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STUDIES IN ANTHROPOLOGY AND ENVIRONMENT

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Traditional Teachings for Sustainable Living

BY NANCY TURNER

NANCY J. TURNER

THE

EARTH'S *Blanket*

TRADITIONAL TEACHINGS FOR
SUSTAINABLE LIVING

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CONTENTS

Preface and Acknowledgements 1

Prologue: The Land and the Peoples 17

1 Wealth and Value in a Changing World 29

2 Land-based Stories of Peoples and Home Places 47

3 A Kincentric Approach to Nature 69

4 Honouring Nature through Ceremony and Ritual 95

5 The Balance between Humans and Nature 127

6 Looking After the Lands and Waters 147

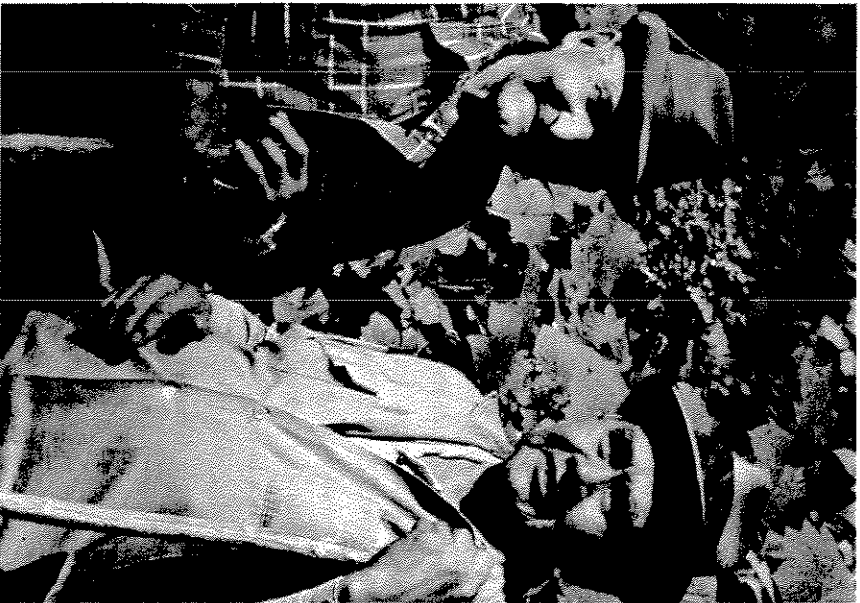
7 Everything Is One 179

8 Finding Meaning in a Contemporary Context 217

Source Notes 241

References 262

Index 284



LEFT TO RIGHT: *Sil'at'imx* elders Sam Mitchell, from *Xaxl'ip* and Baptiste Ritchie, from *Mounn Currie* (Lil'wa).

6

LOOKING *After the* Lands and WATERS

“perfect Eden in the midst of the dreary wilderness of the Northwest Coast,” James Douglas, later governor of the Colony of Vancouver Island, wrote to a friend in 1842. He had just set eyes on what is now the city of Victoria on southern Vancouver Island. He had come to search for a site for a Hudson’s Bay Company fort, and like many newcomers who came before and after him he assumed that the landscape he was admiring so much was virtually untouched by human hands. In fact, the very place where he sited the new fort, and the entire surrounding area—a magnificent parkland of garry oak (*Quercus garryana*) interspersed with open meadows rich with wildflowers—was actually an anthropogenic landscape, a landscape moulded and developed by Coast Salish practices of burning, clearing and large-scale harvesting over probably 5,000 years or more. It is only one example of how indigenous peoples have tended their home places.

Daisy Sewid-Smith, in her address to the “Helping the Land Heal” conference held in Victoria in November 1998, described the philosophy of caring for their territories and “giving back” to Nature that underlies the practical actions of her people, the Kwakwaka’wakw:

Our survival depended on the sea, the rivers, lakes. We completely depended on nature. The garments that we had, the houses that sheltered us, the foods we ate, the medicines we had—Nature supplied it. And that is the reason why we respected Nature as we did. . . . *Mother Nature does not want you to take from her and not put anything back. . . . Nature will not survive if we just keep taking. . . .* (Emphasis added.)

The Kwakwaka'wakw, Coast Salish and other peoples have looked after their lands and waters and “paid back” Nature for all her gifts in many ways. These range from very specific, focussed activities such as tending, sustaining and promoting the growth and productivity of their resources to managing and caring for particular localities and habitats, to adopting all-encompassing attitudes of respect and conservation that directed, and continue to direct, people’s actions and behaviour.

A specific example of how people cared for their environments was shared by Daisy’s friend and elder relative, Chief Adam Dick (*Kwaxistala*). He spent much of his childhood and youth at Kingcome Inlet on the British Columbia mainland, and he learned both practical and spiritual ways of relating to Nature. *Kwaxistala* told my friend and colleague Doug Deur and myself about a term in the Kwak’wala language, *q’waq’wala’rowkw*, which translates as “keeping it living.” This term embodies an entire system of resource maintenance, conservation and enhancement. For example, when it came to harvesting their traditional root vegetables like Pacific silverweed (*Potentilla pacifica*), springbank clover (*Trifolium wormskjoldii*) and northern rice-root (*Fritillaria cannscharensis*), people were careful to leave in or return to the ground some portions of the root or edible bulb to allow it to continue to live and grow. In other words, they made sure to “keep it living.” It was the same with other plants, berry bushes and trees used for the roots, bark, medicine or food they yielded; wherever possible they harvested only portions of the living plants, leaving the rest to grow.

Conflicting Views of Cultivation and Land Ownership

Q’waq’wala’rowkw practices can be termed “cultivation,” in the sense of encouraging and promoting the growth of a plant or population of plants.

There are many examples of “cultivating” traditional resources—both plant and animal, terrestrial and aquatic—among North American and other First Peoples. In British Columbia, peoples of both the coast and the interior applied specific strategies to sustain and enhance their plant and animal resources, carefully monitoring and managing these populations to prevent declines in their numbers or their health.

Anthropologist Eugene Anderson, in his book *Ecologies of the Heart*, points out that Northwest Coast peoples had the technologies, in the form of fish traps, nets and weirs, to completely eliminate the thousands of individual stocks of salmon in creeks and rivers up and down the coast. Yet when the Europeans arrived they found thriving populations of all of the different salmon species everywhere they looked. *Not* destroying the salmon populations was a conscious choice—borne out in careful observation and practice and sometimes encoded in ceremony and social sanctions—to ensure that enough salmon returned to spawn each year. People took care to maintain the riverbeds and lake beds to sustain and nurture the young salmon, enabling them to continue the cycle of life. Not only were people looked after by these means, but so were the bears and other animals depending on the salmon cycles. Sometimes the punishment for harming a river was extreme. Ethnographer Thomas McIlwraith describes a position of “River Guardian” in Nuxalk society at Bella Coola; the person who inherited and was trained for this position had tremendous powers in order to keep the river free from pollution or disturbance while the salmon were running up to spawn. Polluting the river at this time was potentially punishable by death.

Other elders from many parts of the coast and interior describe how, formerly, people were appointed to watch the salmon swimming upriver to spawn. They ensured that enough fish got through to keep the populations healthy before people were allowed to start fishing. Earl Claxton Sr., who as a young man participated in the Saanich reef-net fishery, noted that a hole was always built into the far end of the reef net, allowing some of the salmon entering the net to escape. Earl explained that the salmon were thought of as having families, just like human families, and it was a duty of the fishers to make sure that a certain number of members of each salmon family made it through to the spawning grounds to continue the family line. Shellfish beds—like the abalone sites—were also carefully

maintained. In some places there are still beaches that people developed as intensive clam “gardens,” where large stones were removed and placed along the tide line to help build up the beach, and the shellfish were selectively harvested by size, always leaving enough small ones behind to keep the populations productive.

People also exercised great care in harvesting birds’ eggs, waterfowl and game of various kinds.

Far from being simply opportunistic harvesters of naturally occurring wild fish and animals and random pluckers of berries and roots as the commonly used term “hunter-gatherer” would imply, First Peoples of northwestern North America, and of many other regions as well, were astute and sophisticated caretakers of their plant and animal resources. As a result, large numbers of people resided along the Northwest Coast and they developed complex societal structures, institutions and monumental art over thousands of years.

Like James Douglas, however, Europeans arriving to trade and settle on the Northwest Coast did not generally understand these practices and looked upon the indigenous people as primitive and uncivilized. The Europeans’ attitude—and their lack of understanding or appreciation of the indigenous peoples’ use and tending of their landscapes—had profound consequences, because the Europeans used the First Peoples’ apparent lack of any control over their lands to justify taking them over and converting them to “civilized” purpose.

The newcomers discussed and justified their right to assume ownership of indigenous lands, as recorded by pioneer businessman of the Alberni district Gilbert Malcolm Sproat, later to become Indian land commissioner:

We often talked about our right as strangers to take possession of the district. . . . The American woodmen . . . considered that *any right in the soil which these natives had as occupiers was partial and imperfect as, with the exception of hunting animals in the forests, plucking wild fruits, and cutting a few trees to make canoes and houses, the natives did not, in any civilized sense, occupy the land. . . .* It would be unreasonable to suppose, the Americans said, that a body of civilized men, under the sanc-

tion of their government, could not rightfully settle in a country needing their labours, and peopled only by a fringe of savages on the coast. . . . (Emphasis added.)

Joseph W. Trutch, chief commissioner of lands and works of British Columbia, wrote to the British colonial secretary on 20 September 1865: “I am satisfied from my own observation that the claims of Indians over tracts of land, on which they assume to exercise ownership, *but of which they make no real use* [emphasis added], operate very materially to prevent settlement and cultivation. . . .” Trutch was absolutely determined to usurp the First Nations’ lands and convert them to settlement in the English tradition. He certainly did not make any attempt to understand the indigenous peoples’ sophisticated systems of resource management. Even those Europeans, like James Douglas himself, who considered that the local indigenous people held some concept of ownership of their lands still regarded them as “wandering demizens of the forest,” without any real need for most of their lands or any influence upon them.

The beautiful and parklike landscape of southern Vancouver Island and the surrounding Gulf and San Juan Islands was remarked upon time and again by the new arrivals. For example, Captain George Vancouver, on observing the prairies cleared by indigenous peoples’ burning along the shores of Puget Sound, recorded his pleasure at the sight, but obviously had no understanding of how these landscapes came to be:

I could not possibly believe any uncultivated country had ever been discovered exhibiting so rich a picture. Stately forests . . . pleasingly clothed its eminences and chequered its vallies; presenting in many places, extensive spaces that wore the appearance of having been cleared by art. . . . [We] had no reason to imagine this country had ever been indebted for its decoration to the hand of man.

MANAGING THE LAND WITH FIRE

More recent understandings contradict the original notion of indigenous hunter-gatherers’ limited use of their lands and acknowledge more complex relationships between people who use wild species and the ecosystems

where they occur. Some of the earliest work to indicate peoples' active participation in promoting and maintaining particular ecosystems, with a view to enhancing the growth and productivity of particular plants and animals, was done by ecologists investigating human-generated fire. Pioneering work by Omer Stewart, Henry Lewis, Stephen Pyne, Robert Boyd and others has demonstrated conclusively, for a variety of regions and habitats, that intentional, controlled burning of landscapes by indigenous people played a major role in maintaining grasslands and clearings and reducing brush in woodlands throughout North America, as well as in Australia and other regions of the world.

For most of us, fire is generally regarded as a destructive force that is harmful to forests and other ecosystems. Think of Smokey the Bear, the icon of outdoor fire safety and wildfire prevention. I well remember in my own childhood driving with my family through stark, burned landscapes and being told about terrible forest fires that had swept through them. The image of a signpost near Manning Park, British Columbia, with a giant cigarette hanging from it and the words THE MAN WHO DROPPED THIS SHOULD BE HUNG! is still fresh in my mind. So are the words painted on highway signs all over western North America: PREVENT FOREST FIRES. USE YOUR ASHTRAY.

The damaging effects of a wildfire are undeniable, and the economic losses from burned timber have been immense. However, fire has been a component of ecological evolution for millions of years—long before humans existed as humans—and many species have adapted to withstand or survive fire, at least at certain stages of their life cycles and under certain conditions. We know that some plant species actually require fire to regenerate themselves, just as some seeds must be frozen for a certain length of time to trigger their germination mechanism. For example, lodgepole pine's hard, woody cones mostly remain tightly shut, trapping their enclosed seeds. When the cone scales are heated by fire, they separate and release the seeds. This is why lodgepole pine (*Pinus contorta* var. *latifolia*) stands grow thickly immediately after a blaze. The pines provide a sheltered canopy for the more light-sensitive, shade-tolerant spruces (*Picea* spp.), subalpine fir (*Abies lasiocarpa*) and other species, which will eventually grow up through them and shade them out. Assuming a similar over-all climate, the cycle of forest succession will continue over and over, but

with variations. Where fire occurs in a regular cycle the forest will usually be made up of a mosaic of recently burned patches, variously aged pine stands and mature stretches where spruce or fir predominate.

Lodgepole pine is not the only species with built-in fire-survival mechanisms. Trembling aspen (*Populus tremuloides*), like many perennial plants, has a "meristem bank" in various parts of its trunk and roots. Meristem is plant tissue with the potential to generate growth. If a trembling aspen is burned or cut down (or even when it is still standing), the meristem tissue in its roots can generate sprouts that will eventually grow into new trees. This gives aspen a major survival advantage. As long as the tree's roots are not killed, other stems can grow up to take the place of an individual stem that has been destroyed, and the whole organism with its genetic material and capacity for growth and regeneration can survive for long periods of time, in some cases for thousands of years.

Many perennial grasses have a similar regeneration mechanism. If their leaves are burned or grazed, they will quickly grow back, as long as the underground parts remain intact. Deer and other grazing animals often seek the tender new growth that emerges after a burn, a fact that indigenous peoples in many different places must have noticed long ago. Creating new pasture or grazing grounds for both domesticated and wild animals is a major reason that people give for burning their meadows and grasslands.

Just as in the grasslands, fire helps diversify woodlands. Garry oak (*Quercus garryana*) trees, and a number of other oak species, are well known for their ability to regenerate after being burned or cut. In an oak parkland—a mix of oak woods and open meadows—periodic burning may kill individual trees, especially young ones, but chances are that some will sprout new shoots within a year, and if left undisturbed the sprouts will grow into mature trees. Periodic burning can create a sort of shifting equilibrium, a patchwork of areas where some are maintained as meadow, with all the trees and shrubs burned off, others as developing bushlands, with important habitat and food sources for birds and animals, and still others as more mature woodland. All of these habitats sustain people and the grazing animals they hunt, and each provides important foods, materials and medicinal plants. The fires are also said to reduce the numbers of insect pests, which keeps the oaks and other plants healthier.



Garry oaks (Quercus garryana) in snow, Victoria. PHOTO BY ROBERT D. TURNER

In addition, burned areas stimulate the growth of mushrooms, such as morels, which people enjoy eating.

People also sometimes burned individual fruiting bushes, such as Saskatoon berry and hazelnut, to promote their growth and renew their vigour. Daisy Sewid-Smith explained how the Kwakwaka'wakw tended their berry bushes:

Now, another myth is that we did nothing with our berry bushes—they just grew. That is not true, because, berry bushes were pruned, weeded and they also singed them a bit. Just enough. And, it's interesting that the way they cared for the berry plants—what they did with the berry plants was to singe it as I said, so that it would come back and the following year it would have more berries. Now, when our babies are ten months old, we cut the baby's hair, and we singe it as well. And that is because, that baby now at ten months, we call it [a word that means], 'out of danger. It's going to live now.' And we singe the baby's hair so the hair would grow back in abundance. And he will be handsome—or she will be beautiful. So that is similar to what we used to do with the berry bushes.

Franz Boas recorded and translated a Kwakwaka'wakw address to food and medicine plants, which shows that people burned berry bushes, apparently individually, as a management technique. In this address, which a woman would give before she picked berries, the type of berry is not specified; even in the original Kwak'waka language, only a general term for fruit is used:

I have come, Supernatural Ones, you, Long-Life-Makers, that I may take you, for that is the reason why you have come, brought by your creator, that you may come and satisfy me; you Supernatural Ones, and this, that you do not blame me for what I do to you when I set fire to you the way it is done by my root (ancestor) who set fire to you in his manner when you get old on the ground that you may bear much fruit. Look! I come now dressed with my large basket and my small basket that you may go into it, Healing-Women; you Supernatural Ones. I mean this, that you may not be evilly disposed towards me, friends. That you may only treat me well. . . . (Emphasis added.)

As well as burning meadows, woodlands and individual plants, some peoples have used fire to renew and maintain wetland ecosystems. In the boreal forests of northern Alberta, the Chipewyan and other peoples set fire to their cattail (*Typha latifolia*) marshes at the end of the season to clear out the old, dead leaves and fruits and to create more areas of open water.

The traditional fires were lit with care and with attention to the weather, topography and timing. Usually, in western North America, people set their fires in the fall, just before the rains started. The fires burned quickly, running along the ground, and seldom spread to the trees. Dennis Martinez, indigenous ecologist and ecocultural restoration expert, calls these “cold fires” because they move through the dead grasses and fallen leaves without really heating up either the soil or the forest canopy.

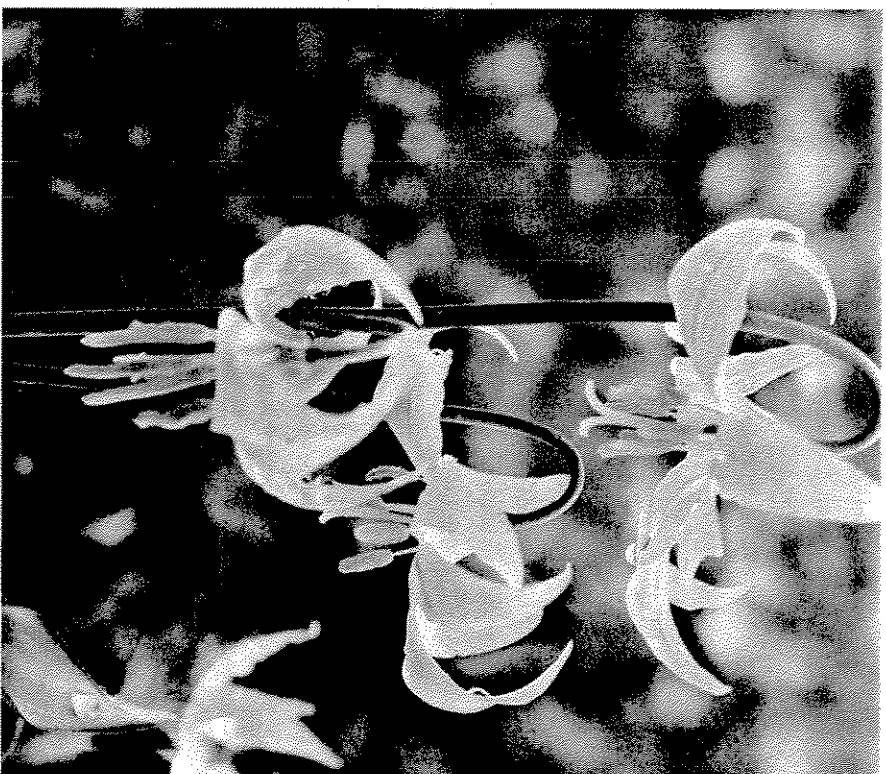
An account from an article on colonization of Vancouver Island describes this type of fire in the vicinity of Victoria in the days around the time of the gold rush of 1858, when the small fur-trade outpost was being converted into a major city: “Miles of the ground were burnt and smoky, and miles were still burning. The Indians burn the country in order to [promote] . . . more especially, the roots which they eat. The fire runs along at a great pace, and it is the custom here if you are caught to gallop right through it; the grass being short, the flame is very little; and you are through in a second. . . .”

The practice of burning areas to promote the productivity of plant resources is represented in the stories that go back to mythical times. For example, the text of a Nlaka'p'mx narrative recorded by James Teit mentions a girl who had four brothers who had “burned a piece of the mountainside so that the *skamitch* [*sk'émic*] root [*Erythronium grandiflorum*, yellow glacier lily] should yield a better crop, and it was here that the little sister went to dig roots.”

One of the most interesting and detailed accounts of intentional burning for upland forested areas of southwestern British Columbia is a story told by Lil'wat (Sli'ad'imx, or Pemberton Lillooet) elder Baptiste Ritchie of Mount Currie. His general translation is provided here in its entirety.

Burning Mountainsides for Better Crops

I am telling you about the doings of our forefathers, why they always did well wherever they went for the purpose of picking all the berries and roots like 'potatoes' [*sk'amits*, yellow glacier lily] that they are. They used to burn one hill and use the other. When there were a lot of bushes ["sticks", i.e., "when it got bushy"] then the ripe berries disappear and the roots like 'potatoes', *skimuta* [*Lilium columbianum*, tiger lily], *skwenkwina* [*Claytonia lanceolata*, spring beauty, or mountain potato]



Yellow glacier lily (Erythronium grandiflorum). PHOTO BY ROBERT D. TURNER

disappear when it gets too bushy. Then they burned. It was marked out and there one did his own burning. That is what they did so that they could go here and there to pick berries. Each one watched that it was really burnt. All the other bushes were removed. Then the berry bushes grew again. The roots like 'potatoes,' the *skimuta*, the *skwenkwina*, all those that were eaten by us, that is where they grow.

It was a few years—I guess it was almost around three years—before those things grew there again. Then there were really lots of berries. Everything was all really fertile. They rarely burnt the big trees. Only the small ones, only around the bushes was burned. It was

the same with one hill as with another. That is why we see, we who are grownup Indians, that all the hills seem to be burnt, because that was what they did to their own hills. They burned them so that they would get good crops there. They told others who went there, "Do the same at your place, do the same at your place." Their own hills were just like a garden.

But now, because the white man really watches us, we don't burn anything. We realize already, it seems the things that were eaten by our forefathers have disappeared from the places where they burned. It seems that already almost everything has disappeared. Maybe it is because it's weedy. All kinds of things grow and they don't burn. If you go to burn then you get into trouble because the white men want to grow trees. Because they changed our ways they do good for us and we eat the food that the white men use. Then we forget the good food of our earliest forefathers. The roots like 'potatoes,' the *skimuta*, the *skwenkwina*, all of those were good to eat.

Now they have disappeared because the hills grew weedy and no one seems to tend them, no one clears there as our forefathers did so thoroughly.

That is another story for you folks. Why our forefathers burnt. Now you must do it again. Now you know why everything that was near here just disappeared. There we used to go berry picking. There we went berry picking long ago. Now nothing. The food plants have now all gone. They have disappeared. It seems that everything and anything grows on the hills. It has become covered with bushes all over.

Where we used to pick berries, oh, they were really plentiful! Right here where our house is situated now [in Mount Currie], that is where we used to come to pick berries, like gooseberries [*Ribes divaricatum*, *swizl*]. Now there are no gooseberries near us. Now the other berries are the same. They have all disappeared. We named other grounds of ours around here; called them 'The Picking Places' because that is where we went to pick berries. Now you will not find one single berry there.

That is my story to you about how those things which our forefathers are have disappeared. That is all. You will still know, now that I

am reminding you folks, what the old fashioned ways were like. I am Baptiste Richie here in Mount Currie.

I am *En Chinemgen*. That is all.

Indigenous elders all over British Columbia have noted that their wild root vegetables and berry plants grow more productively after a fire and that the plants will continue to produce well for at least two or three years afterwards. This includes a whole range of plant resources that respond positively to fire: yellow glacier lily, spring beauty, tiger lily, camas (*Camassia* spp.), wild nodding onions (*Allium cernuum*), strawberries (*Fragaria* spp.), trailing blackberries (*Rubus ursinus*), blackcaps (*R. leucodermis*), huckleberries and blueberries (*Vaccinium* spp.) and Saskaroon berries (*Amelanchier alnifolia*). Secwepemc elder Mary Thomas, for example, recalled traditional burning by her parents and grandparents:

A lot of people couldn't believe that our people deliberately burned a mountainside when it got so thick nothing else would grow in it. They deliberately burned it, at a certain time of the year when they knew there were rains coming, they'd burn that, and two years, three years after the burn there'd be huckleberries galore and different vegetations would come up that were edible [roots, berries] . . .

There are still places around British Columbia that the elders identify as having been burned over periodically within their own lifetimes or those of their parents and grandparents. Botanie Valley near Lytton is one such locality, and Neskonlith Meadows near Chase is another. Although it has been a long, long time since people intentionally burned in these places, they are still renowned for their diversity of culturally important species and their productivity. Even on the coast, people used to burn places to promote the growth of berries. Ernie Hill Jr., hereditary Eagle chief of the Gitga'at of Hartley Bay, told me about an island called *Lax Ngwelk*, off the west coast of Banks Island, that was called "burned over continuously" because the people regularly set fire to it to keep it open for blueberry production. Similarly, the elders of the Haida, Nuxalk, Heiltsuk and Nuu-Chah-Nulth Nations recalled places that were burned and

where the huckleberries, salal berries (*Vaccinium shallon*) and other kinds of berries were notably abundant as a result.

My friend Arvid Charlie of the Cowichan (Q̓w̓'uts̓'un) Nation was told by his great-grandfather *Lescheem* that people used to burn the coastline meadows in a place to the west of them, possibly Beacon Hill Park in Victoria, to promote the growth of wild strawberries. Bob Akerman, who was born on Saltspring Island in the early 1900s and whose grandmother was Cowichan and a relative of Arvid's, remembered two places on Saltspring Island where the people used to burn the slopes: one just behind Fulford Harbour and one at the base of Mount Maxwell. In particular, he said, they burned to increase the productivity of trailing blackberries, blackcaps, strawberries and camas lilies. The Gulf Islands and the San Juan Islands were well known for their periodic fires, as were the prairies of Puget Sound in western Washington and other valleys such as the Willamette in Oregon. Not only did the burns promote the growth of berries and edible root vegetables such as camas lily and bracken fern (*Pteridium aquilinum*), they also produced good forage for deer and elk, which in turn aided hunters as well as the wildlife.

Today, within a relatively brief period of time—less than a century—the clearings and meadows of oak parklands are gone from many of their original locations and those remaining have declined significantly in biological diversity, at least of native species. Around Victoria, even the places that have not succumbed to urban development are not the same as they used to be. A photograph of Uplands Park in Oak Bay taken by C.F. Newcombe in 1892 shows big, old, spreading oak trees underlain by grassy wildflower meadows. Today there is dense bush—mostly thickets of native shrubs: snowberry (*Symphoricarpos albus*), oceanspray (*Holodiscus discolor*), Indian plum (*Oenothera crassifolmis*) and wild rose (*Rosa nutkana*)—as well as dense growths of introduced Scotch broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus discolor*) and English ivy (*Hedera helix*). The grasses in the remaining meadows are almost entirely introduced. The same is true at Cedar Hill Park, Mount Douglas Park and the University of Victoria campus, all areas with vestiges of the original managed oak parkland vegetation but altered significantly at least in part by stopping the fires.

Impressive recent efforts have been made to mimic traditional burning practices and possibly to reintroduce fire to the landscape in places where it used to occur on a regular basis. But prescribed burning is fraught with difficulties. Today's fires usually burn very hot and are highly destructive, in part because they are less frequent than previously and because they usually occur in the hottest, driest part of the year. Because of the higher "fuel load," they often burn off the organic materials in the soil and, jumping into the tree crowns, burn hot and uncontrolled, killing virtually everything in their path. This is the kind of blaze that burned in Yellowstone Park in 1988, in Penticton in 1994, at Mount Ida (*Kelazscen*) near Salmon Arm in 1998, in the vicinity of Kelowna and Kamloops in 2003 and near Lillooet and in the Chilcotin Plateau in 2004. The elders who talk about these fires say they never would have been so hot or so devastating if people had been allowed to practise their traditional burning, every few years, first in one place and then in another.

Recent attempts at traditional burning on Yellow Island in the San Juan Archipelago in Washington State have been promising. Ecologist Peter Dunwiddie, The Nature Conservancy and a crew of interested assistants and volunteers have been studying the effects of fire in the grassy meadows on this island. They have burned areas, using a drip torch and plenty of water sprayers to curb the flames if they become unruly. In these trials, just one year after burning, wildflowers such as western buttercup (*Ranunculus occidentalis*) and blue camas (*Camassia leichlinii*) were more abundant than ever. Grasses were suppressed, and so were mosses and lichens. However, introduced, weedy species were not curbed and may actually thrive after fires, which is a large concern. Reinstating periodic burning to restore the oak parkland habitats and camas meadows to resemble past conditions is just not that simple. There are still too many unknowns, as my friend Brenda Beckwith, an ethnocologist who has studied these ecosystems for many years, attests.

Managing Species and Habitats: Environmental Stewardship

Fire is an important but by no means singular tool for maintaining lands and resources. Many other techniques have been applied on both small and large scales, over short spans of time and over generations. Ethnecologist

Kat Anderson has been a pioneer in our understanding of the sophisticated resource management systems of Native Californians. Her articles and books describe a number of specific techniques for pruning or cutting back shrubs to the ground, called “coppicing,” and for thinning and tilling edible root plants, which are known technically as “geophytes.” These and related techniques are being increasingly documented as having been used by “hunter-gatherers” in many places. Brenda Beckwith has found in her work on southern Vancouver Island that even the digging and churning up of the soil that is associated with harvesting camas bulbs may create special conditions for holding moisture and nutrients. The small depressions and uneven surfaces that result may be advantageous to the germinating seeds and developing bulbs, and they may help perpetuate the camas populations in an area. These cultivation practices, Brenda maintains, together with fire, likely represented an integrated resource management system in the past.

Paul Minnis, an archaeologist who studies ancient plant remains, and Wayne Elisens, a botanist, recently edited a book called *Biodiversity and Native America* that compiles ways in which indigenous peoples from across North America have protected and promoted their resources. Their examples include indigenous societies of the high deserts and marshes of Nevada, of the Sierra Madre of Mexico, of the dry hillsides and valleys of southern California and of the Interior Plateau of British Columbia. They also extend back some 2,000 years ago to the indigenous pre-Pueblo farming peoples of the Rio del Oso valley near Santa Fe, New Mexico. Surprisingly, there are actually many similarities between how the First Nations in British Columbia tend their berry patches, edible roots and other resources and how the various indigenous peoples, such as the ancient pre-Pueblo farmers of Rio del Oso who are classified as agriculturalists, farm their land.

Indigenous agricultural societies, like “hunter-gatherers,” often use an array of strategies to maintain soil fertility and support diverse habitats and populations of wild and domesticated species. They often balance the populations of their domesticated plants with naturally occurring resources in complex systems known as agroecosystems. Such systems are known, in many parts of the world, to be even more biologically diverse

than ecosystems without an evident human presence. Agroecologist Janis Alcorn has identified and documented the mixed gardens carefully created and managed by Huastec farmers in Mexico, and anthropologist Eugene Anderson has documented rain-forest management practices in Mexico, particularly in the Mayan community of Quintana Roo. In Amazonia, research by anthropologists Darrell Posey and Bill Balée points to similar indigenous understandings and directed manipulations of forest ecosystems that people developed to provide themselves with a broader, more predictable range of plant and animal resources, at the same time creating more diverse habitats. These systems show that there is often little distinction between the “hunter-gatherer” lifestyle, in which people tend and manage their so-called wild resources, and the diversified agrarian lifestyle, in which people grow several associated crops and mix their use of domesticated species with a range of wild and partially wild resources.

We now recognize not an absolute division at all, but a continuum between hunting and gathering and agriculture, with a complex assortment of strategies that mix and match these methods in various ways. Indigenous peoples, such as those of British Columbia, who managed culturally important native resources usually did so by replicating or enhancing certain naturally occurring conditions. This may result in generic simplification—reduction of the number of species—in some sites, but often actually increases overall species and habitat diversity by creating more edges and patches of habitats at different stages of ecological succession, all the way from recently cleared areas to dense old-growth forest. Unlike the single-crop fields of modern agriculture, or the clear-cuts and tree plantations of industrial forestry, these human-tended environments retain many diverse, culturally important species that co-exist in companionable associations. At a single location, one can expect to find trees, shrubs and herbaceous species, even epiphytes (plants that grow on other plants), which together provide the raw materials for people’s food, technology and medicine. When people made their seasonal rounds, they would often find many useful resources at these culturally modified sites.

In the summer of 2000, I visited one such site with Adam Dick of the Kwakwaka’wakw. What an experience it was to travel by boat with Adam, Johnny Moon from Kingcome, Kim Recalma-Clutesi and Doug

Deur down to the estuary and the tidal flats of Kingcome Inlet, on the mainland coast of British Columbia. As we travelled in the channels among the islands that made up the delta, Adam stood in the boat and extended his arms, exclaiming, "There wasn't one square inch of this that wasn't part of our *teklakw!*" *Teklakw* is the Kwak'waka word that means "place of manufactured soil" and pertains to the intensively cultivated root gardens of the tidal flats. Every part of these flats, now overgrown with grasses and sedges but still with patches of the original silverweed, clover and rice-root, was intensively managed in the old days.

Earlier, Adam had recalled tending the wild root vegetables with his mother and grandmother:

It was all important. That *tewsus* [springbank clover], and the *elksam* [Pacific silverweed], and the *q'weniy* [*Lupinus nookatanis*, Nooka lupinel], and the . . . *xukwem* [northern rice-root]. See, when they go down to the flats, they use little pegs, [which meant] "This is my area." You got your own pegs, in the flats. And then you continue on that, digging the soft ground . . . so it will grow better every year. Well, fertilizing, cultivating, I guess that's . . . the word for it. Every family had pegs, owned their little plots in the flats.

Daisy Sewid-Smith, though too young herself to have experienced these gardening methods, was told about them by her grandmother, Agnes Alfred. She noted how important a group's ownership of its resource-gathering areas was, and she also described how people would use short wooden pegs to mark off their gathering areas, including tidal flats for digging root vegetables, berry patches, clam beds and wild crabapple (*Pyrus fusca*) "orchards." She confirmed, "Anything that's pegged, you know it's someone's."

For the Kwakwaka'wakw, as well as for Heiltsuk, Nuxalk, Haisla, Tsimshian, Haida and others, clans or lineage groups controlled hunting grounds, rivers, eulachon-fishing areas, salmon-fishing sites, crabapple "orchards," patches of many different types of berries—high-bush cranberries (*Viburnum edule*), salal (*Gaultheria shallon*), bog cranberries (*Vaccinium oxycoccos*), red elderberries (*Sambucus racemosa*),

stink currants (*Ribes bracteosum*), salmonberries (*Rubus spectabilis*) and huckleberries (*Vaccinium* spp.)—eelgrass beds (*Zostera marina*), productive patches of root vegetables including those mentioned by Adam Dick, as well as sea milkwort (*Glaux maritima*) and "wild carrot" or Pacific hemlock-parsley (*Conioselinum pacificum*) and beds of different shellfish—clams, cockles, abalone, sea urchins, mussels (*Mytilus* spp.) and others. Chief Adam Dick's ancestors, for many generations back, were guardians of the eulachon, or candlefish, at Kingcome Inlet. It was the guardian's duty to keep a close eye on the river and ensure that the eulachon were spawning well before people were allowed to begin catching these fish on their return trip to the ocean.

For looking after their berry patches, Adam Dick described a similar level of attention and care:

A lot of people think we never touched the wild . . . berries. But we did. We cultivated it. We pruned it. . . Especially that *gwadems* [*Vaccinium parvifolium*, red huckleberries], when they finished picking the *gwadems*, they pruned them. They break the tops off. Salmonberries [*Rubus spectabilis*] too. . . ."

MANAGING THE LAND THROUGH SUSTAINABLE HARVESTING

Another good example of "keeping it living" is from Haida Gwaii, where Sitka spruce (*Picea sitchensis*) roots and other materials are carefully harvested for the hats and tightly woven baskets for which the Haida are famous. My husband, Bob, and I first went to Haida Gwaii in 1970, and for me that was the beginning of a long and immensely satisfying learning journey. Haida Gwaii has always been a special place, the homeland to a people with an independent, creative spirit. Over the intervening years we made many friends among the Haida and other local residents. We stayed over one unforgettable summer with Nonnie Florence Davidson in Masset. We spent hours just watching her, helping as much as we could, as she went on gathering expeditions for berries and spruce roots for basketry, just as her mother, Isabella Edenshaw, had done before her.

We watched as Nonnie Florence and her sisters and daughters pulled the long spruce roots from the mossy forest floor. One of the key lessons

we learned is never to take too many roots from any one tree, or it will harm the tree. If you take just a few roots from one tree and a few from another, the trees will recover easily and produce more roots in the following years. Many years later, I learned the same lessons in harvesting red-cedar roots with Lil'wat basket weavers Margaret Lester and Nellie Peters.

Nomnie tied the roots in bundles to "cook" over the campfire, or in the iron-barrel fireplace of her smokehouse. This was an art in itself because she had to be careful not to scorch the bark off, or the roots would be ruined. (The trick is to heat the roots just enough to soften the pitch in them, allowing the bark to peel off easily when the warm root is drawn through a split cedar stake.) Once the bark was removed, she carefully split the root, first dividing it exactly in half, vertically, using the tiny rootlets lined up along the bottom as a gauge for where to place the split. She had a way of holding the lower part of the root in place with her knees, providing just the right amount of tension while she worked her hands. Using her thumbs as guides, she would split the root in half more by feel than by sight. I've since watched this splitting technique of other basket-makers, and I have tried it myself; it is certainly not as easy as Nomnie made it look. Once the roots are split in half, the halves can be split again, and, depending on the size of the root, several other splits can be accomplished. Nomnie bundled the split roots, air-dried them and then stored them away to be soaked later and woven into beautiful, intricately twined hats and baskets.

Florence's daughters and granddaughters and several other families still make these beautiful works of art and, even more importantly, some have become teachers. April Churchill, for example, told the Skidegate people that the art of weaving had originated in their community and so she wanted to return the gift of weaving to the Skidegate people who wished to learn it, through lessons and workshops. Making these baskets and hats requires hundreds of roots, and considering the enormous numbers of baskets each household possessed in former times, the quantities of materials required would have been immense. Kat Anderson and Michelle Stevens have interviewed basket weavers and harvested basket materials in California; their research shows that basket weavers use enormous volumes of materials in their baskets and that tending basketry

plants, coppicing and pruning them and continuously harvesting the roots ensured their productivity.

Bob and I also went with Nomnie Florence to harvest cedar bark from both red- and yellow-cedar. She took us to a stand of fairly young, straight-trunked trees with long unbranching sections in their lower trunk. Using a sharp knife, she cut partway around the circumference just below shoulder height, then carefully pried up the cut end of the bark. Once she had enough to grasp, she pulled the bark away from the tree, walking backwards as the strip was detached, becoming narrower and narrower until it made contact with the branches high in the crown. A firm jerk separated the strip and brought it to the ground. Immediately, Nomnie broke and cut off the brittle outer bark, leaving the soft, leathery inner bark appearing like creamy satin streaked with pink. This inner cedar bark can be split into two separate sheets, each of which is bundled and tied for transport. Like the split spruce roots, the cedar bark is dried and stored, to be taken out and used later when there is more time to weave, usually in the fall or winter after the growing season.

Later I went with my friends Barbara Wilson (*Ki7iljus*), Captain Gold and others from Skidegate to harvest cedar bark, and I was able to see first-hand the sustainability of the bark harvest. The young tree chosen by Captain Gold to provide a bark strip was standing next to another, still relatively young cedar from which, many years previously, someone had harvested a strip. A long, triangular scar going up the trunk was healing over around the edges, and the tree was obviously continuing to grow. One hundred years from now the tree will have completely concealed the scar, and, with luck, it will live and grow for many more centuries. Some of the big old cedars growing around Spirit Lake above Skidegate have scars indicating that bark sheets were removed, possibly in the mid-1800s, and they are still growing strong. These so-called culturally modified trees, or CMTs, are found up and down the Northwest Coast and are a testament both to the peoples' long-term occupation of these lands and to their care in looking after the trees and other resources which they use and for which they are responsible.

Nomnie let me try making my own basket of yellow-cedar bark. We worked together; she was weaving a flaring cedarbark hat while I



Culturally modified western red-cedar tree (Thuja plicata), showing where a slab of bark was removed many years ago; Gitga'ar Nation, Turtle Point, on the North Coast of British Columbia.

struggled with my basket. She was patient and kind, helping me get started and showing me how to add strands and how to insert a row of three-stranded twining at the point where the basket bottom turned up to become the sides. The work was wonderful. It was hard on the fingers, and I just could not get the foundation pieces straight; the basket seemed to have a mind of its own. But I felt a beautiful rhythm in the weaving and experienced an intense, unexpected feeling of accomplishment when I finished my basket. I felt sheepish when I compared my crude creation to those of Nonnie and the other master weavers, but nonetheless I was proud of it. Mary Thomas summarized this feeling best. She said, “If you

make something with your hands, you appreciate it, you look after it. You don't waste it.” The experience was a good reminder that making something, and using your own skill and the materials at hand, can teach a person not just about skills and techniques but also about patience, about our interconnectedness and about the true value of the resources that we often take for granted.

MANAGING THE LAND THROUGH OWNERSHIP AND RESPONSIBILITY

An important aspect of managing resources is having some form of proprietorship over them, so that the time and effort in caring for them are returned to those who make the investment. All of the indigenous peoples of northwestern North America, as in other regions, have specific territories within which they have held the rights to harvest and use their resources. Many variations exist, but in general the rights to use lands and resources go hand in hand with some form of ownership.

For the Haida, the entire coastline of Haida Gwaii, especially the various rivers and streams, was traditionally divided among the different families. Many of these holdings are still recognized and validated. As well as stands of western red-cedar, primary berry-picking patches, root-digging grounds, patches of fireweed (*Epilobium angustifolium*), fishing weirs, trapping sites and seabird nesting sites were all included as family or clan properties. As with the Kwakwaka'wakw, the boundaries of these different territories were sometimes indicated by placing poles along the perimeter or were denoted by distinctive landforms. Geologist George Dawson, later head of the Geological Survey of Canada, wrote in the 1870s, “Every lonely and wave-washed rock on which these birds [seagulls and other seabirds] deposit their eggs, is known to the [Haida] natives, who have even these, apportioned among the families as hereditary property.”

For the Nuu-Chah-Nulth, linguist Edward Sapir described root-digging patches of the Alberni area from the early twentieth century:

A place for roots or berries was called *th'ayagak*. These patches for roots or berries had four cedar stakes marking the boundaries of the area, which were about one acre in extent. The stakes were six feet high and called *th'ayagiyakthama*. These posts were changed about every ten years to prevent rotting.

These patches would have been similar to the *t'aklikwak* described by Adam Dick and would have been tended and selectively harvested in a similar manner.

Among the Nuu-Chah-Nulth, chiefs were responsible for the well-being of the plants and animals on their lands as part of the very definition of ownership. Ethnographer Philip Drucker characterized the Nuu-Chah-Nulth concept of ownership as follows:

The Nootkans [Nuu-Chah-Nulth] carried the concept of ownership to an incredible extreme. Not only rivers and fishing stations close at hand, but the waters of the sea for miles offshore, the land, houses, carvings on a housepost . . . names, songs, dances, medicines, and rituals, all were privately owned.

According to Earl Maguina George, *hahuulhi* is the word used by hereditary chiefs of the Nuu-Chah-Nulth "for aboriginal right, ownership and territory." He continued, "It's a chief's role to hold that *hahuulhi* as a sacred right. Now today they call it aboriginal right." Chief Maguina explained, "They had specific areas. They couldn't go beyond their own realm of boundary lines because . . . there were known places that marked off territorial area. There is a fine line between two nations. . . ." Historically, *hahuulhi* authority was passed on as a hereditary privilege. Rivers, fishing areas, hunting areas and plant-harvesting areas all were considered private property. In the past, it would have been unthinkable to violate a chief's *hahuulhi*: all areas, from the peaks and ridges of the Vancouver Island mountain range to the sweeping river valleys and coastal plains, to the west coast beaches and out to the distant halibut-fishing banks, were privately controlled by the chiefs and their representatives.

Hahuulhi means more than ownership, however. Nuu-Chah-Nulth cultural specialist Roy Haiyupis stressed that it carries with it a concept of responsibility: "*Ha hoolthe [hahuulhi]* . . . indicates . . . that the hereditary chiefs have the responsibility to take care of the forests, the land and the sea within his *ha hoolthe*, and a responsibility to look after his *mus dum*, or tribal members. . . . Embedded within the *ha hoolthe* initiated from [the chief's] rights to and ownership of tribal territories, lies the key to the

social and cultural practices, tribal membership and property ownership—economic, environmental and resource controls to . . . sustain life for the tribe today and for generations to come."

These two aspects of land use and occupancy—proprietaryship and responsibility—are critical elements within the same overall system. They cannot be separated. Similar arrangements were in place, with their own cultural variants, in indigenous societies everywhere. Leaders were indeed given special privileges, but they also bore the responsibility of ensuring continued health and well-being of both their lands and their peoples.

The Gitksan chiefs explained their beliefs about land ownership in their introductory statements to the landmark *Delgamuukw* court case of 1989, in which the Gitksan and Witsuwit'en peoples of the Skeena River region of British Columbia defended their right to regain control of their traditional lands and resources from the Crown:

For us, the ownership of territory is a marriage of the Chief and the land. Each Chief has an ancestor who encountered and acknowledged the life of the land. From such encounters come power. The land, the plants, the animals and the people all have spirit—they all must be shown respect. That is the basis of our law. . . . By following the law, the power flows from the land to the people through the Chief; by using the wealth of the territory, the House feasts its Chief so he can properly fulfill the law. This cycle has been repeated on my land for thousands of years.

The Central Coast Salish had a similar system in which the chief, head of a family or other designated leader held proprietorship of a given area. Resource sites owned by family groups included camas beds, "wild carrot" patches, bracken fern rhizome sites, wapato patches, bog cranberry areas, horse clam (*Tresus capax*) and butter clam beds, sites for duck nets and sturgeon (*Acipenser transmontanus*) fishing, dip-net locations and certain fishing streams. Others might ask to harvest from these sites, but, at least for the prime producing sites, they had to obtain permission before they could do so.

Anthropologist Wayne Suttles described how this worked for the Karzie of the Fraser Valley:

The bog south of the Alouette [River] belonged to all the Karzie; however, other important cranberry areas north of Sturgeon Slough and along Widgeon Creek belonged specifically to Simon Pierre's father's family from Pitt Meadows. Outsiders had to seek permission from the owners before gathering cranberries in these locations, although apparently they were rarely denied permission, and no tribute was required. . . . Use by outsiders was closely monitored by the family who owned an area. For example, it was the responsibility of Simon Pierre's father to watch the cranberry bogs and ensure that no one picked the berries until they were fully ripe. . . . At the head of Sturgeon Slough, families could establish seasonal claims to waparo plots. These areas (which might be several hundred feet long) would be cleared of other growth so that the waparo tubers might be more easily gathered.

For the Straits Salish—the Saanich, Samish, Songhees Esquimalt and Sooke—prime camas-harvesting locations were often privately owned and inherited. For example, the camas beds on Mandarte Island in Haro Strait were owned by three people, and the ones on an islet south of Sidney Island were owned by a single person.

Saanich elder Christopher Paul, of Tsartlip, shared his understandings of traditional camas harvest and management with anthropology student Marguerite Babcock in 1967. He said that a family group would establish a claim to a camas bed by clearing it, and once that was done it would “just naturally” become their plot to use. He thought that this clearing activity was done in the fall or spring before the gathering season. He reasoned that in those seasons the soil was soft from the heavy rains but not muddy (or frozen) as it would have been in the winter. Stones, weeds and brush, but not trees, would be removed from the plot, and the stones would be piled up in an area where no camas plants were growing. The brush would be piled to one side and left to rot or to be burned.

Chris Paul said that the bushes were actually uprooted, not just cut back, so that the camas were easy to dig. He himself grew enormous camas bulbs in his garden. He certainly combined his knowledge of gar-



Blue camas (Camassia quamash). PHOTO BY ROBERT D. TURNER

dening European-style with traditional production practices for these valuable bulbs. Until 1960, the Tsartlip people routinely burned areas of their ground, and although the camas are not as plentiful as they once were, they still bloom in abundance around his family's property.

MANAGING THE LAND FOR PRODUCTIVITY

Indigenous peoples consider that their actions are critical to maintaining their lands and resources, as Kat Anderson discovered in her work with Native Californians and anthropologist Kay Fowler learned in her research with the Paiute and Shoshoni peoples of Nevada and adjacent

areas. The productivity of the land and the sea was not simply a random occurrence in which humans passively accepted their foods or endured hardship if the resources were not forthcoming. Far from it: In carefully monitoring and looking after their resources, in tending, weeding and burning over root gardens; in burning, pruning and even fertilizing their berry patches; in thinning out their clam beds and patches of basket “grasses”; in keeping their rivers clean and unpolluted, and in linking their lives directly to those of their ancestors and to the spirit world, they were—and are—participating in and contributing to the health and well-being of their territory, all the other life forms and to their own societies. This is a critical notion: giving back to Nature. It is a theme that constantly recurs in conversations with indigenous elders.

Daisy Sewid-Smith summarized the traditional perspective of her people:

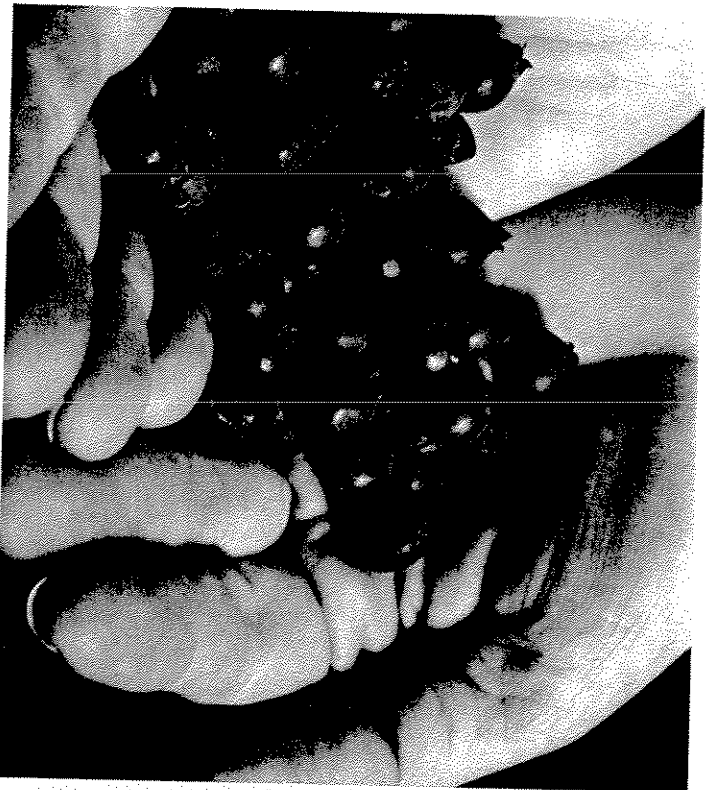
We completely depended on nature. The garments that we had, the house that sheltered us, the foods we ate, the medicines we had—Nature supplied it. And that is the reason why we respected nature as we did. Of course, many people say, “Oh, that’s wonderful. You live off Nature and it must be wonderful. You don’t have to do a thing—Nature does it all, right? . . . People think that you don’t have to do anything when you remove something from Nature. . . . And that is so far from the truth. Because, when you remove something, you have to put something back to make that plant, animal, fish, live again.

In the Interior Plateau country, the Nlaka’pmx, Okanagan, Sli’atl’inx and Secwepemc peoples held similar beliefs about the importance of tending their lands and resources. One Okanagan elder speaking at an indigenous science conference recalled that his people used to find an area in the hills where two creeks converged, then carefully burn over the area between the creeks, using the water as a firebreak. The first year after the fire there was plenty of fresh green grass and herbage, and the hunters could count on finding deer on the burn. A couple of years later, the berries grew thickly, and people gathered there to pick the fruit and socialize. Then, the young trees grew up and there was a rich mixture of

herbaceous plants, shrubs and woodlands, where the people could get their fuel and construction material, and an assortment of other materials, foods and medicines. After a while they burned that spot again, and the whole cycle repeated itself.

These people looked on their harvesting practices as not only sustainable but actually restorative for the plants and animals and their habitats. For the edible roots, burning, digging and tilling the soil and breaking up the sod enhanced their growth and productivity. Sometimes, too, the people moved plants around from one area to another. In his thesis on Nlaka’pmx bitterroot use, Bob Bandringa reported that the roots were taken in baskets to replenish areas that had been depleted or to establish populations in new areas. Other culturally prescribed practices included selecting the edible roots of only the “female” (non-flowering or fruiting) plants of desert parsley (*Lomatium macrocarpum*) and leaving the “male” plants to reproduce; leaving the large “mother” plants of balsamroot (*Balsamorhiza sagittata*) that would produce thirty to fifty flower heads each and selecting only the younger carrot-sized daughter roots; digging glacier lily bulbs only after the leaves had turned yellow and the plants had gone to seed, then selecting only the large double- or triple-headed plants, and breaking off the branches of soapberry periodically to renew its growth over subsequent years. All these practices were said to promote the health of the plant populations and make them even more productive in the future.

Saskatoon berry is a particularly valuable species for the Interior peoples, and the bushes were often carefully tended. Mary Thomas recalled that her mother, Christine Allen, would look up at a tall, unkempt Saskatoon bush and say, “Yes. It’s time to cut it back!” Then she would coppice the bush—cutting the thick, branching stems right back, almost to the ground. Mary said that the next year the bushes sprouted long, thin, unbranching shoots that were ideal for the rims of their birchbark baskets. They harvested some of these for this purpose, carefully forming them into hoops and wrapping the ends around to hold them in the right shape. Saskatoon wood, Mary explained, is tough and flexible, and it tends to grow in a spiral, so it is easy to form into a hoop. After a while the wood will keep its hoop shape, then it can be formed to the right size and



Saskatoon berries, or service berries (Amelanchier alnifolia).

PHOTO BY ROBERT D. TURNER

inserted into the top of the birchbark containers to be stitched in place with split cedar roots. This strengthens the basket immensely. (These same Saskatoon withes were used to help train infants, especially baby boys, almost from the time of birth. The sticks were placed into the clasping hands of the baby as it lay on its back, then gently pulled up, with soft, rhythmic, encouraging words: "Ooooh, boy! Ooooh, boy!" The baby, holding onto the stick, would develop its little muscles and become stronger and stronger through this technique.)

About two years after they were cut back, the Saskatoon bushes started to produce fruit again—with large, sweet and juicy, plump berries arranged in dense clusters that were easy to harvest. The bushes remained productive for quite a while after this. Eventually they would grow tall and bushy again, however, and their berry production would

fall off; then it was time to cut them back again. Kept in this "young" state, the bushes will keep producing both withes and fruit for generations. Mary said people tended chokecherries (*Prunus virginiana*), too. She remembers her father assembling a group of men to ride all around the Neskonlith reserve lands to check on the health of the chokecherry bushes, and she recalls the group pruning off or burning the tent caterpillar nests and generally looking after the bushes.

The old people would say that they were taught how to look after the land by the Creator and the Transformers, and all the other supernatural beings and even their human ancestors who used their powers and sacrificed themselves to provide for the people. The ceremonies, the words of praise, the discretion and the respect people have when they harvest their foods, materials and medicines, and the ways in which they tend their plants and salmon streams and talk to the young abalone . . . all of these, ultimately, are a part of the philosophy of Adam, Daisy, Mary, Helen and other indigenous people with traditional training.

Many of these attitudes and practices are being lost and forgotten as children are no longer raised with these experiences or understandings. This is one of the reasons, the elders say, why the productivity of the lands and waters is declining. Today, they say, many people no longer recognize their responsibilities to the land, and they only take from it, without giving back.