

CONCLUSIONS:

The Future of Ethnobotany in British Columbia

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ETHNOBOTANY IN British Columbia today bears little resemblance to the discipline as practised in the late nineteenth and early twentieth centuries, when catalogues of indigenous plant use (e.g., Gunther 1945; Steedman 1930) or descriptions of extraordinary wood or fibre archaeological artifacts were the norm (e.g., Smith 1899; Hill-Tout 1895). As the articles in this special issue illustrate, the ethnobotany of British Columbia today is vibrant and often practically oriented. The discipline employs cutting-edge scientific methods, strives to integrate Western and non-Western knowledge in effective and respectful ways, and situates plant use within a host of larger social, economic, and ecological systems, both in the past and in the present (e.g., Clayoquot Scientific Panel 1995; Gottesfeld [Johnson] 1994; Lepofsky et al. 2003; Turner and Thompson 2006). Following trends in the discipline of ethnobiology more broadly (Ford 2011; Hunn 2007; Nabhan, Wyndham, and Lepofsky 2011; Wyndham, Lepofsky, and Tiffany 2011), BC ethnobotanical researchers recognize the complex, nuanced integrations of the roles of plants and other organisms in the ecological knowledge, cognitive systems, and practices of cultural groups and of society at large. Increasing the depth, breadth, and integration of ethnobotanical knowledge is bound to continue into the future, with widespread interest and participation by First Nations as they continue their efforts to regain a rightful place in planning, decision making, and the governance of their own territories as well as meaningful consultation and engagement in development and other activities that affect their lifeways and relationships with their homelands and resources.

In this final article, we explore in greater detail these future directions of ethnobotany in British Columbia. We discuss how a greater understanding of the inextricable relationships between people and plants can strengthen cultural identity, improve people's health and well-being, and conserve the integrity of the earth's vital ecosystems. Three case studies

highlight how ethnobotany can both engage and educate communities and be used as a focal point for tackling broader social-ecological issues. More than ever, ethnobotanists and ethnoecologists are aiming to work collaboratively with experts, educators, and governments of Indigenous communities to address problems that are important to them.

GOVERNANCE AND ETHICS

Ethnobotany has been, and will continue to be, a key tool in aid of First Nations legal challenges of environmentally damaging, or potentially harmful, activities such as mining, oil and gas development, clear-cutting old-growth forests, and hydro development. Research around traditional management of plants and landscapes (e.g., Turner, Deur, and Lepofsky this volume) is particularly important in the legal arena since, in the past, representation of BC First Peoples as “non-cultivators” gave legal and moral authority to colonial officials for the dispossession of traditionally utilized lands and resources (Deur and Turner this volume; Deur and Turner 2005).

The legal consequences of the disregard for the existence of complex managements systems are dramatically illustrated in the now famous *Delgamuukw v. The Queen*. In his Reasons for Judgment, Chief Justice Allan McEachern (1991, 31) suggested that the absence of agriculture and other “civilized” practices in the ethnographic record indicated that BC Aboriginal “civilizations, if they qualif[ied] for that description, f[e]ll within a much lower, even primitive order.” Despite evidence presented relating to sacred sites, sedentary villages, and the long-term clearing, tending, and land tenure on plots of food plants by the Gitksan and Witsuwit’én peoples, McEachern nonetheless relied heavily on the early interpretations of colonial explorers and nineteenth-century academic anthropologists (24). On the basis of these very limited accounts, he asserted that “the primitive condition of the natives described by early observers [was] not impressive,” and he dismissed the Gitksan and Witsuwit’én claims on plant resource and other culturally important sites that came before him. More recently, however, the courts have been more open to the presentation of evidence around the antiquity of plant use, the close relationships between people and the plants and habitats on which they rely for their food and other resources, and the inextricable links between people’s belief systems, spiritual practices, and plant management and conservation (cf. Vickers 2007).

Notwithstanding some recent successes in recognition of land rights and title for some Indigenous groups in British Columbia, there is still much contention over ongoing and planned encroachments on Indigenous peoples' territories without their permission or consent. A very current example is the proposed Enbridge Northern Gateway oil pipeline and tanker route across BC lands and through coastal waters, an enterprise strongly opposed by most if not all coastal First Nations and many others along the pipeline route (Amos 2012; Booth and Skelton 2011). Since demonstrating people's dependence on and relationships with plants for their well-being, and their absolute need for ecosystem integrity in their territories, can be a compelling approach to contesting these intrusions, ethnobotany has had a role to play in ongoing challenges to this proposed development and will continue to inform such cases (e.g., Satterfield, Robinson, and Turner 2011).

Ethnobotanists understand that there is also an ethical aspect to recognizing the interdependence of traditional peoples and plants and their ecosystems. As a result, ethnobotany has been a leading discipline in developing codes of ethics for researchers and has also influenced research ethics policies more generally in Canada and elsewhere (Brant-Castellano et al. 2008; Bannister, Laird, and Solomon 2010). The trend towards respecting the rights of Indigenous Peoples – as set out, for example, in the UN Declaration on the Rights of Indigenous Peoples, adopted by the UN General Assembly in 2007 – will certainly continue into the future. Accompanying recognition of Indigenous rights to intellectual property and cultural heritage (including, for example, proprietary medicinal recipes, art, crests and images, names and rights to ceremonial performances), the principle of prior informed consent for all research and publication undertaken relating to cultural knowledge and practices is central to ethnobotany and ethnobiology (Bannister and Solomon 2009; International Society of Ethnobiology 2006; Lantz et al. 2004).

HUMAN HEALTH AND EDUCATION

Ethnobotany, applied in support and service of Indigenous peoples, is gaining a rightful place in the role of co-creating solutions to some of the pressing problems of our time. As illustrated by the Nuxalk Food and Nutrition Program (Kuhnlein et al. this volume; Turner et al. 2009, 2013) and the reclamation of the Squamish estuary project (case study 2 [below]), confirming the nutritional value and health-giving properties of berries, greens, root vegetables and other Indigenous plant foods can

help support initiatives to enhance food security, food safety, and food sovereignty (cf. also Deveau 2010; Dilbone, Turner, and von Aderkas 2013). Likewise, reinstating traditional forms of plant management, such as the cultivation of intertidal root gardens with nutritious and culturally important foods such as riceroot (case study 2 [below]; Turner, Deur, and Lepofsky this volume), has the potential to both increase food security and to heighten appreciation for cultural traditions. Highlighting women's knowledge in particular, as part of such endeavours, is also affirming and positive in efforts to promote healthy diets (Turner et al. 2012; Wong 2004). Antibiotic testing and phytochemical analysis of traditional plant medicines can help validate their use from a Western methodological perspective and also help identify any potential health risks or contraindications in their application. Recognizing Indigenous healers and plant experts as rightful participants in complementary healthcare is another contribution that ethnobotany can continue to make (Bannister 2000; Gottesfeld [Johnson] and Anderson 1988; Lantz, Swerhun, and Turner 2004; Turner and Hebda 1992).

Including ethnobotany in educational programs for schools, communities, and postsecondary training for both Indigenous and non-Indigenous institutions can help raise awareness of the crucial importance of plants and fungi in human society and inspire children and youth to further their education about plants and their traits and values more generally (Turner and Thompson 2006). The University of Victoria, through the School of Environmental Studies, has offered ethnobotany courses and postgraduate training for ethnobotanists for over twenty years. More recently, an ethnobotany science course taught through *Wilp Wilxo'oskwhl Nisga'a* in the Nass Valley (by Nancy Mackin and associates) has attracted postsecondary students of all ages, including Indigenous students from Nisga'a and other First Nations as well as non-Indigenous students. The course provides an overview of people-plant relationships that will inform future practices and decisions for years to come. Incorporating plant-based activities – berry picking, basketry, and pit-cooking, for example – as part of Indigenous-led gatherings and cultural tourism ventures can lead to a greater appreciation of plants and ethnobotanical knowledge. Ethnobotanical gardens (case study 1 [see below]) are another way to promote cultural education more widely.

The Chemainus Biodiversity Education Project summarized in the third case study (see below) is another example of how ethnobiology can be used to foster understandings of how biological and cultural diversity are linked to our own health and to the health of the

forests, shorelines, or other special places to which we feel connected. These kinds of understandings underlie informed land-use decisions. In industrial resource exploitation such as mining and forestry, instilling in practitioners and decision makers a keen awareness of Indigenous values and approaches, and a recognition of the reliance of Indigenous communities on intact, fully functioning ecosystems, can lead to more careful, more sustainable, and less harmful extraction methods (Turner 2001).

ECOSYSTEM HEALTH AND MANAGEMENT

As the case studies in this article illustrate, ethnobotanical research and collaboration can make a significant contribution to the conservation of ecosystems and to maintaining the integrity of the embedded cultural systems. The establishment of Indigenous-led conservancies as part of the BC Parks system is an example of how the principles of ethnobotany and ethnoecology can assist in the design and management of protected areas that help preserve both ecological and cultural values (Turner and Bitonti 2011). The development of the concepts of Cultural Keystone Species and Cultural Keystone Places in bringing together social and ecological systems in conservation and restoration initiatives is another example of how ethnobotanical concepts can contribute more broadly to conservation (Garibaldi and Turner 2004; Gomes 2012). The identification and role of culturally modified trees (CMTs) and the practice of landscape burning are other contributions of ethnobotany to our understanding of Indigenous strategies to maintain and enhance biological diversity and productivity (Turner, Deur, and Lepofsky this volume). There are other challenges – for example, from invasive introduced species such as Scotch broom (*Cytisus scoparius*) – to which the wisdom of Indigenous experts can be brought to bear but for which there may be no immediate solutions. Ethnobotanical knowledge from other parts of the world can inform us about use and management of such species elsewhere and, perhaps, can help in developing some strategies for their use and control here in British Columbia.

Climate change adds even greater threats to people's well-being and security, including their ability to obtain the foods and medicines that help maintain their health and cultural integrity (Turner and Clifton 2009). Ethnobotanical knowledge can not only provide detailed indicators of climate change but can also inform ways of adapting to climate change and help maintain peoples' resilience (Turner and Spalding 2013). Ethnobotanical and ethnoecological studies can document how

ancestral populations have adapted to past environmental change, including diversification of their use of plants and intensification of food production (cf. Lepofsky et al. 2005), and this information can provide inspiration and incentive for people and enable them to embrace cultural continuity in the face of such change.

ART AND TECHNOLOGY

The history of Indigenous societies in British Columbia reflects a remarkable integration of art and technology, much of it centred around the use of plant materials (Turner 1998). The discussions of plant-based artifacts in the case studies by Bernick, and Croes and Hawes (in Lepofsky and Lyons this volume) provide some excellent examples of how basketry and carved wooden objects such as fishhooks have reflected both utility and style in the archaeological record (cf. also Stewart 1977, 1984). Although the use of plant materials and plant-based technologies diminished over much of the twentieth century, starting around the 1970s and continuing to the present a revitalization of plant-based arts in British Columbia and neighbouring areas has occurred. In particular, basketry has enjoyed a resurgence, with a number of basketweaving courses and workshops being offered in various parts of the province. Canoe-carving arts have also flourished since the establishment of the region-wide tribal canoe journeys mentioned by Croes and Hawes. First Nations artists are also continuing to create exquisitely beautiful bentwood cedar boxes, carved spoons, masks, rattles, and regalia for use in cultural contexts as well as for sale in galleries as valued art, recognized around the world for their unique style and aesthetic qualities.

As elsewhere in North America, museums such as the Royal BC Museum in Victoria and the Museum of Anthropology at UBC in Vancouver have assisted in the revitalization of plant-based arts by showcasing their collections of basketry, mats, and carved wooden objects for contemporary artists to examine and to be inspired by. For example, Kwakwaka'wakw Clan Chief Adam Dick (Kwaxistalla) was able to view and handle a traditional *lax̓ēy* basket – an open-work basket of split western redcedar withes twined with cedar roots – at the Royal BC Museum, together with ethnobotany graduate student Abe Lloyd and linguistics graduate student Melissa Kingan Grimes, to determine how it was constructed and to use it as a model for creating a new one (Figure 1). The future for traditional plant-based art and technology for First Peoples in British Columbia is bright indeed.



Figure 1. As part of ongoing cultural revitalization, Clan Chief Adam Dick (Kwax-sistalla), with (then) graduate students Melissa Kingan Grimes and Abe Lloyd, examines a Kwakwaka'wakw *ləx̣əy* basket from the collection of the Royal BC Museum in order to determine its construction and so to enable the making of a new basket to use for washing clams and root vegetables. Photo by N.J. Turner, courtesy Royal BC Museum. Basket RBCM 11489. Thanks to Brian Seymour and Dr. Martha Black.

OUR YOUTH: THE FUTURE OF ETHNOBOTANY

The challenges of ethnobotany, and of maintaining the essence of the time-honoured people-plant alliances in British Columbia for the future, are immense and daunting. Undeniably, ethnobotanical knowledge of elders and Indigenous plant experts has been slipping away as these experts have died. However, as *Kii'iljuus* (Barbara Wilson) stresses in her Preface to this volume, current generations of Indigenous people still hold a wealth of knowledge and wisdom. Furthermore, they still have the desire and the capacity to pass this knowledge along for the benefit of future generations and of the other life forms of the planet who are our relatives. Many children and youth, and members of society at large, have shown both interest and passion for learning this precious knowledge and keeping it going, not just as written words in pages of books or on the internet but as real, living knowledge, practice, and wisdom. For this reason, the future of ethnobotany as a discipline and as a vital part of people's lives, contributing to their health and well-being, is as bright as it ever has been.

CASE STUDY 1

*Ethnobotanical Gardens:
Their Role in Education and Conservation*

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AND KII'ILJUUS (BARBARA J. WILSON)³

Ethnobotanical gardens are landscapes featuring culturally relevant native trees, shrubs, and understory plants that can be sources for the perpetuation and revitalization of traditional knowledge. Throughout coastal British Columbia, we have worked with several First Nations communities to design and install ethnobotanical gardens. The distinctive qualities of the six gardens discussed here exemplify complex interactions among people, plants, and ecological systems. They also offer surprises since gardens are dynamic entities, changing with the natural growth and movement of plants through space and as people and communities interact with them.

The first example is a carefully tended landscape surrounding *Wilp Wilxo'oskwahl Nisga'a Institute* (WWNI), the Nisga'a House of Wisdom, and the ancient village of Gitwinksihlkw. WWNI landscapes contain: (1) abundant and diverse plants, (2) edible plants, (3) fresh water, and (4) memories of stories. These qualities are valued in gardens everywhere, says the Nisga'a oral history (below) retold by late Nisga'a elder Sim'oogit (chief) 'Wii Gadim Xsgaak (Eli Gosnell). In this narrative, two young men disguised as birds have just flown upwards through the smoke hole of the sky in search of the Great Chief and his two daughters.

In the distance they had sighted a house, barely visible, but with smoke coming from its roof through the Ala, or smoke hole. So, early the next morning, the two young men set out towards the house and, upon reaching it, quietly slipped around the rear of the building. They knew from experience that there was almost certainly a well at that point ... There also was a large open field resplendent in fruit trees of all kinds, and a bounteous garden boasting grass, bushes, flowers, and whatever else one would find in any garden ... The Chief of the Heavens had a garden that contained fruit and produce of every description. (*Ayuukhl Nisga'a* 1994, 1:46 [emphasis added])

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The fact that this traditional story describes a celestial garden is significant, indeed, especially since the Nisga'a and other Northwest Coast peoples have never been ethnologically identified as anything other than harvesters of wild-growing plants.

Produce harvested near wwni includes "lavaberries," or tipyees (the swollen leaves of *Sedum divergens*), growing on lava fields that are memorials to ancestors who lost their lives in a volcano three hundred years ago. More produce is found some hours' walk above the lava fields, where abundant permafrost-growing berries include huksa'alt (*Vaccinium ovalifolium*, oval-leaf blueberry) and maay' im gililx ("berry of the hills") (*V. alaskaense*, Alaska blueberry). The berry-picking place is found just below Xhlaawit, a mountain peak where the Nisga'a people saved themselves after the Great Flood, according to the ancient stories (in the Nisga'a homelands, each place in the landscape has a name and recalls a story).

The five ethnobotanical gardens described below are also named places for teaching and storytelling. Working with Ts'msyen (Tsimshian) community members, band councils, and friendship centres, we are establishing two gardens at Northwest Community College (nwcc), one in Terrace, and one downriver in Prince Rupert. The All Nations Pole Garden in Terrace provides plants for the culinary arts and fine arts programs. To ensure the plants are genetically and culturally appropriate for their setting, we transplanted propagules from the ancient village site of Robintown, where we found over one hundred species of culturally important plants. We held a planting day and community celebration on 20 May 2008, with prayers, speeches, and dancing to welcome the plants to their new setting.

At nwcc campus in Prince Rupert, Friendship House Elders, gathered together to assist with designing and planting a garden that they named Suwilaay'msgm S'ndooy'n, A Txa' Nii Goo – The Learning Garden of Everything. Signage was placed for the garden name and to identify many of the individual plants, providing their Sm'algyax (Tsimshian language), English, and botanical names and cultural uses. The nwcc intends both gardens to be sites for learning, community building, and applied research that includes First Nations health and nutrition, plant research and propagation, arts, paleoethnobotany, climate change, and linguistics.

Kay'Llnagaay Garden on Haida Gwaii at the Haida Heritage Centre in Skidegate enhances a new community complex designed to reflect Haida history. The garden showcases a diverse palette of plants indigenous,

and sometimes endemic, to the Haida Gwaii archipelago. Kii'iljuus (Barbara Wilson) and Nancy Turner involved elders, students, and the larger community in planning the garden. Their goals, among others, were to: (1) provide plants for transplanting to the wild; (2) ensure that people know the names and cultural uses of plants; (3) provide a source for ecologically and culturally appropriate materials and food; and (4) provide a site of ongoing education and research in ethnobotany. During the initial planting of this garden, plants and soil were brought by the general contractor from distant mainland nurseries, bringing seeds of plants not native to Haida Gwaii as stowaways in the soil. The transplanting was restricted to one side of the complex as knowledge holders protested, knowing that endemic species are often unable to resist competition, damage, or disturbances. Many of the non-native seedlings were culled (Turner and Wilson 2005).

At the Nanaimo Waterfront "Beach" Garden, in conjunction with a new cruise-ship terminal, acres of existing asphalt were replaced with a reconstructed beach landscape and waterfront paths (Figure 2). The new landscape was intended to recall times past, when the local Snuneymuxw people harvested sedges for basketry and berries or forbs for food. Driftwood, rocks, and other natural materials shaped the edge of the new "beach." After planting, the garden began to transform. Wild strawberries (*Fragaria chiloensis*) propagated through the sandy "beach" areas, making a lacy carpet of plants that helped stabilize the topsoil and sand. Flowers emerged and grasses doubled in height. We were ready for community meetings to discuss how the Snuneymuxw community might like to add to and modify the garden. The local river otter population, however, had other plans.

Within a few months, otters began converting the garden into a playground for themselves. They tore up all the wild strawberries, bulbs and leafy plants, and many of the grasses and sedges. Only the toughest and woodiest plants were spared the otters' plant removal project. The Nanaimo garden is evidence that all "gardens" are really part of the overall ecosystem. This interconnectedness is intrinsic to the traditional knowledge of Indigenous peoples worldwide (cf. Turner, Ignace, and Ignace 2000).

The *Laxgalt'sap* Daycare Centre Garden (not yet constructed) will actively involve young children in their Nisga'a culture and language. Design drawings include a play structure based on the traditional longhouse, a hilltop with orchard trees, and areas where children could learn the names of and tend food plants. To keep the young children

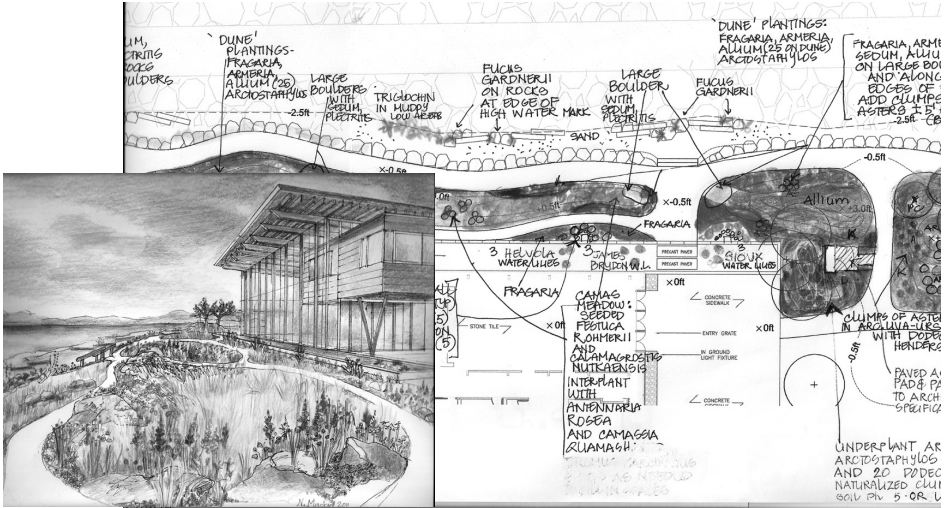


Figure 2. Nancy Mackin's sketches for the Nanaimo Waterfront "Beach" Garden, intended to invite community input and discussion.

safe, plant lists excluded anything with poisonous or prickly parts or that might attract bears.

The daycare garden of *Laxgalts'ap*, like all examples here, mirrors how traditional knowledge transmits across generations: through stories, hands-on experience, observation, and language. The case study gardens all convey long-held wisdom about ecological principles and indicators, harvesting strategies, and adapting to change (Turner et al. 2000). Importantly, the gardens tell a story about connections among people, plants, and the ecosystems that sustain us.

CASE STUDY 2

Reclaiming Our Plant Traditions: The Importance of Indigenous Foods

LEIGH JOSEPH⁴

It's important to learn about our foods because our ancestors told us about these foods and if we bring them back and learn how to eat them then we're learning from our ancestors.

– Anna Billie, Squamish Nation Youth, personal communication, 2012

⁴ Skwxwú7mesh (Squamish) First Nation.

There is a globally renewed interest among Indigenous peoples in the revitalization of traditional knowledge, practice, and use pertaining to native plant foods and medicines (Devereaux and Kittredge 2008; Dilbone et al. 2013; Higgs 2003; Lloyd 2012; Pukonen 2008; Turner 2005; Turner and Turner 2008). Culturally important plants foster a connection between Indigenous peoples and the land. Being connected to the natural world in a culturally relevant way develops interest in building cultural expertise and knowledge within Indigenous communities. A teaching passed on to me by my father, Chief Floyd Joseph (personal communication, 2012), that has been prominent in my life is this: *The knowledge that you gain is not yours to hold on to or to benefit from individually but, rather, yours to share with your community.* This way of thinking obligates knowledge holders to share their insights and experiences with their community and to carry their wisdom forward in a positive way. This teaching is especially important now, in a time when so many Indigenous peoples are working towards reclaiming their language and traditions.

Indigenous peoples around the world are looking to their traditional foods to address issues that include health, food policy, biodiversity, and connection to place (Anderson 2005; Nabhan 2000; Turner 2005). In British Columbia, the legacy of residential schools and the banning of the potlatch for many decades, among other colonial impacts, led to a major decline in the number of Indigenous peoples cultivating, harvesting, and eating native plant foods (Deur and Turner 2005; Kuhnlein 1992; Turner and Turner 2008). Linked to losses in traditional food systems, there have also been numerous invisible losses, such as: cultural/lifestyle losses, loss of identity, health losses, loss of self-determination and influence, and emotional and psychological losses (Turner et al. 2008). Habitat loss and deterioration have reduced the availability, quantity, and, in some cases, the mere presence of many native plant foods (Turner and Peacock 2005).

Reclaiming ethnobotanical traditions gives the individuals in a community a chance to meditate on the knowledge of their ancestors and to connect in a meaningful way to the land, their culture, and their individual health. Health in this context includes not only physical well-being but also spiritual and emotional well-being. Indigenous peoples in the Pacific Northwest are making efforts to address widespread dietary-related health concerns through incorporating more traditional foods into their contemporary diets (Kuhnlein 1992; Kuhnlein and Turner 1991; Kuhnlein et al. 2006; Kuhnlein et al. this volume). One

approach to reclaiming traditions is to focus ecological restoration on ethnobotanically important species. This form of restoration considers the Indigenous perspective and is coordinated by, or involves, Indigenous people throughout the restoration process (Bartley 2005; Senos et al. 2006).

The Skwxwú7mesh (Squamish) First Nation, a Coast Salish group located in southwestern British Columbia, is actively working to reclaim ethnobotanical knowledge and traditions. The Squamish are engaged in an ethnoecological restoration project focused on restoring an iconic plant food to the Squamish estuary (Joseph 2012). Riceroot, known as *lhásem* in the Squamish language, is an edible plant commonly called northern riceroot (*Fritillaria camschatcensis* [L.] Ker. Gawl.). *Lhásem* was traditionally part of a complex system of food production involving estuary root gardens that utilized resource management systems developed by Indigenous peoples of the Pacific Northwest (Anderson 2005; Deur and Turner 2005; Peacock and Turner 2000; Turner and Peacock 2005). Until relatively recently, riceroot would have been found growing in abundance in the Squamish River estuary. The restoration project involves reintroducing *lhásem* into the estuary environment in both experimental gardens and a large educational garden (where Squamish Nation members can go and learn about *lhásem* in a hands-on way) (Figure 3).

The connection between landscape and culture is one that is integral to the Squamish people. The Squamish estuary is important both historically and culturally to the Skwxwú7mesh (Squamish) people. Over the past century, the Squamish estuary has undergone significant anthropogenic disturbances, and the populations of *lhásem* were nearly decimated. The degradation of culturally important ecosystems, such as the Squamish River estuary, greatly increases the vulnerability of traditional knowledge linked to cultural practices such as the harvesting, management, and use of *lhásem* (Turner 2005; Turner et al. 2000; Turner and Turner 2008).

The deep cultural connection to plants adds a layer of cultural relevance when we are aiming to restore a plant food or medicine that was utilized and valued historically. The cultural relevance of plants is one of the factors that makes reclaiming traditions linked to plants effective in addressing issues such as cultural renewal and diet-related health concerns in Indigenous communities (Beckwith 2004; Cullis-Suzuki 2007; Dilbone et al. 2013; Lloyd 2011; Pukonen 2008).



Figure 3. Squamish Nation youth planting *lhásem* (northern riceroot) restoration garden in the Squamish estuary. Photo by Leigh Joseph.

The ethnoecological restoration of *lhásem* is part of a larger movement in the Squamish Nation to strengthen connections to the land, culture, and diet through renewing the traditional knowledge and practices connected to an important plant food. Another effort of the Squamish Nation involves annual culture and science youth camps that take place every summer in Squamish. During the camps the youth learn about Squamish ethnobotanical knowledge, food preparation and preservation technologies, place names and stories, and much more. These camps get the youth out onto the land with elders and adults who promote the reclamation of traditions through educating youth and inspiring in them a sense of pride and interest in learning about their cultural connections to the land as Squamish people.

The Squamish people are one of many Indigenous peoples who are actively reclaiming traditions linked to cultural plant use. When traditions are reclaimed, other cultural practices and cultural knowledge that are inextricably linked to them also gain new life. This is a time of great knowledge renewal for Indigenous peoples as more and more communities work to reclaim the traditions that ground them in their past, present, and future.

CASE STUDY 3

*The Chemainus Biodiversity Education Project:
Collaborative Learning in Support of Healthy People and Healthy Places*

KELLY BANNISTER⁵, WITH KATHY WACHS⁶, AND
FLORENCE JAMES⁷

The Chemainus Biodiversity Education Project began in 2007 and is an ongoing collaboration between the University of Victoria (through the POLIS Project on Ecological Governance) and a number of interested individuals, organizations, First Nations, and businesses in and around Chemainus, British Columbia, including Thetis and Penelakut Islands. It draws on a combination of ethnobiology, community-based participatory research, and collaborative learning approaches, and it is theoretically grounded in an “ecological governance” perspective – the idea that the environment cannot be an “add-on” or afterthought but, rather, must be the point of reference and decision making for our economic, social, and political lives (see <http://polisproject.org/ecologicalgovernance>).

The initial phase of the project from 2007 to 2009 involved organizing our collaborative learning activities. We held formal and informal events at the university and in the communities, and we created experiential learning opportunities, using nature as an “outdoor classroom.” Through presentations, workshops, events, and walks in local forests and along marine shorelines, local naturalists, politicians, activists, and children have mixed with Coast Salish elders, elected leaders, and community members from Penelakut, Halalt, and Chemainus First Nations as well as with university-trained scientists and professionals. The goal was to have fun in the fresh air while exploring local biodiversity, learning local history, and coming to understand cultural connections to special places.

The project’s second phase involves systematically assembling the collective expertise shared through the project, supplementing it with literature-based research in order to identify existing resources, and creating new user-friendly educational resources (web-based and printable) that are customized for a diversity of users in our region, ranging from schoolchildren to nature-seekers to tourists.

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⁶ Board member, Chemainus Residents Association.

⁷ Coast Salish Elder, Penelakut First Nation.

The original idea for the project emerged from passionate discussions among a small group of people with a shared concern regarding the fate of a fifty-two-acre forest in Chemainus called Echo Heights, which is owned by the municipality and is facing the threat of a housing development. More broadly, two underlying concerns were: (1) that local land-use and development decisions were not being informed by good science, public input, or First Nations involvement; and (2) that our children and youth were not getting sufficient outdoor opportunities to appreciate or relate to the natural world – a phenomenon that author Richard Louv (2008, 2011) refers to as “nature deficit-disorder.” Beyond the obvious health implications of “too much screen time,” we surmised that a lack of connectedness to the natural world on the part of today’s youth would likely perpetuate uninformed land-use decisions on the part of tomorrow’s leaders.

If the “common enemy” was ignorance, our collective response was hands-on experiential learning. Thus, our project was based on collaborative learning that recognizes the need for experts in a diversity of knowledge systems, responds to local priorities, enables meaningful participation, and fosters inclusiveness and mutual respect for all involved.

Recognizing that it is easy to feel overwhelmed by problems as big as pollution, erosion, deforestation, and invasive species, let alone larger trends of extinction and climate change, we asked whether a single person or community could make any difference. Our conclusion was that we could start with learning what biodiversity means right in our own backyards. We could learn why it is important and what might be threatening it at a local level. We reasoned that, equipped with knowledge and insights, we could strive to make more informed decisions as individuals and communities, whether about how to live well, how to encourage our youth to make healthy choices for their future, or how to make land-use decisions that ultimately support human and ecosystem well-being.

The project is a “labour of love,” being donation- and volunteer-based, which raises ongoing challenges related to capacity and funding but also frees our collaborative efforts from externally imposed institutional pressures, timelines, and other constraints that often plague university-funded projects (Vodden and Bannister 2008).

The Chemainus Biodiversity Education Project aims to address an important challenge for today’s society – to understand the fundamental role of biological and cultural diversity in fostering the health of individuals, communities, and the ecosystems in which we live. Linking

human and ecological health requires awareness that our social and cultural systems are both dependent on, and significantly affect, the integrity and functioning of ecological systems.

Ethnobiologists are uniquely positioned to foster this understanding not only by drawing on what is learned through the study of reciprocal relationships between human cultures and the natural world but also by transforming “the study of” (i.e., the “ology”) into an opportunity “to learn with” in practical ways. Building reciprocal relationships with communities and valuing knowledge and expertise held within communities are logical and essential extensions of ethnobiological theory and practice to collaborative learning.

Beyond sharing information in order to increase an understanding of local biocultural diversity and links to health at many levels, it is becoming clear that the project activities are having another type of impact: they are increasing cross-cultural understanding and fostering relationships between people in the region who may not have otherwise realized they had something to learn from one another. And, despite their different beliefs and/or political views, we hope these new insights offer a basis for working together in pursuit of healthy people and healthy places in the Chemainus Valley region.

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