditional land bases, assimilation, shift in diets and lifestyles to current modernity. These processes contribute to "ethno-stress" as well as have centralized efforts in the general disconnect of the Salish community to traditional knowledge. Namely, knowledge on ancestral food systems and practices. Currently, there is a distinct need to address the mental, physical, and emotional health of Salish people as well as work on revitalizing the healthy cultural practices that are at risk. I believe that reintegrating Traditional Plant Knowledge (TPK) into modern Salish life through the revitalization and engagement of traditional Salish food practices, especially traditional food plants, can lead us in the right direction to improving the health of the Salish community. Yet, before health can be improved upon in the present, we must look back at ancestral concepts of health as well as to current community members to create a collective vision of a sustainable Salish future.

Historically, the concept of chronic illness doesn't exist in the Salish vocabulary. Chronic illnesses related to nutrition (tooth decay, diabetes, hypertension, obesity etc.) did not exist in Salish ethnohistory as they were long-term illnesses. Linguist Tachini Pete (2019) asserts that there is no language dynamics that reflect the existence of chronic types of illnesses in ancestral past. Short term debilitation and/or injury are the most commonly understood disease and illness concepts in Salish history with specific language to convey it.

For instance, the Salish have words and treatments for health issues from heart palpitations and high blood pressure to stomach infection and the common cold.

However, these ailments and their treatments can be traced to distinct locations in the body. In researching traditional plant medicine, it seems as though specific uses for herbs are traced to isolated injury within the body. Even with these are older conceptions of health and healing, their prevalence in community conceptions of wellness has carried a little in the sense that generations of Salish before us were healthier and had specific rituals in place to attain that level of health.

One Salish interviewee observed this in her grandmother,

> "*Those simple things* [treatments], *we've gotten away from that… we were still treating ourselves like we had for hundreds of years. We didn't have the issues that we have now. Diabetes was not overwhelmingly in our population. I'm a diabetic myself and if I just go back to eating roots, berries… our natural foods, I think my blood sugar would go back to its normal state. I believe that."*
>
> -Interview with the author, 2019.

Nowadays Salish people are aware of chronic illness in their bodies and the bodies of the community and have explicitly expressed the link between their consumption of traditional as a cause of these health patterns. When I sat down with an adult male language apprentice, he discussed his interactions with the natural world and traditional food plants in comparison of his mentors growing up. In addition to the loss of traditional knowledge he's observed in his elders (and their discussions of *their* elders) the biggest barrier he faces in accessing traditional food plants is his own health and knowledge. He goes on…

> "*I'm trying to get back to that...I used to go to all sorts of places and go walking, look around. I'm trying to get healthier. Lose some weight and get going and doing these things. My goal, and it's a slow process but I'm working on it… I'd like to see us all come to live in that way and teach younger people how to grow up in that... I'd like to see myself eating a lot healthier and to have my daughter growing up and eating healthy.... I want us to be healthier people."*

-Interview with author, 2019.

Discussing illness and health may not be as descriptively specific linguistically as it used to be for Salish people. The idea of binary living and states of being are not as widely practiced or understood among modern Salish citizens. Language development and revitalization may adapt to go beyond ancestral duality in expression of health and wellness. However, the current conception of health by modern Salish people aligns with the World Health Organization definition "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO 1946). Because this is the way that Salish people see their health today, "Salish health" is a direct reference to the definition above.

Today's Salish people follow a more holistic and biomedical understanding of their health as opposed to their predecessors. In fact, when talking to Salish community members (either in an interview or through a survey), I have gathered that many view traditional food practices a form of healthy engagement. That is, when Salish people interact with traditional food plants and practices they feel like their spiritual, emotional, and physical well-being is being improved upon. Many interviewees made the stark connection between their current diet and their ailments and articulated the hope that if they returned to traditional food ways, their ailments would decrease.

Here are some of the things that survey respondents had to say about the connection between their mental, spiritual, and physical health and traditional food plant practices.

"*Our plants are a large part of who we are and using them connects me to the earth and our ancestors. I feel better physically and mentally every time I engage with our plants.*"

"*I work hard for traditional foods and when I eat or utilize them, I feel very accomplished and savor each bite. I find myself more humbled knowing how very important these foods were for Salish diet and survival and by putting the effort to handle traditional plants and foods I recognize the hard work my ancestors had to do and feel that much more connected to them in doing so.*"

"*Eating our traditional foods are what our bodies are designed for. It also connects us with the land and our ancestors*."

Other survey respondents had particular comments about the connection between mind, body, spirit when understood or seen through culture.

"*What you eat is so important to every aspect of life and feeling connected with your own culture is so crucial to forming your own unique identity in this world.*"

"*The traditional plants of our area hold a sacred connection to everything that we are. Yes, it is good to enjoy them but when you take the understanding further, stories, medicine, health, it feeds all of who you are.*"

Others highlighted that in order to understand this connection you have to come into your identity as a Salish person;

"*Harvesting is only one small aspect of learning who we are. The traditions to our culture help us identify. The more seasons you harvest the more confident you become.*"

"*I don't know enough history to feel more connection*."

All aspects discussed by Salish citizens point to this idea that culture, traditional food ways, health and longevity are intertwined. An individual's health has more links than what western medicine might suggest. It's important to note that "health" to Salish people is much more than biomarkers and logistics. Those are important quantifiers to show people where health status is, but they don't address the qualitative functionality of what it means to "be healthy" by indigenous standards. Health and wellness in essence is a combination of all those ideas combined. Western medicine illuminates where complex history and injustice have had effects in the physical body, and indigenous perspective shows that culture, health, and healing examine the mind, body, and spirit within the individual and the collective.

It's through these various lenses that we can begin to understand the importance of diet, culture, and individual/tribal conceptions of health for the Salish community. International data and statistics suggest that chronic illness is prevalent in all Indigenous communities and American Indians have a high risk for developing them. Emerging ideologies surrounding health and wellness point to assessment of complex histories as well as socioeconomics, healthcare access, health and wellness regimens, as well as incorporating more indigenous frameworks into the existing systems. In evaluating the history of native people around the world, and centering concepts of health and wellness

in the Salish community, it is clear that improvement of health is intricately tied to improvement of cultural traditions as well as positively enforcing tribal ideologies in tandem with cultivating healthy habits. Salish community members echo this sentiment by looking at their own relationship to food and more so, their relationship with food plants. To understand the past is to acknowledge colonial effects on health, to identify the current status of health is to view health holistically, and to revitalize traditions, foodways, and positive habits creates space for a culturally enriched and healthy future for Salish people.

4.3 Salish language & culture; linguistic paradigms and cultural adaptation

"To inhabit a language, is to inhabit a living universe and vice-versa."
Samuel Johnson.

Keith Basso used this quote in his illustrious book, *Wisdom Sits in Places* (1996). Basso's argument is that the study of culture must include the study of language because each complement and influence the understanding of the other. The enhancement of studying indigenous languages, in many contexts, can illuminate various ideas that the English dominant narrative cannot conceptualize. In the case of Basso's book, the idea that generational wisdom is conveyed through traditional Apache language and place-names is what shapes the title. Basso learns that wisdom for Apache people is found in the landscape. Spaces that have history and memory carry wisdom through intimacy with the language of the Apache people and can be only understood that way. In these explanations of the influence of culture, space, and time on tribal entities, Basso exemplifies that experiencing, studying, and understanding the local environment can be elevated by utilizing the indigenous languages of that region. In other words, the languages that these places and people know best.

Language contains local sociocultural information and enhances meaning in interactions (Ochs 1990). Not only does language provide insight into how cultural groups are managing changing environments (Field & Kroskrity 2009), but it also can offer the lens for which Indigenous people saw the world historically. The Salish language, formally known as the Interior Salish Dialect was formerly the primary form of communication of the Salish people. English has become the common vernacular among modern Salish people today (Wood 2014) but many efforts have been put into language revitalization. From the creation of the *Nkʼʷusm* K-8 language immersion school in 2002

(Nk̓wusm 2019) to the formation of the Salish Language Educator Development (SLED) program at Salish Kootenai College in 2016. (Salish Kootenai College 2019), Salish language revitalization is underway. While the immersion school caters to the next generation of young Salish learners, the SLED program hopes to educate and mold 40 Salish language teachers in the next 20 years (Ibid). These are efforts to address the distinct need for more Salish speakers, learners, and teachers as tribal elders and knowledge keepers pass on. There are less than 50 fluent speakers of Interior Salish dialect and all are over the age of 60 (Nk̓wusm 2012). Despite this unsettling statistic, Salish language over all is resurging. Other cultural bands of Salish speaking peoples are developing their own programs, schools, speakers and teachers to revitalize the Salish language and efforts are flourishing.

Language embodies cultural knowledge and symbolizes intergenerational knowledge passed through time. Using Salish terms, phrases, and names is not so much to create fluency but to expose individuals to the language, cultural beliefs, and lessons of the Salish people. Nancy Turner, a renown botanist, has dedicated volumes of work exclusively to Salishan, Athabaskan, and Dene speaking bands of the Pacific Northwest, Canada and Interior Plateaus. Through thorough examination of the different ecological regions, languages, cultural plant uses, and histories of these bands and their respective tribes, Turner has created a comprehensive view on the botanical world of these peoples. Her work is incredibly informative and useful with a litany of specific examples of the intersections of traditional uses, names, and relationships tribes have maintained with plants ancestrally and into modern day.

Turner dedicates a chapter in, *Ancient Pathways, Ancestral Knowledge Vol. 1* (2014) to the use of plant names and their impact on understanding people-plant histories. Almost all cultural groups use naming as a form of communicating; it is an inherent human activity. For most indigenous peoples, "plant names can provide significant clues about historical, linguistic, and cultural relationships…comparisons of plant names can bring some of these relationships into focus." (122). Similar to Basso's revelation, this study of linguistics has revealed to me the inherent importance and intimacy Salish people have cultivated with our plant relatives.

While the Interior (i.e Bitterroot) Salish are a part of Turner's research, a study specifically dedicated to the various cultural and botanical aspects of Salish food plants is warranted especially in the realm of lexicon and Salish plant taxonomy. I was able to discuss Salish language and food plant relations with linguist and lifetime Salish learner Tachini Pete. Pete has been an avid researcher on the Interior Salish dialect and compiled critically important resources such as the *Seliš nyoʔonuntn Dictionary English to Salish Translation Dictionary* (2010). By bringing the context that language offers to traditional plant knowledge, a deeper sense of its role in the Salish community is revealed. The language is not the primary focus of this thesis but is an integral piece of imparting Salish perspectives. By including Salish lexicon, taxonomy, and language details, connections of language bolsters the bonds of respect, perpetuates a long-standing relationship with the natural world and contributes to revitalization efforts. My conversation with Tachini profoundly changed the way that I see plants and the world now. Here are some revelations from our discussion.

General Salish lexicon:

The world of the Salish is shaped by states: states of being, states of objects, and states of life. All of these are under the scrutiny of the individual and their perspective. The view of the world is through the individual eyes. In essence, my view of what is "good" or *x̣est* might be different than my parents'. My view of something is shaped by my perspective. However, there are generalities within the Salish language, and these are employed in usage. For humans there are things that need to be in a certain state for them to be usable by us. A tree must be living to produce wood (soon to be cut), a bush to bear berries for us to eat (for we have no use for the flower for food). In the case of an animal, a flower may be useful to them as well as a dead tree. The states of these natural objects build into the perspective of the being for whom they're being used for. Descriptors such as "good" or *x̣est* apply differently for say, myself or squirrel.

Thus, there are distinct ideologies associated with *how* Salish people engage with the environment. We look at the viability of an object and its uses to us as well as the opportunity for continuance of this viability. For example, the word for "meat" in Salish is *sqe̓ltč*. The root of that word is *qel* which is commonly translated to "fresh". However, a more in-depth explanation is that *qel* points to the state of viability and the topping of defined mass/body. In the case of meat, *sqe̓ltč* is literally the enduring viability of the mass that provides life (Pete 2019). Thus, meat is in a viable state to be used for human nourishment as well as bodily mass from which human functioning occurs (i.e. muscle).

This idea of viability carries over to all things. You can use the term *sqe̓ltč* for trees for example. It's a descriptor of the trees internal function to refer to the body or essence of viability within the tree. Salish differs from English because of the fluid terms

used for describing the world. While in English "tree" refers to a specific object, in Salish the same term (*sqe̓ltč*) applies to meat, humans, and trees based on their current state and usage. The same ideology can be applied to non-living objects as well. The word for chair, is *snčłemutn* which translates to "place of sitting." In English, when we think of a chair, we think of a four-legged, sturdy object for sitting but in Salish the term for chair just refers to the usage of a place of sitting. Thus, a bucket could be a *snčłemutn* or a tree stump. Everything is relative to the person using the object and how the object is perceived. Almost all things possess an essence of viability and that is helpful in determining their linguistic aspects and application.

Applying Salish lexicon to traditional food plants, is a little more complicated than trees and chairs because of the time signature that plant names possess. While common words today may have French and English influences (for example *kapi̓* or *liti'* both words for the common beverages *coffee* and *tea* introduced by traders and settlers), some of the oldest Salish words are not linguistically analyzable. When approaching Salish knowledge keepers about the "meaning" of Salish plant names, specifically the keystone plant foods, they could not think of any deeper, compartmentalized explanations of why those words are what they are. In the disciple of linguistics an accepted principle is that if a word is not analyzable into an original root or meaning, it is either very old or it was borrowed from another language (Turner 2014 119). Plant and animal names then are unanalyzable because they were among the first beings on the land according to Salish Creation. They pre-existed humans and its possible, that for those reasons, what we call them today has always been what they are.

In assessing traditional food plant names with elders and linguists, there are many that are unanalyzable. This gives rise to the idea that many of these plants are primordial, making them physical representations of invaluable sources of history. In the plant names I have come across in my research, I have compiled a tentative list of plants whose names are unanalyzable and vice-versa.

Plant names that are unanalyzable*:
Mtčw̓e Arrowleaf balsamroot, Oregon Sunflower (*Balsamorhiza sagittata)*
Sp̓eƛ̓m Bitterroot (*Lewisia rediviva*)
Sx̣ʷé̓ʔli // i̓tx̣ʷeʔ Camas (*Camassia quamash*)
Xʷy̓é xʷyé̓łp Wild Rose (*Rosa woodsii*)
Má̓x̣eʔ Glacier Lily (*Erythronium grandiflorum*)
Q̓á̓ẇx̣e Yellowbell (*Fritillaria pudica*)
Qʷlé̓wyeʔ Nodding Onion (*Allium cernuum*)
Snkʷn̓kʷi̓ // sqá̓qʷocn Western Spring Beauty (*Claytonia lanceolata*)
Słaq Serviceberries (*Amelanchier alnifolia*)
Łx̣ʷłʷo Chokecherry (*Prunus virginiana*)
Titẇ̓i tiitẇ̓i Horsemint/wild bergamot, bee balm (*Monarda fistulosa*)
Skʷlse // skʷlsé̓łp // skʷlis Kinnickinnick (*Arctostaphylos uva-ursi*)

These plant names thus, provide significant clues into the history of the plants themselves and their relationship with Salish people. While the nature of language is always shifting with the existence of people through time, these plant names are still commonly used today. There are only a handful of Salish plant names that reflect deeper meaning that I have worked with thus far.

Plant names that are analyzable:
Qpqpté silver sage (*Artemisia)*, western mugwart, woodworm
Sp̓iqałq berries (generally)
St̓šá // *st̓šáłq* huckleberries (*Vaccinium*)
Sx̣ʷó̓sm Foamberry (*Sheperdia canadensis*)

Analyzing these plant names usually points to a specific root or suffix of the word that gives it deeper meaning. For example, silver sage, or *qpqpté,* can be broken down to its root word *qp.* This root, *qp*, means to put on protection or to be protected by

something (Pete 2019). This is the same root word that is included in feathers (*s**qp**useɬ*). In its translation *qp* alludes to protection or to be protected by. This extends to *qpqpt̓é* as well because silver sage is used by Salish people for smudging processes. Smudging is a practice used by many tribal groups for purification, protection, and cleansing purposes. In this particular example silver sage is dried and used by the Salish to cleanse their spirit and protect themselves in ceremony, endeavors, and death. It is a plant that protects your being.

While silver sage is not a food plant, its linguistic meaning offers a good example of the way that Salish used language to conceptualize plant relationships. An example of a food plant with analyzable structure is the word for berries or *sp̓iqałq.* This is not any specific berry as we have seen above in the plant names that are unanalyzable but refers to all berries generally. The root word of *sp̓iqałq* is *p̓iyaq* which refers to ripeness. To "make done; ready; ripen" (Salish Dictionary; 194) or a signifier that something is done cooking it is *p̓iyaq* (Pete, 2019). In *sp̓iqałq* the suffix *ałq* means "to be a part of" (Pete 2019). This same suffix is found in "good smell" or *x̣sałq*: it's a thing that goes with something. A smell is an accompaniment to whatever it is attributed to. All in all, the linguistic pieces of berries point to a ripeness of the fruit and its accompaniment to the season, or plant as a whole.

Going further, a more specific food plant is the huckleberry or *st̓šá.* The berry is common throughout the Pacific Northwest and the Rocky Mountain regions. It is perhaps the most consumed and recognizable berry by natives and non-natives alike. This berry and its name provide more context to the influence of the western diet on Salish people.

The traditional Salish diet was not very sweet, except for the occasional surplus of berries in the summer months. Drinking mountain tea with a Salish elder she thought that the *t̓š* in *st̓šȧ* is an indicator of sweetness. Of all the berries in the Salish repertoire, Huckleberry is the sweetest. Even so, the berries that Salish people consumed in large amounts (huckleberries, serviceberries, chokecherries, etc.) in their varying levels of sweetness did not cause blood sugar spikes and were relatively low in sugar content. Refined sugar, one of the main causes of diabetes, obesity and food-related illness in many indigenous communities is known by the Salish as *tiš*, a nod to the essence of sweet (*tš*) in berries. Like sugar, coffee, flour, and other introduced staple items, it started to become accounted for in the Salish language as they became more established in the diet. This particular example needs more refining but can provide context to the shifting dietary patterns and their influence on the Salish language.

A food plant with a different linguistic meaning based on how it's used is foamberries (*Sheperdia canadensis*). Foamberries have a distinctive taste and are quite bitter but are named for their texture as *Sx̣ʷo̓sm.* The root of *Sx̣ʷo̓sm* being *x̣ʷos* which translates to "foam". These berries are used to make a popular treat Salish people know as "Indian Ice Cream." Not really resembling ice cream at all, Indian Ice Cream is made by whipping fresh foamberries with sugar and water until it reaches a light foamy texture. It is a dish many remember but few do not really make anymore but everyone knows *Sx̣ʷo̓sm* is used to make ice cream.

Plant names are one area that lends context to Salish perspective because plants are commonly named for noticeable features of morphology, habitat, taste and/or smell. This is exemplified in the plants above. However, taxonomic systems of nomenclature


Figure 4 and Figure 5. 'Kinnikinnick blossom' and 'Kinnikinnick berries.' (Bear Don't Walk 2019) [JPEG]

and classification are more difficult to pinpoint. As far as a systematic approach to naming food plants, it's hard to find a central framework because so many important Salish food plant names are unanalyzable.

While botanical specifics of plant identification is not prevalent in Salish lexicon, there are descriptors of plant morphology that Salish people employed in everyday language. There are words for roots, leaves, and flowers as well as for limbs, bark, needles, and cones. This vocabulary covers the basics for angiosperms (flowering plants) and gymnosperms (non-flowering plants). Yet, as far as a specific language codification for identifying plants, different names for a plant are only associated when there are varying uses for its different parts. For example, the words for Kinnikinnick (*Arctostaphylos uva-ursi*) are codified for the berries (*skʷlis*), the leaves (*skʷlsə̓*) and the entirety of the plant (*skʷlsə̓ɬp*). Traditionally, the leaves of Kinnikinnick are used in smoking pipes alongside tobacco. The berries, on the other hand, are not juicy like say Huckleberries (*Vaccinium*); they're actually quite mealy. Salish would take the red berries and throw them in a skillet with hot oil and pop them like popcorn as a snack.

However, the differences in how Salish relate to and call these parts of the Kinnikinnick plant all relate to the particular function of each piece.

The ideologies presented in this chapter are just a few of the semantic traits linguistics has been able to uncover about Salish language in regard to food/plant knowledge. From the clues that analyzing plant names provide, to the individual break-down of plant names and their root origins, to the deciphering of plant parts and their functionality, there is an immense wealth of knowledge organized within the Interior Salish dialect. Salish systematics contain references to the ancestral past as well as fall within their own category of understanding traditional plants. The next section will lean less on Salish lexicon and linguistics, but more into how the language is utilized by the community to bolstering food/plant knowledge.

Salish perspective on language and traditional food practices:

It's true that the Salish are no longer reliant on the traditional food cycle for daily subsistence nor do they communicate fully in the Salish language. Therefore, some of the aspects of tribal culture are lost in translation. One thing that remains clear through all this, is that while the language persists, so does the tribal culture. Both can live independent of each other: say if a tribal member knows traditional practices but doesn't know how to convey that in the language or an individual knows the names of the plant but not what to do with it. However, used together, they become a strong knowledgebase for tribal people to learn from and build upon. Among the individuals and families that still partake in aspects of seasonal gathering, they often utilize the language to strengthen these practices. A male language apprentice reiterates this idea when he engages with plants and the land;

"*...as I was learning the language more, I think it was my own self-worth at the time, I feel strong again. When I make it to the mountains by the lakes or woods, I can just see everything in its natural state...I feel the power of that so I speak the language as much as possible when I'm out in the mountains. Calling things what they are. I want everything to know that it's still alive; we're still here.*"

-Interview with author 2019

Likewise, when Salish community members were asked why Salish food plants were important to them, aspects of language revitalization alongside plant practices were acknowledged (Survey Monkey 2019);

"*It is like our language if we don't use it, we will lose it as it is happening and we also need to talk to the plants in our Salish language just like we do with the animals.*"

"*Our plants and animals understand our Salish language that is how we communicate with them.*"

These responses articulate of the importance of acknowledging Salish food plants in the language Creator has given the Salish people. A more salient response from an interview spoke of the return of our Creator…

"*He's going to say to his Salish people, "where's the language I gave you? And the songs I gave you? I come back and you speak someone else's language and you sing songs from other people. Was what I gave you not good enough?"*

-Interview with author 2019

The critical importance of revitalizing the Salish language is apparent. It's clear that the Salish community understands the importance of food plant practices and that language can be a tool for the reintegration of that knowledge. By building on the existing knowledge of the community alongside their passion for bringing back these traditional links, the language and food-plant practices can thrive as one.

Complications of language learning and food-plant practices:

One conundrum of reintegrating traditional plant knowledge and Salish language in the community fabric is some of the English to Salish translations and how they fare when confronted with scientific rhetoric. Some community members only know Salish plants by their name in the language while others only know of their English common name. This creates a little confusion in terms of properly identifying traditional food plants using language. One female interviewee was remembering fondly a purple flower she used to gather with her family for medicinal tea that she still uses to this day. She called it *tiitẇi* and described it to me. She remembers gathering it with her Blackfeet relatives in regions north of the Flathead Indian Reservation but has never seen it within reservation boundaries. Taking her description and applying some research, I discovered she was talking about Bee Balm or *Monarda fistulosa*. Bee Balm was commonly used by the Salish for the same reasons she discussed with me. However, in my field work I found a handful of specimens in the region. By only knowing the Salish name of Bee Balm, *tiitẇi.* The Salish woman could not look up the regional distribution of Bee Balm and thus, maybe never would have known that it grows here on the Flathead reservation.

Conversely, common names of Salish plants are used but sometimes to identify the wrong plant. Many interviewees and survey respondents noted that they don't know

how to properly identify traditional Salish plants. In one-third of my interviews the individual told a story of trying to find a particular plant and bringing it back to their family or elders and being told that it was not it. This was common when looking for teas or medicinal plants.

Another interesting language folly is the mistaken identity is of Black Moss, an accompaniment food of the Salish. "Black Moss" for instance, or *šawtmqn* when raw and *sqʷl̓ápqn* when cooked is not actually moss at all. It's a lichen. Mosses are a bryophyte, which is a primitive plant with no differentiation between the leaves, body, and roots while lichens are the product of a symbiotic relationship between fungus and cyanobacteria. Yet, almost all Salish people know it as Black Moss. While a small discrepancy in the larger scheme of things, black lichen (*Bryoria fremontii*) is an ancestral treat. The most common ways that Salish people know black lichen is through the camas bake. The lichen is usually an accompaniment of the camas bulbs alongside wild onions. When all three are cooked, their internal starches are broken down and they release a smoky sweetness as they caramelize. Even when not in a camas bake, Salish people designate black lichen as a dessert and recommend eating it with cream and sugar (Parker 1972).

Sweet black tree lichen was a treat for many Salish elders. A woman I interviewed was talking about growing up with her grandma and how she was taught to do the camas bake. She remembers [of her grandmother];

"*Her favorite part was not the camas that came out of the bake, it was the moss. She remembers as a little girl that was her treat. Her and her siblings would divvy it up and it would be their candy. Even into adulthood that was the part she looked forward to*

the most...I think not only did she enjoy eating that, but it also brought back fond memories of her childhood."

-Interview with author 2019

This statement offers two valuable pieces of evidence. One is that black lichen was considered a delicacy of the traditional diet because of its sweet nature. The other is that when people think of food, they not only think of the taste of the food but the memories, lessons, and feelings that come with it. Food is transformative, with the ability to take you through time.

Cooked camas, black lichen, and inner cambium (of cottonwood and other species of trees) were on the sweeter side of the Salish diet in addition to seasonal berries. The rest of the Salish diet constitutes other bitter and/or plain flavors. Yet, with those flavors comes an accompaniment of traditional knowledge and ancestral memory. These memories live on within the people and many of them include aspects of language. Three of my interviewees noted that they wished they paid closer attention when they were younger when others were telling them about traditional names for plants or speaking to them in Salish. There is a palpable sense of connection that is lost within English, or non-native languages.

In an increasingly English-dominant society, language and cultural revitalization efforts are necessary in Indigenous communities to retain their identities. Understanding the urgent nature of the status of the Interior Salish dialect is critical but what's more important is the ways that Salish are combating this problem. Talking about the rapid reduction of language use in today's society is just a context to showcase efforts currently happening in the Salish community. Honoring the work of linguists, elders, youth and

apprentices within the institutions of college, the Séliš-Qlispé Culture Committee or even at home begins with recognizing that the language, like the people is not stagnant. With the unique ability to adapt and shift through time while still retaining ancestral roots the Salish language has an innate ability to capture the essence of the plant world and is an invaluable tool in revitalization efforts going forward.

The Interior Salish Dialect is not only a connector to the world of our ancestors, but it is also a vital tool to unlocking meaning in the present. These are just a few examples of how the properties of language influence the relationships that humans have to the natural world. For the Salish, language shapes our understanding of the viability of the things around us, and ourselves. It gives life to the things we use. It makes known that plants, animals, and the landscape exist beyond our livelihood and for those reasons, deserve respect and understanding. There is a community that shares this sentiment and remains hopeful that someday, we can relate to the plants the way our ancestors did. The fact that names for many food plants have not changed even as Salish people have shifted from their traditional lifeways to a more modern western lifestyle showcases that the viability of plant existence is indeed, enduring.

4.4 Salish Perceptions and Survey Data

Interviews:

The interviews completed with traditional knowledge keepers and Salish community members influenced the material and thought processes involved with the creation of this thesis. Their unique perspectives and diversity provided a variety of exciting new ideas and associations with traditional food plants. Each interview was around an hour, some even going over. The interview recordings provided excess of 10 hours of transcribable material.

Information on each interviewee is as follows and is provided to give a sense of the demographic represented in the study.

Interviewees;

Salish knowledge keeper, female 50-60

Salish community member, female 40-50

Salish community member, female 40-50

Salish adult language apprentice, male 30-40

Salish linguist, male 30-40 (Pete 2019).

Salish knowledge keeper, female elder

These interviews, coupled with information from the survey, showcased that there is a blossoming population of middle-aged people in the Salish community that have knowledge of traditional food plants.

Central themes:

Usually in conversation, the observed shift of the Salish people from traditional foods to western ones was explicitly stated. Informants talked about the feasibility of going to the grocery store to get food, especially in the essence of time. Many of them noted that time and limited knowledge is a large factor in their minimal engagements with food plants. They hoped that what little information they had to offer could help and that they would like to learn more themselves.

Many of the men and women I sat with alluded to mentors, family members, and elders teaching them what they knew. They had fond memories of certain recipes; camas bakes and Indian Ice Cream (whipped *Sherperdia canedensis)*. Berry outings were also prevalent memories. Alongside these memories were longstanding harvest practices. When Salish linguist, Tachini Pete and I talked to on the phone he said when he went to pick berries with his family as a child, he was told to only pick the berries that would call to him (2019). He remembers "*when you're picking or harvesting any type of plant. You're supposed to pick the bigger, healthier one and leave the rest behind"* and make sure not to deplete or harm the bush. This was a proper harvesting technique passed down in the Salish; harvest the mature berries and leave the young ones to make it to fruition. Pete also remembered that even though they had a freezer, his mom made sure to dry a portion of berries to keep the traditional form of preserving alive.

Another woman in an interview was reminded that she was taught that reciprocity and giving thanks was a valuable part of her childhood during gathering practices.

"*One of the things my mother and grandmother stressed when we would be out gathering was to give something back to nature; to give thanks for that. I still do it today. It not only brings back the happy memories of my childhood and the love that my grandmother and mother showed me, but it makes me more spiritually aware. Creator gave these gifts to us and we need to honor that and say thank you for that"* (Interview with author 2019).

One older Salish woman told me that her dad specifically took his children out to learn about plants; all plants not just food plants. She said, "*were growing up we were taught about those things that are medicinal. They're like your brothers and sisters. They're like your relatives, because they're there to help you. And in turn you're there to help them.*"

Prayer was brought up in two conversations, one with the adult male language apprentice and the other with an adult female. The male firmly believed in the power of prayer when approaching and interacting with plants. The female related by saying, "*I really believe in what we had, and the medicine we used… it has that healing aspect. As long as you believe in your heart and in your prayers, and you know your medicine is made with prayers; that's where it really helps in the healing."*

The adult language apprentice echoed that sentiment in our conversation, "*I think prayer is the best way. To guide us into learning what those plants are and learning what they're for. Praying for those things to return. Pray for the songs to come to us. To understand the stories that come behind them. There's a lot to unlock if there are any. With all our sister tribes, we need to get with them to understand and put that all together*."

When asking about the future of Salish food-plants, three of my interviews talked about collaboration between sister Salish tribes and learning more about their food-plant traditions. It could be a good opportunity to fill in the gaps, learn about plant alternatives, as well as come together to bring back this important knowledge.

Common among all interviews was that people would like to see a resurgence of this knowledge being integrated into the community. Generational difference between elders, adults, and youth especially was discussed and the need to facilitate intergenerational transmission of this knowledge. Some interviewees alluded to the change in relationships to food in their current life as opposed to their elders and mentors growing up. Claud Fischler (1980) refers to this idea as "gastro-anomy" an anxiety over food, suffered by a generation whose relationship to food is different than that of the preceding generations. Almost all interviewees noted that those who mentored them, whether grandmothers or elders, lived in a different way than we do now. Generational differences, when they were growing up, they could see the shift and how different the current culture is from the one of their grandparents and elders. The difference is monumental, and they acknowledge that the time is now to really hone in on bringing some of those practices back.

"*I think if we had more knowledge, more letting the community in and letting them know that this is vital. Not just our culture but also our herbs and medicines, I think that would help us out a lot."*

There was a general emphasis on incorporating more hands-on learning experiences and events for youth and adult participation as well as stressing to the general community how important traditional foods are.

In these discussions of the change of people/plant relationships, rarely was the state of the local environment talked about. A lot of it was centered on the individual or tribal relationship to the plants and land themselves, not specifically on the way the environment has changed the living circumstances of the plants. However, a female Salish elder acknowledged that the development of homes had destroyed traditional gathering sites. Either that, or the plants grew in areas that were now individual private lands. The consistent development and use of land for roads, housing foundations and new developments ruins areas of naturally occurring foods. Another Salish elder, in a newspaper interview talks about this transition as well. He says, "the places we used to go became areas we can't go anymore." The elder said it was because of encroachment of private land ownership growing across the reservation (Upham 2019). In other conversations I've had with Salish community members, many of them advise against picking near roads or areas that are heavily trafficked because of pollution. People are worried about what type of environment traditional foods are living in now and only seek them in areas that are not exposed to exhaust or other man-made toxins. The older Salish woman talked about some remediation practices she was taught as a preventative measure to this problem;

"*We've done a lot of work in the past to make sure places don't get sprayed and kept as clean and pristine as they can be in this environment with all these weeds. As clean as possible and use those areas for those reasons, to gather*."

When asking if the interviewees had any questions for me, many of them wanted to know what was going to happen to information discussed in the interviews. What the publishing process was and what I was planning on producing. Transparency is very

important for me in conducting my interviews and I made sure to convey my intentions and ideas for this knowledge to them. The wariness around research and valuable knowledge being published and used is still prevalent in our community. As a rebuttal to that sentiment though, one woman did talk about how the now-secretive nature has contributed to the dissonance of plant engagement in the Salish community;

"*I think the first thing we need to do is not be afraid to share that knowledge. If you have that knowledge and don't pass it on, you're doing everyone a disservice. Even Creator! Because Creator didn't give us that knowledge to hide and not tell anybody*."

She wants our people to know that if they learn something to not be afraid to share it with the community, that is how it was always done but because of the history of abuse of knowledge it is not so predominant now. To strike a balance between the sharing of knowledge for the benefit of all and to use said knowledge with the underpinnings of Salish culture is necessary for disseminating to a wider Salish audience.

Survey:

As an additional component to the interviews, I released a Traditional Plants survey to the general public during my data collection, hoping to garner responses on individual relationships of Salish community members to traditional food plants. The survey was 10 questions long and received 27 responses. Given the large demographic of Salish people today, this is a relatively small survey population. However, the diversity in age demographic, responses and comments from this sample size offers great insight to how people relate to traditional food plants, their views on their value, how they believe it impacts their overall health and wellbeing. It also gives me awareness as to what the population wants to see happen to Salish food plants in the future and I can help facilitate

that process with aspects of this thesis. Following are some of the key components and takeaways from the survey questions, after the initial question of consent to participate.

All respondents consented to partake in this study, and all consented to have the data collected to be featured in this master's thesis. Question two asked about the participant's age. There were no participants under the age of 18 or over the age of 65 represented in the study. This is understandable because many elders in the Salish community do not have access to the internet or do not participate in online surveys. Unfortunately, the survey was not administered in person, so there's a gap in the data to represent elder knowledge of traditional food plants and their relationship to them. One important factor observed in the data is that there was a high percentage of youth and adults represented. Almost half of the respondents (44.45%) were under the age of 34 and many survey responses came from participants aged 25-44.

While there is a lot of focus in Indigenous groups on vulnerable population demographics, namely, youth and elders it's important to recognize the valuable middle-

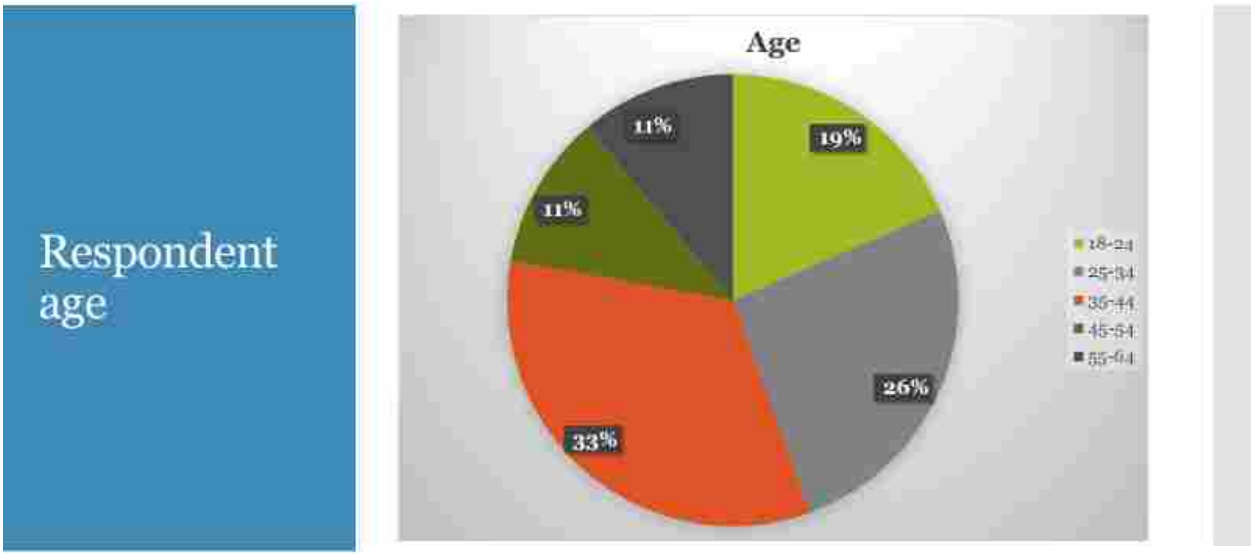


Chart 2. Salish Survey Age Demographic. (Bear Don't Walk 2019)

ground there is in adult populations. Elder knowledge transmission is one of the most powerful teaching tools in Indigenous communities due to their lived experience and observations in their lifetime. Adult populations are slated to be the next elders and are also the demographic most likely to have children; knowledge transmission within the family is critically important and can be an exceptional form of traditional plant knowledge revitalization.

Question 3*:

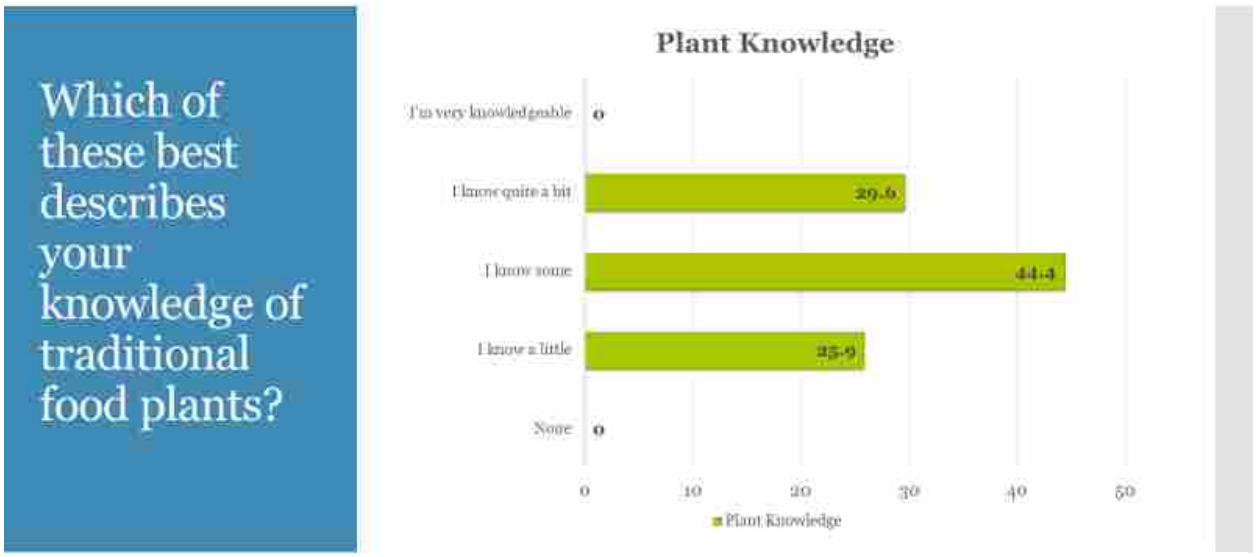


Chart 3. Knowledge of traditional food plants. (Bear Don't Walk 2019)

*Traditional food plants fall in the realm of roots, shoots, trees, and berries that are used to eat, make tea, or aid in the preparation of other Salish foodstuffs.

No respondents replied, "I'm very knowledgeable" or "none" while 44.44% answered "I know some", 29.6% replied "I know very little" and 25.9% answered "I know quite a bit". The second part of that question was, "where did you acquire this knowledge?" Many respondents acquired their knowledge of traditional food plants primarily from elders and family while others got it through going to events (like the annual Bitterroot dig), culture camps, books and class field trips. This begs the question as to what the best format would be to provide access to food plant knowledge and how to facilitate its transmission across all types of demographics.

Question 4:

How often do you interact with traditional food plants?

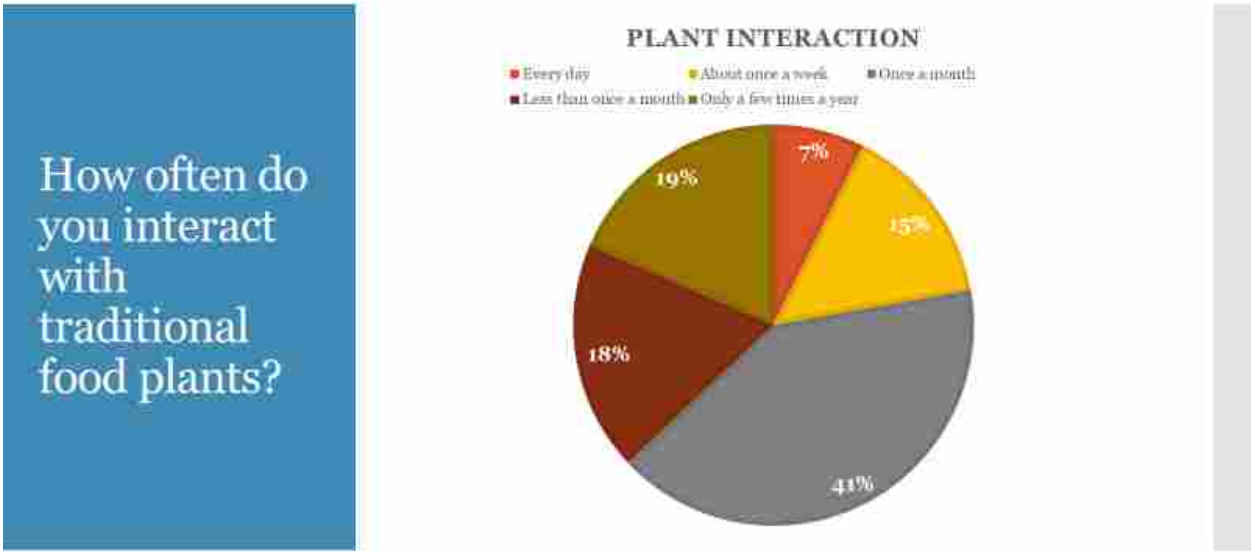


Chart 4. Salish food plant interaction. (Bear Don't Walk 2019)

Most respondents interact with food plants at least one a month which is a decent amount. Only 7% of respondents interact with food plants every day with the next highest demographic interacting only a few times a year.

A feasible goal for the future is to slowly get more Salish people engaging in food plants more than a few times a year. Slowly easing population groups from "less than once a month" to "once a month" and the "once a month" group to move to "once a week." It is likely that with more engagement with traditional food plants, relationship with land, culture, and self will be strengthened. Additionally, opportunities to engage in healthy activities such as foraging, processing, and eating healthy foods can improve overall well-being in the population. This is particularly striking in the following question.

Question 5:

In aspects such as emotional, physical, and spiritual well-being; what aspects do you feel are affected by traditional plant engagement?

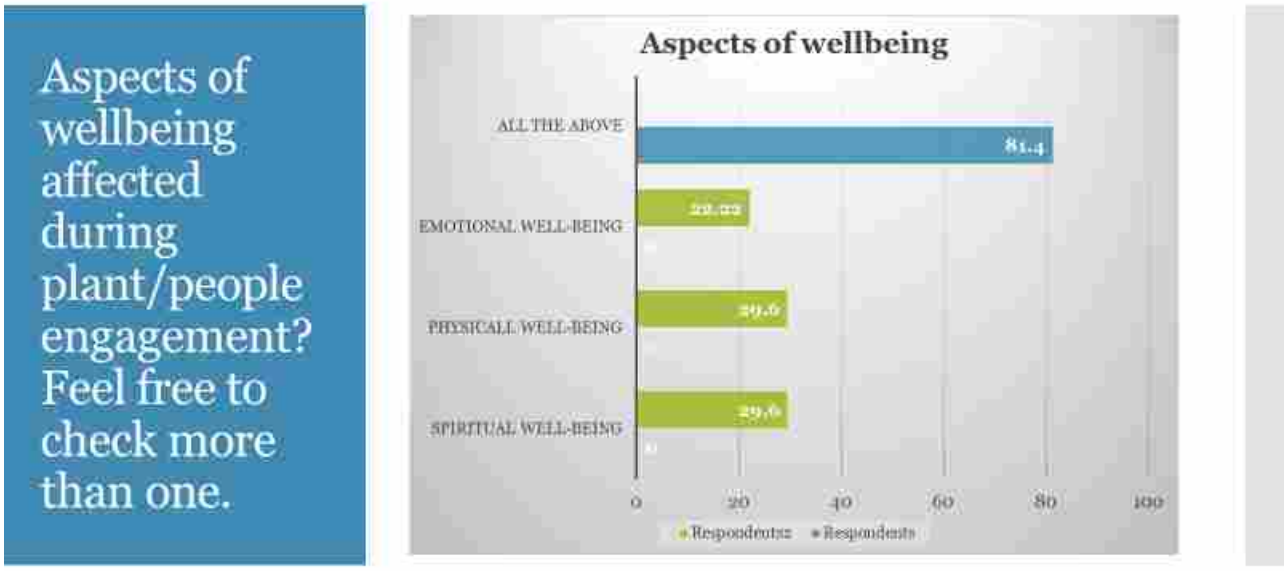


Chart 5. Plant engagement effect on wellbeing. (Bear Don't Walk 2019)

Respondents had great comments as to why they feel this way. There were many comments on how plant engagement helps people reconnect and heal through food.

"Bring you in closer connection with the earth, our creator, with oneself."

"I was taught to gather and use what helps me, whether I consume it or smudge with it. I feel good about gathering our plants. I teach my kids and grandkids too. I continue to ask my elders that are still here for advice."

"I work hard for traditional foods and when I eat or utilize them, I feel very accomplished and savor each bite. I find myself more humbled knowing how very

important these foods were for Salish diet and survival and by putting the effort to handle traditional plants and foods I recognize the hard work my ancestors had to do and feel that much more connected to them in doing so."

"The traditional plants of our area hold a sacred connection to everything that we are. Yes, it is good to enjoy them but when you take the understanding further, stories, medicine, health, it feeds all of who you are."

"I feel our wellbeing is intertwined with all of our sqelix^{w} foods, language and traditions (sweat, medicine lodge, coyote stories, etc.)"

Salish people are aware of the many benefits that food plants provide them. They are also aware of the deep connection between mental, spiritual, and physical health. They see traditional plant practices as a way to engage all aspects of health and wellbeing. Intertwined in this notion is that connection to identity, land and culture plays an important role in the perception of personal health and wellbeing. Many see plants as an integral part of being Salish and using them respectfully is not just important for the longevity of the people but also the plants. Reciprocal engagement is necessary for maintenance of health of both parties involved.

Question 6:

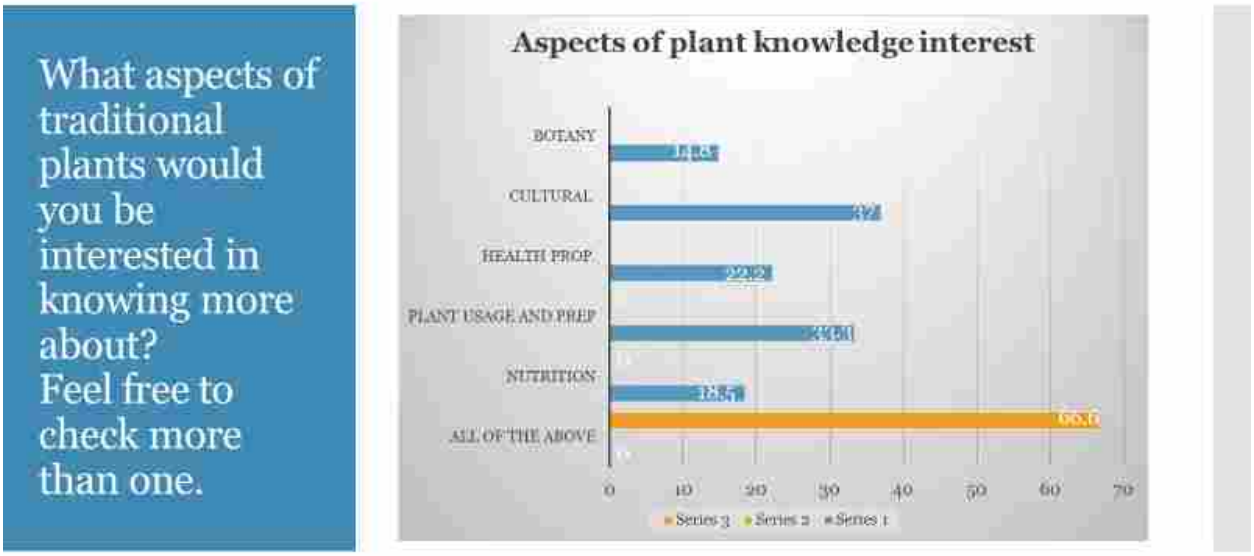


Chart 6. Aspects of plant knowledge; community interest (Bear Don't Walk 2019)

People were interested in all areas of plant knowledge. They offered ideas ranging from traditional feeds to gathering hikes, women meetings to medicinal classes, Facebook pages to a Salish plant app. There are a lot of ideas wafting around the community around traditional plant knowledge, just no place where it is all conglomerated and accessible for the wider community.

Question 7:

Chart 7. Ranking interest in traditional food plant knowledge. (Bear Don't Walk 2019)

This question was mainly to aid in the development of ideas for future engagement with traditional food plants. Seeing as that many of the respondents said "very interested" I am hopeful that even more people in the community share that interest. I also gave a chance for respondents to add comments as to what types of food plant knowledge they would be interested in. Many of them would like to know how to properly identify food plants as well as know their various uses. Potential ideas would be group harvests, cooking classes, and/or plant workshops.

Question 9:

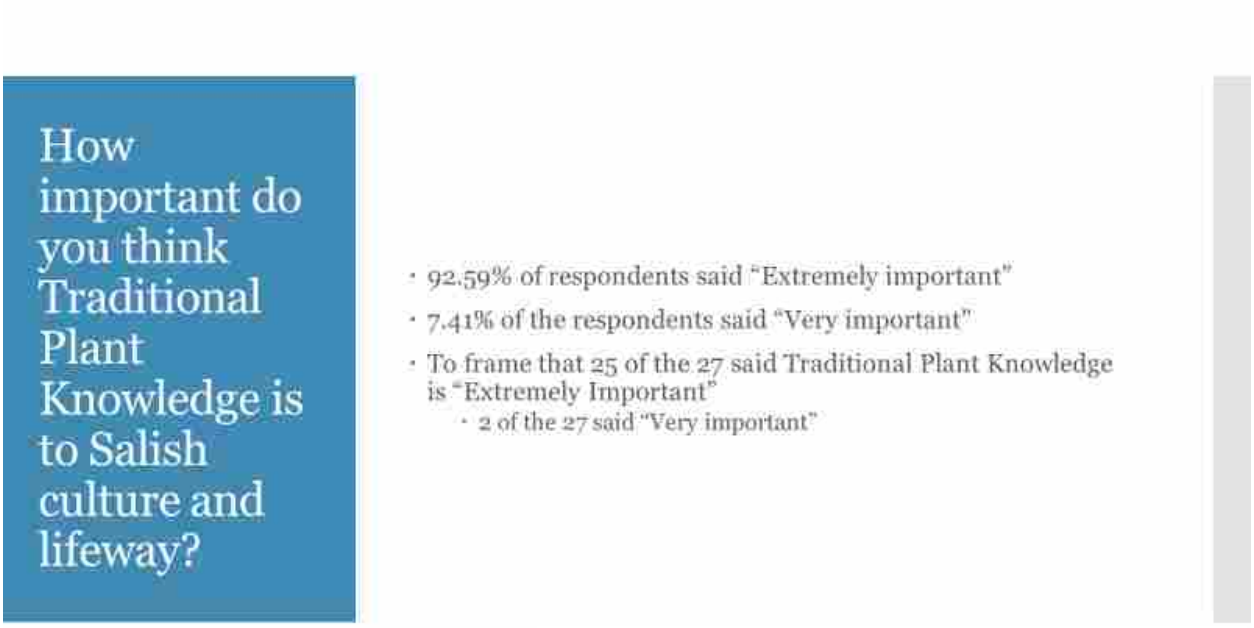


Chart 8. Importance of Traditional Plant Knowledge to Salish culture and lifeway. (Bear Don't Walk 2019)

This response indicates that our community acknowledges and wants to revitalize traditional food practices and acknowledge its importance in modern day. While this may seem like a rhetorical question, it's still important to find out what is significant to the community you're working with. There was a potential that people don't think that plants are important with the current food system we have in place now. This is not the case. With almost all the respondents stating that Traditional Plant Knowledge is important to Salish culture and life makes the necessity and purpose of this research obvious.

Chapter 5: The plants, *Sq̓eliχʷ sʔiłn*

Before there was a North West region of Montana, the Salish moved across the landscape, timed with the fluctuation of plants and animals throughout the seasons. Hunting, fishing, and gathering knowledge was gained through precise and detailed interactions passed on intergenerationally. This way of life was not only inherently scientific but sustainable. The Salish guiding principles are to waste nothing and take only what is needed. In hunting practices this was shown through careful utilization of every single part of the animal, from the brains to the entrails. The ethics applied to wild game and fish were matched in plant procurement; taking only what's needed, honoring the plant and taking care that harvesting practices made a small imprint on the environment. Plants have the great opportunity of propagation and continuance in occupying an environment for many years. Salish not only looked after these environments but practiced acts of modifying the land for the purpose of increasing its viability. Controlled burning, woodland corridor clearing, as well as seed dissemination schemes all improved the quality of the plant world and were part of Salish stewardship. By caring for the plants, the Salish honored their timeless connection and for those reasons, many traditional food plants still exist today.

In the past few centuries we have seen the rise in food plants becoming common goods in commercialization of products and for those reasons, they have been depleted in numbers and their ecosystems destroyed. The United States Forest Service acknowledges that huckleberries have been an important source of food and nourishment for the Pacific Northwest Region and the Rocky Mountain areas (USDA Forest Service 2007) but have noted the rise of external damage to huckleberry bushes in the Kootenai National Forest.

While the Kootenai National Forest is not on the Flathead Indian Reservation, this issue is not isolated. Stories of increasing use and abuse of huckleberry fruits and plants have been on the rise, from natives and non-natives alike on public and tribal lands. This is due to the large-scale ecosystem damage from commercial use. New technology and machinery have made it more effective for huckleberries to be harvested in large quantities. The old ways of "taking what you need" and using your hands and energy to pick, has been replaced by modern markets interests. The Forest Service is ameliorating this issue by prohibiting the commercial harvesting of huckleberries on federally owned Forest Service land (USDA Forest Service 2019). The tips they included in this call to action include, pick what you can use, don't overharvest and leave some for the berries natural predators, be courteous and respectful of others, and leave no trace (Ibid).

The tenets of the grateful harvest and honoring plant livelihood are articulated in this call to action. And this is something that Salish people are incredibly familiar with. Even so, these important guiding principles should not be forgotten in today's modern society for native and non-native alike. To co-exist in this world means to honor and respect our relationship with it in a giving, symbiotic and reciprocal way.

The example of the huckleberry is one of the reasons I find it necessary to integrate traditional food plant knowledge into today's Salish society. Proper harvesting techniques, identification, and observation of traditional plants can recreate an environment where plants and people can flourish together. Let the readers be warned though, this section of my thesis is not intended for extensive use, commodification, or exploitation of Salish food plants. That's already happened in the past of ethnobotanical research as well as the general commodification of foods in the region. There is a reason why elders refer to plants as our

relatives and greet them as friends, because they were a steady lifeforce that sustained the people for centuries, gifted to us by the Creator. The day that Salish plant knowledge becomes exploited and plants are mistreated, plants will turn away from us. Of all the important cultural stipulations I've observed in this process, this is the most important. To use the plants for money, to commodify their qualities, and treat them as common goods does not honor the survival or subsistence practices of our ancestors and in fact it diminishes their efforts to be good stewards of the land, ensuring ecosystem harmony for the next generation. In order to adequately honor the traditional Salish food plants that pre-date our population, these cautions are necessary.

Conversely, it's possible that we are already on the path where plants will turn away from us. This is why this thesis is so necessary. Overuse is an obvious issue, but underuse is just as lamentable. In all my interviews and conversations with Salish people one thing has remained painfully clear, that we must start returning to our traditional practices not only for our health but the health of the land. Maintaining these relationships in the past century has been difficult but elders remember utilizing plants more often in their youth than what they see today. The data tell us that rekindling this relationship is something Salish people are eagerly waiting to do. They just don't have the proper tools.

Therefore, this section of my thesis serves to aid the Salish population by providing the tools and knowledge necessary for those steps in rekindling our relationship with food plants. In the following sections I review all the important cultural and botanical knowledge available for healthy engagement with Salish food plants. By thoughtfully combining aspects of health, culture, and science I hope to model the "ecological triangle". To have

botany, language, nutrition, ecology, and history all coalesce into one framework that is accessible to Salish people is the purpose of this section.

For the southern Interior Plateau major language bands (Okanagan, Columbian, Salish, and Sahaptin) named species of food plants fall within six categories as codified by Turner (2014, 282). There are edible berry/fruit species, edible seed/nut species, root vegetable species, edible green species, edible inner bark species, and edible mushroom fungus species used. These species were determined by the combine languages lexicon of naming particular species in these categories. For the Okanagan, Columbian, Salish and Sahaptin combined the number of named species in the order speciated above is: 48 (fruits), 5 (nuts), 40 (root vegetable), 6 (edible greens), 1 (edible bark), 3 (edible fungus). All these plantstuffs make up the overall diet but each vary in use. Therefore, these categories are further divided in the plants sections in foods that were primarily used (fruits and roots), secondarily used (edible greens, lesser known fruits and roots), foods used for processing (greens) and foods used for beverages (herbs, seeds and fruits).

The this study does not include all the Salish food plants but I have selected a representative subset of plants found in the past and present of Salish existence. Following a similar pattern of major food-plant groups, I have found representative species for almost all categories, with some exceptions. I have not included conifers (gymnosperms) or mushrooms (fungi) because they were used in very small quantities. Pines, except for the inner cambium layer, were mostly used for tools and natural materials. Occasionally the Salish would snack on White bark Pine nuts (*Pinus albicaulis*) but it was seen as a delicacy item (Upham 2019). Fungi, on the other hand, are eukaryotic organisms whose reproductive functions and morphology are quite different than the plants I am reviewing.

Additionally, fungi are difficult to identify and misidentification (especially for food) can yield unwanted results.

Sources of information:

I used several resources to identify my plants. To examine and procure cultural aspects I have reviewed Jeff Hart's *Montana Native Plants and Early Peoples* (1976) for initial cultural analysis, *Food Plants of Coastal First Peoples* (Turner 1995) for cultural reference, and *Ancient Pathways, Ancestral Knowledge: Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America* (Turner 2014) for in depth ethnobotanical research.

For the purpose of gathering scientifically sound plant characteristics and ecology information I have referred to *Manual of Montana Vascular Plants* (Lesica 2012) and for plant specifics, as well as my own notes from the University of Montana's *Rocky Mountain Flora* course offering. Definitions for general botany terms can be found and defined in Appendix C. Combined these elements offer information on the important characteristics of Salish food plants.

The cultural components of the following plants come from a variety of sources, from books, to interviews with Salish community members, to knowledge I've acquired over the years and knowledge that was passed down to me by my mentors. A majority of the language used or clarified in this section comes from the Salish dictionary (2010) and a few words from my interview with Salish linguist Tachini Pete (2019).

Nutritional information comes from the following texts: *Traditional plant foods of Canadian Indigenous Peoples: Nutrition, botany and use* (Kuhnlein and Turner 1991) and a handful of articles. It has been referenced in the literature cited.

5. 2 Plant etymology

Salish terms and definitions:

Root: *soẋʷép* (Pete 2019).

Leaf: *píčč*. Ancestral word; unanalyzable.

Stem: *sčt̓emp*, stem of a flower or tree trunk. *Nilemp*, stem of a feather/branch/leaf (*Selíš nyoʔnuntn* 2010, 600).

Flower: *ćeqʷ.* Translates to “it has opened up” or “it has revealed itself” (Pete 2019).

The Salish utilized a variety of different plants to supplement their diet. The most common were roots, shoots, and berries colloquially. These were variously processed by: include baking, boiling, and drying (Stubbs 1966, 38). However, I will go over some of the specifics of each part of the plant, its uses, processing and cooking methods, as well as general nutrition. Following are some specific plant species and their cultural and botanical attributes.

Root Vegetables:

Root vegetables include true roots (such as Bitterroot) but also bulbs, tubers, rhizomes, and corms. These are the main storage organs of many herbaceous perennials and contain essential nutrients and substantial carbohydrates (Turner 2014, 269 V1). When other plant processes are dormant such as budding and flowering, is when root storage of carbohydrates is maximized. Root vegetables are harvested from spring to fall, and are most identifiable by flowers and fruits, but can be identified in dormant periods

as well. Historically, only the most experienced herbalists could identify a plant without its flowers, when the roots were at their best for eating.

Root vegetables were eaten fresh, boiled or cooked in earth ovens. Earth ovens were a common form of cooking in traditional tribal nations of the Pacific Northwest. Hot rocks are laid in a large pit and layers of plant materials as well as small caches of root vegetables and black moss (*Bryoria fremontii*) are placed in the pit. The pit is re-covered with dirt with a stick extended to the bottom. Once covered, water is poured in a small hole and steam envelops the pit. A fire is usually made over the top of the pit to keep the temperature consistent. Rituals and cooking times vary from tribe to tribe. The Salish camas bake takes four days and involves camas, wild onion, and black lichen. It's possible that earth ovens in Salish food systems were used for much more than camas due to the deintensification of root use in tribal communities over time. In fact, the archaeological record reflects the dynamics of earth oven use throughout the Interior Plateau (Turner 2014, 280 V1). Balsamroot, wild onion, bitterroot, spring beauty, and biscuitroot were all known to be cooked in earth ovens in the past (Ibid.)

Only a handful of root vegetables are eaten raw due to their size and limited ability for storage. Yellowbell corms and Spring Beauty tubers are in this category. Not only are they fairly small but they are hard to keep because they mold easily due to their high-water content. Modern day they taste excellent sautéed in oil with salt and pepper or boiled. Other root vegetables were cooked in some way, either over coals, boiled or steamed in baskets, and in earth ovens. Glacier Lily was known to be a valuable source of starch in Indigenous communities and all root vegetables contain carbohydrates. Camas bulbs, onion bulbs, and balsamroot contain inulin, a complex sugar comprised of fructose

and fructans that is not particularly sweet and hard to digest (Turner 2014, 281 V1). Tribal groups that devised various methods of cooking root vegetables through storage and long-term cooking, hydrolyzed the inulin into fructose making it sweet (without raising) glucose-levels and easier to digest.

Berries and fruits:

Wild berries and other fleshy fruits are among the favorite and most recognizable traditional foods in Salish society. In Northwestern North America they are the most frequently cited and used type of food plant for contemporary Indigenous peoples (Turner 2014, 294 V1). This is perhaps due to the fact that berries and fruits require little in the way of harvesting. Usually women harvesting use woven baskets for picking. Salish used woven cedar-bark baskets for their fruit harvests. Berries were usually eaten fresh, although some species were processed and stored in various ways. Berries harvested in large quantities and were less juicy (i.e. Serviceberries and Chokecherries) were either individually dried, mashed and formed into cakes for drying, or mixed with meat and fat for snacks.

In addition to being favored and most flavorful of wild plant foods, fruits are good sources of ascorbic acid (Vitamin C) and contain essential nutrients such as calcium, Vitamin A and folic acid (Kuhnlein 1989b).

Historically, berries have been universally available and widely harvested throughout the Northwestern North American region with variable species named among tribes. Of all traditional foods that are still recognized by the Salish today, berries are the food plant group that survey respondents most frequently engaged with. Additionally,

berries and fruits are perhaps the most easily identifiable and accessible food plants on the Flathead Indian Reservation today.

Other:

Within the categories of green edibles are beverage and processing plants. Beverage plants include Wild Rose, Wild Mint and Labrador tea. Aside from the Wild Rose, whose primary beverage component are the fruits (i.e. hips), these plants are commonly used for their leaves and stems. Labrador Tea (*Ledum groenlandicum* or *Rhododendron groenlandicum*) is the most prominent of these beverage plants. In the Salish community "Mountain tea" as it's called is a popular drink at ceremonial gatherings or community events. The attribution of the name Mountain tea is because the plant is usually found in regions ranging from valley to subalpine (Lesica 2012). The leaves are plucked from the plant and dried. Mountain tea is a seen as a wellness drink, especially when cold and flu season rolls around. Its mild taste lends it its popularity in Salish society today.

Aside from Mountain tea, Wild Mint is a favorite beverage plant among tribes as a tea. Salish also used it to preserve food. Mint leaves were dried and crushed to be sprinkled over meat or mixed with dry meat and dried berries. Although not as common this was also done with Pineapple Weed. Today Wild Mint is used as a wellness tea for digestive issues and a throat soother.

Only one well-known traditional food plant, aside from mushrooms, does not fall within the same plant morphology as the other food-plants in this research. Colloquially called "black moss", the black lichen (*Bryoria fremontii*) is a common food source for the

Salish. Lichens are composite organisms composed of two symbiotic bodies, algae and cyanobacteria. Its usage in the Interior Plateau varied; it was used heavily in feasts with camas but sparsely in times of famine. In some parts of Montana, over 10 kilograms were harvested annually per person (Kuhlein and Turner 1991).

Bryoria fremontii hangs from the branches of coniferous trees in montane forests. This species has a toxic look-alike, so identification was paramount in harvesting practices. Usually knowledge keepers fixate on the color of the body; the darker the less bitter. Processing lichen was done by cleaning it extensively, removing any other types of lichen (bright green or pale green poisonous types), sticks and other debris. Then they would pound the lichen and soak it in water. This particular lichen species contains a toxic compound such as vulpinic acid (Turner 2014, 314 V1) so it was cooked for long periods of time. Additionally, *Bryoria fremontii* also contains complex carbohydrates that are surprisingly indigestible by humans. Recent studies have shown that the thallus of *Bryoria* has the ability to absorb significant amounts of sugar from camas bulbs (S. Crawford 2007). Lichen is almost always cooked with camas in camas bakes; therefore this capacity is an important feature of *Bryoria.*

5.3 Salish taxonomy and plant list:

Allium cernuum-Nodding Onion, *Qʷlə̓wye?*

Amelanchier alnifolia-Serviceberry, *Słaq*

Arctostaphylos uva-ursi (L.) Spreg. -Kinnikinnick, *Skʷlsə̓łp*

Balsamorhiza sagittata (Pursh.) Nutt. -Arrowleaf Balsamroot, *Mtčw̓e*

Bryoria fremontii--Black tree lichen, *Šawtmqn // sqʷl̓ápqn*

Camassia quamash-Camas, *Sx̣ʷə̓?li // i̓tx̣ʷe?*

Daucus carota-Wild Carrot, *Sƛ̓uk̓ʷm*

Claytonia lanceolata-Springbeauty/Indian Potato, *Snkʷn̓kʷi̓ // sqa̓qʷocn*

Erythronium grandiflorum -Glacier Lily, *Ma̓x̣e?*

Fragaria spp.-Wild Strawberry, *Qey̓tq̓m*

Fritillaria pudica-Yellowbell, *Q̓áw̓x̣e*

Lewisia rediviva-Bitterroot, *Sp̓eƛ̓m*

Lomatium cous.-Biscuit Root, *Pč̓l̓u*

Lomatium spp.-Desert Parsley, *Č̓éyč̓i*

Ledum glandulosum Nutt. // *Rhododendron groenlandicum*-Mountain Tea/Labrador Tea, *Sčtx̣ʷičn liti // sčtx̣ʷčłliti*

Matricaria matricarioides (Less.) Porter. -Pineapple Weed, *Nclclx̣ʷqin*

Mentha arvensis-Wild Mint, *X̣nx̣nélp*

Monarda fistulosa-Horsemint/ Bee Balm/Wild Bergamot, *Titw̓i // tiitw̓i*

Prunus americana-Wild plum, *Čt̓et̓eʔus*

Prunus virginiana-Chokecherry, *Łx̣ʷło*

Sambucus cerulea Nutt. -Elderberry, *C̓kʷikʷ*

Shepherdia canadensis (L.) Nutt. -Foamberry/Indian Ice Cream, *Sx̣ʷo̓sm*

Rosa woodsii-Wild Rose, *Xʷy̓é // xʷyélp*

Rubus parviflorus-Thimbleberry, *Polpq̓n*

Rubus spp.-Wild Raspberry, *Lĺac*

Typha latifolia- Cattail, *P̓išłp*

Vaccinium spp.-Huckleberry, *Sťšȧ* // *sťšȧłq*

Food categories

Foods that are highly recognizable and primary food sources:

Arrowleaf Balsamroot

Biscuitroot

Bitterroot

Camas

Chokecherry

Elderberry

Huckleberry

Serviceberry

Wild Onion

Yellowbell

Foods that were eaten in smaller amounts as secondary foods:

Cattail

Foam berry

Glacier Lily

Indian Potato

Kinnikinnick

Thimbleberry

Wild Carrot

Wild Plums

Wild Raspberry

Wild Strawberry

Foods used for processing:

Black Tree Lichen

Beebalm/Horsemint/Wild bergamot

Pineapple Weed

Wild Mint

Food plants used to make beverages:

Mountain Tea

Wild Mint

Wild Rose

Seasonal grouping (**Bolded** plants are featured in Plant Pages):

Spring- **Spring Beauty,** Biscuit root and Lomatium spp, **Bitterroot**, **Yellowbell**, Glacier Lily

Summer- Arrowleaf Balsamroot, **Camas,** Wild Onion**, Huckleberry, Serviceberry,** Wild Raspberry, Wild Strawberry**,** Thimbleberry, **Wild Mint, Beebalm**

Fall- Foamberry, **Chokecherry, Wild Rose hips,** Mountain tea

Winter- dried Serviceberries, Chokecherry cakes, dried Bitterroot and Biscuitroot

Year-round and known "survival foods": black tree lichen, kinnikinnick, rosehips

The Salish calendar:
January-*sčn̓cʔltu spqniʔ,* shaking hands month
February-*čqʷo̓sqn spqniʔ,* month of the cold
March- *k̓ʷsix̓ʷ spqniʔ,* month of the geese
April- *sčiy̓a̓lmn spq̓niʔ,* month of the buttercup
May-*sp̓e̓x̌m spq̓niʔ,* month of the bitterroot
June-*sx̣e̓ʔli spq̓niʔ,* month of the camas
July-*esy̓apqini spq̓ni,* month of celebration
August-*stša̓ spq̓niʔ,* huckleberry month
September-*łx̣ʷło̓ spq̓niʔ,* serviceberry month
October-*sčtlip spq̓niʔ,* hunting month
November-*sqʷllumt spq̓niʔ,* storytelling month
December-*esʔacm̓i spq̓niʔ,* trapping month

(*Seliš nyʔonuntn: English to Salish Translation Dictionary,* 385).

5.4 Traditional Food plant pages

Snkʷn̓kʷi̓ //sqa̓qʷocn

Claytonia lanceolata

Spring Beauty/Indian Potato

Figure 6a. Spring Beauty blooms. (Bear Don't Walk 2019) [JPEG]

Identification: small perennial. Grows in moist soil of grasslands, meadows, steppes, woodlands, open forest, and avalanche slopes. Found in montane to alpine regions.

Root storage: globose corm.

Stems: erect.

Leaves: basal leaf blades, usually absent during flowering.

Flowers: single flowers, 2-3 per plant. Petals white with pink lines.

(Lesica 2012, 128).

Grateful harvest: Spring Beauty is a unique plant that can be harvested from a range of altitudes effectively for many tribal nations on the Interior Plateau (Turner 2014, V2). Initially they grow along valley bottoms and sidehills and are harvested from May to June. But the same types of plants can be found at various upper elevation sites after the initial harvesting period (Ibid). The plant prefers warm slopes where snow accumulates and it flowers shortly after snow melts (Lesica 2012).

The Spring Beauty's pictured in Fig. 14a were found in July on a mountaintop alongside Glacier Lilies (*Erythronium glandiform*). These plants can usually be found growing together.

Figure 6b. Spring Beauty corm. (Bear Don't Walk 2019) [JPEG]

Cultural components: Despite the common accepted tradition of the Buttercup being the first plant to emerge in the spring, the Spring Beauty precedes it. Traditionally, many Salish people recognized the plant as a signifier that winter was over (Pete 2019). However, due to their small size, Spring Beauty is hard to find in the spring thaw. This could be the reason why the Buttercup is seen as a signifier of spring.

		Nutrition (per 100g)		
Plant parts used	Energy (kCal)	Protein (g)	Carbohydrate (g)	Fat (g)
Tubers [Kuhnlein&Turner 1991]	-	2	22.2	.2
Vitamins: traces of (mg)	Thiamine	Riboflavin		

Spe̓l̓m

Lewisia redviva

Bitterroot

Figure 7a. Succulent Bitterroot leaves signal harvest time. (Bear Don't Walk 2019) [JPEG]

Identification: short succulent herb. Environment gravelly or sandy, well-drained, sparsely vegetated soil of grasslands; valleys or montane regions.

Roots: fleshy and branched sometimes with a thick core. Thin reddish-brown outer skin, opaque white when peeled.

Stems: leafless, short.

Leaves: basal, tubular, and long. Leaves disappear before flowering.

Flowers: are solitary with 12-18 petals and numerous stamens. Vary in color (white-pink).

(Lesica 2012, 131)

Grateful harvest: Traditionally, the people greet and bless the Bitterroots return as it is the first food staple to arrive in the spring.

The Bitterroot has its own heart in the middle of the taproot. When the roots are peeled, the heart of the plant is returned to the soil alongside leave tops. It is unclear if the heart is a reproductive component of the plant. However, traditions remain in place to honor and respect the plant.

Without proper care and blessing, the plant would return back to earth and not grow, punishing the people so that no one would be able to harvest the roots for that year. (Salish Kootenai College 2008).

Bitterroot is versatile because once the roots are peeled, cleaned and laid out to dry, they will reconstitute at any point of time. Dried Bitterroot was essential for having in the winter as a source of starch and carbohydrates.

Cultural components: For generations women have been the caretakers of the Bitterroot (see "Story of the Bitterroot"). They would watch over the plant and determine when it was ready for harvest. Following, would be the annual Bitterroot feast. The women would select a Bitterroot plant to be honored and blessed. When the plant was taken from the ground, words of prayer and thanks were exchanged. She would welcome the plant and give thanks for its return. Prayers for a good harvest of other plants and for health throughout the year were exchanged. The group would gather enough Bitterroot for the feast.

After it was cleaned, the Bitterroot was cooked by steaming or making it into a soup. Bitterroot soup with Huckleberries or Serviceberries was always a favorite. The sweet berries added to the bitter taste of the roots.

May is the month for harvesting the Bitterroot plant.

Nutrition (per 100g)				
Plant parts used	Energy (kCal)	Protein (g)	Carbohydrate (g)	Crude fiber (g)
Roots (dry)	343	4.0	81	-
Roots (fresh) [Kuhnlein& Turner 1991]	94	1.6	21.6	1.5
Vitamins:	A and C			

Story of the Bitterroot

"*There was once a great famine. During those sad days there lived an old woman. She was worried because her children were slowly starving. The family had no meat and no fish. Her sons did their best to survive on old dried up shoots of balsamroot. 'My sons have nothing to eat and will soon be dead', the old woman sobbed. 'I will go to the river and sing my death song.'*

So, she went to the river and knelt down she wept with her face on the ground. Her grey hair covered the earth and bitter tears flowed as she sang her death song.

The Sun came over the mountain and heard the woman crying and singing. The Sun saw the grieving woman and called to her guardian spirit, 'your child cries in sorrow for her starving people, go and comfort her with beauty that grows from dead things and comfort her with food.'

Her guardian spirit took the form of a bird and flew down to the weeping woman. It settled in the silver of her hair and whispered, 'your bitter tears have soaked the earth beneath you. Even now they are mixing with plants that have died. They are making roots of a new plant. The plant will have leaves that are close to the ground and silver like your hair. Its blossom will have the rose color of my wing feathers. Your children will dig the roots of this new plant. Though it will taste bitter like your tears, they will know it is good food and they will grow to love it. People will see the flower and say, 'here is the silver of our mother's hair upon the ground and the rose from the wings of the spirit bird. Our mother's tears of bitterness have given us food."

Figure 7b. Bitterroot in bloom. (Bear Don't Walk 2019) [JPEG]

-Salish Kootenai College 2008, as told by Johnny Arlee

Q̓a̓w̓xe

Fritillaria pudica

Yellowbell

Identification: small perennial plant. Grows in grasslands, sagebrush prairie, open forest; valleys to montane.

Root storage: corm

Leaves: basal, linear, leathery.

Flowers: solitary, bell-shaped, and yellow. Edible.

(Lesica 2012)

Grateful Harvest: is done selectively by size where smaller corms and propagules can be replanted.

Cultural components: Underground corms were eaten fresh or boiled. Due to their small size, they were considered a good snack-food but not necessarily a staple food. In the past century, Salish people have enjoyed sautéed Yellowbell corms with butter, salt and pepper. The flowers and corms are edible and delicious.

Figure 8a. Yellowbell plant. (Bear Don't Walk 2019) [JPEG]

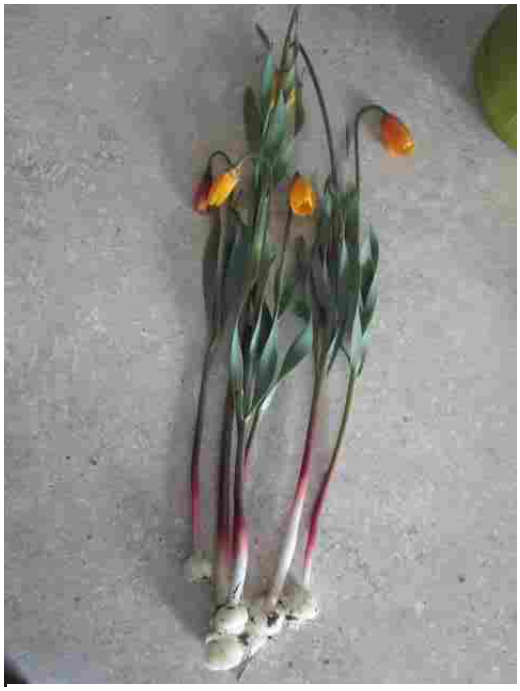


Figure 8b. Yellowbell plant and corms. (Bear Don't Walk 2019) [JPEG]

Nutrition (per 100g)				
Plant parts used	Energy (kCal)	Protein (g)	Carbohydrate (g)	Fat (g)
Corm [Kuhnlein&Turner 1991]	64	2.3	13.1	.4

Sx̣ʷéʔli // ɨtx̣ʷeʔ

Camassia quamash

Blue Camas

Figure 9a. Camas flower in bloom. (Bear Don't Walk 2019) [JPG]

Identification: medium-sized perennial herb. Found in deep soil of moist to wet meadows, grasslands; valleys to lower subalpine regions.

Root storage: bulb.

Stems: erect.

Leaves: basal, linear and lanceolate shaped.

Flowers: star shaped, with yellow anthers; vary in blue to purple.

(Lesica 2012, 723).

Grateful harvest: Camas bulbs were usually dug in summer (May-August) after the flowers had faded but the stalks and seed capsules were still visible (Turner and Kuhnlein 1983). Special precaution was taken such that Camas was not confused with Death Camas (*Zigadenus venenosus*) which tends to grow in similar habitats. Even after the flowers waned, Camas stalks were easily recognized by experienced harvesters; usually women.

A digging stick *péceʔ* was used to pry the ground around the bulb. Although Camas sites were not "farmed" many were traditionally cultivated through clearing of debris, oxidation and turnover of soil in digging process and at times, controlled burning (Turner and Bell 1971).

Figure 9b. Camas bulbs for Camas bake. (Bear Don't Walk 2019) [JPG]

Cultural components: Camas is one of the most important "root" foods of western North American Indigenous peoples (Kuhnlein and Turner 1991). It was gathered in large quantities to support the tribe as well as being a tradable good across the region. In Interior British Columbia, dried bulbs were obtained through trade with the Interior Salish (Kuhnlein and Turner 1991)

Processing methods were a little more involved than other plant foods. Camas requires long-term baking in order to break down their carbohydrates which, in raw form are not very digestible. This took place in "steam pits" or "earth ovens" and was known as "pit cooking."

While varying from tribe to tribe, gender dynamics in Camas Bake is critically important to ritual protocol for Salish. This is a process undertaken by women only. Men are

allowed to participate in collecting Camas and chopping wood for the fire and nothing else. It is said that if a man has a hand in the Camas bake it will not turn out and the man will also be infertile.

Salish typically coupled camas with Wild Onion (*Allium cernuum*), and Black Lichen (*Bryoria fremontii*) in cooking. The entirety of the process took several days and various methods when digging, preparing, and cooking in the pit. This was all women's work until the Camas was ready to serve to the community.

Nutrition (per 100g)					
Plant parts used	Energy (kCal)	Protein (g)	Carbohydrate (g)	Fat (g)	Fiber (g)
Bulb (fresh) [Hunn 1981]	113	.7	27.1	.23	
Bulb (cooked) [Benson 1973]	108	3.4	23	.35	
Vitamins [Kuhnlein&Turner 1991]	17mg Calcium	45mg Phosphorus	8.6mg Magnesium	1.6mg Iron	

Stšałq

Vaccinium spp.

Huckleberry

Figure 10a. Huckleberry ‘eye’. (Bear Don’t Walk 2019) [JPEG]

Identification: Deciduous dwarf to medium shrubs. Habitat is open woodlands, moist coniferous forests, montane shrublands; principal understory shrub in some subalpine lodgepole pine forests.

Roots: rhizomatous.

Leaves: simple, alternate and thin. Foliage of most species turns red in autumn.

Flowers: solitary. fused petals, urceolate (urn-shaped) and light-dark pink in color.

Fruits: juicy, many-seeded berry. Berries distinguished by an “eye”. The composition of the flower yields that particular characteristic in *Vaccinium* species. Vary in color from red to deep purple.

Figure 10b. Huckleberry flower. (Bear Don’t Walk 2019) [JPEG]

Grateful Harvest: Berry harvesters always made sure not to deplete an area of berries. Picking the fruits that were most ripe and develop while leaving the young to come to fruition was a common practice for the Salish. Gathering what you needed ensuring there are berries for the animals helped maintain berry patches over long periods of time.

Cultural components: Recent attention has been focused on the role of dark berries in cancer prevention due to their high content of flavonoids (Turner 2014, 296).

Nutrition (per 100g)				
Plant parts used	Energy (kCal)	Protein (g)	Carbohydrate (g)	Protein (g)
Fruit (Berry) [Kuhnlein&Turner 1991]	50	.7	12	.8

Vitamins &minerals. [Ibid.]	15.7 mg Vitamin C	8mg Vitamin A	22mg Calcium 16mg Phosphorus,	7mg Magnesium, 4.5mg Manganese

Słaq

Amelanchier alnifolia

Service berry/Sarviceberry/Juneberry/Saskatoon

Identification: Tall shrubs, small trees with smooth reddish bark. Grows in moist to dry forest, grasslands, meadows, and woodlands. Found in plains, valleys and lower subalpine regions

Leaves: simple, petiolate; blades rounded and toothed on the upper half.

Flowers: clustered, white. The three varieties of *Amelanchier* in MT are distinguished by petal length.

Fruits: a tiny apple-like berry called a pome that is purple at maturity. Edible and ten-seeded.

(Lesica 2012, 265)

Figure 11a. Serviceberry flowers. (Bear Don't Walk 2019) [JPEG]

Cultural components: In the Interior Plateau Serviceberries were harvested in immense quantities and dried for later use in the year. Tribal families would harvest and dry cumulatively 40 liters (or more) every summer (Turner 2014).

Figure 11b. Serviceberry fruits in varying degrees of ripeness. (Bear Don't Walk 2019) [JPEG]

		Nutrition (per 100g)		
Plant parts used	Energy (kCal)	Crude fiber (g)	Carbohydrate (g)	Fat(g)
Berry (Pome) [Kuhnlein&Turner 1991]	90	6.4	21.4	1.2
Vitamins:	15.7mg Vitamin C	86mg Vitamin A	69mg Calcium 40mg Phosphorus	244mg Potassium 26mg Magnesium

X̣nx̣nélp

Mentha arvensis

Wild Mint

Identification: small green herbs. Grow in moist areas such as streambeds, near lakesides, and meadows.

Stems: square.

Leaves: opposite, toothed, aromatic.

Flowers: axillary clusters on stem, tiered. Small and light purple.

(Lesica 2012, 424)

Cultural components: Wild mint was traditionally used for a food and for food processing. Mint tea was a common beverage for Salish people. The aromatic green leaves were picked and dried for future use. Mint tea was a refreshing and soothing beverage in the fall and winter. However, it was also used as a method of preservation. Dried mint leaves were crushed and sprinkled over meat to keep flies away and mixed with dried meat and berries to preserve.

Figure 12a. Wild Mint plant. (Bear Don't Walk 2019) [JPEG]

Figure 12b. Cluster of Wild Mint flowers. (Bear Don't Walk 2019) [JPEG]

		Nutrition (per 100g)		
Plant parts used	Energy (kCal)	Protein (g)	Carbohydrate (g)	Fat(g)
Fresh leaves of *Mentha* spp. [Kuhnlein& Turner1991]	39	2.9	7.7	1.1
Vitamins: [Benson 1973]	67.3mg Calcium	7.2mg Iron	88.4mg Magnesium	1.2 mg Zinc

Titw̓i // tiitw̓i

Horsemint/Wild Bergamot/Beebalm

Monarda fistula

Identification: rhizomatous perennial. Found in grasslands, meadows, open forest; plains, valleys, montane regions.

Stems: numerous, erect, and simple.

Leaves: short with small bladed edges. Pleasantly aromatic.

Flowers: arranged in a head-like cluster of flowers. Lavender in color with an upper and lowerlip. Upper lip is arched and hoodlike, lower lip reflexed down.

(Lesica 2012, 424)

Cultural components: Horsemint was one of the three main processing plants of the Salish. Its aromatic leaves were dried and crushed to be sprinkled over meat and dried berries to keep flies away. Additionally, fresh horsemint leaves were rubbed on the body to keep mosquitos at bay.

Figure 13a. Beebalm flower. (Bear Don't Walk 2019) [JPEG]

Figure 13b. Beebalm plant. (Bear Don't Walk 2019) [JPEG]

Nutrition (per 100g)				
Plant parts used	Energy (kCal)	Protein (g)	Carbohydrate (g)	Crude fiber (g)
Leaves	--	--	--	--

Łx̣ʷoło

Prunus virginia

Chokecherry

Identification: A shrub or small tree 3-5 m. Grow in riparian thickets, forests, woodlands, rocky slopes, plains, valley and montane areas.

Stems: Twigs reddish brown and smooth.

Leaves: simple with small-toothed edges.

Flowers: cylindric with many flowers. Petals are white and short.

Fruit: is a red cherry that turns black in color as it ripens. Produces a one-seeded drupe.

(Lesica 2012)

Grateful Harvest: Chokecherries are the last fruit to be collected in the fall (Stubbs 1966, 65).

Cultural components: The leaves of young shoots and the pits of the fruit contain cyanogenetic glycoside called amygdalin (Donn 1980, 18). Chokecherries were pounded and formed into thick cakes. When the pits of the cherries are crushed and exposed to air, the toxic cyanogenetic compounds dissipate and no longer pose a threat to humans. The cakes were laid in the sun to dry and used throughout the fall and winter seasons.

Figure 14a. Chokecherry buds. (Bear Don't Walk 2019) [JPEG]

Figure 14b. Chokecherry fruits. (Bear Don't Walk 2019) [JPEG]

Nutrition (per 100g)				
Plant parts used	Energy (kCal)	Water (g)	Carbohydrate (g)	Crude fiber (g)
Fruit	--	79	--	--
Vitamins [Kuhnlein and Turner 1991]	.05mg Thiamine	30mg Vitamin C		

Xʷy̓é // xʷyélp

Rosa woodsii

Wild Rose

Figure 15a. Wild Rose. (Bear Don't Walk 2019) [JPEG]

Identification: Shrub. Grows in open forest, woodlands, and riparian thickets. Grows in plains, valleys and montane regions.

Stems: sparsely to densely covered with fine prickles as well as larger hooked prickles.

Leaves: 5-9 ovate and serrated leaflets.

Flowers: Vary in size, many stamens. Smooth, pale to bright pink petals.

Fruit: Hip; smooth, long and red.

(Lesica 2012, 284)

Figure 15b. Wild Rose hips. (Bear Don't Walk 2019) [JPEG]

Grateful harvest: When the Wild Rose bloomed in early summer, the Salish knew that the buffalo would be fattened up. This signaled the time for the summer buffalo hunt (Salish Kootenai College 2008). Rose petals and hips can be harvested and dried for use in teas and medicines. The hips, when fresh can be eaten raw being careful not to eat the seeds.

Cultural components: In addition to being a phenological marker, Wild Rose hips were also known as a famine food (Turner 2014, V1 331). Because Wild Rose hips were generally plentiful in the fall-winter when all other foodstuffs had dwindled, they were available in hard times. Additionally, they are great sources of Vitamin C and that has been their most widely studied quality in terms of nutritional benefits.

Nutrition (per 100g)				
Plant parts used	Energy (kCal)	Protein (g)	Carbohydrate (g)	Crude fiber (g)
Fruit (hip)	--	--	--	--

Chapter 6: Conclusion

"*We're connected to the first Indians who walked on this earth, the very first ones, however long ago that was. But we're also connected to those Indians who aren't even born yet, who are going to walk this earth. And our job in the middle is to bridge that gap. You take the inheritance from the past, you add to it, your ideas and your thinking, and you bundle it up and shoot it to the future*."

-Rick Hill Sr. (Tuscarora)
Chair, Haudenosaunee Standing Committee on NAGPRA

Traditional food plants are a connective source. They link us to the land and feed our mind, body, and spirit. Salish people feel invigorated when they interact with food plants in the processing, preparing, eating and sharing of ancestral foods. These processes, they believe, reconnect us to our ancestors. To dig camas where they dug, to have fingers stained purple by berries like they once did, and to feed our families, tribe, and community these foods is deeply satisfying and rejuvenates all aspects of health.

Yet, the Salish still operate with lingering chronic illness in society. Mitigating chronic disease in the Salish community begins with understanding how it arose. Throughout chapters one, two, and three I used various components of history and public health research to draw connections between settler colonialism, Western assimilation, and the shift in Salish society that has contributed to the rise of chronic disease on the Flathead Indian Reservation. Hypertension, diabetes, obesity and cardiovascular disease are all emerging commonalities in Salish epidemiology. Elders recall that our ancestors never had to deal with these types of illnesses. At the present moment, there is a need to look for preventative health solutions for chronic illness. Our current reality is not the future we want to for the next generations. These issues can be remedied by the reintegration of healthy cultural practices and connection to traditional food systems. By

using the roots of our past, we can cultivate healthier environments for the people and plants to co-exist and make a healthy, sustainable future possible for the Salish people.

Additionally, these initial chapters were used as a guide to understand the frameworks for Salish culture, language, history, and cosmology. By situating the reader to look beyond common knowledge, stereotypes, and assumptions a deeper understanding of who the Salish are comes into view. By placing their narratives, past and present, at the forefront of this thesis, Salish identity is explained from within the culture, not by outsiders. These chapters also situated the readers in place and the stories of place. Northwest Montana, the region this thesis most commonly refers to was not how the Salish knew this area. Acknowledging their traditional territory beyond newly constructed borders allows their existence in place more significant. Tracing their roots from creation, migration patterns, settlement, and re-settlement follows their history farther than common knowledge allows.

This thesis addresses a two-pronged problem. The first is the eventual decline of Traditional Salish Plant Knowledge and engagement with ancestral foods. The second is the decline in health of the community as a result of cultural disconnect. Chronic illness is a public health problem that has plagued a host of Indigenous communities around the world. All are linked by the common thread of the drastic shift from traditional lifestyle to a transitional period of genocide, infectious disease, and assimilationist tyranny. Traditional food systems that had been in place for almost all of Indigenous existence, were quickly diminished in society. As forced food systems turned to modern convenience, Indigenous people are attempting to save their land, culture, and people while doing so in poor health. The linking tissue, however, lies in the power of traditional

food systems and how little by little, Indigenous people can move in a direction of health and healing by means of their own.

The connective nature of traditional food plants is what makes them a powerful tool in improving wellness. Traditional foods have been shown to reduce the risk of developing chronic diseases (Kuhnlein and Receveur 1996, Kuhnlein et al. 2004; Receveur, Boulay, and Kuhnlein 1997). Adopting aspects of the traditional diet can also reduce the intake of sucrose and saturated fats (Ballew et al. 2006; Kuhnlein et al. 2004; Nakano et al. 2005b). The introduced components of Western diets such as high sugar, carbohydrate and fat content alongside heavy processing, is the main contributor of long-term physical ailments in the body. The decrease in consumption of traditional foods over time, has contributed to the rise of chronic diseases in Salish society. A dependence on Western ways of living and consumption is unmistakable but it's not wholly who we are. In a culture of resiliency and adaptation to changes in the environment, the Salish are still a strong people culturally and politically. Through further engagement with traditional plant practices, we can build on those foundations and cultivate a healthy future.

Traditional food consumption is influenced not only by individual behaviors, but also by social, community, and environmental factors (Delormier, Frohlich and Potvin 2009; Sobal, Kettel Khan, and Bisogni 1998). The dominant food culture of America looks at food/people relationships as solely individualistic. "You" are ultimately in charge of your food choices and for that you and only you are in charge of your health. Previously for the Salish people, health has been expressed as a binary; you are either healthy or you are not. But as the population adapted through time, surviving famines, infectious diseases, and now the insidious chronic illness that has pervaded almost all

indigenous communities across North America, new concepts of health arise. Aspects of mental, physical, and emotional health coalesce into a modern framework of health, healing, and wellness. Salish people see their health as intricately intertwined to the food they eat, the culture they engage with and the strength of their identity. All of these aspects were connected in the model framework of the "Ecological Triangle" (Chart 1) in chapter four. Health, traditional plant practices, and culture are all part of the larger conceptualization of modern Salish wellness practices.

Linguistics explained the deeper meaning of Salish plant names and the lack thereof (and what that means) to enhance the valuable ways that language and plant revitalization can positively benefit the Salish people. In Cree lexicon, there is a concept of health *miyupimaatisiiun,* which goes beyond the health of the individual and implies a healthy and respectful relationship with the territory and the animals (Adelson 2000). While there is no Salish word or concept that fully embraces this idea, the people express it in English. There is a growing interest in understanding health in terms of the concepts of wellness and well-being, especially regarding defining and re-examining the social determinants of health in Indigenous communities. The term "well-being" in that framework focuses on the relationships between cultural values, mental health, and the importance of land and place (Goodkind et al. 2015). Well-being for Salish attends to the spiritual, mental, emotional, and physical realms of being. There is the potential for new language concepts to be developed as well as words that envelop a science-based understanding of Salish food-plants.

In chapter five, the plants themselves are the star of the show. In this section, aspects of plant identification, sustainable harvest practices and tribal ways of

understanding food plants are incorporated to create a culturally comprehensive ethnobotanical guide. Consuming 5% of total daily energy intake in traditional foods yields a significant improvement in consumption of vitamin A, protein, iron, zinc, copper, magnesium, phosphorus, potassium and vitamin E (Nakano et al. 2005b). In this section I wanted to show that science and culture can coalesce to create positive impact.

> "*Values, cultural content, and behavioral norms develop through distilled experience and adaptation to places, circumstances, and events. Cultures, including the culture of science, must be flexible enough to restructure themselves as the world, circumstances, and events change, while also retaining a core of stability*."
>
> -Keith James 2001

For the Salish people, internal stability comes from an engaged and positive relationship with culture. Aspects of the culture such as language and ritual guide and inform Salish people to a higher state of understanding. This is Indigenous knowledge in practice, as an accumulating body of knowledge that is enforced through rituals, ceremonies, beliefs, language and transmission. The highly adaptive processes of trial and error maintained through intergenerational knowledge dissemination is ever-changing and not always linear. Like many indigenous peoples living today, Traditional Ecological Knowledge is neither static nor primitive. Instead it reflects a deeply attuned knowledge base of ecology, land management, conservation, botany, and biology. Even in a world that is modernized and continually striving towards innovation and advancement, Salish people still have the critical components of the culture and Traditional Plant Knowledge at hand.

Revitalizing ancestral knowledge does not have to be at war with the changing times. Retaining and bringing back traditional food plant practices may look a little different in this day and age, but as long as the intentions are respectful and positive, I believe that we can revive our roots. In fact, the culture can guide us to an area of balance, if we manage to integrate it in a good way. Finding innovative solutions to complex problems such as food insecurity and chronic illness takes developing strategies for living healthier, balanced, more culturally enriched lives. The nature of Traditional Plant Knowledge and Indigenous science is well-equipped to adapt and transform as time goes on. In order for that to occur, it needs to be applied and seen as relevant by the Salish people.

Throughout this thesis I have iterated that food is not only as a source for nutrition but is also an indicator of human/cultural/environmental interactions (Gwyneira 2018). Approaching food systems from a traditional perspective shows how food sources are part of larger cultural, political, and biological systems where environment and culture overlap (Hoover 2017a). This system being "all of the food species that are available to a particular culture from local natural resources and accepted patterns for their use within that culture" (Kuhnlein and Chan 2000) is still attainable for the Salish people. Little by little the integration of traditional food-plants and practices can embrace the socio-cultural meanings of food, their acquisition and processing, as well as reinvigorate dynamics of varying age groups and genders within the society. Ancestral foods and the aspects that come with them benefit the cultural, social, spiritual and mental health of Indigenous communities (Van Oostdam et al. 2003) and beyond.

Integration of sustainable food systems that are self-defined and all-inclusive are catching on in the global food economy. The United Nations General Assembly proclaimed that 2019-2028 would be the UN Decade of Family Farming (UNDFF). The Decade will bring together the efforts of the international community on promoting conducive policies, programs and initiatives to advance family farmers around the world (Food and Agriculture Organization of the United Nations 2019). This initiative is important and relevant to tribal nations because it places women and rural youth at the forefront of its strategic action plan. Not only will these populations be agents of their own development, but their communities will aid in the development of agricultural development.

Family farming is loosely defined as all family-based agriculture activities. This could be anything from farming, agriculture, forestry, fisheries, aquaculture, and or any other food-related productive that is operated by the family and relies on family labor (Ibid). This family farming program supports several key tenents of the Indigenous Food Sovereignty movement. These include, enabling policy environment, access to markets, access to and control over land and natural resources, access to finance and socio-economic inclusion and resilience. This initiative sees food as cultural facilitators in the greater scheme of curbing food insecurity and malnourishment globally. Not only that but UNDFF recognizes the contributions of women in our global food system. Worldwide women hold only 15% of farmland while they provide 50% of the labor (Ibid). In traditional societies women's contributions were largely seen as equal to men and were celebrated in the community. In ensuring the well-being of families and communities the activities of women were considered vital and of equal importance to men's work (Turner

2003, 2014) This philosophy should not simply exist in historical accounts of elders, it should be a modern framework that our society operates within: locally, tribally, regionally, and globally. In this way Indigenous food systems can serve as valuable contributors to the larger conversation for sustainable, sovereign, examples of family farming.

Future initiatives to cultivate a world where diverse, healthy and sustainable food systems can flourish is actionable when little by little communities start to reclaim their food systems. Rural and urban communities alike and the populations situated within them deserve to enjoy a high quality of life. For American Indian communities, quality of life is situated within poor health structures and nutrient-poor food systems. In the many examples provided in this thesis Indigenous health is understood as balance of identity, connection to culture, engagement with the landscape and participating in traditional food practices. Essential to a future that promotes health and cultural longevity is the promotion of healthy traditional practices with cultural roots and modern tools.

The word for roots in Salish is *Soẋʷə̓ép*. Within the word *oẋp* means to be strung out like a string, the way that roots are strung out underground. The *épł* portion signifies a beginning. Loosely translated "roots" means "the strung out beginning" or "the base or primary beginning of a plant" (Pete 2019). Roots are not only where plant begins to grow, morphologically, it is where a majority of necessary nutrients are absorbed. Roots keep a plant grounded and maintained. The word *Soẋʷə̓ép* is significant because it also can be a description of where people come from; an aspect of personal lineage. That's because the roots of the word signify a long string that keeps things together over time. In essence, your family is described as your roots in Salish lexicon because it's seen as a big

long string that connects you to all the people of the past. The roots of the *sqelix*^{w} are all the beings that contributed to the society we have today. Our contemporary Salish people are part of a living and breathing coalition of humans, animal beings, and land. We are connected to all people, places, stories that thrived on this land. We must nurture those roots so that they may continue to grow strong.

I called this thesis "Recovering our roots" because our plant relatives are a valuable connector to Salish ancestral past. Recovering our roots is to understand the long line of knowledge and people that have cultivated relationships with the natural world. Their recovery is tied to use by modern people and the re-establishment of that age-old relationship. Through those means, the people can call on their roots to renew their spirit, mental awareness, and physical body. The roots of our renewal not only provide us with nourishment but ground us in our ancestral principles.

Indigenous people often say, "our food is our medicine" (Turner and Ommer 2004) because many Indigenous foods are considered healing for the mind and body. The total dietary contribution of food-plants is dependent on the nutrients they contain and also the quantities in which they are consumed. Quantities vary in place to place, over seasons and years, and over the centuries and millennia as human populations have moved expanded and adapted to new conditions (Turner 2014). The consumption of these plant foods was considerable in the past, and even in recent past as some Salish informants recall. Using traditional food in the wake of modern globalization and industrialization of the landscape means to uphold Salish principles and practices that can be a pathway to healing the culture, land and people.

Knowledge is the most valuable medicine we have because without it we are lost. Without culture, guidance, and tradition we stray from the path that our ancestors so dutifully paved for us. I am lucky that I grew up with knowledge of the Salish people because there are many that did not. I am grateful that my mother, like my predecessors thought ahead for the future she wanted for me. My ancestors thought ahead in almost every aspect of their life, but still remained deeply connected to the world they inhabited in the moment. Our medicine is connected to this land, the Flathead Indian Reservation and beyond. It's in the plants that still grow, the mountains that connect us to the spirits; it's in the people that carry the knowledge with them. The Salish follow this medicine, watch over it, respond to it with gratitude. Our food, our plants, our land, our knowledge, is this medicine. It took immense attention to the land to maintain a tribe in balance with the Earth Mother. She provides all we need but must be healthy herself to do so. Caring for the health of the land so that it may provide is an aspect of living that should be applied to all living beings, including ourselves. Our roots hold strong, but we must nourish our body, mind and spirit the way nature intended so that we can continue to flourish as *Sq̓elix̣ʷ.* The ancestral *Sq̓elix̣ʷ* cultivated a sustaining relationship with the earth and all its beings. At the core of this relationship with the land, is love. It is with this love that we are still here. Our roots contain all the knowledge of those who came before us. The roots of our renewal are founded in love and growth, and that is the key to a healthier, happier, Salish future.

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Appendices

Appendix A:

In the process of carrying out this project, it is important to discuss that even though this is by and for Salish people, the Flathead Indian Reservation is home to a variety of native and non-natives that will not benefit directly from this project. The confederation consists of three tribes; the Salish, Kootenai, and Pend d'Oreille and was formed in 1935 (*Salish Pend d'Oreille Culture Committee,* 8). The Salish and Pend d'Oreille share a similar language family and culture while the Kootenai have their own dialect and associated traditions. More specifically in terms of geography, culture, and linguistics the Pend d'Oreille (who call themselves the Qİispé) are the most closely related tribe to the Salish (Salish Pend d'Oreille Culture Committee 2005, 19). However, this thesis is solely focused on the perspectives and knowledge of the Salish. Which means that a large base of tribal people that live in this region will not be represented in this work.

In my own evaluation as a Salish individual, this issue is something I have thought deeply about. While maybe the Kootenai group utilized the same plants because of their proximity in the region, I do not have the proper knowledge or Kootenai cultural background to integrate this into my thesis. I simply do not feel that I can adequately research and represent other tribal worldviews and knowledge in regards to plants because I do not belong to that respective culture.

While the Salish are direct beneficiaries of this project it is possible that this thesis could lead the Pend d'Oreille and the Kootenai to conduct their own research into their respective traditional food practices. This thesis can serve as a framework for other

groups to reclaim their relationships with plants and food and work towards healthier, sustainable and self-determined communities. This research project, tangibly, seeks to aid in the collective efforts to restore, revitalize and preserve valuable tribal resources in areas of health, language and culture. I also hope that as a collective the Confederated Salish and Kootenai tribes can work together to create stronger relationships between plants, people, and health so that we may become stronger as a sovereign confederation.

Appendix B: Salish pronunciation guide (*Seliš ny?onuntn: English to Salish Translation Dictionary* 2010)

Guide to Salish Pronunciation and Orthography

ʔ is not written in English, but can be heard before **u** and **o** in **uh-oh!** This sound is produced by closing and then opening the vocal/glottal cords. It is called the *glottal stop*. The glottal stop naturally preceeds all words that start with a vowel thus it is not necessary to write.

c is like the **ts** in cats.

c̓ is similar to **c** *(ts sound above)* but with pressure built up behind the tongue and suddenly released as a **c** *(ts sound above)*. It is called a *glottalized c* or *hard c*.

č is like the **ch** in church, called a *wedged c*.

č̓ is like a **č**, *(ch sound above)* but with pressure built up behind the tongue and suddenly released as a **č***(ch sound above)*. It is called a *glottalized wedged c* or *hard wedge c*.

h is like **h** in hot.

l is like **l** in lip.

l̓ is like **l** *(l sound above)* with glottal closure. It is called *glottalized l*.

ɬ There is no English sound equivalent similar to **ɬ**. It is produced while holding the tongue in the position of an **l** as is play and then blowing air out the one or both sides of the tongue. It is called a *barred l*.

ƛ̓ There is no English sound equivalent similar to **ƛ**. It is produced by putting the tongue in the position to pronounce **l** as in play. Build pressure behind the tongue, keeping tongue in the **l** position, then suddenly release from one or both sides of the tongue. A similar sound is produced when calling horses, only this sound is produce in reverse by sucking air in. It is called a *lambda*.

m is like the **m** in mouse.

m̓ is like the **m** *(m sound above)* with a glottal closure. It is called a *glottalized m* or *hard m*.

n is like the **n** in on or in.

n̓ is like the **n** *(n sound above)* with a glottal closure. It is called a *glottalized n* or *hard n*.

p is like the **p** in spin.

p̓ is like the **p** *(p sound above)* but with sudden release of air. It is called a *glottalized p* or *hard p*.

s is like the **s** in sin.

š is like the **sh** in ship. It is called a *wedge s* or *chevron s*.

k is like the **k** in skin.

kʷ is like **qu** in queen. The raised *w* indicates that the lips are rounded. It is called a *k w*.

k̓ʷ is like the **kʷ** with a glottal closure. The raised *w* indicates that the lips are rounded. It is called a *glottalized k w*.

q is like the **k**, but produced farther back in the throat.

q̓ is like the **q** but with simultaneous glottal closure. It is called a *glottalized q* or *hard q*.

qʷ is like the **q**, but pronounced with rounded lips. The raised *w* indicates that the lips are rounded. It is called a *q w*.

q̓ʷ is like the **qʷ**, but with simultaneous glottal closure. The raised *w* indicates that the lips are rounded. It is called a *glottalized q w* or a *hard q w*.

t is like the **t** in top.

t̓ is like the **t** with a glottal closure. It is called a *glottalized t* or *hard t*.

w is like the the **w** in well.

w̓ is like the **w** with a glottal closure. It is called a *glottalized w*.

x is a fricative sound produced in the same position as **q**. It is called an *x-dot* or *dotted x*.

xʷ is a fricative sound like **h**, but produced in the same position as **k**. The raised *w* indicates that the lips are rounded. It is called x w.

xʷ is like **xʷ**, but produced farther back in the throat in the position of **q**. The raised *w* indicates that the lips are rounded. It is called a *dotted x w* or *dot x w*.

y is like the **y** in yes.

y̓ is like the **y** with simultaneous glottal closure. It is called a *glottalized y*.

a is like the **a** in father.

e is like the **e** in pet.

i is like the **i** in machine. When following a **q**, **q̓**, **qʷ**, **q̓ʷ**, **x** or **xʷ** the **i** will have the sound of **ey** as in they. This is a good way to check pronunciation of the **q** letters. If you can hear the **i** as in machine, following the **q**, **q̓**, **qʷ**, **q̓ʷ** letters then you know you are pronouncing the sound of a **k**.

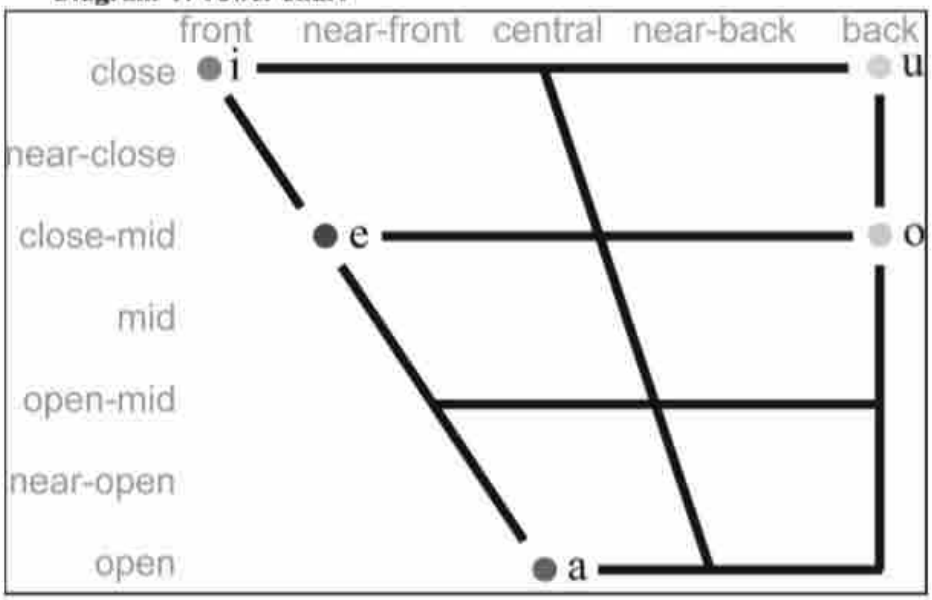
u is like the **u** in rude.

o is like the **o** in orb or off.

ˈ The primary stress is written above the vowel which, in words of two or more vowels, receives the loudest stress. The stress mark is a grammatical mark rather than an alphabetic mark.

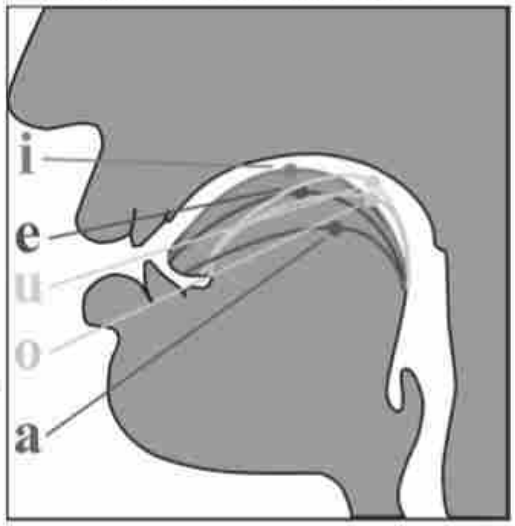
Vowels

Diagram 1. Vowel Chart



There are five written vowels in the Salish language. Diagram 1 is a vowel chart that shows the arrangement of vowel closeness and vowel openness. The vertical positions denotes vowel closeness. The horizontal position denotes vowel openness. "In phonetics and phonology, **vowel height** is the vertical position of the tongue relative to either the roof of the mouth or the aperture of the jaw. In high vowels, such as [i] and [u], the tongue is positioned high in the mouth, whereas in low vowels, such as [a], the tongue is positioned low in the mouth."[1] "Also, in phonetics, **vowel backness** is the position of the tongue relative to the back of the mouth in a vowel sound."[2] Diagram 2 illustrates graphically the position of the tongue in relation to the position in the mouth.

Diagram 2. Vowel Physical Position



[1]Vowel height. (2008, March 26). In *Wikipedia, The Free Encyclopedia*. Retrieved 04:59, April 15, 2008, from http://en.wikipedia.org.

[2]Vowel backness. (2008, March 17). In *Wikipedia, The Free Encyclopedia*. Retrieved 05:16, April 15, 2008, from http://en.wikipedia.org.

Appendix C: Botany Glossary

Botany terms and definitions (Turner 1997):

Alternate: Growing alternately on a stem with one leaf at each node.

Basal: At or emerging from the base of a plant or structure.

Bulb: A swollen underground bud, composed of short stem covered with fleshy layers of leaf; e.g., an onion.

Cambium: A layer of continuously dividing cells between the wood and the bark of trees and shrubs, from which new wood and bark tissues derive.

Corm: A fleshy, thickened underground stem at the base of a plant. Usually spherical, resembling a bulb but solid rather than layered.

Opposite: Growing directly across from each other on a stem.

Perennial: A plant that lives more than two years.

Taproot: A main root, growing straight downward, from which smaller branch roots grow out; e.g. a carrot.