Fire in Wetland Prairie

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The Problem

Less than 200 years ago, much of the upper Willamette Valley, probably almost all of the major flat areas under 400 feet elevation were seasonal wet prairie (Savonen). Today, more than 99 percent of that wet prairie has disappeared or been converted to farmland. Wet prairies and savanna are critical to a number of species, including four threatened and endangered plant species and 22 species of migratory birds. In addition, this land helps prevent downstream flooding, cleans pollutants and nutrients out of the water, and creates a stunning and colorful part of the scenery of the Willamette Valley.

Wet prairies are not in decline simply because the have been bulldozed or farmed over, however. A factor essential to their survival has been absent since the arrival of white settlers, and that is fire. Without fire, woodlands encroach on the wet prairie, shading it out and leaving it with plants less well adapted for seasonal flood control. Invasive bushes and shrubs crowd out native fire tolerant plants, and important habitat is altered.

Over the last few decades, research has shown that wet prairies need fire to survive. In fact, periodic burning seems to be by far the best way to encourage some native species in the Willamette Valley flood plain and allow native plants in general to regain their hold on wet prairie habitat.

Generally, people would prefer to avoid the use of fire anywhere near their property. Government regulatory agencies get a bad reputation for the few controlled burns that get out of hand, and people are easily convinced that burnt areas are dead areas. In fact, this is not at all the case and, ironically, our fear has worked against us for the most part. Unwillingness to allow natural fires to continue to burn, and fear of setting controlled burns because of the unpredictability have allowed fire risk areas to become dominated by species that burn hot and fast, making them more dangerous. In addition, the seasonal flooding of wet prairies causes plants to grow quickly, then become extra dry and flammable during the fire season.

Currently the solution to this problem is the clearing of invasive species and dry native species that present a fire risk. This presents a problem though, since is removes needed nutrients from the area and is costly to maintain. Also, weeding of wet prairie during the wet season is impractical, and waiting to weed during the dry season allows invasive plants to go to seed and establish roots that burning could prevent from developing.

History

There are accounts of Indian burning in the Willamette Valley from the time of the early white settlers in the area. Wet prairie in Oregon has disappeared at an alarming rate since then as people have moved in and turned it to farmland, industry, or urban land.

Periodic burning in the area by the indigenous people, the Kalapuyan people, is attributed with affecting the ecology of the area so that when settlers arrived, most of the

wet prairie and oak savanna had become dependant on, or at least resistant to, periodic intentional burning. The rationale proposed for this was that the camas, which the Kalapuyan relied on as a food source, is dependant on periodic burning, and that regular burning also helped the indigenous people keep from accidentally poisoning themselves with plants in the wrong stage of development.

More recently this theory has come under criticism. Some propose that burning was a war tactic used against the invading European settlers. Proponents of this theory argue that burning was not recorded frequently in the records of early settlers, and that if burning was not commonplace before the presence of settlers, than perhaps the fire dependant wet prairies were not as dependant on human burning as thought.

However, history does rather clearly record two things. First is that fire was indeed used by the indigenous people on the wet prairie. Second is that settlers did not use fire, and worked hard to prevent the spread of natural fire. Since that time, the amount documented wet prairie habitat has been reduced dramatically, not simply due to agriculture and development, but also due to the encroachment of forests and brushy terrain on wet prairie habitat.

Over the last few decades, the importance of fire dependant ecologies has gained increasing recognition. The Nature Conservancy has become famous for its research on burning in their wet prairie preserves. Similar projects have taken place in Deer Creek Park, south of McMinnville, Rose Prairie and Fisher Butte, around Eugene, and on numerous other test sites.

Regulatory Status

Some government action has already begun examining the usefulness and need of periodic burning to maintain the biology of wet prairies. Controlled burning has long been recognized as an alternative to brush thinning, but pressure from people concerned about the dangers of fire to property have greatly reduced its use.

Fire is not a widely accepted method of management for native habitat in Oregon. Management officials by and large acknowledge the importance of periodic burning in maintaining wet prairie, but a lot of skepticism remains on the actual effects of burning, and without a clear answer, government officials are understandably reluctant to move forward with regulations to burn near private property and human habitation. This is not true throughout the country. For example, US Fish and Wildlife in Minnesota uses extensive prescribed burning for wetland management.

Wetland burning in Oregon is getting more public scrutiny. Contributors to the west Eugene Wetlands Plan have talked about the historical use of prescribed burning, and its usefulness in restoring native plant species. The Nature Conservancy has attracted significant attention with its success and investigation of controlled burning at the Willow Creek site. However, the actual provisions applied to prescribed burning are disappointing. The West Eugene Wetlands Plan includes provisions to remove burnable brush, rather than return it to the soil through burning ins section 9.305 under vegetation removal, “Vegetation removal is limited to the removal of… [among other things] dead or dried native plants or grasses only when they constitute an imminent fire hazard, as determined by the fire marshal” (50, Eugene). However, they do include, among their

research and scientific goals, a wish to support research on “The impact of prescribed burns on plant virility and endangered species” (16, Lane 2) within the first ten years of their work, from September of 1999.

Scientist at OSU are a bit more skeptical. Most of the studies there imply less of a clear link between brush burning and short term effects on vegetation than studies published in and around the Eugene area. The idea of prescribed burning as a way to rebuild a wetland habitat does not appear in wetland reclamation guides and is absent from most books about wetlands, even though it provides a historically essential role in wet prairie development. Controlled burning on Oregon wetlands is so far limited to study areas.

Remedy

While the short term benefit of controlled burning is not a clear aid to natives, there is compelling evidence that the long term effects improve the populations of some important native species, specifically disturbance and fire dependant plants like *Lomatium bradshawii* or *Cammasia quamash* (Taylor, 32). In addition, fire generally discourages exotic and invasive species without affecting wet prairie species detrimentally. Not all invasive species are discouraged by prescribed burning either, so fire is not an end-all-be-all. None the less, it is an important part of wet prairie ecology.

Probably the biggest challenge that faces the issue of prescribed burning is that burning is not well established as an important part of rebuilding wet prairies in wetland remediation. Significant research on burning has only begun in the last few decades, and

people are generally wary of it as a solution. The first thing that needs to happen before fire becomes available as a tool is for people to begin to acknowledge its usefulness on a larger scale. Fire as a land management tool has been in use for many years now, yet, because of isolated incidents where lack of knowledge or preparedness allowed wild or prescribed fires to threaten nearby homes, fire has generally been found to be a safe and effective tool. Unfortunately, the few mismanaged incidents tend to be more in the public eye than the many well managed ones, and fear and lack of understanding of fire in nature has continued the attitude that fire is generically best avoided at all cost.

Obviously the first step toward restoring controlled burning to the native wet prairie is education. People need to understand the research that has been done, and the experiments that are being done. They need to be educated to the fact that a valuable and beautiful natural resource has nearly been eliminated because of the callousness and ignorance that has driven overdevelopment and pushed beliefs that we should adjust the environment to us rather than adjusting to the environment. Perhaps most importantly, they need to be educated to the fact that fire dependant wet prairie still exists and is still an important part of stream ecology in the Willamette Basin.

The seconds steps that need to be taken in solving the problem of fire as a health or hazard issue. People are afraid of fire, for good reason, because it can get out of control and can threaten valuable property and even lives. People need to understand that burning is important to wet prairie ecosystems and that fires, if managed well, can be controlled and used more effectively and less expensively than most other restoration methods. People also need to learn that burnt land is not dead land, and that fire is a

natural mechanism for returning nutrients to the soil. This step is on the right track with significant research being done on the subject and provisions to encourage more.

The third step is actually implementing wetlands burning as a practice in the Willamette Valley. It will become important to build an adjustable plan for the regular use of prescribed burning, first in test areas and then on a larger scale as people better understand how and where wetlands need fire. The West Eugene Wetlands Plan provides a good start on this, but it does not actually include a specific plan to consistently test a certain site. Having guidelines actually implemented as code is an important step, including modifiable guidelines on when to burn and how. Other important details include finding compromises that allow for dry plants to be left on the wetlands, and for permanent fire breaks to exist between wetlands and private and developed lands. A plan to encourage people and corporations to invest in wet prairie and other wetlands both with people and money is also important. Outreach for volunteer work, from teaching to helping catalog plants should be part of any mitigation plan, and possible incentives from the DEQ for cleaning wetlands and finding green disposal or reuse methods are all possible directions to increase the investment people put into their environment, and understand why a plan is in place.

Most importantly however, citizens need to be informed, and begin holding their state and local governments accountable where the federal government does not reach. Private citizens and nonprofit organizations need to have access to resources beyond tax breaks and monetary incentives. Science as a means to gain and reclaim value needs to be promoted, and the idea that investment is not just in stock and machinery should be taught to farmers, developers and engineers who work on areas that once were or are next

to valuable wet prairie land. When people understand that fire can be a small risk for a large benefit, then support will not be hard to find.

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