School of Environmental Studies
PO Box 1700 STN CSC
David Turpin Building, Rm B260
Victoria British Columbia
V8W 2Y2 Canada
Tel (250) 721-7354, Fax (250) 721-8985
Web http://web.uvic.ca/enweb/

Nancy J. Turner CM, OBC, PhD, FLS, FRSC
Distinguished Professor, Hakai Professor in Ethnoecology
email: nturner@uvic.ca
Tel (250) 721-6124

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Sunny LeBourdais
B.Sc., B.Ed., M.Sc., AMP
KGHM Ajax Project Coordinator
Stk'emlupsemc te Secwepemc Nation
sunny@stkemlupsemc.ca
PO Box 188, 1030 Trans Canada Hwy. Savona, BC V0K 2J0
Cell: 250-320-0712

Cultural Importance of Grasslands and Associated Plant Species and Ecosystems for the Stk'emlupsemc te Secwepemc Nation

Introduction

This report has been prepared for the Stk'emlupsemc te Secwepemc Panel Hearing for the Independent Assessment of Ajax Mine Project. It is based on my research with Secwepemc elders and botanical experts in collaboration with the Secwepemc Ethnobotany Project, which was initiated in the early 1990s and has continued to the present. Currently one publication on the associated research projects is in press (Ignace, Turner and Peacock, eds. 2016) and a general Secwepemc Ethnobotany book (Turner, Ignace and Loewen, eds. forthcoming) is in final stages of preparation, and is anticipated to be published in the coming year. These volumes cover Secwepemc Botanical Knowledge over the entire Secwepemc territory. For purposes of this report, I have drawn information that pertains to the Stk'emlupsemc te Secwepemc, and in particular to the grasslands and associated plants and ecosystems of the area in the vicinity of the proposed Ajax Mine.

In the following sections I first provide a brief background regarding my qualifications for preparing this report. I then describe the importance of interior grasslands as an

endangered ecosystem. I provide a list of culturally important plants that are known to occur in the area in the vicinity of the proposed mine and describe their cultural applications, including a brief discussion of the concept of Cultural Keystone Species – a designation that could apply to at least two dozen of the approximately 75 species listed. I also describe Traditional Secwepemc Plant Management in grasslands habitats. Finally, I discuss the past, present and future significance of this area, and suggest that it qualifies as a Cultural Keystone Place, based on the criteria set out in our recent publication (Cuerrier et al. 2016).

My Background

The fields of ethnobotany and ethnoecology integrate the disciplines of botany and ecology with anthropology, archaeology, geography and linguistics, among others. Along with Indigenous Botanical Knowledge systems, my research focuses on the systems of Traditional Ecological Knowledge and Wisdom and on Traditional Land and Resource Management systems of Indigenous Peoples, particularly in western Canada. I have worked with First Nations elders and cultural specialists in northwestern North America for over 45 years, since 1968, collaborating with Indigenous communities to help document, retain and promote their knowledge of plants and habitats, including Indigenous foods, materials and medicines, as well as language and vocabulary relating to plants and environments. My interests also include the roles of plants and animals in narratives, ceremonies, language and belief systems.

I have authored, co-authored or co-edited over 20 books (most recently a two-volume book, *Ancient Pathways, Ancestral Knowledge: Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America* (Turner 2014), which was awarded the 2016 Canada Prize by the Federation for the Humanities and Social Sciences. Other books that I have authored or co-authored include *Saanich Ethnobotany: Culturally Important Plants of the WSÁNEĆ People* – co-authored with Richard Hebda (2012); a textbook, *Ethnobiology* (E. N. Anderson, first editor); *Plants of Haida Gwaii* (2004)*; The Earth's Blanket* (2005); *"Keeping it Living": Traditions of Plant Use and Cultivation on the Northwest Coast of North America* (2005; co-edited with Douglas Deur); *Traditional Plant Foods of Canadian Indigenous Peoples* (1991; co-authored with Harriet Kuhnlein), *Plant Foods of BC Interior First Peoples* (1997), *Plant Technology of BC First Peoples* (1998); *Thompson Ethnobotany* (Turner et al. 1990); *Ethnobotany of the Okanagan-Colville Indians of British Columbia and Washington* (Turner et al. 1980) and over 150 book chapters and peer-reviewed papers, and numerous other publications, both popular and academic.

I have received a number of awards for my work, including: *Richard Evans Schultes Award in Ethnobotany* from the Healing Forest Conservancy, Washington DC (1997); *Order of British Columbia,* and elected *Fellow of the Royal Society of Canada* (both 1999); *Slow Food Award in Biodiversity***,** Bologna, Italy (2001); *Honorary Citizen of Victoria Award* (2001); Confederation of University Faculty Associations of *British Columbia Academic of the Year Award***,** and Canadian Botanical Association's *Lawson Medal for lifetime contributions to Canadian Botany* (2002); UVic's Alumni Association *Legacy Distinguished Alumna award* (2003); Lieutenant Governor's medal for *best BC*

Historical non-fiction of the year (*Plants of Haida Gwaii*, 2005); *Craigdarroch Gold Medal***,** University of Victoria (2006); *William L. Brown Award for Excellence in Genetic Resource Conservation*, Missouri Botanical Garden (2008); *Member of the Order of Canada* **(**2009); *Freedom of the Municipality of Saanich* **(**2011); *Distinguished Economic Botanist Award* from the Society for Economic Botany (2011); as well as Honorary Doctorates from *Vancouver Island University* and *University of British Columbia* (both 2011), the *University of Northern British Columbia* (2014) and *Simon Fraser University* (2015).

I have testified in matters relating to ethnobotany in the Tsilhqot'in Nation v. British Columbia, 2007 BCSC 1700 (CanLII), and have provided a presentation for the Joint Review Panel for the New Prosperity Mine proposal hearings in Williams Lake. I have provided written reports on ethnobotanical knowledge and botanical surveys for many First Nations, from Haida Gwaii and Gitga'ata territory on the north coast of British Columbia, to Syilx, St'at'imc and Nlaka'pamux in the southern Interior. My full cv is available if needed.

Interior Grasslands and Associated Habitats of Stk'emlupsemc te Secwepemc Territory

The region I focus on in this report is the proposed Ajax Mine site, including the area around and to the south of Jacko Lake, within the territory of the Stk'emlupsemc te Secwepemc. This area has been used and occupied by people from the communities of Kamloops and Skeetchestn since time immemorial. It is a key component of the broader Secwepemc territory, a place where people have resided, harvested and stewarded a multitude of resources, maintained habitats through fire and other means, and developed strong spiritual connections.

This area falls mainly within the Interior Grasslands vegetation area, one of British Columbia's and Canada's most endangered ecosystems (BC Ministry of Water, Land and Air Protection n.d.; Grasslands Conservation Council of BC 2004). Less than 1% of the provincial landbase our grasslands provide habitat for more than 30% of our threatened or endangered species (Grasslands Conservation Council of British Columbia 2004). The majority of southern interior grasslands are already highly altered and degraded through industrial development, particularly livestock grazing, agricultural encroachment and introduction of invasive species. This particular site, though having evidence of disturbance, is still relatively intact, with a high diversity of plant and animal species, as well as lichens, fungi and algae. In less disturbed areas, complexes of mosses, algae, lichens and bacteria form a cryptogamic crust on the soil surface, highly vulnerable to disturbance by vehicles or cattle.

In all, four Biogeoclimatic zone variants are represented in the area: Ponderosa Pine very dry hot, Thompson variant (PPxh2); Interior Douglas-fir very dry hot, Thompson variant (IDFxh2); and Bunchgrass very dry, hot, Thompson variant (BGxh2) and very dry, warm, Nicola variant (BGxw1) (Lloyd et al. 2005). Key plants occurring in PPxh2 include ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), paper birch (*Betula papyrifera*), cottonwood (*Populus balsamifera*), Saskatoon berry (*Amelanchier*

alnifolia), wood's rose (*Rosa woodsii*), and big sagebrush (*Artemisia tridentata*). A similar range of species occurs in IDFxh2, as well as snowberry (*Symphoricarpos albus*), and birch-leaved spiraea (*Spiraea betulifolia*).

Key plants occurring in the Bunchgrass areas are mostly grasses, particularly bluebunch wheatgrass (*Pseudoroegneria spicata*) and rough fescue (*Festuca scabrella*; syn. *F. campestris*). Trees, including ponderosa pine, Douglas-fir, cottonwood and trembling aspen (*Populus tremuloides*), are rare. Other species growing in these areas include, wild roses (*Rosa* spp.), balsamroot or spring sunflower (*Balsamorhiza sagittata*), northern wormwood, or prairie sagewort (*Artemisia frigida*), desert-parsley (*Lomatium macrocarpum* and other spp.), lemonweed (*Lithospermum ruderale*), big sagebrush (*Artemisia tridentata*) and rabbitbrush (*Ericameria nauseosa*).

Associated wetlands in the area sustain cattail (*Typha latifolia*), sedges (*Carex* spp.), tule (*Schoenoplectus* spp.) and silverweed (*Argentina anserina*), among other species. Likely, the wetlands, including alkaline ponds, and riparian areas, were more extensive in the past, and probably, too, there was a greater diversity of species, reduced more recently from livestock grazing, agricultural activities and other land altering practices, as attested to by many elders in our interviews (Ignace, Turner and Peacock, eds. 2016) and in our general Secwepemc Ethnobotany book (Turner, Ignace and Loewen, eds. forthcoming).

Many of the plants occurring in the grasslands, wooded areas and wetlands in the vicinity of the proposed Ajax Mine have high cultural importance for the Stk'emlupsemc te Secwepemc. Notably, some native plant species known from nearby areas have likely also occurred in the study area, but are now evidently extirpated. Potential examples are spring beauty, or mountain potato (*Claytonia lanceolata*) and bitterroot (*Lewisia rediviva*), both species vulnerable to overgrazing. The native tobaccos (*Nicotiana attenuata, Rhus glabra*) and Indian-hemp (*Apocynum cannabinum*), once extremely important to Secwepemc (Turner 2014), may also have grown here. Many others, while still to be found in the area, have likely been significantly reduced in numbers and quality, having been impacted by ranching and industrial activity over the past century or more.

Culturally Important Plants Known to Occur in the Vicinity of the Proposed Mine

Appendix 1 lists the major plant species of the study area with known cultural significance to the Secwepemc, together with their names and summary of their cultural roles, based on our research (Ignace, Turner and Peacock, eds. 2016) and a general Secwepemc Ethnobotany book (Turner, Ignace and Loewen, eds. forthcoming). Many are important food plants, including root vegetables, greens and fruits, flavourings and beverage teas, components of a healthy traditional diet, still relevant and significant to Secwepemc people today in efforts to maintain food security and food sovereignty (Kuhnlein et al. 2013). Plant foods are a key component of Indigenous food systems, providing essential vitamins, minerals, dietary fibre, and food energy; in some cases they have meant the difference between starvation and survival (Kuhnlein and Turner 1991; Turner et al. 1990).

Many of these food species, as well as others that were not eaten, have also provided, and continue to provide, important medicines. Certain foods found in the study area – for example, chocolate tips (*Lomatium dissectum*), tiger lily bulbs (*Lilium columbianum*), prickly-pear cactus (*Opuntia fragilis*), Canada mint (*Mentha arvensis*), and soapberries (*Shepherdia canadensis*) – were considered particularly healthy, and were eaten for their tonic and health-giving properties. Other species, strictly medicinal, were sought from this area, and have been a component of people's healthcare over countless generations. They include treatments for coughs, colds and respiratory ailments, heart and circulatory system, aches, pains and swellings, wounds and skin infections, broken bones, digestive tract ailments, diabetes, cancer, eye medicines, painkillers, blood purifiers and tonics, and medicines for childbirth and gynaecological treatments, among others. These medicines were prepared as infusions and decoctions to be drunk or used as washes, as inhalants, and as salves, ointments and powders (Turner, Ignace and Loewen, eds. forthcoming). Some plants, especially aromatic species, were also used as insect repellents, on the skin or in the house.

Plants important in Secwepemc technology include: woods for fuel, construction and implements; fibres and fibrous materials for nets, cordage, mats, baskets and clothing; dyes; scents and cleansing agents. Numerous tools, implements, and containers, as well as works of art, were created from dozens of different plant materials, providing the Secwepemc with virtually everything needed for living within their territory, from fuel (wood, tinder, cooking and smoking food, smoking hides), to housing and other structures (pit-houses, log cabins, summer mat lodges, sweat lodges, cache structures and pit linings), to transportation (canoes, snowshoes), to tools (cambium scrapers, abrasives, fish lures, digging sticks, spears, bows and arrows), to dyes and glues, to food preparation (drying racks, pit-cooking vegetation, salmon stretchers), to household items (bedding, blankets, pillows; baskets, containers, mats; infant cradles); to clothing (cloaks, capes, hats); to personal hygiene products (shampoos, skin washes, deodorants and sanitary napkins).

A number of these plant species are also known for their spiritual and ceremonial significance. These include ceremonial incenses and charms, as well as cultural objects such as beads, pipestems and whistles. As well, plants are recognized as important indicators of ecological processes and events, such as runs of particular salmon species based on the flowering of certain plants or ripening of berries (cf. Lantz and Turner 2003). Many plants also reflect associations with culturally important animals, and as sources of food or indicators of habitat, as well as in some cases indicating the presence of water.

Many of these plants, too, were used as gifts or trade items, within and across communities. *Sxúsem* (soapberries) and their juice, fresh and dried Saskatoon berries, huckleberries and other berries, dried roots, and various plant materials – woods and fibres for mat-making – are examples of traded products (Teit 1909; Turner and Loewen 1998).

In 2004 we (Garibaldi and Turner 2004) proposed the concept of Cultural Keystone

Species, a metaphorical parallel with ecological keystone species. Defined as "culturally salient species that shape in a major way the cultural identity of a people, as reflected in the fundamental roles these species have in diet, materials, medicine, and/or spiritual practices…" this designation is influenced by:

1. Intensity, type, and multiplicity of use;
2. Naming and terminology in a language, including the use as seasonal or phenological indicators;
3. Role in narratives, ceremonies, or symbolism;
4. Persistence and memory of use in relationship to cultural change;
5. Level of unique position in culture, e.g., it is difficult to replace with other available native species; and
6. Extent to which it provides opportunities for resource acquisition from beyond the territory (i.e. as a trade item or product).

Notably least half of the list of over 80 plant species with associated cultural knowledge occurring in the vicinity (see Appendix 1) would qualify has being Cultural Keystone Species, based on their attributes, names, and diversity and intensity of use.

Traditional Secwepemc Plant Management in Grasslands Habitats

The plants of this region and other parts of Secwepemc territory were not only harvested and used, but were – and to some extent, still are – tended and promoted, both species and habitats being carefully managed to enhance the quantity and quality of the resources they provide (Peacock and Turner 1998). One of the key practices for maintaining the productivity of grasslands for their forage value for deer and other game, and for production of associated roots and berries, is the use of controlled landscape burning, a practice common and routine throughout the region, but largely prohibited in the early 1900s and mid 1900s by government officials (Blackstock and McAllister 2004; Gayton 2003; Turner 1999). Many of the plants still to be found in the vicinity of the proposed Ajax Mine were those promoted through periodic traditional burning. Berry species known to be enhanced by such burns include blueberries and huckleberries (*Vaccinium* spp.), Saskatoon berry (*Amelanchier alnifolia*), wild strawberries (*Fragaria* spp.) and soapberry (*Shepherdia canadensis*). As well, various root vegetables, including nodding onion (*Allium cernuum*), tiger lily (*Lilium columbianum*) and spring beauty (*Claytonia lanceolata*), are also known to be larger and more productive following burning, which provides a short-term release of nutrients as well as maintains open grasslands in the face of encroachment by trees (Turner 1999). The timing and intensity of the fire is, of course, crucial to its successful use in grasslands management.

There are many other practices and approaches to plant resource management. Bushes of some berry species, such as Saskatoon berry and soapberry were, and are, pruned or even burned back periodically, sometimes right back to the ground, to renew the woody growth and stimulate berry production in succeeding years. Root vegetables such as balsamroot (*Balsamorhiza sagittata*) were carefully stewarded. For example, Secwepemc plant expert Aimee August was cautioned as a young woman when digging balsamroots to only take the smaller taproots: "Don't dig the mother plant; it's got little ones around –

dig them in October, away from the main plant.... just dig around and take the 'sprouts,' then there's another crop in the fall." In other cases, such as with spring beauty corms, chocolate lily and tiger lily bulbs, the harvesters selected the older roots, leaving the younger ones to grow for digging in subsequent years. Children were taught these practices, and grandmothers and other elders helped them to identify the correct sizes of roots to take, and to replant root fragments and younger roots (Turner, Ignace and Loewen forthcoming; Turner et al. 2013). The tilling, thinning, weeding and aeration, as well as dispersal of seeds and propagules during root harvesting also tended to promote the reproduction and growth of these species.

Many of the plant resources of the study region are available seasonally, and harvesting them sustainably has been a part of people's "traditional seasonal rounds" over countless generations. Protocols have been in place about rights to access these resources. Based on kinship and other relationships with the Stk'emlupsemc te Secwepemc, extended families and groups of people would have travelled to this area and lived or camped for periods of time to harvest and process the range of roots, berries, greens, medicines, plant materials, game and fish available. These people would have been the caretakers of these species and ecosystems on behalf of the Secwepemc Nation members, past, present and future, and knowledgeable people within these groups would have assumed responsibility for burning over the lands, for monitoring the populations and productivity of key resource species, and for ensuring equitable distribution of these resources. This would have been a form of social resource management. Children's observing and participating in harvesting and stewardship practices was also an important aspect of these approaches, as they ensured that expertise in sustainable use of species and habitats would continue into the following generations (Turner et al. 2013).

Cultural Significance of the Area in the Vicinity of the Proposed Ajax Mine

The grasslands, woodlands and wetlands in the vicinity of the proposed Ajax Mine would qualify collectively as a Cultural Keystone Place, based on the criteria set out in our recent publication (Cuerrier et al. 2016). The ten general indicators we propose for assessing the overall importance of a place are:

1. Agreement within a cultural group about the importance of a place: the frequency with which it is identified by members of a particular cultural group as a place of high importance to them [*This area has been identified by Stk'emlupsemc te Secwepemc as a place of high importance*];

2. Occurrence in language and discourse: the existence of a particular name or associated vocabulary for a place, and the extent to which it is discussed in day-to-day conversation [*There are names in Secwepemctsín for the lake and creeks in the vicinity, and for many of the species occurring there*];

3. Intensity and frequency of use: the extent to which a place is or has been visited, occupied, or involved in cultural activities such as food harvesting and processing, harvesting materials and medicines on an annual, seasonal, or permanent basis [*According to oral history, ethnographic history and the archaeological record, this is a place that has been frequented and used by Secwepemc people for many generations*];

4. Diversity of use: the range and variety of cultural activities carried out at a place, including ceremonial and spiritual activities [*It is difficult to assess the range of activities that would have taken place here, but certainly resource harvesting and processing of many types has occurred*];

5. Antiquity of use: as reflected in the extensive pithouse village sites nearby, in the existence of associated archaeological sites (e.g., burial sites, rock art, shell middens, pit-cooking depressions, groves of culturally modified trees) and its inclusion in cultural narratives, origin stories, songs and/or ceremonies [*This area is the focus of traditional narratives (e.g. the Trout Children Story), and a significant number of archaeological features have been identified in the vicinity, including an Aboriginal hunting blind (ERM 2015), indicating long term associations of Secwepemc with this place*];

6. Extent of traditional resource management undertaken: the intensity with which the landscape, habitats, or plant and animal species are managed or tended at a place — for example, with fire, pruning, fertilizing or planting as well as fishing, trapping, hunting techniques [*as noted previously these grasslands would have been maintained by burning and other management methods (Blackstock and McAllister 2004) and protocols would have been in place for using and sustaining resources*];

7. Uniqueness: the extent to which a given place is unique in its role of supporting cultural identity and survival, particularly in comparison with other places in a people's homeland or territory [*The particular combination of grasslands, lake, creeks and wetlands and woodlands and the diversity of resources this combination provides, the site of the Trout Children Story, and this history of occupancy renders this a unique place*];

8. Ecological diversity: diversity of species (including identified "cultural keystone species") and different habitats represented at a given locale [*as per previous note, there is a high diversity of habitats and a significant number of culturally important plant species*];

9. Role in trade and cultural exchange: the position of a locale as a meeting place where groups come together for economic and social exchange, allowing a group to obtain new products and share extra resources, as well as knowledge, with others [*several of the products from this area, including a number of berry species, would have been traded, but more information is needed to confirm the extent of trade, or the extent to which this was a meeting place*];

10. Role in cultural protocols: the extent of associated customary proprietorship and control by individuals, lineages, clans, or communities at a given place [*this area would have been stewarded by the Stk'emlupsemc te Secwepemc, following protocols for sustainable harvesting and sharing of resources*].

In short, this locale encompasses and incorporates a combination of cultural, economic and environmental attributes, giving it a special place in a people's cultural identity, health and well-being and resilience.

Conclusions

The Stk'emlupsemc te Secwepemc have used and occupied the region in the vicinity of

the proposed Ajax Mine since time immemorial, based on ethnographic and oral history and archaeological records. Within the past few centuries families and small groups would have accessed the grasslands, wetlands and woodlands to harvest and process a wide range of plant species – over 80 with documented names and cultural importance. They would have maintained the grasslands through controlled landscape burning, and would have managed the plant and animal species to maintain and enhance their quality and productivity. Cattle were introduced into the area as early as the mid 1800s, and the resulting grazing activities and the plethora of introduced agronomic and weedy species (Appendix 2) have altered and degraded the original grasslands (Blackstock and McAllister 2004). Nevertheless, the region still has ecological integrity as the site of increasingly rare grasslands and associated ecosystems, and has ongoing cultural significance for the Stk'emlupsemc te Secwepemc people. In the future the area may well have even greater significance as a source of traditional food and medicine that will likely play a key role in struggles for food security and food sovereignty, and in cultural renewal, spiritual connections to place, and language revitalization. As recommended by the Truth and Reconciliation Commission of Canada (2015), the principles, norms, and standards of the United Nations Declaration on the Rights of Indigenous Peoples (2007) should be applied to the operational activities of the corporate sector involving Indigenous peoples and their lands and resources, including obtaining the free, prior, and informed consent of Indigenous peoples before proceeding with economic development projects (Truth and Reconciliation Commission 2016; United Nations 2007. In my opinion, this site, if left intact, will only increase in its uniqueness and ecological and cultural value, and would provide for greater autonomy and stronger resilience for the Secwepemc people.

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Appendix 1 Culturally Important Plant Species of Grasslands for *Stk'emlupsemc te Secwepemc Nation (SSN)* (compiled from Dawson 1892; Teit 1909; Palmer 1975; and information from Secwepemc Elders, as per Ignace, Turner and Peacock 2106; Turner, Ignace and Loewen, eds., forthcoming, *Secwepemc Ethnobotany*). The plants in this table are listed within the major categories of Mosses, Lichens and Fungi; Evergreen Trees, Deciduous Trees; Shrubs; and Herbaceous plants. Within these categories, the species are listed in alphabetical order of scientific name.

Mosses, Lichens, Fungi	**Secwepemc-tsín name**	**Notes on Use; Cultural Importance**
Black Tree Lichen, or "Black Moss" (*Bryoria fremontii*; synonyms *Alectoria fremontii*, *A. jubata*)	***wíle* (W)**	Important traditional food and famine food; formerly pit-cooked for a long time; gathered from branches of coniferous trees using a long stick was used to "hook" the ***wíla*** out; cleaned lichen soaked and kneaded in fresh water; Sometimes pit-cooked together with mashed saskatoon berries as flavouring; or with yellow avalanche lily bulbs and wild celery (***qayú7***). Ideal for fake "whiskers" and hair; especially for children; also used to chink log houses; for this purpose it was sometimes mixed with mud.
Wolf lichen, or Wolf "Moss" (*Letharia vulpina* and related spp.)	***tulensméke7, twolen'sméke7* (W)**; ***tkwelméke7*** (***kwel*** "green/ yellow" + ***éke7***); or ***qwesimáleqw***	Bright-yellow lichen used as laxative medicine; well known as the source of a yellow dye, which Teit (1909) described as one of the two most commonly used dyes for Secwepemc; boiled in water until yellow colouring is extracted and then the material to be dyed (cloth, buckskin, feathers, horsehair, porcupine quills, and wood) is soaked in solution.
Mosses (Bryophytes); various species	***sepsyúl'ecw***; OR ***qwesáy*** "any kind of moss"	Mosses used to line bottom of berry baskets, to keep the berries on the bottom from going bad; keeps air circulating throughout. Also used for chinking cabins; gathered at any time of year; dried and stored to use as needed; formerly used to cover winter pit-house floors; also used to stuff mattresses and for sitting on.
Evergreen Trees		
Rocky Mountain Juniper (*Juniperus scopulorum* Sarg.); Cypress Family (Cupressaceae)	***punllp***	Multiple Uses: "berries" as flavouring in tea, boughs for medicinal tea. "Berries" eaten by birds. Many medicinal uses: solution of boughs drunk as tea for cough and colds; also in a bath for colds, influenza; used as disinfectant and air purifier, as wash or vapourizing solution, especially around death and illness; bark chewed as medicine. Tough wood for making bows and arrows, snowshoe frames and spears. Solution of

		boughs as a general household cleaner, for bathroom, floors; also to colour buckskin and as a floor stain; boughs as insect repellent for bed-bugs and other insect pests; people rubbed their hands on the boughs before handling fishing gear; boughs, smoke used by hunters for purification; hunters drank solution for purification.
Engelmann Spruce (*Picea engelmannii* Parry ex Engelm.); (Pine Family; Pinaceae)	***t'sellp* (W)**	Seeds eaten by squirrels, sometimes taken from animal caches and eaten by people; gum chewed; pitch used for medicinal salve, mixed with animal fat (or nowadays vaseline), for cuts and infections; also as a tea for sore throats, whooping cough and for premature labour or miscarriage; inner bark and tops boiled for cold, flu medicine. Roots an important basket-making and stitching material; pitchy tops sometimes used for torches in pit-lamping; bark sheets for canoes and large cooking baskets, sewn together with spruce root; wood for fuel; boughs for bedding; trees shelter for people lost or stranded.
Lodgepole Pine (*Pinus contorta* Dougl. ex Loud.); Pine Family (Pinaceae)	***qwli7t***, or ***qweqwlí7t***	Seeds sometimes eaten, especially from squirrel caches; inner bark formerly eaten in large quantities "just like candy"; harvested in May or June, using a special scraping tool (best from young, second-growth trees); children would sometimes get it and eat it right off the tree; people filled lard pails with it; also dried and stored for later use. Inner bark also eaten by bears; considered a good spring tonic and laxative; also eaten for internal "worms" and for sore throat. Pitch also a good tonic; mixed with grease for salve for boils, sores, wounds, infections; also taken internally as a medicine for coughs, whooping cough, tuberculosis: chewed or brewed as a tea; pitchy wood as fuel: "the first thing you chop down" for firewood when camping; powdery, rotten wood and old cones used as fuel for smoking hides. Wood also for smoking salmon; boughs used by hunters and travellers for bedding; hardened pitch as glue for implement joints; pitch as mosquito repellent. Pitch chewed as gum. Bears eat inner bark.
Ponderosa Pine, or Bull Pine (*Pinus ponderosa* Dougl.	***s7etqwllp* (W)**	Seeds eaten, especially from squirrel caches; inner bark and cambium tissue eaten from young trees; considered a tonic. Boughs used for a cleansing, medicinal wash for newborn babies; solution of

ex Loud.); Pine Family (Pinaceae)		needles bathed in for arthritis, colds and other ailments; cambium used for colds; pitch for burns and infections. Bark and wood as fuel; rotten wood for smoking buckskin; boughs or dried needles used as mattress and floor covering; also in pit cooking, as insulation for cellars, food caches and underground storage pits, and as tinder, and snow-melting material; fresh boughs for cleansing in sweat-bathing; as deodorant; pollen as yellow dye.
Douglas-fir [*Pseudotsuga menziesii* (Mirb.) Franco]; Pine Family (Pinaceae)	***tsq'ellp*;** boughs: ***qweltsen***; pink pitch: ***tsekwellgiken*;** gum, for chewing: ***sk'w7em* (W), *stqemxwaqw* (W)**	White, crystalline sugar, ***sqemélla***, from boughs produced rarely; highly treasured; children like to chew the pitch as "chewing gum"; seeds also eaten, especially from the stores of squirrels and mice; pitch still a common, important medicine; warmed until soft and "runny", mixed with grease: salve for cuts, stings, burns, and infections; also used to treat horses; pinkish coloured type of pitch particularly valued; for a pregnant woman in danger of a miscarriage, a tea made by boiling the twigs with the needles on from an old, old fir (***tq'7eséké7 qweltsen***) was drunk; also for a persistent cough. Fir boughs important in ritual purification and cleansing; in sweatbathing, twigs dipped in water and used to rub the body and strike the skin; branches were used to bathe twins (believed to be supernaturally powerful in first four years). Wood a good fuel; pitch a good fire-starter, and rotten "punky" wood good fuel for smoking buckskin; logs for construction of houses and temporary lodges; soft, dense boughs a preferred material for bedding; also for covering floor of a cabin or sweat lodge, as foot mat, cushion in a canoe, or as shelter covering for camping; after a sweat bath, fir boughs help one to have a good sleep; hunters rubbed themselves with fir boughs, or smoked themselves over a fir-bough fire, apparently to mask the human scent from the game, and possibly also to repel insects.
Deciduous Trees		
Rocky Mountain Maple (*Acer glabrum* Torr.); Maple Family (Aceraceae)	***t'swellten* (W)**	Mixture of maple inner bark and leaves made into a tea; drunk every hour as a treatment for liver and spleen problems; also drunk to quiet the nerves. Inner bark tough and stringy; divided into very thin strips, as a thread for stringing roots to

		be dried; strips of inner bark woven in a checkboard fashion into a rectangular tray, used to encase food being pit-cooked; also for rectangular mat; strips of the inner bark, tied to a stick, used as a soapberry whipper, ***ts'exlemén'*;** thin, flexible maple twig bent in a circle at the tip, as a special kind of improvised "spoon" for eating soapberry whip. “Split sticks” used to make baskets; two-pronged fishing spear for salmon; also for snowshoes; long, straight maple stems could be used for bows, and also for root-digging sticks; wood also sometimes used for fish traps and scoop net handles, and considered an excellent fuel.
Sitka Alder [*Alnus viridis* ssp. *sinuata* (Regel) A. Löve & D. Löve]; Birch Family (Betulaceae)	***kwle7éllp***; ***kukwl7ellp*** (plural)	Mild solution of bark drunk as a beverage tea, also a good tonic for general indisposition. Alder bark in solution valued as a washing medicine for cuts and wounds, also used for horses' wounds. Alder bark boiled on the stove as vapourizer; crushed leaves used to relieve pain and swelling; fresh or dried leaves for poultice for mothers with sore breasts; sore feet can be soaked in a tea of the leaves. Bark for red or black dye; wood for fuel,
Western, or Water Birch (*Betula occidentalis* Hook.); Birch Family (Betulaceae)	Name not recalled	Twigs used to make baby basket handles, and bark to imbricate spruce-root baskets; leaves rubbed together to make cleansing lather.
Paper or White Birch (*Betula papyrifera* Marsh.); Birch Family (Betulaceae)	bark: ***qwllín*** tree: ***qwllínllp***	Birch bark highly valued for its property of easily peeling off from the tree in spring and early summer in large, tough sheets; these can be flattened and dried, then (after soaking in warm water) used in a variety of ways, for canoes, containers of many types, lining for storage pits, roofing and temporary shelters, splints for broken bones and many other purposes. Moose calls made from birch bark. Wood excellent for firewood; also be used for construction. Birch leaves also used as a cleansing agent and hair wash, and with children's urine, and a clay obtained from certain lakes, as soap".
Black Cottonwood [*Populus balsamifera* ssp. *trichocarpa* (Torr.	***mulc***	Inner bark sometimes eaten; resinous, sweet-smelling buds, called “***melcqín***”, or “***stet'qe7*”**, used to make a medicinal salve; bud resin mixed with bear grease, deer fat, or more recently,

& A. Gray ex Hook.) Brayshaw]; Willow Family (Salicaceae)		Vaseline; whole placed on sores as a poultice; boiled buds also as a medicine for horses with "bugs"[worms] in the stomach, or colic; cottony fuzz from the fruiting catkins used to treat an earache. Cottonwood logs used to make dugout canoes; old, rotten wood as a fuel to smoke hides; would not darken the buckskin too much; wood also used for smoking meat; can make temporary drinking cups from the larger leaves, by folding them in a cone and pinning them edges together with a thin stick; gum from buds or tips, heated and used to glue feathers to arrow shafts; wood ashes used as laundry detergent, said to act like lye; bark like spruce evidently used for manufacturing containers.
Trembling Aspen, or White Poplar (*Populus tremuloides* Michx.); Willow Family (Salicaceae)	***meltéllp* (W)**	Buds, raw or boiled, chewed as a healthy tonic; powder on bark (***qwelméke7***) around June put on sores, to dry them up. Trunk is good for scraping hides; hardly any limbs at the bottom; aspen wood used for tent poles and drying racks; also used for fuel.
Choke Cherry (*Prunus virginiana* L.); Rose Family (Rosaceae)	Fruit: ***tkwlóse7* (W)**; Tree: ***tkwlose7ellp***	Among the last fruits to ripen; dried, seeds and all, for winter then stewed; gathered in large quantities; stewed fruit considered excellent for people first starting to eat again after having lost appetite due to illness; cherries a good medicine for diarrhea; dried, then soaked in winter and eaten; fruit and juice considered to be a healthy food; good for treating diarrhoea, and to bring down a fever; bark good for a cough: peeled from a large tree and boiled to make a decoction. Fruit eaten by bears and other wildlife. Scraped inner bark with "red willow" bark scrapings dried and used for their sanitary napkins. Cherries mixed with bear grease to make a paint for pictographs; wood used for salmon spreaders and other small items, and for digging sticks; strips of bark sometimes used to imbricate baskets.
Salix spp. "Green Willow", including Pacific Willow (*Salix* spp.; Pacific willow [*Salix*	***q'wlséllp* (W), *q'wlsállp* (E)**	Bark used to treat headaches; bark and small branches be boiled in water and used for soaking cuts or other injuries. Willows were used in technology in a variety of ways; wood, sticks and leaves were used for smoking fish and meat (presumably Pacific willow, the major tree form

lucida Muhl. ssp. *lasiandra* (Benth.) E. Murray]; Willow Family (Salicaceae)		of willow); “it doesn't smoke so much"; branches also used for sweat lodge frames; either "gray" or red willow saplings used for ribs of cedar bark canoes; also as a framework for fish weirs, and for floats or buoys for fish nets; willow withes for sewing bark canoes, and strengthening rims of cradles; rotten willow roots used as punk, to be carried glowing while travelling; one method of fishing (rainbow and Kamloops trout and “ling fish”) utilised a small willow tree growing in or near the water: a hook and line, along with a float made from sticks, attached to tree and left overnight.
Shrubs		
Saskatoon Berry, or Service Berry [*Amelanchier alnifolia* (Nutt.) Nutt. ex M. Roem.]; Rose Family (Rosaceae)	Berries: ***speqpeq***, ***speqpeq7úẃi***; bush: ***speqpeqellp;*** sidehill saskatoon bush: ***stsiqwemél̓lp***	Different varieties of berries named and recognized; among the first fruits to be picked in the summer; berries of all varieties were picked in large quantities; still important today; many partially cooked and dried in cakes; eaten in many different dishes. A tea made from soapberry bush and saskatoon bush can be drunk to combat any kind of fever. Wood known for its toughness and strength; used to make a variety of implements, such as spear shafts, digging sticks, arrows, canoe thwarts, and sometimes, for the frames of sweat lodges; twigs also used to line cooking pits and as salmon spreaders for drying and cooking salmon; new-growth branches, split in half, sometimes used for the rims of birch bark baskets; eighth moon was called "***pellqwelq’wel’t*** ["getting ripe month"] after the ripening of saskatoon berries; Saskatoon berry featured in a number of Secwepemc stories; also involved in ceremonies, such as the *Service berry Dance*. Many birds and animals, including bears and chipmunks, like to eat saskatoon berries.
Kinnikinnick, or bearberry [*Arctostaphylos uva-ursi* (L.) Spreng.]; Heather Family (Ericaceae)	berries: ***elk*** **(W);** plants: ***elkéllp*** **(W)**	The berries, though somewhat dry and bland, were remembered by most of the elders as a good food; can be eaten raw, but were usually eaten cooked with oil or grease from fish or animals such as bear or moose; berries were picked in late September and October, mixed with moose grease for storage, then fried until they split open; they were a real treat, especially for children; berries could also be boiled together with spring salmon eggs or meat to make a soup; weak decoction of

		the leaves and small stems of this plant could be drunk as a beverage tea. Leaves well known as a medicine for the kidneys and bladder; roasted, crushed leaves were sprinkled on burns. Leaves are well known as a kind of tobacco, to be used alone, or with other smoking plants; dried leaves could also be mixed with the shaved bark of red willow (*Cornus stolonifera*) and the tops of ***geyu7*** (*Lomatium dissectum*); leaves slowly toasted in the oven until crisp and then mix with "whiteman's tobacco"; Kinnikinnick said to be an important ceremonial plant, used in the sweat house as a tobacco; features in various Secwepemc stories, most notably in *The Eye Juggler*. Berries known as a favourite food of bears, grouse and deer.
Big Sagebrush **(***Artemisia tridentata* Nutt.); Aster Family (Asteraceae)	***kéwku* (W)**	Leaves and branches widely used to make a medicinal tea for colds, but “"don't use much; it's powerful….”; old timers also used it for tuberculosis; as a medicine for colds, crush the leaves and insert them directly into the nostrils, then inhale through them; or simply breath the steam or vapour from boiling the branches; solution was also used externally for soaking sore feet. This strong-smelling plant was burned indoors as a fumigant and disinfectant, as well as in the form of a smudge to repel mosquitoes; foliage boiled and solution used as a disinfectant, insect repellent, and to wash walls and floors. Dry, shredded sagebrush bark is used as a tinder for starting fires and, encased between freshwater mussel shells or wrapped birch-bark, as a "slow match" on journeys. The wood was used as a fuel for cooking and smoking hides; bark sometimes used for mats, bags, baskets, quiver cases, and saddle blankets, high shoes, leggings, kilts, ponchos, and caps; makes a good bedding. Used in the sweathouse: twigs dipped in water and used to rub the body as a cleanser and purifier; used by hunters as an eyewash to make them “clear-sighted"; mixture of sage, juniper, and soapberry made into a drink and wash for purification.
Snowbrush, or Buckbrush (*Ceanothus*	***tswelstém*** (W), or ***qwunllp***	Plant used as disinfectant for the house; roots boiled and tea drunk for medicine; for arthritis or rheumatism, the whole branches could be boiled

velutinus Douglas ex Hook.); Buckthorn Family (Rhamnaceae)		and then the liquid use for bathing; also for measles; whole plant boiled and solution used as an eye wash; tea of this plant drunk during 1918 flu epidemic; plant was sometimes placed on a hot stove to fumigate a house; the smoke acts as both a disinfectant and an insect repellent, against bedbugs. Deer are said to like to browse this bush.
Blue Clematis [*Clematis columbiana* (Nutt.) Torr. & A. Gray]; Buttercup Family (Ranunculaceae)	***st'upel'qw, stept'úpelqw*** (lit. "it twists around")	Used to make a hair washing solution, or hair rinse.
Red-osier Dogwood, or "Red Willow" (*Cornus sericea* L.; syn. *Cornus stolonifera* Michx.); Dogwood Family (Cornaceae)	Berries: ***cpeqpeqeq-en'kcen***; **OR** ***taxpa'***; Bush: ***tseqwtseqwéqw-elqw, tseqwtse-qwélqw*** (lit. "little red sticks"), ***st'ekemusellp,*** or ***tsexwts'xwállp***	Whitish, clustered berries, though tart and bitter, were often eaten, alone, but usually mashed together with the sweeter tasting saskatoon berries; berries a breath freshener and thirst quencher. Berries used to remove warts, and for acne; scraped bark was boiled and the decoction drunk for headaches and other pains; bark scraped off the sticks in long shreds, to use as a poultice for sore muscles, toothache, arthritis; said to be good [medicine] for the kidney, the whole plant and the berries; inner bark used to make a strengthening tonic that was good for the bones and flu. Red willow is used in a variety of ways as a material; used for laying fish on; used for fish traps; saplings cut into lengths one inch [2.5 cm] longer than the fish, and used to skewer the fish transversely after the backbone had been removed; also used for smoking fish; good for drying fish or meat; important material for constructing sweat lodges; saplings for the ribs of cedar bark canoes, and rims of birch-bark containers and baby cradles; also sometimes used to surround food in cooking pits; shredded bark with choke cherry bark used by women in the early days for sanitary napkins; as a smudge to repel mosquitoes; inner bark smoked as a tobacco.
Common Rabbitbrush [*Ericameria nauseosa* (Pall. ex Pursh) G.L. Nesom & Baird	***tseptsepqenéllp***	Best known as a medicine plant, considered to be similar to similar to ***pnellp***, northern wormwood; small handful of leaves and stems drunk as a tea after childbirth to help expel afterbirth and relieve cramps; also drunk for birth control; leaves steeped in warm, not boiling, water and solution

(syn. *Chrysothamnus nauseosus* (Pall.) Britt.]; Aster Family (Asteraceae)		used as an eyewash by the old-timers three times a day to clear their eyes; also used to wash the hands, as a disinfectant (but not drunk). Cottony branches used to make pillows and mattresses, and placed under pillows as a scent.
Common Juniper **(***Juniperus communis* L.); Cypress Family (Cupressaceae)	***tsexts'éxt* (W);** plural - ***tsetsét'sext* (W)**	Branches used for covering food in caches, to keep animals away; used in sweathouse, for cleansing; solution boiled in the house as a purifying fumigant, especially in cases of illness; juniper solution drunk for any sickness, or as a beverage and tonic; drunk after childbirth by woman; used to wash sore eyes; small amounts of berries – no more than 4 – used to cure persistent kidney infections; used as a fumigant and disinfectant around illness and death; birds sometimes eat the berries.
Tall Oregon-grape [*Mahonia aquifolium* (Pursh) Nutt.]	berries: ***sts'al's*** (lit. "bitter"), ***sts'el'sa***; plant: ***sts'al'sellp* (W)**	berries, somewhat "bitter" tasting, but eaten by Secwepemc and well liked; used for jelly and formerly home brew. Leaves as medicinal tea; solution of boiled bark as a rinse for the eyes; said to be a good blood purifier and blood tonic; drunk as a physic. Yellow dye from the roots, shredded and boiled.
Desert Currant, or Wax Currant (*Ribes cereum* Dougl.); Gooseberry Family (Grossulariaceae)	berries: ***legása***; bush: ***llgasállp***	Berries eaten raw.
Prickly Currant, or swamp gooseberry [*Ribes lacustre* (Pers.) Poir.]; Gooseberry Family (Grossulariaceae)	***tlts'ál'qwten*** (lit. "something you hit on something"); OR ***ts'kenmúse7***, ***ts'kanmúse7***	People used to cook the berries, and make jam from them; regarded as a healthy food; branches used by some as a charm to call the rain; black bears eat the berries.
Wood's Rose (*Rosa woodsii* Lindl.); Rose Family (Rosaceae)	soft edible shoots: ***steq'leps***; hips: ***sek'wéw'***; bush: ***sk'epléʔllp*** (lit. "prickly plant"	Outer rind of rose hips eaten; picked in fall; also used to make tea; hips also used to make jelly; young, green shoots, up to about 2 ft (60 cm) high, can be broken off, peeled, and eaten fresh; stem and flowers are good for tea; petals edible too. Wild roses are spiritual and protective, was the use of wild rose branches is a cleansing agent and disinfectant, especially at times of illness and

		death in a household; used a great deal as a smudge or disinfectant at funerals; when people were widowed, they drank a tea of rose branches as a spiritual medicine; people also bathed in a solution of rose bushes; rose bushes also used to wipe rifles and fishing gear to cleanse them spiritually; hips and branches boiled, and solution said to be a good medicine for diarrhoea and upset stomach; said to be a healthy drink, good for colds; also used as an eyewash; and chewed leaves applied to bee stings and sores; seeds from fruits, boiled, and solution cooled, and drunk for pain in the side, heart attack, and settling nerves. Rose sticks were placed in the bottom of the pot for steaming spring beauty and other foods; mixture of wild rose and rocky mountain juniper branches was used in solution for cleaning one's hair, for washing and sweatbathing; wood used for arrows and pipestems. Deer like to browse the young shoots and grouse eat the fruits. Hips featured in some stories.
Wild Raspberry (*Rubus idaeus* L.); Rose Family (Rosaceae)	berries: ***s7éytsqwem* (W)**; bush: ***s7aytsqwmállp***	Sweet, juicy, fragrant berries have always been a favourite of the Secwepemc people, especially children, eaten fresh, dried or more recently made into jam; not as common as they used to be, because of cattle. Solution of raspberry leaves used as an eyewash, drunk for diarrhea, and by a mother at childbirth; deer and moose eat the twigs of raspberry in the winter.
Soapberry, or Soopolallie [*Shepherdia canadensis* (L.) Nutt.]; Oleaster Family (Elaeagnaceae)	berries: ***sxusem* (W)***;* plant: ***sxwesemállp***	Very special and valuable berries for the Secwepemc; still gathered in large quantities; good thirst quenchers; berries are crushed and whipped into a stiff creamy froth, called "Indian ice-cream," and eaten as a special treat, especially at gatherings and parties; also made into a refreshing lemonade like drink; people sometimes made a kind of homebrew from soapberries; berries sometimes dried on timbergrass, or pinegrass and stored with the grass. Dried soapberry leaves can also made into a relaxing tea. Soapberry was used as a medicine for colds; in years when there were no berries the plant was boiled and the solution drunk; tea of the soapberry plant was used as purgative to clean out your system and to cleanse your blood, and for sweathouse purification; used to treat acne;

		solution used as a medicine to fight off a fever and before childbirth. The bush itself can be used for a soapberry whipper; berries can be used for soap.
Herbaceous Flowering Plants (including Grasses)		
Yarrow (*Achillea millefolium* L.); Aster Family (Asteraeae)	***qets'uye7é7llp*** (lit. "chipmunk plant); OR ***qets'wi7é7llp***	Leaves as smudge to repel flies and mosquitoes; used in bath as a scent; well known as a Secwepemc medicine; boiled, and used as a wash for sores, cuts, aching bones; dried, powdered and mixed with pitch to make a salve for sores and arthritis, swellings; soft spring roots are good for toothache; crushed leaves as a painkiller for toothaches and cuts; a "multi-purpose" medicine; for childbirth, diarrhea; coughs; also used as a horse medicine.
Wild Nodding Onion (*Allium cernuum* Roth); Lily Family (Liliaceae)	***qwléwe***	Important traditional food for the Secwepemc; dug in large quantities in the past and still used today; often pit-cooked; often cooked with ***wíle*** (black tree lichen) in pits; medicine for seriously swollen throat; hard to find now because of overgrazing.
Indian-Hemp, Hemp Dogbane (*Apocynum cannabinum* L.); Dogbane Family (Apocynaceae); *not reported but likely present, at least in the past*	***spéts'en*** **(**W) (also Indian-hemp rope)	Most important source of stem fibre for fishline and fishnets, bridle ropes, bowstrings, sewing canoes, clothing; fibre widely traded.
Wild Sarsaparilla **(***Aralia nudicaulis* L.); Ginseng Family (Araliaceae)	***stqwiq'wiycen'***	Tea from rhizomes used as remedy for colds.
*H*eart-leaved arnica *(Arnica cordifolia* Hook.); Aster Family (Asteraceae)	***sqlélten re ckwetkwtút'stens*** (lit. "eyes of the salmon")	Said to be a good medicine for sore eyes; sometimes used as good luck charms for gambling, and also as a poultice for swellings, cuts, and bruises. "Male" (flowering) and "female" (vegetative) plants are distinguished.
Dragon Sagewort or Wild Tarragon (*Artemisia*	***skek'elmínst*** (W)	*"That's about the best medicine we know around here"* (Nellie Taylor); leaves and stems of this species, especially the more aromatic forms,

dracunculus L.); Aster Family (Asteraeae)		burned as a smudge against mosquitoes; used as insect repellent; boiled and used in bathwater for aches, pains and sores, e.g. aching feet; also as a tea for arthritis; sometimes mixed with Rocky Mt Juniper, white clematis, northern wormwood and other plants.
Northern Wormwood, or "Little Sage" (*Artemisia frigida* Willd.); Aster Family (Asteraeae)	***p'enéllp*** OR ***penp'nánllp*** (plural)	Dried leaves added to stews as flavouring; used as a smudge for mosquitos; stored under mattresses to get rid of lice and fleas; used to purify sweat lodge; used to treat bad colds, flu and arthritis; wash used for healing sore feet; horses and cattle eat this plant to rid themselves of worms; has protective properties for recently bereaved people.
Cudweed or Mugweed Sagewort (*Artemisia ludoviciana* Nutt.); Aster Family (Asteraeae)	? possibly ***pegpegpeg7il'e***	Leaves and stems burned as a smudge to ward off mosquitoes. The foliage also put under pillows and mattresses to get rid of insect pests.
Showy Milkweed **(***Asclepias speciosa* Torr.); Milkweed Family (Asclepiadaceae)	Name not recalled	Big pointed seed pods that release copious quantities of cottony fluff with the seeds; seed fluff used to stuff pillows; milky latex used to eliminated warts.
Balsamroot, Spring Sunflower, or "Sunflower" [*Balsamorhiza sagittata* (Pursh) Nutt.]; Aster Family (Asteraeae)	root: ***tséts'elq*** (cf. ***ts'alt*** "bitter"); leafy plants, tops: ***ts'elqenúpye7***	Called "The plant to end all plants" by one elder; taproots a major food, pit-cooked in earth ovens; young rootcrowns and budstalks also eaten in spring; roots and leaves for medicine to treat a variety of ailments, from skin infections to poison-ivy rash; large, soft leaves of balsamroot can be used to make temporary berry containers and drinking cups.
Pinegrass, or "timbergrass" (*Calamagrostis rubescens* Buckley); Grass Family (Poaceae)	***t'éqwenllp*** **(W)**	Bunches of the leaves used for whipping soapberries, and leaves, apparently of this species, mixed with clay and used for chinking cracks of log cabins; mats of timbergrass used to dry soapberries and other berries on; used as a liner for cooking pits and to line moccasins as insulation in the winter.
Mariposa Lily, or Desert Lily (*Calochortus macrocarpus* Douglas); Lily Family (Liliaceae)	***líltse*** (W)	Crisp, sweet bulbs formerly eaten as a spring vegetable, raw or cooked, steamed or pitcooked; flower buds also eaten.

Beaked Sedge, or Swamp Hay (*Carex rostrata* Stokes) and related spp.; Sedge Family (Cyperaceae)	***st'ye7uw'i*** (W)	Leaves used as wild hay for livestock forage; sometimes used for lining cooking pits.
Douglas' water-hemlock [*Cicuta douglasii* (DC.) J.M. Coult. & Rose]; Celery Family (Apiaceae)	***yenicw*** (W)	Extremely poisonous; well known to Secwepemc people; very dangerous to horses and cattle; only antidote is eating lard or fishhead soup.
Wavy-leaved Thistle [*Cirsium undulatum* (Nutt.) Spreng.]; Aster Family (Asteraceae)	***qelsp'ú7***; root: ***"npap'okcen"*** (Teit 1909:514)	Carrot-like taproots of the young (non-flowering) thistle plants can be roasted, or steamed and eaten; roots said to be a good medicine as well; leaves rubbed over people's limbs to alleviate the pain of rheumatism and arthritis
Spring Beauty, or Indian Potato (*Claytonia lanceolata* Pall. ex Pursh); Purslane Family (Portulacaceae); *not reported but likely present, at least in the past*	***skwenkwínem*** (W)	Corms an important traditional food for the Secwepemc for many hundreds, perhaps thousands, of years; steamed, or pitcooked and eaten; formerly harvested in large quantities; most important root, after avalanche lily bulbs and wild carrot (*Lomatium macrocarpum*) (Aimee August); Only the bigger corms are kept for eating; the smaller ones are buried again, to grow for the next year; have decreased in size and abundance from introduced species and overgrazing; many people today are still very fond of the corms; grazing cattle and introduced weeds have degraded their habitat. Small rodents, such as voles and pikas also like to eat the "potatoes," and often stash them in caches underground, in "rooms" hollowed out from their tunnels.
Fireweed (*Epilobium angustifolium* L.); Evening Primrose Family (Onagraceae)	***ts'ixnéllp*** **(W)**	Young shoots can be eaten raw or cooked, and were occasionally used by the Secwepemc; colourful and attractive flowers are sometimes used in floral arrangements; plant an important; stalks can be made into a "tea" which is drunk, or used in a bath, for many ailments, including diarrhoea, hemerrhoids ("piles"), eczema, sore throat, and sore joints and rheumatism; fireweed "sap" used to treat poison ivy; flowers a good luck charm for stick games, and other good fortune.

Common Horsetail (*Equisetum arvense* L.); Horsetail Family (Equisetaceae)	***t'ucwén', t'úcwen***; OR ***xwiyústen'*** (singular, lit. "file"), ***xwexwiyuy'sten*** (plural)	Common horsetail, like the following species (*E. hiemale*), has a rough, scratchy texture, and can be used as an abrasive, or "file" for smoothing and polishing stone and wooden items.
Tall Scouring-Rush, Branchless Horsetail, or "Joint-Grass", or "Goosegrass" (*Equisetum hyemale* L.); Horsetail Family (Equisetaceae)	***xwiyústen'*** (W, E) (singular, lit. "file"), ***xwexwiyuy'sten*** (plural - Mary Thomas); OR ***tsllucwllullcwewéwcw*** (lit. "in sections")	An important medicine, known to many; liquid in the stems drunk for constipation; used for one who could not urinate, as a diuretic; also valued as childbirth medicine; a woman would drink a solution of it during labour, and after the birth, when she was "having a hard time." Plants dried and powdered, and the powder sprinkled on the navels of newborns to promote healing.
Parsnip-flowered Buckwheat (*Eriogonum heracleoides* Nutt.); Buckwheat Family (Polygonaceae)	***pegpegpiye***	Known for its grey colouring.
Showy Aster, or "Blackfoot" [*Eurybia conspicua* (Lindl.) G.L. Nesom]; Aster Family (Asteraceae)	***(s-) qweqw'icén'*** (W) (lit. "black foot"); OR ***qw'icen***	important Secwepemc medicine, used for many different ailments; Selina Jules called this plant her "cure all,"; roots stored for winter; used for wounds; colds and pneumonia, tonsillitis, toothache, impetigo in children, sore joints, acne and post-partum; very strong and must be used with great care
Field Strawberry (*Fragaria vesca* L.); Rose Family (Rosaceae)	Berries: ***tqítq'e* (W);** plant: ***tqítq'a7ellp***	A favourite edible fruit, eaten fresh or sometimes dried in cakes; sometimes used to sweeten "Indian ice-cream" (soapberry whip). Plants used to make a tea for treating diarrhea. June is called ***plltqaitq'atan*** ("strawberries").
Blueleaf strawberry (*Fragaria virginiana* Duchesne); Rose Family (Rosaceae)	Berries: ***tqítq'e* (W);** plant: ***tqítq'a7ellp***	A favourite edible fruit, recognized as different from previous species but called by the same name; berries eaten fresh or sometimes dried in cakes; sometimes used to sweeten "Indian ice-cream" (soapberry whip). Plants used to make a tea for treating diarrhea. June is called ***plltqaitq'atan*** ("strawberries").
Chocolate Lily, or Rice Root	***saq'ám'xwa***	Bulbs and their rice-like grains were an important traditional root vegetable; dug in spring and eaten with other edible roots.

[*Fritillaria affinis* (Schult.) Sealy]		
Yellowbells [*Fritillaria pudica* (Pursh) Spreng.]	***ts'wéw'ye*** (W)	Bulbs eaten in early spring; harvested in late spring after flowering; often dug and cooked at same time as spring beauty corms (*Claytonia lanceolata*); eaten with other roots.
Blanketflower, or Brown-eyed Susan (*Gaillardia aristata* Pursh)	***xqeqltnús***; OR ***sqlélten re ckwetkwtút'ste ns*** (lit. "little sockeye-salmon eyes")	A well known medicinal plant; root boiled and strained solution used as a hair wash against dandruff; whole plant, roots and all, picked, washed, crushed and mixed with orange honeysuckle as medicine for venereal disease; also for arthritis, as a laxative, wash for itchy feet, and as an antiseptic wash; attractive flowers sometimes picked for bouquets.
Sweet-scented Bedstraw (*Galium triflorum* Michx.); Madder Family (Rubiaceae)	?***tseptspeq'***	Sweet-smelling plant used as special kind of charm for good luck.
Large-leaved Avens (*Geum macrophyllum* Willd.); Rose Family (Rosaceae)	Name not recalled	Mature roots cooked as a tonic.
Prairie Smoke, or Old Man's Whiskers (*Geum triflorum* Pursh); Rose Family (Rosaceae)	***twupwupt***, OR ***stek'leps***	Roots apparently used as a medicine for newborn babies; details not recalled.
Rattlesnake Plantain orchid (*Goodyera oblongifolia* Raf.); Orchid Family (Orchidaceae)	***t'kwilc***	Fresh leaves, rubbed between the fingers until they separated into upper and lower halves, were used on cuts and sores as a "bandaid" and poultice.
Cow-parsnip, or "Wild Rhubarb" (*Heracleum maximum* Bartram); Celery Family (Apiaceae)	Plant, edible parts: ***xwtéllp*** **(W)**	an important traditional green vegetable for the Secwepemc; can be used only when young, must be carefully prepared or it can be harmful; leaf and roots considered poisonous; only the young, peeled leafstalks and flower bud stalks are edible; only certain places where people got this vegetable; yields a good disinfectant, for bugs, fleas and bed bugs; plant boiled and solution used to wash bedding, clothing, furniture, floors and walls, or, alternately, leaves and stems simply

		placed under chairs, couches and beds as a repellent; roots used by some in the sweatlodge; placed, with a dipperful of water, on hot rocks to produce fragrant, purifying steam. Plant considered an excellent medicine: for scabies ("lice under the skin"), roots cleaned, boiled and decoction used as wash; solution also used to wash the hair and scalp for itchy head, from psoriasis or other skin problems; also used as bladder medicine. Leaves can be used to cover a basket of berries; hollow stems used to make elk and moose calls; also used for spiritual protection. Small, white insect larvae from dried stalks used as fish bait. Plant has been heavily damaged by cattle, which graze it along the creek.
Round-leaved Alumroot (*Heuchera cylindrica* Douglas ex Hook.); Saxifrage Family (Saxifragaceae)	***legmín***	a good medicine; thick taproot dried, powdered, and sprinkled on sores to heal them; for canker sores, ringworm and; for upset stomach and diarrhoea, white part inside the root is boiled a little bit, and the solution drunk; also for treating a sore throat and poor appetite
Giant wildrye grass [*Leymus cinereus* (Scribn. & Merr.) A. Love]; Grass Family (Poaceae)	***pesnúl'ten***	Coarse, leafy grass was used for a variety of household and food processing purposes: for laying fish on, for bedding, and for covering dirt floors in a tent to keep the dust down; also used by children as play spears; split, cured stems of this grass as decorative imbrication for their cedar-root coiled baskets; not considered to be good for hay; associated with burial sites. Featured in Coyote Stories.
Tiger Lily (*Lilium columbianum* Leichtlin); Lily Family (Liliaceae)	***text"sín'*** (W); (cf. ***text, taxt*** "bitter")	Bulbs an important traditional food; formerly more abundant long ago, and the bulbs were dug even when the plants were in bloom; boiled in two changes of water, or steam-cooked for several hours; if enough were obtained, they could be sun-dried after cooking, either whole or mashed in thin cakes, and stored for winter; considered this to be a good health food; hard to find these bulbs as big as they used to be, because of trampling and grazing by cattle, and because people are not allowed to burn their root-digging grounds anymore; found with soapberry bushes. Featured in Coyote Stories.
Stoneseed, Lemonweed, or	***tsg̲wúg̲wpa***	Red paint for gambling sticks, inscribing designs and pictures on dressed skins, bows, and faces;

Gromwell (*Lithospermum ruderale*); Borage Family (Boraginaceae)		arrow poison; medicine for sores and to improve appetite.
Chocolate Tips [*Lomatium dissectum* (Nutt.) Mathias & Constance]; Celery Family (Apiaceae)	Root: ***geyu7*** (W); leafy tops: ***geyeqín'*** (W)	Carrot-like taproots of vegetative plants eaten; pit-cooked and sometimes dried for winter. Root a good medicine for sore throat; roots mashed and applied to sores, bruises, wounds; roots a medicine for colds.
Desert Parsley, "Wild Carrot" [*Lomatium macrocarpum* (Nutt. ex Torr. & A. Gray) J.M. Coult. & Rose]; Celery Family (Apiaceae)	***qweq'wíle*** (W)	Long, carrot-like taproots of non-flowering (female) plants formerly dug in the spring, cooked by roasting or boiling, and eaten or used as a flavouring; a very important food; nursing mothers chewed on root to make the baby strong; roots a good medicine for colds; subject of a Coyote story, and major origin story of one of the transformers; associated with meadowlark's song; a phenological indicator; hard to find around Kamloops.
Indian Celery, or Indian Consumption Plant [*Lomatium nudicaule* (Pursh) J.M. Coult. & Rose]; Celery Family (Apiaceae)	***k'utse*** (W)	Young leaves and their stalks can be harvested in the spring and used as a green vegetable, or cut up and dried and used as a flavouring in soups and stews and in pitcooking; one of first plants sought in spring; spicy, aromatic seeds as a fumigant and house deodorant; "tonic" type of food: "keeps you healthy"; affected by overgrazing of cattle.
Arctic Lupine (Lupinus arcticus S. Watson)	***qwiqwenqen-éllp*** (E)	Horses and deer like to eat these plants, but too much can be harmful. Flowers admired; grows with balsamroot.
Field mint, or Canada mint **(***Mentha arvensis* L.); Mint Family (Lamiaceae)	***cwecw7ú7cw,*** or ***cw7ecw7ú7cw*** (lit. "smell-smell"; "smell or odour of the menthol type")	Used as a flavouring and beverage plant; used as a wash to mask skunk odour; used generally as a scent; people placed it under their pillows and kept it around the house "just for the smell of it." A strong tea of mint was used as medicine by the Secwepemc for colds, coughs, consumption, and fever.
Wild Bergamot, or Bee Balm (Monarda fistulosa) Mint Family (Lamiaceae)	***cwecw7ú7cw,*** or ***cw7ecw7ú7cw***	Commonly used as a smudge, to ward off mosquitoes and other biting insects; leaves crushed and rubbed over kids' arms and neck as insect repellent; "there's a lot less around now; this could be because cows like to eat it."

Prickly-pear Cactus [*Opuntia fragilis* (Nutt.) Haw]; Cactus Family (Cactaceaee)	***sekí7***	Fleshy stems cooked and used as green vegetable; stewed or pitcooked until soft, then squeezed until the succulent inner part; an important famine food; spines for small fishhooks; medicine for cuts, sores, boils, or swollen throat.
Sweet cicely (*Osmorhiza berteroi* DC.); Celery Family (Apiaceae)	"***tspeq'mámllp***" [***llpeq'mém'llp***] (W),	Known for the sharp fruits that stick in one's clothing and fur of animals.
Shrubby Penstemon [*Penstemon fruticosus* (Pursh) Greene]; Rose Family (Rosaceae)	***segwsésegwt* (W)**; OR ***psagsagsagt, sagsásagt***	Formerly used in pitcooking as a flavouring for balsamroot and other foods; medicine for the eyes, notably, it is good for cararacts; and for kidney medicine; important bee and hummingbird plant.
Scented Bog Orchid [*Platanthera dilatata* (Pursh) Lindl. ex Beck]; Orchid Family (Orchidaceae)	Name not recalled	Used as a charm for wealth and good luck; you dig in that spot, or if you just put the leaves out of the way, you will find it in there. The smell of that plant is so powerful; you can smell it for miles away, just like perfume.
Silverweed, or Cinquefoil [*Argentina anserina* (L.) Rydb.]; Rose Family (Rosaceae)	***cílcel***	Roasted roots an important food; "large quantities are gathered in some places in the autumn;" said to taste like potatoes. Teit (1909:707-709) records a story featuring silverweed, the Story of *Xonisse'sest*; also featured in other stories.
Bluebunch Wheatgrass [*Pseudoroegneria spicata* (Pursh) A. Löve]; Grass Family (Poaceae)	***st'yúlecw***; or ***q'wiw's t'e st'ye7*** or ***st'ye7úw'i*** (lit. "real/original hay")	Main type of grass used in pit-cooking; probably also used for lining underground cache pits, as well as for insulation in houses and for stuffing in moccasins to keep the feet warm; the "best grass" for grazing by deer and livestock; heavily impacted by overgrazing.
Pink Wintergreen, or Beaver's Ears (*Pyrola asarifolia* Michx.); Heather Family (Ericaceae)	***sqeqlewén'e*** (lit. "beaver's ears") (E)	A medicine for kidney and bladder problems.
Sagebrush Buttercup (*Ranunculus glaberrimus*	***smelts'éqye7* (W)**	Sometimes used as a counter-irritant poultice for sores, bruises, internal injuries; known as the first flowers to bloom in the spring; children often taught not to pick them or touch them because

Hook.); Buttercup Family (Ranunculaceae)		they would cause sores.
Soft-stemmed bulrush *[Schoenoplectus tabernaemontani* (C.C. Gmel.) Palla]**;** possibly also hard-stemmed bulrush *[Schoenoplectus acutus* (Muhl. ex Bigelow) A. Love & D. Love]; Sedge Family (Cyperaceae)	***st'nal'tcw***	Both tule stems and cattail leaves used as weaving materials; round, spongy stems of tule were formerly an important material for making baskets and apparently also mats; harvested in late summer and fall; cut at the base and tied into bundles, then dried; twined together for mats, summer dwellings, table cloths and other purposes; some woven so tightly that they were waterproof; mats used for entrance covers, curtains, and windbreaks, and for drying salmon on; also for walls of temporary shelters, summer dwellings, and teepees, and as insulation for walls of winter houses; plants highly vulnerable to cattle overgrazing.
Water-parsnip (*Sium suave* Walter); Celery Family (Apiaceae)	***etsméts'*** (W)	The long, fleshy roots were a favourite food of the Secwepemc; grows with poisonous ***yenícw*** (*Cicuta douglasii*), which looks similar. Many elders recalled eating these roots, and usually they were just dug, washed and eaten; roots are long and good eating, crispy and delicious, either raw or steamed, but flowers are considered poisonous.
Cattail (*Typha latifolia* L.); Cattail Family (Typhaceae)	***kwtéllp*** (W); mat made from cattail or bulrush: ***cnel'epten***	Rhizomes said to have been boiled or eaten raw, and were also dried and made into flour; seed fluff of the cattail was used for stuffing more mattresses and pillows, and as diapering for baby cradles. The long, spongy leaves used for many purposes, especially for making mats, which were then used as mattresses, doorway coverings, canoe liners, and for wrapping food and drying berries and other food on and also to make summer shelters and cover salmon drying racks; leaves generally gathered in late summer, cut to even lengths, and dried in the sun; cattail mats 2 m (6 ft) long or longer, and very efficient.
Stinging Nettle (*Urtica dioica* L.); Nettle Family (Urticaceae)	***ts'exmém'llp*** (W), or ***secwmém'llp*** (W)	Young shoots or just the leaves, were formerly steamed or boiled and eaten like spinach; an important medicine, used as a counter-irritant to alleviate the pain of rheumatism and arthritis or paralysis; treatment usually undertaken during sweatbathing.

Death Camas or "Poison Onion" (*Zigadenus venenosus* S. Watson)	***yiwésten*** (W) (cf. ***yiwést*** "twitch")	Highly poisonous; sometimes used, with great care, to treat certain ailments. Sore or aching legs soaked in warm water or heated in steam of a sweathouse, then death camas plants laid on skin.

Appendix 2. Partial List of Invasive Species

From: List of Wildlife Species Detected by Observation and/or by Sign During Field Surveys.

Introduced and invasive species

Acroptilon repens	Russian Knapweed
Agrostis gigantea	Redtop
Amaranthus blitoides	Prostrate Pigweed
Arctium lappa	Great Burdock
Atriplex micrantha	Russian Orache
Atriplex oblongifolia	Oblong-leaved Orache
Atriplex patula	Common Orache
Atriplex rosea	Red Orache
Barbarea orthoceras	American Wintercress
Bromus hordeaceus	Soft Brome
Bromus hordeaceus ssp. hordeaceus	Soft Brome
Bromus inermis	Smooth Brome
Bromus japonicus	Japanese Brome
Bromus tectorum	Cheatgrass
Capsella bursa-pastoris	Shepherd's Purse
Centaurea diffusa	Diffuse Knapweed
Centaurea stoebe ssp. micranthos	Spotted Knapweed
Chenopodium album	Lamb's-quarters
Cirsium arvense	Canada Thistle
Cirsium vulgare	Bull Thistle
Conyza canadensis	Horseweed
Cynoglossum officinale	Common Hound's-tongue
Dactylis glomerata	Orchard grass
Elaeagnus angustifolia	Russian Olive
Fallopia convolvulus	Black Bindweed
Linaria genistifolia ssp. dalmatica	Dalmatian Toadflax
Linaria vulgaris	Butter-and-eggs
Matricaria discoidea	Pineapple Weed
Medicago lupulina	Black Medic
Medicago sativa ssp. falcata	Alfalfa
Medicago sativa ssp. sativa	Alfalfa
Melilotus alba	White Sweet-clover
Melilotus officinalis	Yellow Sweet-clover
Mycelis muralis	Wall Lettuce
Phalaris arundinacea	Reed Canarygrass
Phleum pratense	Common Timothy
Poa pratensis	Kentucky Bluegrass
Poa pratensis ssp. pratensis	Kentucky Bluegrass
Potentilla recta	Sulphur Cinquefoil
Ranunculus sceleratus	Celery-leaved Buttercup
Rumex crispus	Curled Dock
Rumex fueginus	Golden Dock

Salsola tragus	Russian Thistle
Sisymbrium altissimum	Tall Tumble-mustard
Sisymbrium loeselii	Loesel's Tumble-mustard
Silene noctiflora	Night-flowering Catchfly
Solanum dulcamara var. dulcamara	European Bittersweet
Solanum triflorum	Cut-leaved Nightshade
Sonchus arvensis	Perennial Sow-thistle
Stellaria media	Common Chickweed
Tamarix parviflora	Smallflower Tamarisk
Taraxacum officinale	Common Dandelion
Thlaspi arvense	Field Pennycress
Tragopogon dubius	Yellow Salsify
Trifolium dubium	Small Hop-clover
Trifolium hybridum	Alsike Clover
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Verbascum thapsus	Great Mullein