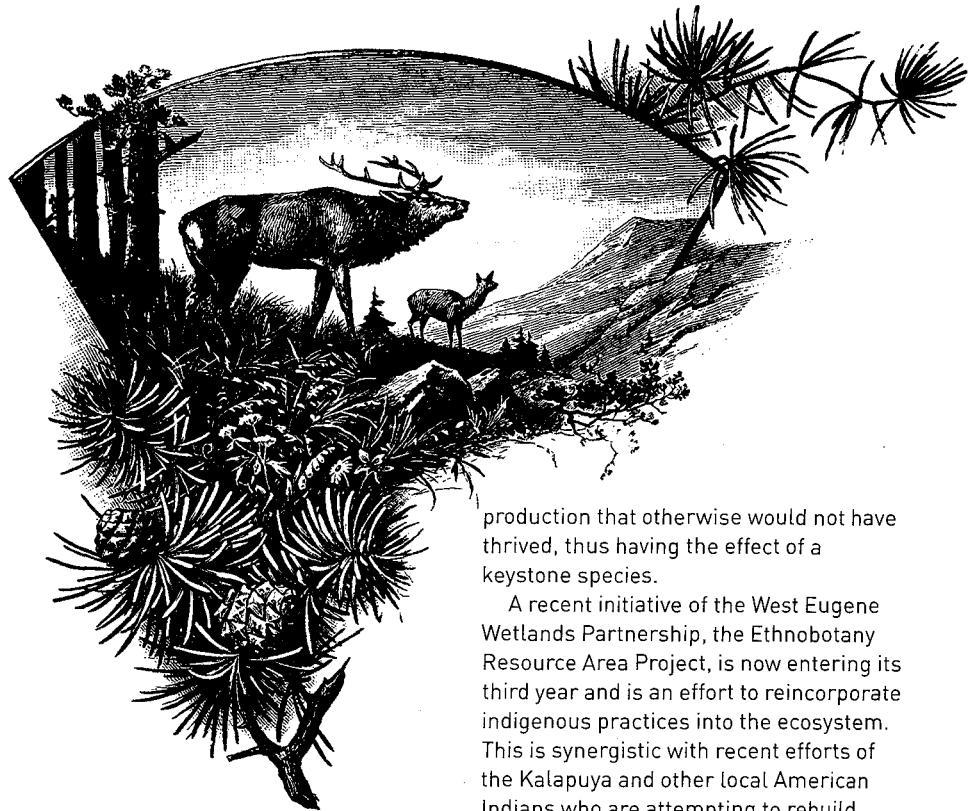




## INCLUDING NON-WOOD FOREST PRODUCTS IN ECOLOGICAL RESTORATION

For thousands of years, wet prairie, upland prairie and oak savannah were the dominant ecosystems of the Willamette Valley, a 14 000 km<sup>2</sup> area in the state of Oregon, United States of America. This mix of habitats produced a wide diversity of NWFPs such as acorns (*Quercus garryana*), hazelnuts (*Corylus cornuta*), cedar bark (*Thuja plicata*), salal (*Gaultheria shallon*), ferns (*Pteridium aquilinum*), wild onions (*Allium cernuum*), camas bulbs (*Camassia quamash*), huckleberries (*Vaccinium ovatum*), juncus (*Juncus effuses*) and tarweed (*Madia sativa*) for the Kalapuya and other regional American Indians. As a result of urban development, large-scale agriculture and hydrologic alteration, less than 1 percent of wet prairie, less than one-tenth of upland prairie and less than 7 percent of oak savannah remain in the Willamette Valley. In the West Eugene Wetlands (WEW), 1 200 ha of these remaining historic Willamette Valley habitat types are being protected and restored by the West Eugene Wetlands Partnership, a unique collaboration of non-governmental organizations (NGOs), government agencies and citizens that began in 1993.

The Partnership is not attempting to bring the ecosystems back to the ecological state that existed prior to the westward United States expansion 170 years ago, which displaced American Indians from their homelands. Instead, it is attempting to "mimic" the historic ecological conditions and processes of the pre-contact period. However, until recently, restoration planning had not considered the anthropogenic influences on the regional ecology prior to this period, which is problematic because the Kalapuya, the indigenous inhabitants of the area, were not simply passive residents. They were active managers of the landscape, engaging regularly in burning fields and forests, pruning, weeding, tilling and in many more activities that made the environment more favourable for their livelihoods. Some researchers, such as Dennis Martinez and Robert Boyd, see the influence of indigenous cultural practices as so significant that they can be credited as the main causes for the perpetuation of the



oak savannah and associated prairie habitats in the valley.

Of all the historical indigenous cultural practices, the large-scale use of fire to burn forests and prairies clearly had one of the greatest impacts on the landscape. The habitat of the Willamette Valley is mixed coniferous and deciduous forest dominated by Douglas fir and big leaf maple, but the spread of these species was stymied by the regular presence of fire. Given the low incidence of lightning in the valley, fires were almost entirely anthropogenic, which meant that the resulting habitat types were also anthropogenic. Burning resulted in an abundance of desirable NWFPs.

In order to understand better the role of indigenous cultural practices in the Willamette Valley it helps to think of the Kalapuya people's relationship to their local environment as akin to a keystone species. Keystone species are recognized as having a disproportionate influence on their environment relative to their collective biomass. When keystone species are removed from an ecosystem or habitat – like an arch without a keystone – the habitat or ecosystem collapses. The Kalapuya people maintained and perpetuated ecosystems for NWFP

production that otherwise would not have thrived, thus having the effect of a keystone species.

A recent initiative of the West Eugene Wetlands Partnership, the Ethnobotany Resource Area Project, is now entering its third year and is an effort to reincorporate indigenous practices into the ecosystem. This is synergistic with recent efforts of the Kalapuya and other local American Indians who are attempting to rebuild cultural practices and knowledge systems that have been severely impacted over the last 170 years. The local American Indian tribes are an integral part of this project, working with the partnership to plan and implement activities, which include making it financially feasible for the Kalapuya and other local Indians to participate by compensating them for the time and expenses associated with planning and implementing project activities.

To date, there have been a number of accomplishments that are helping to reinforce the positive attitudes, collaboration and momentum of the project. For example, a strategic plan has been written that provides short- and long-term goals for the project. Dozens of activities have taken place, including a workshop on indigenous approaches to oak management; four basketry workshops for the public; an inventory of culturally important species; the development of a curriculum for area students, focusing on local ethnobotany; and the development and implementation of an annual festival featuring stories, traditional songs and drumming, canoe building presentations and the creation of a traditional camas baking oven. These activities will be expanded and refined to



become regular events, some or all of which will be repeated every year. They are creating a greater awareness of indigenous practices and needs for managers and scientists involved with the WEW. Moreover, they bring indigenous people back to the land and they, in turn, are learning more about the needs and constraints of scientists and managers. For example, the wetlands are home to multiple species (e.g. Fender's blue butterfly and Kincaid's Lupine) listed under the United States Endangered Species Act, a law that has to be factored into every planning decision.

As indigenous people become more involved in the management, science and restoration activities of the wetlands, the possibility of a number of mutually beneficial activities can be seen. For example, some burning already occurs in the wetlands to help maintain and produce a habitat for endangered species. Given the growing awareness of the importance of historical anthropogenic influences, it is logical to work with tribes to use fire regimes to promote culturally important NWF species that are similar in many ways to the traditional Kalapuya approach. Also important is the restoration of camas bulbs, which are an important Kalapuya subsistence food together with acorns and hazelnuts. Camas is already being planted widely throughout the wetlands, but restoration planning has not considered how this activity interfaces with indigenous needs or traditional practices. Oral histories with tribal elders and archaeological evidence have shown that the wetlands were a major camas-producing area and the bulbs had many uses, such as being dried and traded to neighbouring tribes. The people of the area are very interested in seeing camas harvest areas restored and

thus their interests fit in with those of wetland scientists and managers.

Given the contemporary fragmentation of indigenous practices and knowledge systems and the gaps in understanding about historical ecology, we would suggest that two developments should take place as the Ethnobotany Resource Area Project moves forward. One development would be to design and implement experiments on historical indigenous ecological relationships in a collaborative manner, in order to help guide long-term planning and restoration of the wetlands. For example, preliminary assessments indicate a cattle pasture that now lies fallow in the wetlands is within a human habitation zone that had extensive camas production over thousands of years. Here, an opportunity exists to move beyond the model of using community volunteers and private contractors to restore native plants and instead move towards a collaborative approach with the local indigenous people. Indians could walk the land with scientists, help write the long-term site plans and create opportunities for tribal members to visit the site regularly to implement the traditional camas production techniques that have evolved over generations of practitioners. Indian people do not want to be involved in such a project if it means going back to the past. Rather, they want to be involved in going forwards, to establish a place where Indian children can reconnect with their traditional indigenous lands in a way that heals the environment and restores important culture practices for future generations.

A second development would be to promote participatory research approaches to bridge indigenous and scientific methods and knowledge. For example, as required by law, wetland scientists and managers must monitor the ecological health of the wetlands, but they have limited financial resources to do so comprehensively. A participatory research approach would look for opportunities to work with Indian people who are out in the wetlands regularly and making observations about ecological changes.

In conclusion, the West Eugene Wetlands Ethnobotany Resource Area Project serves as an example of how ecological restoration projects can be guided by a critical appreciation of the long-standing and continued presence of indigenous cultures, particularly how cultural practices have contributed to the creation and maintenance of ecosystems over time. It may be that in

cases such as this, populations of threatened species simply cannot be sustained if ecological restoration projects do not take into account historical anthropogenic ecological relationships. As in this example of the WEW, it may be discovered that, by engaging in constructive dialogues and building diverse working relationships, the goals of ecological restoration planners are compatible with the goals and needs of the local indigenous people.

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