

**Native American Gardening on the Oregon Coast:
The Uses of Fire**
Douglas Deur

It is not easy to grow a garden on the shady temperate Rainforest floor. Under dense clouds and dense foliage, sunlight is scarce. Under conifers and constant winter rains, soils are acidic and nutrient-poor. This has not been much of an obstacle to 20th century gardeners, who have variously employed chainsaws and dynamite to clear trees, and who have their foods, plants, and fertilizers trucked in from around the globe. For the native peoples of this coast, though, these environmental conditions presented challenging limits on the availability of plant foods. More often than not, they did not let this get in their way. In subtle and sustainable ways, the peoples of this coast changed the vegetation.

Ornamental planting was probably not on their minds: Emma and Jane Adams -- daughters of Illga, the last hereditary chief of the Tillamook -- remembered seeing white settlers planting flowers for the first time in the mid-19th century, which they found to be both a novel and an appealing thing to do. Instead, these peoples modified their environment in order to provide the foods, medicines, and materials that they used in daily living. Arguably, the native peoples of this coast were -- at varying times and to varying degrees -- gardeners. Their principle objective in gardening was to enhance the productivity of native plants within convenient and defensible sites, close to their villages. Their principal gardening methods involved the burning of hill slopes and the modification of wetlands. This month, I'll discuss burning.

Fire was a potent force in the modification of coastal ecology, and the peoples of this coast burned vegetation extensively. The Native Americans of drier places -- such as the central California coast or the Willamette Valley -- burned vast clearings, of hundreds of square miles in some cases. However, the Native Americans of the northern Oregon coast had to contend with profound Rainforest soginess. They could only burn small clearings within the forest, which were of different character and function than the larger clearings found in drier places. On the seaward edges of the forest, the Tillamook and other native peoples of this coast pushed the forest landward through controlled summer fires, creating a patchwork of small prairies at the coastal fringes of the dense spruce-hemlock forest. The region's first European explorers noted this prairie patchwork, but viewing this coast as unmodified wilderness, they attributed this pattern to natural causes. The locals knew better: they burned their prairies annually, and almost every major settlement was accompanied by a prairie patch on a south-facing slope, a patch which appears to have been owned by the entire village as a form of common property. On the British Columbia coast, burned clearings were often owned by families, and were zigzagged with property boundaries delimiting inherited patches of productive plants.

Along the entire coast, trees were sometimes removed as part of the process of creating prairies. They were burned with fires built around their base, toppled through the gradual application of wedges as they swayed in the wind, or were 'girdled' -- which involved removing a section of bark encircling their base, thus killing the trees which were then burned. This could take days, weeks, or months -- this, by their conception of time, was probably just fine. Still, the trees of this damp coast were remarkably resistant to fire -- through much of the Northwest, Native Americans would burn the under-story plants of the forest floor, causing little or no damage to the massive trees above. Here and there, one can still see the fire scarring which resulted, around the bases of ancient trees.



Some of the coastal peoples' most important food and medicinal plants grew within the cleared prairies. Bracken fern (*Pteridium aquilinum*) grows rapidly on recently-burned clearings, and this was one of the more important products produced in these prairies, both its "fiddlehead" tops and its starchy roots were used for food and medicine. While stationed near Astoria in the winter of 1805-06, Lewis and Clark noted that a bread made of bracken fern flour was a highly important article of trade among all native peoples of the coast; it was produced by roasting the ferns' roots, pounding them into a flour, mixing this with water, and baking this dough over fires. (Do not try this at home: bracken fern is now believed by some to be carcinogenic, although not enough to have caused dramatic health problems or prevented its widespread use before the arrival of Europeans.)

Fire also enhances the output of berries, particularly the huckleberries (*Vaccinium* spp.) and salmonberry (*Rubus spectabilis*), which come back lush with new growth and prolific berries after having their dead, woody tissues cleaned off by a good scorching. The berries of both were important to the native diet, while the young, juicy sprouts of the salmonberry were eaten raw or cooked, like asparagus. Further north along the British Columbia coast, other berries, such as the High-bush cranberry (*Viburnum edule*) were maintained by the use of fire, and have disappeared from those large portions of the coast where burning has ceased. The peoples of this coast would burn entire berry patches, but would also burn on a much reduced scale -- down to individual berry bushes in the forest under story -- to improve their output. The seeds of the "Indian consumption plant" (*Lomatium nudicaule*) were used medicinally for the symptoms of colds and other respiratory problems, and were traded extensively between the interior and the coast; on the outer coast, these plants appear in remnant burned prairies only, and one can conclude that they were introduced there either intentionally or unintentionally. There is some evidence which suggests that a few lilies with edible bulbs, such as the Tiger Lily (*Lilium columbianum*) and the Rice Root Lily (*Fritillaria camschatcensis*), were also introduced to ocean-front burned clearings from less accessible alpine meadows, by local Native Americans. And importantly, these burned clearings were attractive

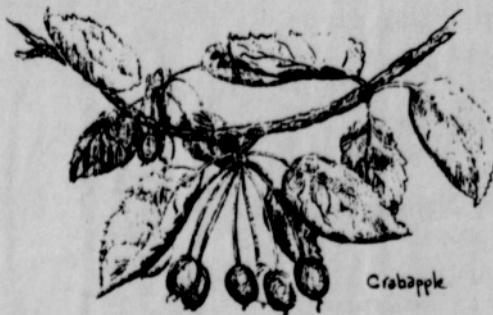
grazing sites for elk and deer after the herbaceous vegetation began to grow back, creating highly localized hunting grounds alongside Native Americans' most important plant patches.

Most interesting, however, is the use of fire in promoting the growth of camas (*Camassia quamash*) and the great camas (*Camassia leichtlinii*), plants with showy blue flowers on stalks extended up from plump, edible bulbs. Camas was one of the most attractive flowering plants of this coast, and once created solid patches of blue on local hill slopes. According to early ethnographers who worked in the area, camas was among the most important foods to the Native Americans of the northern Oregon coast. The shamans of the northern Oregon coast also used camas in the production of a number of medicines, and tribal folklore is replete with references to the trading, planting and consumption of camas by supernatural beings. Asatagatk, 'South Wind', was the folkloric Tillamook trickster who was said to have planted camas here and there along the northern Oregon coast, tossing the bulbs and proclaiming of each place they landed, "That will be, a big camas field. They will always grow there."

But don't bother looking around for camas on this part of the coast, now: they're almost entirely gone. Where did these plants go? Truth is, these plants cannot grow on the coast without human intervention. They were, for all practical purposes, "introduced plants" in the wet coastal forest, brought here through tribal trade networks from the drier interior, and planted intentionally or unintentionally. The preferential trading and tending of those plants with larger bulbs might be seen as "proto-domestication": The bulbs of transplanted coastal camas patches appear to have been larger, generally speaking, than the wild populations in the dry interior. In a few cases, Native Americans appear to have fertilized camas with rotting piles of compost, making up for the leached soils of the area. Once introduced, camas became 'naturalized' as its bulbs divided and spread within prairies subject to continued burning. Women turned the soil with digging sticks, taking what was needed for food trade and ceremonial use, and leaving the younger bulbs in the soil to grow and become next year's crop. Resource management decisions were guided by a sense of long-term obligation to one's community, and it was seen as very bad form to exhaust these finite patches of food plants.

As prairies were overgrown with new forest, the camas disappeared with them. To quote Tillamook Bay settler Warren Vaughn, when European settlers first arrived on the traditional lands of the Tillamook, "there was not a bush or tree to be seen" on a number of burned over hills "as the Indians kept them burned off... But when the whites came they stopped the fires... This caused the young spruces to spring up." Settlers of the 19th century, by and large, sought to stop the fires as they would temporarily eliminate the livestock-grazing potential of these prairies; by the early 20th century, the decline in indigenous burning allowed the accumulation of woody debris, so that wildfires became dangerous and uncontrollable. Local Native Americans were still interested in clearing up this mess with a fire or two, but coastal foresters were opposed to fire of any description: forestry officials would sometimes hire Native Americans, so that foresters would be able to keep an eye on them, and keep them from burning.

As a result, only a few remnant, burned prairies remain. A few small patches persist in remote corners of our local State Parks, but are disappearing under the encroaching forest canopy. Elsewhere, prairie patches remain where white settlers continued to clear brush into the 20th century through burning and cattle grazing. (Creating grassy holes in the forest canopy, these prairies had provided the grounds for early agricultural settlement on the ocean coast, but ironically, began to shrink as soon as settlers displaced the native inhabitants.) For a brief time, some settlers carried on the practice of burning to maintain grazing land for their introduced livestock: Chief Illga's great-grandson, Joe, informs me that by the time he was a youth in the 1920s and 1930s, only white ranchers burned the south slope of Neakahnie Mountain, one of our larger local prairies. At Cascade Head, the intervention of settlers preserved a species of butterfly and a type of violet so rare that the Nature Conservancy was motivated to buy this headland, and have recently begun to burn the slopes themselves. You could reasonably conclude that the practice of burning has been around so long that some local flora and fauna became dependent on these human-constructed prairies. A small number of camas plants are still found. Almost all of these are on sites where white settlers began to clear vegetation before the plants had been entirely crowded out by encroaching forest, but where there were no livestock intensively grazing and trampling on the native vegetation.



A few plants on this coast were grown in clearings around village sites, which may have been cleared by fire originally, but were not burned with any regularity thereafter. While conducting archaeological surveys on the west coast of Vancouver Island recently, I noted that former village sites could be instantly identified by the clusters of wild crabapple trees (*Malus fusca*) in clearings around the perimeter of collapsed rows of longhouses. This tree is not found in such concentrations anywhere else on the outer coast. Crabapple was an important source of food and wood; by some accounts, the peoples of the coast managed their crabapple trees with the same care that white settlers managed their orchards of introduced trees. Yet the natural distribution of crabapple trees is often diffuse, and relegated to drier locations inland from the sea. The pattern which I saw was not natural. Crabapple trees were either intentionally planted close to villages, or were accidentally seeded on piles of household refuse. Tobacco (*Nicotiana quadrivalis*) was grown by native peoples along much of the coast; George Vancouver, one of the first Europeans to observe this practice, noted that tobacco was planted "in square patches of ground," and fertilized with piles of compost. This, too, was a plant from the drier interior brought to

the coast and planted in land cleared of the forest canopy. It disappeared almost immediately after the more potent, cultivated tobacco from the eastern US (*Nicotiana tabacum*) became widely available. The variety of tobacco cultivated on the coasts of northern British Columbia and southeast Alaska is now extinct, it seems, and therefore appears to have been entirely dependent upon human cultivation. Though tobacco cultivation was recorded among coastal peoples to the north and south of us, there is no clear record of tobacco being grown here on the northern Oregon coast. Conventional wisdom suggests that tobacco was the only "cultivated" plant on the Northwest coast, even though many other plants were "cultivated" in a very similar manner. Why only tobacco? Well... significantly, among all the plants cultivated by the peoples of this coast, tobacco was the only one familiar to the white guys of Europe, who stumbled ashore here in the late-18th century. The rest of the plant communities mentioned here they interpreted as the natural products of a pristine wilderness. Never trust conventional wisdom.

Publications describing Native Americans' use of fire in the Northwest have appeared in diverse and widely-scattered sources. Fortunately, an ambitious and nice guy named Robert Boyd has done us the service of bringing many of the classics on the topic together in a single book, which will be published very soon by the Oregon State University Press. Looks like it will be a good book, and I recommend it in advance.



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