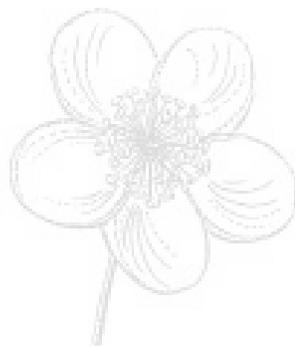


Dr. Nancy Turner
Hakai Chair of Ethnoecology
University of Victoria
2012/2013 Year in Review:



Tula **Hakai**
FOUNDATION HAKAI BEACH INSTITUTE

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Social Sciences and Humanities
Research Council of Canada

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sciences humaines du Canada

Canada

Acknowledgements from Dr. Turner

I would like to thank all of the many people and organizations that made my year so enjoyable and my research a success. I am extremely grateful for the ongoing support from Dr. Eric Peterson and Christina Munck through the Tula Foundation and Hakai Institute. I have appreciated, too, the collaboration and collegial exchange with my Hakai Network colleagues, centred at Simon Fraser University, and all the UVic Hakai Group members. [I also wish to acknowledge, with respect and gratitude, my friends, colleagues and teachers of the First Nations communities who have shared their knowledge and wisdom with me; particularly, for this year, these include members of the Straits Salish, Hulqumi'num, Kwakwaka'wakw, Heiltsuk, Wuikinuuv, Kitsoo/Xai'xais, Nuxalk, Gitga'at, Haida, Tahltan, Tsilhqot'in, Secwepemc and Nenana communities. My research in Heiltsuk territory has been overseen through the Heiltsuk Integrated Resource Management Department, and I would like to thank, in particular, Kelly Brown, Chief Harvey Humchitt, Jennifer Carpenter and Laurie Whitehead for their help and guidance. I am grateful for the continuing support of Barb Roberts, Faculty of Social Sciences, External Relations and Development Officer, Dr. Peter Keller, Dean of Social Sciences, Drs. Peter Stephenson and Eric Higgs, past Directors, and Dr. John Volpe, present Director, School of Environmental Studies, and my colleagues in our ethnoecology stream, Drs Trevor Lantz, Natalie Ban, and Brenda Beckwith, and all my other colleagues and graduate students at UVic. I would also like to acknowledge the Social Sciences and Humanities Research Council of Canada (SSHRC) for ongoing support of my research, most recently on a collaborative project with Dr. Nancy Mackin, "Bringing the Food Home," focusing on Indigenous Plant foods and their revitalization in British Columbia and Yukon. Pamela Spalding, Research Manager for my Hakai chair position, has compiled this report in her usual capable style and I am indebted to her for her collaboration and support in all aspects of my work.

With appreciation,

Nancy J. Turner



Nootka wild rose (*Rosa nutkana*) (photographed near Middle Beach, Tofino, British Columbia. June 2013).



1. Introduction

Dr. Nancy J. Turner, Hakai Chair in Ethnoecology, School of Environmental Studies, UVic, has worked with First Nations' Elders and cultural specialists in northwestern North America for over 40 years documenting and promoting their traditional knowledge of plants and habitats. Currently, her research is supported through a five-year research grant from the Quadra Island-based Tula Foundation (co-directors Dr. Eric Peterson and Christina Munck) (2011-2016) and from the Social Sciences and Humanities Research Council of Canada (officially to 2010-2013). Nancy is working on several research and writing projects. This report outlines Nancy's major activities and accomplishments for the period covering September 2012-September 2013.

The past year provided many rich opportunities for Dr. Turner in ethnoecology research along the Central Coast and throughout British Columbia and beyond. She and her research team enjoyed participating in the Hakai network, making new connections between their individual projects and that of other Hakai researchers who work in environmental law, geography, archaeology, biology, and ecology. In collaboration with the Heiltsuk First Nation, and colleagues from both UVic and SFU, she helped to initiate a major research undertaking on the Central Coast on Hunter and Calvert Islands (see below). Nancy continued to visit and engage with Indigenous experts on plant use in many First Nations communities throughout British Columbia



From top left to right: Tour of Madrona organic farm, Nathalie Chambers, Dr. Gary Nabhan, Dr. Kanin Routson, and Valerie Segrest (Muckleshoot Nation). Joan Morris *Sellemah* (Songhees Nation) and Valerie Segrest at pit cook in Metchosin. Skunk cabbage (*Lysichiton americanus*) on Hunter Island, BC. Birchbark baskets made by Secwepemc members, Phyllis and Gerry Thomas. Former students Ashli Akins and Dr. Brenda Beckwith join Dr. Turner at 50 Alumni Who Made a Difference ceremony; Two-ply twine made from Stinging nettle (*Urtica dioica*); Participants Natasha Mason, Rochelle Duncan and Alyssa Mason in the Kitasoo SEAS Internship program with springbank clover (*Trifolium wormskioldii*) in their hair; Bog laurel (*Kalmia microphylla*), Graduate student Victoria Wyllie De Echeverria and Allison Craig measuring Pacific crabapple (*Malus fusca*) samples.



research

and beyond, including: (Songhees (Victoria), Saanich, Samish (Anacortes), Nisga'a (Nass Valley), Haida (Skidegate and Massett), Gitga'at (Hartley Bay), Tahltan (Telegraph Creek, Dease lake, Iskut), Secwepemc (Salmon Arm, Clearwater), Stl'atl'imx (Xaxl'ep), Kitsoo/Xai'Xais (Klemtu), and Nuu-chah-nulth (Tofino). She enjoyed re-connecting with many community colleagues through field visits, short courses and presentations (e.g., at University of Manitoba, UBC, Gitwinksihlkw (Nass Valley) and Fairbanks, AK).

2. Research Team

Jonaki Bhattacharyya, PhD Environmental Ethnographer, Post-doctoral Fellow

Dr. Bhattacharyya, whose work is co-supervised by Nancy and Dr. Chris Darimont (Department of Geography, **University of Victoria**), as well as Jennifer Carpenter and Dr. Dana Lepofsky through the Hauyat project, is working to identify and explore the cultural and ecological relationships among animals, people and plants within traditional managed estuarine root gardens and other traditionally managed habitats of the Central Coast. Her research is guided by and grounded in cultural research into local and traditional knowledge, worldviews, stories and practices, both past and present. Dr. Bhattacharyya received her Masters of Environmental Studies and PhD in Environmental Planning from the University of Waterloo, Ontario. Her doctoral research focused on the relationship between free-roaming horses and the Tsilhqot'in culture and ecology of the Brittany Triangle and Nemiah Valley. She has conducted research for several wildlife and land conservancy groups, as well as for the Xení Gwet'in (Tsilhqot'in), and her publications focus on the cultural framework of land and wildlife management. Her current research integrates social and natural scientific observation and methods to support inquiry and analysis of animal access and behavioural dynamics in sample estuarine



Root garden remains on a small point, Hunter Island, BC



Dr. Jonaki Bhattacharyya, Post -doctoral fellow, School of Environmental Studies, UVic and Julia Jackley, PhD Candidate, Archaeology, SFU, en route to Hauyat, Heiltsuk territory

root garden sites in Heiltsuk territory, including at Hauyat and Koeye. Pauline Waterfall has consented to serve as cultural advisor for Jonaki.

Darcy Mathews, PhD Candidate, MA, Archaeology (Post-doctoral Fellow)

Mr. Mathews is a doctoral candidate in Anthropology at the University of Victoria researching funerary ritual and ecological context in the formation of precontact burial cairn and mound cemeteries on the southern tip of Vancouver Island. His doctoral research has been supervised Dr. Quentin Mackie. Henry Chipps and the chief and council of the Scia'new First Nation of Beecher Bay (Metchosin) assisted Darcy's archaeological studies. As a post doctoral fellow with Nancy, he plans to conduct an inventory-landscape scale research project on Hunter and Calvert islands, focusing on the archaeology and human ecology of the poorly known latter half of the Holocene. This research will complement the ongoing archaeological research of Dr. Duncan MacLaren, with Elroy White and other colleagues (Hakai Ancient Landscapes Project) in the region. Working with the Hakai Ancient Landscapes Project, Darcy looks forward to bringing a greater understanding to the cultural history of this part of the British Columbia coast. His research will emphasize integrating the traditional archaeological approach with an emphasis on cross-disciplinary and collaborative research regarding the multitude of ways in which people shaped, interacted with, and maintained terrestrial, intertidal and marine ecosystems on the central coast over the last five millennia, including in the legacy of culturally modified trees (CMTs).



Johanna Wilms, PhD student in Environmental Studies and Biology

Johanna Wilms' is conducting her PhD in the School of Environmental Studies at UVic. She is co-supervised by Dr. Patrick von Aderkas in UVic's Department of Biology. She received her Masters Degree at the HAWK University of Applied Sciences and Arts in Hildesheim, Germany, where she examined the bark fibres of a western redcedar mat from the North American Collection at the Museum fur Völkerkunde in Hamburg. Ms. Wilms has worked in the conservation of material culture in museums in Germany and Canada (including with Dr. Mary-Lou Florian at the Royal BC Museum). Her research as planned will be a collaborative study with the Heiltsuk Nation to test the antibiotic, preservative and other phytochemical properties of essential oils distilled from the needles of coniferous trees on the central coast, especially from the boughs of western redcedar. She has taken a one-term leave from her studies in the fall of 2013, but hopes to resume her work in the new year.



Johanna Wilms, PhD candidate, School of Environmental Studies, UVic.

Pamela Spalding, MA, Anthropology, Research Manager

Pamela worked for several years in the provincial government on issues such as First Nations' traditional use studies and land use and treaty negotiations. After taking time to be a primary caregiver to her children, she joined Nancy's team in 2011. Her role is to support Nancy's research, writing, speaking engagements and travels. A major project for the upcoming year will be to organize and sort Dr. Turner's papers and primary research materials for the Ethnoecology Library, which forms part of the School of Environmental Studies. Pamela received her BA in Anthropology from UBC and her MA in Anthropology from UVic.

3. Research Partners

Jennifer Carpenter, MA, Anthropology (University of British Columbia)

Jennifer Carpenter has been a member of the Heiltsuk Nation since 1975, resident in Bella Bella (Waglisla), B.C and working full-time for the Heiltsuk since 1974, primarily in the areas of research and development. She is currently Culture & Heritage Manager at Heiltsuk Integrated Resource Management Department (HIRMD) of the HTC and has also been the Director of the Heiltsuk Cultural Education Centre (HCEC) for many years. She has extensive experience representing the HTC on regional, provincial and national committees. In November 2002, Ms. Carpenter was a delegate of the FNCCEC to the Aboriginal Policy Research Conference and to the Social Sciences and Humanities Research Council Workshop on Aboriginal scholarship, both in Ottawa, Ontario. Jennifer's deep knowledge of the culture, history and protocols of the Heiltsuk Nation make her contributions invaluable as a collaborator. She is a key coordinating figure for the many facets of the Hakai research project in Bella Bella and is managing the development and direction of the community component of this research. Together with Nancy and Dr. Dana Lepofsky (Department of Archaeology, Simon Fraser University), Jennifer has developed and organized a multi-disciplinary research project focusing at Hauyat on the north coast of Hunter Island in Heiltsuk territory—an area of longstanding cultural use and occupancy).



Jennifer Carpenter and Dr. Ken Lertzman (SFU) en route to Hauyat from Bella Bella.



Dana Lepofsky, Ph.D., Professor in Archaeology, Simon Fraser University

Dr. Dana Lepofsky is interested in the in the social and ecological impacts of past human interactions with their environment. Dr. Lepofsky incorporates diverse technical and methodological approaches in her research, including household archaeology, regional surveys, paleoethnobotany, and detailed paleoecological studies. She is collaborating with the Jennifer Carpenter and the Heiltsuk First Nation, and Nancy Turner on the Hunter Island Project, investigating Heiltsuk management of and interactions with the Hauyat watershed. She is directing the work of her PhD student Julia Jackley on this project. Julia, with Heiltsuk archaeologists Elroy White and Josh Vickers, conducted archaeological surveys of the watershed in the summer of 2012 and 2013.

Nancy Mackin, PhD, Architect AIBC, LEED AP, Adjunct Professor, University of Victoria

Dr. Mackin has a PhD from University of British Columbia in Architecture, Landscape Architecture and First Nations Studies. She also holds a Masters of Advanced Studies in Architecture, UBC, and a BA (Music) from University of Western Ontario. She practices her love of architecture and teaches in communities throughout northwestern Canada, with a focus on landscapes and building designs of indigenous peoples. Nancy has been collaborating with Dr. Turner on a SSHRC funded project, *“Bringing the Food Back Home: Indigenous Food Systems and Place in Western Canada, a research project on ethnoecological renewal of traditional plant foods,”* for the past few years. In this project, also funded through a grant from Health Canada, she has been working with the Gwich’in First Nation on the reconstruction of moss houses traditionally built by Gwich’in women when they are on the land obtaining food. This research was shared during an intensive ethnobotany course delivered by Dr. Mackin and Dr. Turner in the Nass Valley in June.



Dr. Dana Lepofsky, SFU, and Dr. Ron Trosper, University of Arizona en route to Hauyat, Hunter Island.



Dr. Nancy Mackin examines traditional cedar woven basket at the Wilp Wilxo'oskwhl Nisga'a Course—Biology 350: Ethnobotany in the Nass Valley.



Hunter Island Project field staff and Heiltsuk Integrated Resource Management listen to Heiltsuk advisor, before heading out for field research at Hauyat.



4. Major Research Activities

Changing Landscapes: Ethnoecological insights into change, resilience & continuity on the BC Coast

This research project is a collaborative effort with the Heiltsuk Nation (Heiltsuk Integrated Resource Management Department-HIRMD) at Bella Bella, Dr. Dana Lepofsky (Department of Archaeology, Simon Fraser University), and Nancy Turner at the School of Environmental Studies, University of Victoria, together with their students and associates, under the guidance of Jennifer Carpenter, with HIRMD.

This project, within the field of ethnoecology (the study of cultural ecological knowledge), is part of ongoing and projected work to examine the complex web of relationships among people, plants, animals and ecosystems along the central coast, extending back over the past several thousand years and projecting into the future. It also fits into Dr. Turner's broader research on the BC Coast and in the Interior on past, present and future importance of plants and habitats for Indigenous Peoples, and the interrelationships and processes that people have developed to enable continued use of lands, waters and resources in culturally relevant and sustainable ways.

The complexities of human occupation, traditional resource management systems, and human relationships with other species along the central coast are viewed through a multi-lens approach. The underlying hypothesis of this research at and near Hauyat on the northern coast of Hunter Island (and elsewhere in Heiltsuk territory) is that many of the current ecosystems there – from clam gardens, to riverine salmon harvesting areas, to estuarine root gardens, to crabapple groves (and later, fruit orchards), to berry patches and cedar and yew stands – have historically anthropogenic origins or influences, reflecting integrated management practices that may well date back over millennia. In particular this research examines how various human resource management and production systems (for food, clothing, shelter and transport) fit together into an integrated whole – ultimately supporting large numbers of very creative and active people along the central coast for hundreds of generations. Furthermore, these resource areas must have interconnected seamlessly, allowing past human populations to produce and process diverse, substantial, relatively predictable and culturally mediated foods, materials and medicines. How, when and where these systems were established are important questions in understanding humans' place in coastal ecosystems. Answering these questions will help determine how, today, resources and resource habitats might be enhanced, rather than diminished and damaged, particularly in the face of climate change.

This summer Dr. Turner was able to complete a plant survey of Hunter Island to identify plants commonly harvested by the Heiltsuk and other coastal First Nations, as well as finding plots where root gardens had been established and maintained by previous generations of Heiltsuk.



Plants found during plant survey of Hunter Island. From top to bottom: Northern riceroot (*Fritillaria camschatcensis*); Pacific crabapple (*Malus fusca*) in bloom; Oval-leaved blueberry (*Vaccinium ovalifolium*); small rock-bound root garden with Pacific silverweed (*Argentina egedii*).



2012/2013 Research Season:

Jonaki Bhattacharyya, Hakai Post-Doctoral Fellow--Research Progress

Dr. Bhattacharyya's project on Hunter Island will enrich the documentation and understanding of how people and animals interact, in the past and continuing into the present, with each other and with the plants in cultivated root gardens and estuaries, through their shared use and management of those places. This research supports current and future ecosystem management and cultural practices within a resource management framework based in the knowledge of local culture and tradition.

During 2012/13, Dr. Bhattacharyya's research focused on human-plant-animal interactions on Hunter Island, particularly investigating the role of estuarine root gardens as key habitat for bears, wolves, geese and other species. In keeping with collaborative social science research practices, the exploratory nature of this research, and emerging Indigenous research methodologies, the scope and focus of the research project are being narrowed down through an iterative process of community consultation, site visits, literature review and discussion with interested academic partners. During November and December of 2012, she began a preliminary literature review, participated in a Hakai Network research gathering at Simon Fraser University, made an introductory visit to Bella Bella to meet with staff at HIRMD and Qqs, and met informally with a number of other research partners and colleagues.

After submitting a research proposal to HIRMD (Research Registration Form) in early 2013, she subsequently revised her research plan based on feedback from Heiltsuk and UVic research partners. In Spring, 2013, six weeks of fieldwork were conducted, including: four weeks engaging in community activities, participatory research, and review of local documentation at Bella Bella; one week at the Hakai Beach Institute on Calvert Island to learn about regional ecology and serve as a social science resource person for the SFU Resilience field course; and one week camping at Hauyat (field research site on north Hunter Island) with the archaeology field crew led by PhD candidate Julia Jackley, making site observations. During this time, HIRMD recommended approval of her research project to the Heiltsuk Tribal Council, and she placed three remote cameras at Hauyat to pilot test wildlife observations. Field site observations focused on the estuary, forest trails, and root plant-sedge areas of Hauyat (Fanny Cove, north Hunter Island). Her literature and cultural documentation has continued, as well as refining the scope of the research, methodological design and interview questions.

During her fall field visit in September 2013, Dr. Bhattacharyya returned to Bella Bella to retrieve the remote cameras, and pilot test interview questions with traditional knowledge specialists and



Bunchberry (*Cornus unalaskensis*) on Calvert Island, BC.



Shoreline garden (Pacific silverweed-*Argentina egedii*) near Hauyat, Hunter Island.



interview structure through preliminary meetings. This progress reflects successful completion of the initial year of this exploratory social-ecological research. Using an iterative approach, she engaged a variety of partners and collaborators in preliminary research that supports the development of focused research questions and appropriate methods for the second year (2014). The preliminary data of wildlife observations captured in the field cameras and results will be documented and analysed during the winter of 2013-2014, in preparation for the next field season.

Heiltsuk Hunter Island Project 2012; Report from Jennifer Carpenter, Culture & Heritage Manager, HIRMD; Director HCEC.

The Tula Foundation grant administered through Dr. Turner enabled community participation in the Hunter Island Project: including supporting salaries for Heiltsuk field assistants Elroy White, MA SFU Archaeology, and Joshua Vickers UNBC Archaeology Field Course graduate 2011, and local boat charters. In kind contributions from HIRMD Culture and Heritage Department, include: compiling tables to support site re-visits, place names, person names, and recorded oral traditions from the area, and participation in collaborative planning and implementation sessions with SFU and UVic colleagues both for the 2012 season and for the larger multi-year, multi-disciplinary project.

As part of the Changing Landscapes project, a local oral history project was coordinated out of the Heiltsuk Cultural Education Centre (HCEC). This engaged and trained two Heiltsuk summer students and a HCEC Resource Centre Assistant in interviewing Elders about “smokehouse days” at Hauyat. Elroy White also assisted in completing consent forms to enable access to transcripts of community interviews he deposited at the HCEC during his graduate research on stone fish traps in 2004. The project is building on the strength of previous research and at any given time, who has been interviewed on which projects in the community is being tracked along with accompanying access, source, and other administrative records for information on file at the HCEC. In particular, information “that serves to demonstrate some aspect of (First Nation’s) relationship to land and sea.” will be kept available for posterity.

Julia Jackley, SFU PhD candidate is conducting an archaeological survey of Hunter Island (supported by a SSHRC grant through Dana Lepofsky). Over four weeks (2012), Elroy White and Joshua Vickers, through Tula Foundation funding to Nancy Turner, helped Julia re-locate 35 previously recorded archaeological sites, of which 8 were carefully surveyed and/or tested using sub-surface soil probes and augers. An exploratory survey and testing of high-potential areas identified and documented 4 previously unrecorded midden sites, 9 intertidal features, 3 smokehouses, and 4 root gardens. In total, 12 archaeological sites were surveyed and/or tested. In addition, one test unit was excavated to examine the deposits of a root garden, providing evidence of pre-contact human activity within/around this feature.

Conifer oil project, Johanna Wilms PhD candidate

In Germany, Ms. Wilms’ Masters’ research provided her with the background to undertake her doctoral study of conifer essential oils and their cultural roles. Her analysis of a cedar bark mat, gave her an appreciation of the preservative qualities of cedar bark, due at least in part to its essential oils and resins. Later, based on initial conversations with Laurie Whitehead, Lands Manager for HIRMD, and Nancy Turner opportunities were created for Johanna to participate in a collaborative economic development project between the Heiltsuk and other First Nations of the central and north coast of British Columbia. Since essential oils are known to have antibiotic properties, specific testing of these particular



Culturally modified Western red-cedar (*Thuja plicata*) tree found on Hunter Island. This tree is significant because it shows evidence of cedar bark stripping and the charred face indicates fire of some sort, possibly through intentional burning.



oils in conifers will be undertaken by Ms. Wilms to observe their phytochemistry and their potential as antibiotics, as well as determining any possible toxicity. The known application of cedar and other conifers in traditional food preparation and storage, and in various medicinal applications, may be better understood through her research.

Berry Garden Research at HBI: preliminary experimental garden

In May 2013, Nancy Turner, with Ken Lertzman and Anne Salomon (SFU), and Jennifer Carpenter began a small experiment at Hakai Beach that can multiply out and, eventually, possibly yield highly productive berries of various kinds for nutritional and educational benefits. Heiltsuk experts, the late Cyril Carpenter and his grandmother, Bessie Brown (as well as Pauline Waterfall and her grandmother Beatrice Brown) spoke of various methods by which berry gardens were established, with transplanting berry bushes, and fertilizing them with ash, broken clamshells, fish remains, and animal remains from trapping. These gardens were apparently customarily established on terraces near waterfalls, and Cyril's grandmother told him about one in particular, along Roscoe Inlet, where you could just pull the berries off the bushes by the handful (personal communication to NT, April 2002).

With permission from Jennifer Carpenter, and from Eric Peterson and Christina Munck, the crew located a good site for a longer term berry garden experiment on a side trail south of the main trail to West Beach, Calvert Island. At this site a stand of red alder was cleared a few years ago, and now there are a number of young berry bushes, mainly salmonberry and red huckleberry growing there, as well as a large number of very healthy robust spiny wood fern plants (*Dryopteris expansa*).

Two large clumped plants of salmonberry (*Rubus spectabilis*) approximately 3 meters apart were selected and staked out and the height and number of stems were assessed. One clumped plant was treated with fish remains and the other served as a control. The two berry bush clumps will be monitored and compared as a preliminary pilot project approach, with the intention of designing and carrying out a more complex experiment, mimicking practices described by Heiltsuk knowledge holders, and perhaps adapting the experiment to include kitchen compost from the HBI. Thanks to Christina Munck, the head gardener at the Hakai Institute has kindly offered to pot a number of sapling red huckleberry plants in anticipation of their being used in a broader berry fertilizing experiment in the coming year. As part of ongoing research on plant management, next summer, the Hauyat research team hopes to visit the location of the Roscoe Inlet berry garden described by Cyril Carpenter. Ideally the findings will be beneficial in actual enhancement of berry production for use in the HBI kitchens for nutritional and educational purposes. If initial experiments provide positive results, the experiment could be expanded to other areas and berry species to provide more diverse locally produced food at Hakai and elsewhere in the region. More broadly, the experiment could be beneficial for Heiltsuk and other First Nations, by highlighting an effective and important management strategy for food production. The experiment is an example of “learning by doing” and develops a more detailed understanding of customary management practices that have been used widely in the past but whose details are less known to present generations.



Ken Lertzman, Anne Salomon and Christina Munck at the site of the Hakai berry garden experiment at the Hakai Beach Institute, Calvert Island BC.



Salmonberry (*Rubus spectabilis*) on Calvert Island, BC.



Gitga'at Climate Change Project

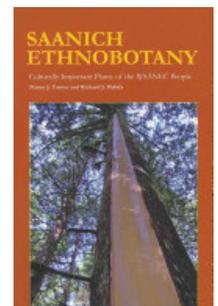
Global climate change has been well studied and there is little doubt that it will not only intensify in the future, but that it is already underway. Combined, locally made records of temperature, precipitation, weather anomalies and changes in species abundances will help people to recognize the effects of climate change, and therefore to better adapt to climate change, and possibly to counteract some of its negative effects. Gitga'at community members collectively travel widely over the lands and waters of their territory on the north coast of BC and along Douglas Channel, and make many important observations on a day-to-day, seasonal and annual basis of health and abundance of culturally important species, unusual weather events and other environmental indicators. These observations and understandings are often shared informally, or sometimes formally, among community members, but may not be recalled or compiled in any systematic way. Yet, they could, collectively serve as a very important, locally relevant record of environmental change not only for present generations, but also for generations to come. The Gitga'at Climate Project hopes to incorporate everyone's observations and interpretations in a systematic way into a "community knowledge bank" with local information that can be accumulated and analyzed over time. The information in this bank, when taken as a whole, will reflect not only major changes, but small-scale, incremental changes to species and environmental features that are of importance to the Gitga'at. In close collaboration with the Hartley Bay Band and their staff members Dr. Chris Picard, Sarah Stoner and Michael Reid and climate researchers from Concordia University (Dr. Damon Matthews and master's student Cassandra Lamontagne), Dr. Turner is advising on the establishment and methodology of the community knowledge bank for environmental change observations and insights. The research team are currently preparing a funding proposal for this project.



Road sign in Hartley Bay outlining Gitga'at Territory and showing the proposed oil tanker route along the central coast, which they strongly oppose.

5. Writing Projects

The past twelve months allowed Dr. Turner time to undertake several writing projects. In particular she was heavily occupied with three of these projects. In December 2012, Dr. Turner was delighted with the completion and publication of *Saanich Ethnobotany*—a project developed with Richard Hebda, Elsie Claxton (Tsawout) and Violet Williams (Pauquachin), as well as earlier Saanich plant experts Christopher Paul and David Elliot, over many years. The book offers the teachings of Elsie and Violet about important plants for their children, grandchildren and great-grandchildren. The book will be reviewed by Andrew Cienskie in the upcoming BC Studies Autumn issue: <http://www.bcstudies.com/reviews.php?id=838876>.



Her major writing project was completing her upcoming two volume book titled, *Ancient Pathways, Ancestral Knowledge: Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America* (slated for publication in Spring 2014). In it, she establishes a methodological model, combining a long-term view, from the late Pleistocene to the present, of the changes in ethnobotanical systems (including plant management, classification, uses, distributions, and exchange) for a large, complex and important region. She follows Indigenous inhabitants over time and through space, defining a paradigm of sustained resource use, and highly sophisticated management, documenting how these peoples actively participated in their environments, managing and cultivating their valued plant resources and maintaining and enhancing key habitats that supported their dynamic cultures for thousands of years.

Her other major project, a labour of love, involved co-editing with Dr. Dana Lepofsky, SFU, a special issue exploring the history, scope and current state of ethnobotany in BC, for which both Nancy and Dana have contributed co-authored chapters. (see BC Studies no. 179 (Autumn 2013) *Ethnobotany in British Columbia: Plants and People in a Changing World* www.bcstudies.com --available in November, 2013).



New publications

- Saanich Ethnobotany: Culturally Important Plants of the WSÁNEĆ People*. 2012. Nancy Turner and Richard Hebda. Royal BC Museum, Victoria, BC.
- Back to the Clam Gardens*. Nancy J. Turner, Kim Recalma-Clutesi, and Doug Deur. *Ecotrust Newsletter*, Fall 2012. <http://blog.ecotrust.org/inside-the-clam-gardens-a-source-of-coastal-sustenance/>
- Global Environmental Challenges to the Integrity of Indigenous Peoples' Food Systems*. Turner, Nancy J., Mark Plotkin and Harriet Kuhnlein. (2013).pp. 23-38 (Chapter 3) in: *Indigenous Peoples' food systems & well-being: interventions & policies for healthy communities*, eds. Harriet V. Kuhnlein, Bill Erasmus, Dina Spigelski and Barbara Burlingame, Food and Agricultural Organization of the United Nations, Rome, Italy and Centre for Indigenous Peoples' Nutrition and Environment, Montreal, Qc. URL: <http://www.fao.org/docrep/018/i3144e/i3144e00.htm>
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- Ecosystem Services and Beyond: Using Multiple Metaphors to Understand Human-Environment Relationships*. 2013. Raymond, Christopher, Gerald Singh, Karina Benessaiah, Joanna Bernhardt, Jordan Levine, Harry Nelson, Nancy J. Turner, Bryan Norton, Jordan Tam, Kai M. A. Chan. *Bioscience*, 63(7), 536-546.
- Blundering intruders: multi-scale impacts on Indigenous food systems*. Turner, Nancy J., Fikret Berkes, Janet Stephenson and Jonathan Dick. *Human Ecology*. Published online, June 9, 2013; <http://link.springer.com/article/10.1007%2Fs10745-013-9591-y>
- The nutrition of Lodgepole pine cambium (Pinus contorta Dougl. ex Loud. var. latifolia Engelm. ex S. Wats.): a springtime candy of people and animals in British Columbia*. Dilbone, Megan, Nancy J. Turner, and Patrick von Aderkas. *Ecology of Food and Nutrition* 52 (2): 130-147. URL: <http://dx.doi.org/10.1080/03670244.2012.706013>
- To Feed all the People": Lucille Clifton's Fall Feasts for the Gitka'a Community of Hartley Bay, British Columbia*. Turner, Nancy J., Colleen Robinson, Gideon Robinson and Belle Eaton. pp. 324-363 in: *Explorations in Ethnobiology: The Legacy of Amadeo Rea*. *Journal of Ethnobiology*, special issue, edited by Marsha Quinlan and Dana Lepofsky. URL: <http://ethnobiology.org/publications/contributions/explorations-ethnobiology-legacy-amadeo-rea>
- Sustained by First Nations: European Newcomers' Use of Indigenous Plant Foods in Temperate North America*. Turner, Nancy J. and Patrick von Aderkas. *Acta Societatis Botanicorum Poloniae* 81(4): 295-315. URL: <https://pbsociety.org.pl/journals/index.php/asbp/issue/view/88/showToc>
- Conserving the World's Last Great Forest Is Possible: Here's How*. Badiou, Pascal and 22 other authors, including N. Turner. (2013). A science/policy briefing note issued under the auspices of the International Boreal Conservation Science Panel and Associates.
- Five Issues of Concern Regarding Mining in Canada's Boreal Forest. A science and policy briefing note...*Jacobs, John and 10 other authors, including N. Turner (2013). International Boreal Conservation Science Panel and Associates. March, 2013.
- Being Gitka'a'ata: A Baseline Report on Gitka'a'ata Ways of Life, a Statement of Cultural Impacts Posed by the Northern Gateway Pipeline, and a Critique of the ENGP Assessment Regarding Cultural Impacts*. Satterfield, Terre, Leslie Robinson, and Nancy Turner. (2011). Submission to the Joint Review Panel for Review of the Enbridge Northern Gateway Project, starting December 2011.



In Press

Ancient Pathways, Ancestral Knowledge: Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America. 2 volumes, under final review by McGill/Queen's University Press.

Ethnobotany in British Columbia: Plants and People in a Changing World. *BC Studies* 179 (Autumn 2013), Special Issue, co-edited with D. Lepofsky:

"Introduction to *Ethnobotany In British Columbia: Plants and People in a Changing World*," Lepofsky, Dana and Nancy J. Turner. In press Fall 2013. in *BC Studies*, 179 (Autumn 2013).

"Plant Management Systems Of British Columbia First Peoples," Turner, Nancy J., Douglas Deur and Dana Lepofsky. In press Fall 2013. in *BC Studies*, 179.

"Plants in Language and Classification Among BC First Nations," Turner, Nancy J., Carla Burton and Jan van Eijk. In press Fall 2013. in *BC Studies*, 179.

"*Ethnobotany in British Columbia: Plants and People in a Changing World.*" Turner, Nancy J. and Dana Lepofsky, editors. In press Fall 2013. in *BC Studies*, 179.

"Conclusions: the Future of Ethnobotany," Turner, Nancy J. and Dana Lepofsky. In press Fall 2013. in *BC Studies*, 179

"We might go back to this; Drawing on the past to meet the future in northwestern North American Indigenous Communities." Turner, Nancy J. and Pamela Spalding. 2013. *Ecology and Society*, special issue on "Traditional Ecological Knowledge and Resilience in the context of Global Environmental Change", edited by Erik Gómez-Baggethun, Victoria Reyes-García, and Esteve Corbera.

6. Presentations and Major Events

Dr. Turner was very fortunate to welcome several interesting and prestigious guests to the University of Victoria, this past year. In the fall, world renowned food expert and ethnobiologist Dr. Gary Paul Nabhan, Kellogg Endowed Chair in Food and Water Security in the Southwest Borderlands, at the Southwest Center, University of Arizona, in Tucson visited as a University of Victoria Lansdowne scholar, and delivered two inspiring lectures at UVic about his research into the present and future effects of climate change, especially as it impacts the relationships between food species and their pollinators. Dr. Nabhan's former student, Dr. Kanin Routson, a specialist in crabapple genetics, accompanied him. On the same rich Thanksgiving weekend, she (in collaboration with Roger Charles, Director, Horticulture Centre of the Pacific) hosted British-born American academic, journalist, activist and writer, Dr. Raj Patel, and Valerie Segrest, Muckleshoot Community Nutritionist and Native Foods Educator for the Northwest Indian College's Cooperative Extension Department, and Dr. Kanin Routson, University of Arizona. They visited Fiona Hammersley-Chambers farm in Metchosin, had dinner at Sooke Harbour House with Dr. Sinclair and Frederique Philip, visited the Sooke forest property of Roger Charles and family, toured the heritage fruit farm of Dr. Robert and Verna Duncan, and the Chambers family at Madrona Farms.

In March Dr. Turner was honoured to deliver the oration for a Special Convocation honoring Dr. Vandana Shiva with the Degree of Doctor of Laws, Honoris Causa. Dr. Shiva is a physicist, food security expert, ecofeminist, activist, and staunch promoter of true biocultural sustainability. Born and raised, and living in India, she can rightfully be named a citizen of the world. Dr. Shiva is an outstanding scholar and activist, who has, singlehandedly, changed the way many of us think about our food systems and environments. Trained in academic traditions and molded by life experience, she has used her talents



Dr. Vandana Shiva after delivering her inspiring address, "The Future of Food", at a Special Convocation in her honour.



as analyst and communicator to focus world attention on some of the destructive aspects of consumerism, industrialization and globalization.

Throughout the year, Dr. Turner was privileged to conduct several field excursions (and undertaking plant surveys) throughout British Columbia, Washington State and in Europe where she met with old friends, made new connections and had an opportunity to make several presentations on her work and research.

September 2012.

A Beautiful Meeting Place: Salmon River Estuary as an Eco-Cultural Centre. Meeting Our Aboriginal Neighbours Again for the First Time: "Ancient Secwepemc Wisdom meets Contemporary Science." Workshop Sponsored by: Switzmalph Cultural Society and First United Church, Salmon Arm, B.C., September 22.

Introductory talk, Hakai Institute Community Meeting, Hakai Research Report, 2011-12, Bella Bella (with Eric Peterson and Hakai research team), September 15, 2012.

October 2012.

Hosted **Dr. Gary Nabhan's visit to UVic** and SES and introduced his Lansdowne Lecture, *Regional Heritage Foods and Climate Change: The Scrambling of Terroir and its Implications for First Nations Food Security.* and his academic lecture to graduate students and faculty: *Landscape-level pollinator recovery, food-chain restoration & citizen science.* [see Turner, Nancy J. (2012). Food Security hero Dr. Gary Nabhan visits Victoria/ Le Dr Gary Nabhan, hero de la sécurité alimentaire, visite Victoria. Slow Food Canada e-newsletter: <http://www.slowfood.ca/food-security-hero-dr-gary-nabhan-visits-victoria-le-dr-gary-nabhan-hero-de-la-securite-alimentaire-visite-victoria/> [accessed October 21, 2012].

Hosted **Dr. Raj Patel** who delivered a lecture for the Horticultural Centre of the Pacific (HCP), *Stuffed and Starved: Markets, Power and the Hidden Markets of World Food Systems.* Co-organized visit of Gary Nabhan, Raj Patel and Valerie Segrest to UVic and Victoria region with Roger Charles, Director, Horticultural Centre of the Pacific.

Workshop on pit-cooking and edible wild plants for staff of Mountain Equipment Co-op (MEC) at Wildwood, Yellowpoint, with Jay Rastogi, Ecoforestry Institute, Cedar, BC.



Dr. Raj Patel and Dr. Gary Nabhan take a break at Sooke Harbour House while on a horticultural tour of southern Vancouver Island.



In November, Dr. Turner was very pleased to attend the graduation ceremonies and special recognition ceremony at First Peoples' House of her former students, Dinlen Edödsi/Dr. Judith Thompson of the Tahlitan First Nation (left) and Leigh Joseph of the Squamish First Nation (opposite page left).



speaking



November 2012.

The Best Seaweed on the Coast! Edible Red Laver Seaweed as a Cultural Keystone Species. Public lecture, Shaw Ocean Discovery Centre, Sidney, BC.

Presentation to Social Dimension of Health Colloquium, Health Research and Education, University of Victoria.

Workshop (1/2 day) on ethnobotany, food security and food sovereignty to University of Gastronomic Sciences Group (12 students), visiting with Prof. Daniela Pirani from Pollenzo, Italy (co-presenter, Joan Morris, Songhees Nation).

Celebration of Authors, presentation of "WSÁNEC 'Isaanich Ethnobotany" (with Richard Hebda), Maritime Museum, Victoria, BC.

"The Song of the Salmonberry Bird: Reflections of Diversity in Nature and Culture." Lecture delivered to the Canadian Association of University Women, Victoria, BC.

December 2012.

Presentation for Live@Lunch speaker series, Royal BC Museum on WSÁNEC 'I Saanich Ethnobotany.

January 2013.

"Right in your own backyard!" Foodways of Coastal First Peoples of British Columbia. Lecture with Indigenous food specialist Dolly McCrae and her daughter, Annie Watts, Jan 17, Royal BC Museum, Victoria.

Lecture on the edible seaweed, Pyropia abbotiae to Vancouver Island University class on the biology marine algae (1st year), for Dr. Sandra Lindstrom.

February 2013.

Saanich Ethnobotany and Colonial History of Victoria. Talk to Friends Meeting, Victoria, BC.

March 2013.

Delivered *Oration tribute to introduce Dr. Vandana Shiva on the occasion of the President's Distinguished Lecture and Special Convocation.* University Centre Farquhar Auditorium, UVic.

"Nature and Culture: Reflections on the journey from biodiversity and culture to biocultural diversity." Peter Wharton Memorial Lecture, University of British Columbia Botanical Garden, Vancouver, BC.

Saanich Ethnobotany. Talk to Protection Island Cultural Historical Society, Nanaimo, BC.



Dr. Turner introduced Dr. Vandana Shiva on the occasion of her honorary doctorate from the University of Victoria.



April 2013

Talk on Ethnoecological Knowledge to two First Nations' Studies classes at Northwest College, Prince Rupert, BC.

Are wild and tended plants a basis for a sustainable planet? Invited speaker for Ecology of Biodiversity and Sustainability Seminar series, Università degli Studi de Padova, Scuola di Dottorato in Bioscienze e Biotecnologie, Padova, Italy.

Film interview with Dr. Michael Marker for use in his online course through UBC Indigenous Education: ETEC 521 Indigeneity, Technology, and Education.

Attended the Joint Review Panel Hearings on behalf of the Gitga'at Nation, with Dr.s Terre Satterfield, Leslie Robertson and Cameron Hill.

May 2013

Ethnoecology Resource expert for SFU Coastal Ecosystems and Resilience Field Course organized by A. Solomnn at Hakai Beach Institute, Calvert Island.

Gitga'at Community Knowledge Bank for Understanding Environmental Change: a proposal. Three presentations to Gitga'at Elders, community members and students at Hartley Bay, BC.

Why Care about Indigenous Food? Presentation to the Tsawout community, WSÁNEC, Saanich, BC, May 15, 2013.

June 2013

Ethnobotany course (Biol 350) for Wilp Wilxo'oskwhl Nisga'a (WWN), the post-secondary Nisga'a educational institute of BC (co-taught with N. Mackin)

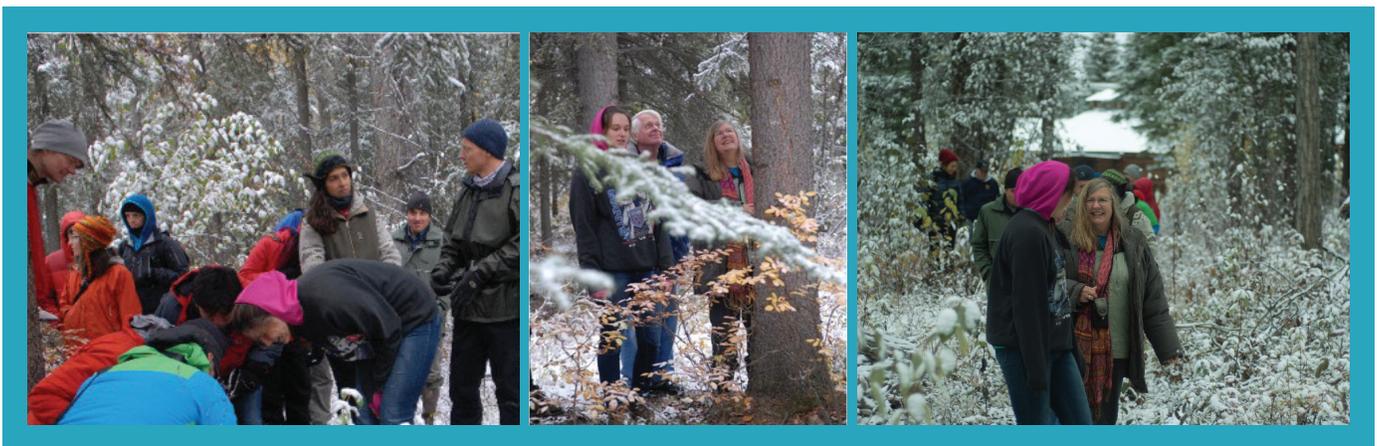
Resource expert for Northwest College field course trip to Telegraph Creek, BC with J. Thompson (FN Studies 110 Ethnobotany: Plants and First Peoples).

More than just Calories: Food, Culture and Sustainability for Indigenous Communities of northwestern North America. Conference for Canadian Fed of Social Sciences and Humanities Canadian Federation of the Humanities or Social Sciences, UVic. Plenary Speaker at the Canadian Association for Food Studies "Engaging Diverse Voices in Food Studies", re: Indigenous Food Systems; CAFS (Canadian Association for Food Studies) Assembly.

Huchsduwachdu Nuyem Jees / Kitlope Heritage Conservancy. Panel presentation to the Protected Areas and Poverty Reduction (PAPR) workshop, Congress 2013, UVic.



As part of her April lecture trip to Padova, Italy, Dr. Turner found wild food harvesting still active in Slovenia. Here, Helena Gregoric (see www.krogotok.net/en/about.html) harvests dandelion greens in a Slovenian public park.



Dr. Turner participates in a field excursion in Fairbanks Alaska as Keynote speaker in the University of Alaska Fairbanks Resilience and Adaptation Graduate Program Retreat.



students

July 2013

With the assistance of Joan Morris (Sellemah) Songhees Nation, conducted an ethnobotanical vegetation survey of Secret Harbour, Cypress Island Washington with Samish Indian Nation.

Ethnobotany workshops and field outings for the Kitasoo SEAS (Supporting Emerging Aboriginal Stewards) Internship program. Klemtu, BC (Phil Charles and Kitasoo/Xai'xais First Nation).

Presentation and report to the Federal Review Panel hearings on the New Prosperity Mine application, for the Tsilhqot'in National Government (via teleconference), Teztan Biny and Surrounding Area of British Columbia as a Cultural Keystone Place for the Tsilhqot'in Nation, Williams Lake, BC, July 2013.

September 2013

Kincentricity, or Kincentric Ecology: What does it mean? Lecture at "Speak to the Wild" Forum, Clearwater, BC (also member of discussion panel at this event). Clearwater BC September 5, 2013/ <http://www.davidsuzuki.org/blogs/panther-lounge/2013/09/thinkers-writers-conservationists-meet-to-discuss-formalized-land-ethic-for-cana/>

Not Just Any Old Place: The Importance of Native American Resource Use and Management. Keynote Address and Discussion leader at the University of Alaska Fairbanks Resilience and Adaptation Program (RAP) and Participant in Graduate Student retreat, RAP students, alumni and faculty September 18-19, 2013.

"Not Just Any Old Place": Importance of ecological diversity in Native American resource use and management. Public lecture and panel discussion, Resilience and Adaptation Program, University of Alaska, Fairbanks. September 18, 2013.

"Where our women used to get the food": Cumulative Effects and Loss of Ethnobotanical Knowledge and Practice; Case Study from Northwestern North America. Workshop with Resilience and Adaptation Program, University of Alaska, Fairbanks. September 18, 2013.

Panel discussant for new film, GMO OMG, Cinacenta, University of Victoria September 12, 2013.

7. Students

The year saw the completion of two of Dr. Turner's Masters students and one doctoral student. Dr. Turner is no longer taking on new graduate students so that she can focus on her research and writing projects before she officially retires. She continues to serve on a number of graduate student committees, including for students from Simon Fraser University, University of Manitoba, and Concordia University.

Masters

Katherine Yvonne Proctor, MSc. (completed August 2013)

*"Renewing Central Coast Salish Blue Camas (*Camassia leichtlinii* (Baker) Wats., *C. quamash* (Pursh) Greene; *Liliaceae*) Traditions Through Access to Protected Areas: An Ethnoecological Inquiry."* (co-supervised with Dr. Brenda Beckwith)

Victoria Wyllie De Echeverria, MSc. (completed May, 2013)

*"Moolks (Pacific crabapple, *Malus fusca*) on the North Coast of British Columbia: Knowledge and Meaning in Gitga'at Culture"*



Kate Proctor, MSc, after successfully completing her thesis defense, pictured here with Dr. Brenda Beckwith (co-supervisor for Kate's thesis and also a former doctoral student of Dr. Turner).



PhD

Carla Burton (completed December, 2012) “*Wilaat Hooxhl Nisga’ahl [Galdo’o] [Yans] Gik’uuhl-gi, Guuñ-sa ganhl Angooga; Using Plants the Nisga’a Way: Past, Present and Future Use.*” co-supervised with Dr. Eric Higgs, SES UVic, Dr. Valentin Schaefer, SES UVic, Dr. Barbara Hawkins, Department of Biology, UVic, and Dr. Leslie Saxon, Department of Linguistics, UVic.

8. Society Memberships and activities

- Slow Food Vancouver Island and Gulf Islands, Honourary Advisor to the Board (2013).
- Marine Planning Partnership’s (MaPP) Science Advisory Committee (member, March 2012-present)
- Hakai Network for Coastal People, Ecosystems and Management (member, Advisory Board, 2011-present)
- International Boreal Conservation Science Panel (member, 2010-present)
- Global Diversity Foundation (President, US Board, 2010-present)
- Indian Journal of Traditional Knowledge (IJTK), Member of Editorial Board, January 2009-present
- Institute for the Preservation of Medical Traditions. Member of Advisory Board. Smithsonian Institution, Washington, DC. 2010-present.
- Society of Ethnobiology (past president, ongoing member)
- Society for Economic Botany (member of book award selection committee)
- American Botanical Council, (Austin, Texas), Member, Board of Trustees, July 1996-present

9. Awards received 2012-13

February 2013. **50 UVic Alumni who made a difference Award.** For demonstrating outstanding citizenship in support of the University

March 2013. **Aid to Scholarly Publications Program (ASPP) grants for book, Ancient Pathways, Ancestral Knowledge,** to be published by McGill Queen’s University press, for each volume.

May 2013. **Outstanding Paper Award Winner at the Emerald Literati Network 2013 Awards for Excellence for the paper: Turner, Katherine L., Fikret Berkes, and Nancy J. Turner. (2012).** Indigenous perspectives on ecotourism development: a British Columbia case study. Special Issue of the *Journal of Enterprising Communities, Indigenous Communities and the Bioeconomy* 6(3): 213 – 229.

10. The Year Ahead.

Dr. Turner and her team look forward to the year ahead. She’ll continue her research in BC, with a special focus on the Central Coast. She has several trips planned to the Hakai area as well as to Hartley Bay, the Central Coast, Italy, Halifax, Ottawa, and North Carolina. As part of her SSHRC funded project for *Bringing the Food Back Home: Applications of archaeological and contemporary food production technologies for the renewal of Indigenous Food Systems in Western Canada*, Dr. Turner and Pamela Spalding will work on the final stages of this project to ensure that the non-confidential research developed through this funding is accessible to First Nations and other researchers. *Bringing the Food Back Home* has sought to gain better insight into key plants important in Indigenous Peoples’ diets and cultures of the past, and in the knowledge of the harvesting, processing and habitat management of these food plants. Field research for this project in the coming year will focus on 2 locations: 1) in the western Arctic, Dr. Nancy Mackin will examine Gwich’in womens’ techniques for harvesting frozen berries as a winter food source; and 2) on the Central Coast, Dr. Turner hopes to work with the Heiltsuk and others to better document traditional techniques of berry gardening.



Dr. Raj Patel removes the vegetables from a pit cook held at, ENVI instructor, Fiona Chambers’ farm in Metchosin, BC.

