Willamette Valley Agriculture and Wetland Loss:
Regulatory Deficiencies and Proposals for Remediation

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Both wetlands and agriculture are very important elements of Oregon's ecology and economy. Wetlands provide Oregon with aesthetic appeal, biological habitat and species diversity, and floodwater storage during high flows. Agriculture, on the other hand, is Oregon's leading industry, providing 140,000 associated jobs to Oregonians. Unfortunately, these two important elements of Oregon's natural and human systems have historically conflicted with one another, especially in the Willamette Valley. The Willamette Valley contains 71% of the state's prime farmland (Oregon Dept. of Agriculture 6), which has traditionally attracted farmers to convert land around the river, especially wetlands, to agricultural land. However, about 40% of Oregon's original wetland resources have been converted to other uses, and many of the other wetlands have experienced degradation to the point that they are no longer useful (Good vii).

Oregon has established regulations such as the Removal/Fill Law to curb the trend of wetland loss, but studies have shown that wetland loss continues despite these regulations, predominantly due to agricultural conversion. Therefore, Oregon needs to take further steps to protect its wetlands while remaining sensitive to agriculture's economic importance. Ways to accomplish this include the integration of wetlands preservation on agricultural lands into land use planning goals, cooperation between state

and local regulatory agencies, and continued support for tax breaks, education, and other incentives for private landowners to protect wetlands.

Protection and restoration of the Willamette Valley's wetlands are important because of the numerous benefits that wetlands provide to the valley. These benefits are ecological, hydrological, and biological in nature as well as societal (Heimlich 1). Wetlands preserve water quality by filtering out nutrients and sediments from ground waters. Furthermore, wetlands vegetation slows down waters, which in turn prevents excessive sedimentation of rivers (Heimlich 1). Biological benefits of wetlands include serving as habitat for a diverse range of species, including fish, amphibians, and fur-bearing animals such as beavers (Heimlich 1). The hydrologic values of wetlands are diverse as well, because wetlands help prevent erosion and act as flood storage areas that reduce flood peaks that in turn can protect property owners from damage (Heimlich 1). Wetlands also have numerous societal values, as diverse interests such as boaters, hunters, property owners, and public water supply and flood control authorities benefit from our wetland resources. However, wetlands in the Willamette Valley are often situated on prime agricultural land and thus conflict with one of Oregon's major industries.

Willamette Valley agriculture is immensely important to Oregon's economy. The valley, which contains nearly three-quarters of the state's prime farmland, contributes almost half of Oregon's farm sales. In 1996-1997, these sales totaled about $1.5 billion (Oregon Dept. of Agriculture 6). The valley's population, which makes up 70% of Oregon's population and lies in one of the state's fastest growing areas, puts increased pressure on its agricultural output. Furthermore, valley agriculture is facing pressure

from urban and rural development: of the 89,000 acres of Oregon farmland lost between 1982 and 1992, 66% was lost in the Willamette Valley (Oregon Dept. of Agriculture). Because Willamette Valley agriculture is so important to Oregon's economy, any initiative that regulates agriculture must be sensitive to agriculture's importance.

When farmers first settled and sought fertile farmland, they chose dry land that had access to water. However, this land became scarce, which caused the United States government to encourage the conversion of wetlands for agricultural use. In fact, many federal programs have historically given farmers incentives for wetlands conversion (Heimlich 24). In 1849, 1850, and 1860, Congress passed the Swampland Acts that gave public wetlands in 15 states, including Oregon, to any individual who would put them to "productive" use, which often implied agriculture (Oregon Parks and Recreation Dept. 2). Oregon wetlands have generally been viewed as impediments to development; the U.S. Department of Agriculture and the Civilian Conservation Corps aided farmers with irrigation and wetland conversion, and the government often gave subsidies to private interests that wished to convert wetlands (Heimlich 24-25). Largely because of these programs that promoted agricultural conversion of wetlands, Oregon possesses today only 1.4 million acres, or 64%, of its original 2.3 million acres of wetlands (Good 3).

Despite the U.S. government's legacy of promoting agriculture over wetland protection, the overall rate of wetland loss nationally has slowed. Whereas the average wetland loss was 800,000 acres per year nationally from the time of Euro-American settlement to 1954, that rate dropped to 80,000 acres per year from 1982 to 1992 (Heimlich 18). In order to achieve this drop in wetlands conversion, several national and local regulations and programs have been enacted, such as wetland compensatory

mitigation on national and local levels, the Swampbuster provisions of the federal Food Security Act and the Wetlands Reserve Program nationally, and local laws such as Oregon's Removal/Fill law.

Wetland compensatory mitigation involves the replacement of habitat lost by a development project. Section 404 of the Clean Water Act, which is the foremost national wetland regulatory program, mandates that a permit be obtained for any dredge or fill material discharge on wetlands from the Army Corps of Engineers. Permit applicants have to follow mitigation practices such as the restoration, creation, or enhancement of altered wetlands (Good 7). Ideally, any wetland loss caused by development would be replaced by mitigation.

The "Swampbuster" provision of the 1985 Federal Food Security Act aimed to eliminate conflicts between wetland preservation and federal farm policies. This provision allows the Secretary of Agriculture to deny farm program benefits to any private landowner who drains protected wetlands (Heimlich 28). These benefits that could be denied include price support loans, agricultural disaster payments, and loans for farm storage facilities. A year later, the Tax Reform act further decreased incentives for farmers to convert wetlands by doing away with preferential tax treatment for private interests that convert wetlands (Heimlich 28).

Another national program designed to negotiate the conflict between wetlands preservation and agricultural conversions is the USDA Natural Resources Conservation Service's Wetlands Reserve Program. This program, which is completely voluntary, offers private landowners up to 100 percent of restoration costs for wetlands located on private lands (Wetlands Reserve Program 3). At the local level, and of direct relevance

to Willamette Valley wetlands, Oregon's Removal/Fill Law requires a permit for fill, removal, or alteration of wetland resources. The Oregon Division of State Lands administers this law and thus oversees potential wetland manipulation (Shaich 6).

Despite these numerous local and national measures that have been implemented to solve the problem of wetlands loss due to agriculture, the Willamette Valley continues to lose its wetlands. The Oregon Division of State Lands (DSL) Wetlands Program published a study in 1998 that developed an estimate of Willamette Valley wetlands change between 1982 and 1994. Before this study, there had been little documentation on the effectiveness of wetlands regulations in the Willamette Valley. In order to identify the wetlands and associated land uses, the DSL analyzed aerial photographs. The DSL found that the Willamette Valley lost an average of 546 acres of wetlands per year despite regulations that sought no net loss (Daggett 33). Of the total net loss of 6,877 acres of wetlands, the DSL attributed 64% of the losses to agriculture, 15% to upland rural development, 12% to other uplands, 9% to upland built, and 2% to upland forest plantation (Daggett 33). Therefore, according to the study, agriculture is the main cause of wetland loss in the Willamette Valley. The DSL maintains that this is consistent with national trends: the 1997 USFWS *National Status and Trends Survey* reported that agricultural conversions caused 79% of national wetlands loss between 1985 and 1995. Clearly, local and national regulatory programs have not effectively halted the disproportionate conversion of wetlands to farmland. Analyses of the regulatory programs show that agricultural conversions during this time either occurred as violations or were not covered by regulatory programs.

Oregon's Removal/Fill Law is the state's most comprehensive program for protecting wetlands. However, the DSL Wetlands Program released a study in 2000 as a follow-up to its 1998 findings that indicates that many agricultural activities could not be efficiently regulated by the Removal/Fill law. For example, the study found that "59% of the wetland changes (in the 1998 study) were not subject to permit requirements because they involved unregulated activities or wetland types not regulated at the time, or were caused by activities exempted from state regulation." (Shaich 7) Evidently, Oregon's "most comprehensive" wetland protection law can regulate only a minority of Willamette Valley wetland change.

Valley agriculture caused most of the changes subject to Removal/Fill requirements. Of these changes, 57% were agricultural conversions, generally wetland conversion to cropland (Shaich 7). However, most of the wetland changes that fell under the jurisdiction of the Removal/Fill law were not authorized: Seventy percent of the changes were apparent violations (Shaich 7). Furthermore, whereas 66% of the urban and rural development that altered wetlands was approved by a DSL permit, DSL did not approve any of the agricultural conversions. In fact, agricultural conversions in the Willamette Valley make up 81% of all unauthorized wetland changes (Shaich 7).

Regulations other than the Removal/Fill Law also have trouble controlling Willamette Valley wetlands change. The Swampbuster provisions of the Food Security Act have only limited jurisdiction over Willamette Valley agricultural lands. Only 32% of Willamette Valley agricultural lands were subject to the Swampbuster wetlands conservation provisions, and the Swampbuster does not cover major Willamette Valley

crops such as grass seed, nursery stock, grapes, orchards, and berries because they are not commodity crops (Shaich 8).

Wetland compensatory mitigation measures also fall short in many cases. Even though freshwater wetland regulations generally prefer restoration of previously converted wetlands, mitigation programs often practice "creation" of new wetlands in order to work towards no net wetland loss (Good 17). Although creation is popular, it often fails to replicate adequately natural wetland functions (Good 8). The NRCS, which oversees the Wetlands Reserve Program, also has come up short in its efforts to protect wetlands from agricultural encroachment. According to the United States General Accounting Office (GAO), "almost half of NRCS's conservation offices are not implementing one or more aspects of the conservation provisions of the [1985 Food Service Act] as required." (GAO 4) The GAO's nationwide survey suggests that "field offices do not always follow all required procedures, such as checking for wetlands violations during a compliance review, revisiting farms granted a waiver the previous year to determine whether the owner has taken measures to achieve compliance, or finding a farmer in violation for failing to implement an important conservation practice" (GAO 4). This puts into doubt the NRCS's ability to efficiently oversee its Wetland Reserve Program, because that program depends farmer compliance with the terms of the voluntary program.

As the ineffectiveness of these regulatory measures has shown, wetland loss due to agriculture is very difficult to regulate. The main reason for this difficulty is that wetland loss on private land is much less visible than loss on public land. For example, the Oregon Division of State Lands' enforcement program is largely complaint driven,

which happens to be very effective when enforcing urban activities that will alter easily observable wetlands. Agriculture, however, often encroaches on wetlands on private land. Therefore, wetlands interest groups cannot easily observe the change and thus will not likely lodge a complaint (Shaich 28). Oregon regulations that protect Willamette Valley wetlands often overlook agriculture as well because of a lack of state-local integration. Although coordination between the DSL regulatory program and local land use planning regulations effectively covers urban and rural development, there is no comparable coordination effort for agriculture. Consequently, because most agricultural activities in Oregon do not require local government approvals, wetlands conversion often goes unnoticed. Agriculture's significant role in Willamette Valley wetland loss and its ability to evade regulations might make it look like a negative force; this is not the case. Because Valley agriculture is so important to Oregon's economy, any improvements in wetlands protection measures have to be sensitive to this importance. With that in mind, improvements such as increased integration of wetlands programs and the promotion of effective private landowner incentive programs could reduce wetland loss due to agriculture while protecting economic interests.

Many agricultural activities that alter wetlands cannot be effectively regulated because of an overall lack of regulatory integration. For example, Oregon Statewide Planning Goal 5, whose objective is to "protect natural resources and conserve scenic and historic areas and open spaces," including wetlands (Oregon's Statewide Planning Goals and Guidelines Goal 5, 3), does not require protection of wetlands outside the urban growth boundary, where most agricultural land is found (Shaich 28). Therefore, land use planning goals such as the Statewide Planning goals should mention wetland loss on

agricultural land. This will raise awareness of the issue to a public who may or may not know about the problem of agricultural encroachment on wetlands. Furthermore, the Oregon Division of State Lands should expand its state-local cooperative programs to agricultural activities. Currently, most of this state-local integration covers only urban and rural development (Shaich 28). This had undoubtedly helped DSL achieve almost two-thirds compliance for urban and rural development activities with its Removal/Fill Law. Similar state-local integration that would address agricultural development could lead to similar regulatory success. This would involve new requirements for local government approvals as well as state government approvals for agricultural wetland conversions.

However, regulatory programs can protect wetlands from agriculture only to a point, because much of the conversion that occurs is quite difficult to observe. Therefore, a non-regulatory effort that involves incentives for farmers could complement regulatory integration quite well. Such a program would resemble the Wetlands Reserve Program but would expand upon it to enhance its effectiveness. Farmers who wish to sign up for the program would be eligible for tax breaks, technological assistance, and perhaps most importantly, educational programs. This program, which would ideally be maintained by a cooperative effort between the Division of State Lands and the Oregon Department of Agriculture, would offer tax credits to farmers based on compliance with wetlands restoration measures. In order to avoid noncompliance issues like those described by the General Accounting Office, farmers would agree to yearly inspections by the DSL in order to continue receiving benefits.

Inclusion of technological assistance would provide further incentive for farmers to comply with the program. Farmers who agree to substantial wetlands conservation efforts could receive funds toward new and more efficient farm equipment from the state. Finally, farmers who sign up for the program would have to attend an educational seminar about wetlands. Such a seminar would inform program participants about the ecological benefits of wetlands and about how to properly comply with the program. Ideally, this state-level expansion upon the Wetlands Reserve Program, which would still include the provisions of the original WRP, would benefit both Oregon's wetland resources and its farmers. Wetlands mitigation efforts on these farmlands would emphasize restoration and replication of lost wetlands, not just creation of inadequate wetlands to meet requirements. Ideally, these restored wetlands would function nearly as well or as well as natural Willamette Valley wetlands.

Wetlands loss due to agriculture is not an easy issue to negotiate, especially in the Willamette Valley. Both wetlands and agriculture are incredibly important parts of Oregon's and the Willamette Valley's identity. Due to the government's legacy of promoting agricultural development over wetlands conservation, Oregon has lost much of its original wetlands and continues to lose them today despite numerous protective measures. Integration of regulatory programs and promotion of incentives for private landowners could be the vital steps that would reverse the valley's trend of wetland loss to agricultural conversion. Admittedly, such approaches have drawbacks. Both regulatory integration efforts and non-regulatory farmer cooperation programs require tax dollars, which Oregonians are traditionally reluctant to pay. One way to solve this problem could be to launch a public informational campaign accompanied with a ballot

measure that would provide funding for these programs. In order to stop wetland loss, Oregon must promote visibility of the problem. If the state government aggressively informs the average Oregonian about the importance of the situation, it could accomplish its wetland preservation goals.

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