

Maximizing Opportunities for Farmland Protection in Environmental Markets (and minimizing the potential for loss)

by
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Summary:

Markets for ecosystem services (referred to here as “environmental markets”) seem likely to be helpful in keeping farmland in active in working agriculture. But they also pose challenges.

Environmental markets clearly promise diversified and potentially increased earnings for farmers and ranchers – obviously helpful in keeping them in profit and on the land. These markets should improve funding for better environmental performance on agricultural lands, reducing pressure to regulate and thus reducing farm business costs associated with regulation. They also seem likely to provide a price premium for longer-term contracts that will help keep farms in agriculture and, in some cases, will provide revenue for full easements that could pay farmers a fair price to forgo future non-agricultural development while continuing to farm.

Some of these markets, however, may also add to existing pressures to take high quality, productive land out of farm production and to hasten its conversion to environmental restoration. To the extent this occurs, it could add to existing economic pressures from non-farm development which, taken together, is already steadily increasing the cost of land and placing it out of reach of economically sustainable agricultural businesses.

The following paper describes some of the anticipated concerns about the potential for environmental markets to threaten agricultural lands and suggests ways in which the farmland protection and environmental communities might work together to optimize both the environmental and the land protection benefits of these markets while eliminating or at least reducing losses. A companion paper: “How Environmental Markets Can Preserve Agricultural Lands While Helping to Protect the Environment” describes the farmland losses that are occurring and the environmental consequences of those losses. And it explains the mechanisms and opportunities for farmland protection offered by emerging environmental markets as well as identifying a number of direct environmental benefits that should result from strong environmental markets. The two papers are intended to be read together.

Appendix A, provided at the end of this paper, describes programs and transactions that illustrate key issues and provide potential examples or models for how these markets may be made to work to the benefit of agriculture.

The market advantage to keeping land in active agriculture:

For most environmental markets in which agriculture is likely to become involved, the services that will be provided can easily be supplied while the land also continues in active, commercially

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viable farming or ranching. Conservation management practices developed in over seventy years of concentrated effort by USDA's Natural Resources Conservation Service¹ and by local conservation districts create a scientifically sound body of knowledge that can make this possible.

This fact provides a big advantage for agriculture in environmental markets. Landowners who can supply ecosystem services while continuing in farming need only earn, from their environmental market transaction, sufficient revenue to diversify and supplement their ongoing income from agriculture. This seems likely to allow them to provide ecosystem services at a much lower cost to the buyer than would be the case if the environmental market payments needed to provide the entire natural resource income from the land investment. So, in addition to the obvious and well known other benefits of preserving local agriculture, there will also be a substantial environmental service cost-benefit to society if the farmer can provide these services while also keeping the land in active agriculture.

It is important to keep this cost advantage in mind when reviewing the following discussion. The seeming environmental advantages to removing land from agriculture greatly diminish when one appreciates that, for the same price, a great deal more can potentially be done on land that is retained in active farming. There are immense opportunities for farms and for the environment in carbon trading, renewable energy, water quantity, water quality, habitat mitigation, and other markets (described in more detail in the companion paper). Many of these opportunities will be much more cost effective, environmentally beneficial, and socially advantageous if the land remains in economically viable, productive, working agriculture while, at the same time, providing the needed environmental services.

The market challenge to preserving agriculture:

If we are to take the fullest advantage of the opportunities for using agriculture to supply environmental markets, we need to understand and develop strategies for dealing with the very real challenges to keeping land in traditional farming that also exist. Let's consider a few examples of some of the key markets as a way fully understand the challenge and to carefully consider possible alternative strategies that could maximize the protection of farmland while also respecting the environmental needs.

The market for *wetland mitigation* probably represents the most significant challenge. Currently, a typical wetland mitigation project involves the full replacement of a wetland that has been destroyed by a development project. Very often, several small wetlands destroyed in a single large project (say a highway improvement), or in several smaller individual projects (say through a wetland bank), can be replaced by creating a single new large wetland in the same watershed. Because farmland is relatively cheap (with zoning protections, etc), is often flat, is presumably undeveloped and not surrounded by development, and is often located in areas of former wetlands, it becomes a natural acquisition target for the replacement wetland. And, because the wetland loss is permanent, the replacement must also be permanent. So the threat to farmland is clear.

There are several circumstances that highlight concerns about losses of active farmland:

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- ◆ Movement toward offsite mitigation: Until recently, permitting agencies strongly preferred wetland mitigation to be located at the same site where the development project is being completed. But it has become increasingly evident that this approach can result in a poorly performing wetland, often surrounded by impervious surfaces, and usually not located in the most desirable and environmentally productive place in the watershed.

This preference still persists, but a more modern “watershed-based” approach is increasingly leading the regulatory community to move toward “off-site” wetland mitigation.² This trend, of course, will increasingly direct wetland mitigation toward flat, fertile, open, undeveloped, and inexpensive rural areas – in other words, in the direction of agricultural lands.³

This off site mitigation trend, however, also suggests, in the right circumstances, that there may be increased opportunities for farmers to sell wetland credits by converting boggy, unproductive patches of their farm, supplementing their farm revenue, while keeping the productive land in agriculture.

- ◆ Mitigation ratios: Exchange ratios are used to determine how many acres of replacement wetland will be required to adequately mitigate for each acre lost by reason of a development project. Consistent with the Federal policy of “no net loss,” these ratios understandably reward the new outright creation or full reestablishment of like-kind and like quality (or better) wetlands. They also provide for lower credit for rehabilitation or enhancement of existing wetland areas that are degraded, but presumably still providing some wetland function.⁴

It has been argued that, in practice, the current ratios too strongly discourage the improvement of wet, unproductive areas that are currently in agriculture but are only of marginal use for farming yet may still be providing some limited wetland function. This is a very typical circumstance on existing farms. But for the unfavorable credit ratios, these wet boggy areas on farms could represent an excellent opportunity for farmers to sell wetland credits without removing highly productive land from agriculture. These ratios need to be understood and, if appropriate, the case be made for their improvement.

- ◆ Benefits of aggregation: Opportunities for wetland mitigation are limited and are diminishing as our suburban areas sprawl and as rural landscapes increasingly fragment and are developed. At the same time, it can often be less costly, per acre, to create one large, multi-functional wetland in a single location rather than to build several smaller ones in multiple locations. A single, large wetland allows the wetland banker or developer to deal with a single landowner, rather than several. Construction costs are lower. And outright ownership of the site makes construction and quality control easier.

There are also environmental advantages to fewer larger wetlands as well.⁵ A larger site may address a larger number of environmental functions than a number of smaller ones.

This preference for larger sites seems likely to reduce prospects for farmers to sell wetland credits on small, unproductive areas of their farms and to increase the odds that larger farm acreages, including highly valuable farm ground, might be taken out of agriculture entirely.

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That said, however, it is also acknowledged by wetland experts that, for some wetland functions, there are also some advantages to having wetlands more widely distributed across the landscape.⁶ And it seems possible that, because the wetland income need only supplement other existing crop revenue from other parts of the farm, farmers may be able to offer a competitive price for smaller, more widely dispersed wetlands. So this, also, is not necessarily a closed door for farmers.

- ◆ Market volume and the pressure of money: Wetland mitigation is an increasingly significant economic influence, and one that seems likely to grow. About \$350 million is currently being spent annually in the Puget Sound Basin for public transportation projects alone,⁷ the large majority of this spending is on wetland mitigation, with the cost running between \$200,000 and \$400,000 per acre and at times as much as \$800,000 per acre.⁸ There are, of course, very large expenses involved in creating/improving wetlands and obtaining permits and credit certification. But when one compares those prices with a likely \$2,000 to \$6,000 per acre agricultural business value for farm cropland, one can appreciate the potential for wetland mitigation demand to add to existing pressures to take farmland out of agriculture.
- ◆ Benefits of (and preference for) intact wetlands: Current wetland mitigation rules appropriately reflect the clear national policy treating wetlands, in and of themselves, as an environmental value and their loss as an independent environmental concern. The huge value of wetlands is that they produce many individual environmental functions at one time and provide considerable synergy in providing these functions. Many of these values or functions might also be generated separately, in another context (on active farmland, for example). But the rules, understandably, do not easily facilitate the replacement of lost wetlands with equivalent or even with greater separate replacement values. Instead, fully intact wetlands are essentially required – and of the same wetland type as what is lost.⁹ “Out of kind” wetland mitigation is, in fact, highly controversial. The upshot is that the current approach largely discourages the use of wetland mitigation funding in situations that would allow the concurrent use of the same land for agriculture.

Wildlife habitat conservation markets also present some barriers to entry for farmers seeking to keep land in active agriculture, although there also seem likely to be greater opportunities here for farmers than in wetlands markets. Habitat markets are, so far, much less mature, with most of the examples of their use arising in California and driven by a strong State endangered species act and an engaged regional U.S. Fish and Wildlife Service. So it is less clear exactly what standards will end up applying in the wide variety of potential future market applications in other locations around the country.¹⁰

Some of the habitat requirements for some creatures needing protection are likely to be inconsistent with coincident agricultural use of the land. (For example, the pileated woodpecker requires large areas of undisturbed old growth forest.) For some creatures, habitat protection will call for significant compromise in also extracting forest or agricultural value. (For example, the bald eagle needs tall trees for nesting and roosting with significant surrounding areas of protection.) In some instances, there may be additional protection needed during a certain life stage or time in a migratory cycle. (Salmon, for example, require special protections during their

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annual freshwater migration.) For some, providing an annual migration corridor or resting/feeding places will suffice. (Some migratory birds may be able to use active croplands during times of the year when fields lie fallow.) And some creatures may be quite able to make use of land that is actively grazed or cultivated. (Properly managed, cattle can often occupy the same range as other species without undue interference.)

Clearly there are potential opportunities for the use of funds generated by mitigation requirements in incidental take permits for protected wildlife.¹¹ Because habitat conservation mitigation is still somewhat rare outside of California, the jury seems to still be out on the extent to which future mitigation will represent an opportunity for or a threat to agricultural land protection.

Water quantity transactions also present a mixed bag. Where agricultural water rights are sold outright, unless they are clearly unneeded, the loss of the water for agriculture is probably going to be a net negative for agriculture. Water right leasing, however, offers significant opportunities. The lease of a water right can allow a farmer to earn income and perhaps preserve that right from loss through non-use, while also helping address an in-stream flow or other important environmental or other need. These transactions can facilitate the adoption of new, more efficient water delivery technology without risking loss of the water right. They can encourage water conservation perhaps at a time of year or in a manner that does not diminish the farmer's irrigation or other needs. They can make it possible for farmers to cooperate in providing reliable water resources to other social needs while not placing at risk their agricultural needs or their future right to recover the water when it is again needed. And they can create water use flexibility for the farmer without his risking the loss of the water right by reason of temporary non-use.

Water quality trading and carbon sequestration are probably markets that offer the greatest farmer opportunities with the least threat to farmland. But even here, some of the potential practices could take land out of agriculture – buffer strips and afforested lands for example. Farmers involved in designing these programs will need to be conscious of these issues.

In the renewable energy area, some offer concerns about the loss of farmland to wind towers (and their associated access roads and infrastructure), for example. The farmer benefits may be substantial, but the possibility of losses of agricultural lands is present.

Pressures for change:

Conversely, there are also potential counter-pressures that could help motivate opportunities for private farm, ranch, and forest lands to participate effectively in future environmental markets, while also being protected for agriculture:

First, the disappearance of open, undeveloped lands in areas surrounding our urban centers is making it ever more difficult for development project permit applicants to find the kind of mitigation required for their projects. And new mitigation quality requirements are increasing the cost. If our urban centers are to continue to grow while, at the same time, protecting environmental quality, the need for low cost, effective mitigation and offsets seems likely only to increase in the years ahead. The shortage of appropriate sites for mitigation already suggests the

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need for a multi-use approach to our remaining private natural resource lands. The fact that lands that are in coincident agricultural production can potentially provide these services at a lower cost is a big argument for helping them stay in farming.

Second, at the same time (and despite the spending of a good deal of money), the current environmental mitigation system seems not to be performing well. Several studies of wetland mitigation indicate that the current system is providing only at best about 50% functional equivalency for replaced wetlands – falling substantially below the full “no net loss” targeted by national policy.¹² Assuming this performance even somewhat mirrors the performance of other types of mitigation and offsets,¹³ there is clear room for improvement and opportunity for farmers to provide better quality and greater certainty of performance as well as lower cost.

Finally, the idea of environmental markets is relatively new and the rules that will guide these markets are essentially still to be written. Those groups likely to be affected by them are still in a position to make sure they emerge in ways that work. Farm, ranch, and forest landowners, for example, can still influence future markets so natural resource landowners can effectively participate. Land trusts, farmland protection programs, environmentalists, and others working to assure a sustainable future agricultural land base can also help make sure these markets will help achieve their goals.

Environmental markets may be able to help us protect critical agricultural land while also respecting individual interests in private property, avoiding increased burdens on the taxpayer, strengthening and reducing the cost of the current mitigation system, protecting the environment, and providing new income for agriculture. But if they are to do so, it seems worthwhile for land protection organizations, agencies, and interests, as well as farmers and ranchers, to encourage their development in ways that support these outcomes.

Options and possibilities

So what are some possible ways we might address the above challenges to farmland protection while still maximizing social and environmental benefits? As is mentioned above, for most environmental markets, traditional, well understood conservation practices can be used without undue challenges for retaining the land in traditional agriculture. For others, however, there remains a need to seek out (and perhaps to facilitate with appropriate regulation) approaches that will allow land to remain in farming while still providing marketable (and highly effective) environmental services:

- ◆ Environmental value focus for wetland mitigation: Wetland mitigation procedures already focus on assuring the optimal replacement of the particular wetland values that are lost by reason of each particular permitted development project. The trend toward a focus on the watershed as opposed to on the particular development project or impact being mitigated/offset complements this by helping to identify the specific environmental values that are in shortest supply and most desperately needed in the relevant watershed. Within necessary legal constraints, we might spend at least some small part of available mitigation funding to purchase those most needed values, rather than, arbitrarily replacing only and exactly what has been lost by reason of a particular construction project. For many of these specific values (e.g. aquifer recharge, flood detention, wildlife habitat and migration, surface

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and ground water filtration, etc.), farmers may be able to produce many of the most needed environmental qualities while continuing to farm. And, by doing so, may actually be able to provide a great deal more of the lost value at a much lower cost, to greatly increase the restoration values provided, and to make that restoration much more strategic and cost-effective. This approach, however, may run counter to the no-net-loss of wetlands policy under the Clean Water Act. So careful and creative thinking will be needed to define opportunities that achieve positive results while avoiding conflict with important and firmly established law and wise policy.

- ◆ Finding environmental market-friendly alternatives for wetlands and buffers: Because environmental markets are new, little thought has been given to what we might do to make it easier for farmer-suppliers to provide (and be paid for) the needed services. Just to mention a few possibilities:
 - *Wetland ranching:* With thoughtful management, it is proving quite possible to extract substantial grazing value out of seasonal wetlands (sometimes called “summer pasture”) while greatly enhancing and protecting wetland function – perhaps well in excess of the usual productivity expected of an unmanaged natural wetland,¹⁴ especially one that was historically degraded.
 - *Rotational wetlands:* Projects in Skagit County, the Klamath Basin, and elsewhere, are demonstrating that rotating wetlands with agriculture (usually over a period of years) can provide highly productive wildlife habitat and other wetland services while also enhancing agricultural production during the agricultural rotation.¹⁵
 - *Seasonal blockage of drainage systems:* By providing temporary blockage and overflow, ditches and waterways designed to provide drainage for agricultural lands could be used in the appropriate season or during non-crop periods to provide wetland values. The ditches themselves could become temporary wetlands, and, where appropriate, some of the crop land could as well. During the crop season, the ditches could be opened up and the land drained for normal cropping.¹⁶
 - *Managed buffers:* Rather than requiring that all buffers and all parts of buffers be strictly “no-touch,” several pilot studies are demonstrating that, carefully managed natural resource uses on less critical portions of buffers might allow the landowner to continue to earn farming income, while also, potentially, producing substantial environmental values in riparian salmon and other buffers. Such activities might depend on the specific type or location of the buffer or might be limited to less critical portions of a buffer (e.g. further from a stream edge). They might include: carefully managed ranching, selective timber harvest, no-pesticide tree fruit, managed nursery stock, and other carefully managed farming activities consistent with the environmental functions that need protection.¹⁷

- ◆ Protecting uplands: Wetlands that are surrounded (beyond their currently required buffers) by impervious surfaces and development do not perform well. Indeed, this is the rationale for increased acceptance of off-site wetland mitigation. But what sense does it make to locate these wetlands in rural, agricultural areas only to watch, in the years ahead, as encroaching development ultimately surrounds them anyway? Perhaps we could require (and pay for) agricultural easements on surrounding uplands that would help keep the farmers in farming while also protecting the long-term future of the highly valuable

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mitigation wetland itself. This could simply be made a part of the environmental marketplace.¹⁸

- ◆ Complementing public money: Related to the above item, some public funding is already available for farmland protection and for environmental services at the county, state, and Federal levels.¹⁹ These programs do not generally claim the environmental credits produced by the purchase of agricultural conservation easements or by the payment of conservation incentives.²⁰ So these acquisitions and contracts can potentially reduce the cost of mitigation or offset purchases, providing a potential benefit to protected/participating landowners and an added motivation for protecting farmland and for conservation stewardship.²¹
- ◆ Ecosystem service program priorities for purchases on protected land: Ecosystem service purchasers could be encouraged to provide priority (through, e.g., additional points in ranking systems, improved trading ratios, higher prices, etc.) for acquiring environmental services to be produced on lands that are already protected or will be protected for agriculture by a permanent conservation easement.²² Such priority would make sense for the buyer because the land could be assured to be available to produce the services over the long term. This might enrich what could be offered to a landowner willing to consider a perpetual easement, thus creating an added motivation for farm and ranchland protection and also supplementing current public funding for easement purchase programs.
- ◆ Facilitating constructive social cooperation: Seeming inconsistency between different environmental objectives can often create conflict between ag and environmental interests. But when these objectives are viewed in terms of the specific environmental values in play, and once a common currency for those values is established (e.g. by a marketplace), the possibilities for compromise, collaboration, and mutual exchange often emerge. The Skagit “Farms & Fish” agreement is an example, in which farmers, environmentalists, and local tribes agreed to an exchange of support that allowed farmland to be protected and future environmental services to be assured. The tribes agreed to support the farmers in re-permitting certain historical tide gates needed to protect farm fields from inundation. The farmers agreed to support the tribes in securing new salmon estuary and habitat restoration sites. It was agreed that each approved tide gate was worth a specified number of acres of restoration, and with this ratio of exchange, each was assured of reaching their critical goal.²³
- ◆ Fee-in-lieu programs: New programs that accept a fee in-lieu of mitigation, rather than requiring the permittee to provide the mitigation directly, could provide institutional support for emerging markets by adopting (where possible) rules and procedures that facilitate the flexible acquisition of environmental values that are most strategically needed in the relevant watershed. Many of these acquisitions would likely be from active agriculture. Well-designed programs could encourage the farmland protection benefits mentioned in this paper and provide a central partner with whom land protection interests could work.²⁴

Models and examples of environmental markets providing farmland protection

There are a great many examples of programs, prospective programs, and transactions that illustrate how environmental markets can work for agriculture.²⁵ In Appendix A, however, we have assembled a number of models/examples of programs and transactions that help illustrate

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specific land protection opportunities or issues with agriculture participation in these markets. Included in Appendix A are descriptions of the following programs and transactions:

- ◆ Clean Water Services, Tualitin River Watershed Program – protection for riparian buffers
- ◆ New York City Watershed Program – land protection as an integral component of water quality protection
- ◆ Hickory Pass Ranch, Hickory Pass Texas – use of agricultural easement to protect wildlife habitat
- ◆ California habitat conservation banks – use of agricultural easements to protect wildlife habitat
- ◆ Gordon Dairy, Elma, WA – use of agricultural easement to protect wildlife habitat
- ◆ Piasa Creek Watershed Project – outright land acquisition approach
- ◆ PNW Direct Seed - impact of contract length in carbon contracts
- ◆ Montana Wetland Legacy In-Lieu Fee Program – Using ranchland easements to help achieve wetland protection.
- ◆ Scott Meyers Sweet Grass project with Kwiaht – wetland protection on active farmland
- ◆ The Nature conservancy’s Farming for Wildlife project – wetland protection on active farmland
- ◆ Klamath Basin rotational wetlands project – wetland protection on active farmland
- ◆ Whatcom Land Trust – land trust stewardship contract with farmland protection program
- ◆ Jefferson Land Trust – sale of timber carbon sequestration to fund land ownership
- ◆ Puget Sound Partnership Fee In-Lieu Program – a potential opportunity to use watershed strategic mitigation acquisitions
- ◆ Cascade Land Conservancy Flash Grazing on Buffers project in Kittitas County – active agricultural use of salmon buffer
- ◆ OFP’s CCIP proposal to Washington NRCS – priority for protected active farmland in funding for conservation practices
- ◆ Skagit County Farms and Fish agreement – inter group exchange of support for ecosystem service restoration
- ◆ San Antonio TX – Farmland protection for aquifer recharge
- ◆ Dakota County MN – Farmland natural areas protection

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(Note: This document was originally written for and published by American Farmland Trust and is on line at: <http://www.farmland.org/environmentalmarkets>. The above version has been updated.)

Notes:

¹ The product of this work is compiled in the NRCS Field Office Technical Guide – accessible on line at: <http://www.wa.nrcs.usda.gov/technical/>.

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² See the “Making Mitigation Work” report and recommendations from the WA Department of Ecology’s “mitigation that works” process completed in December 2008: <http://www.ecy.wa.gov/pubs/0806018.pdf> and the new guidance from Ecology: “Selecting Wetland Mitigation Sites Using a Watershed Approach” at <http://www.ecy.wa.gov/pubs/0906032.pdf>.

³ SB 5684 which passed the Legislature in 2009 requires the WA Department of Transportation to consider public lands first in selecting sites for wetland mitigation and to make “every effort” to avoid net loss of agricultural lands. <http://apps.leg.wa.gov/billinfo/summary.aspx?bill=5684&year=2009>. This will help, but agricultural lands still seem vulnerable.

⁴ Washington State Department of Ecology “Wetland Mitigation in Washington State Part 1: Agency Policies and Guidelines” at: <http://www.ecy.wa.gov/pubs/0606011a.pdf>, (Chapters 5 & 6) discusses agency preferences and appropriate ratios used for wetland establishment, re-establishment, rehabilitation, and enhancement as mitigation. See, esp. tables 1a & 1b at pages 73 & 74.

⁵ See Dept. of Ecology publication: “Selecting Wetland Mitigation Sites Using a Watershed Approach” at <http://www.ecy.wa.gov/pubs/0906032.pdf>

⁶ Personal communication with WA Department of Ecology Wetlands Program Manager, Lauren Driscoll.

⁷ Presentation by David Dicks, Executive Director of the Puget Sound Partnership at a “Wetlands in Washington” seminar held October 25-26, 2007 at the Renaissance Seattle Hotel sponsored by Law Seminars International. <http://www.lawseminars.com>.

⁸ Presentation by Dennis Canty of Evergreen Funding Consultants on November 5, 2009 at Focus on Farming Conference in Marysville, WA. This higher price is sometimes necessary for certain time sensitive, high pressure projects where project completion is essential and options for mitigation may be limited

⁹ The rules do seem to provide for some, highly limited, space for the replacement of wetland on uplands. This is allowed in theory at very conservative trading ratios of between 10:1 and 20:1. But the rule is very limited and there seems to be very little or no use of this in current local practice. Washington State Department of Ecology “Wetland Mitigation in Washington State Part 1: Agency Policies and Guidelines” at: <http://www.ecy.wa.gov/pubs/0606011a.pdf>, Ch. 6.5.7 at pg. 78.

¹⁰ The U.S. Fish and Wildlife Service has issued a “Guidance for the Establishment, Operation, and Use of Conservation Banks,” May 2, 2003, at: <http://www.fws.gov/Endangered/pdfs/MemosLetters/conservation-banking.pdf>, and it provides a “Habitat Conservation Planning Handbook” in which habitat mitigation is provided for: <http://www.fws.gov/Endangered/hcp/hcpbook.html>. NOAA Fisheries, responsible for marine species (like salmon) has a “Habitat Conservation Planning and Incidental Take Permit Processing Handbook” November 4, 1996, which also provides for mitigation – Ch. 3B. See: http://www.nmfs.noaa.gov/pr/pdfs/laws/hcp_handbook.pdf. But for both agencies, the rules for mitigating for habitat damage seem much less clear than for wetland mitigation, and, hence, the marketplace is much less mature. And a review of the WA Department of Ecology’s “Making Mitigation Work” report also illustrates that wetland mitigation was the heavy focus of discussion and decision in that process.

¹¹ Such a permit is required where a development activity will result in the “incidental take” of species listed under the U.S. Endangered Species Act. This permit will, presumably, state conditions under which this take will be allowed – potentially including a requirement for mitigation.

¹² See the Washington Department of Ecology Mitigation that Works website at: <http://www.ecy.wa.gov/mitigation/index.html>.

¹³ Concerns are often expressed about the effectiveness of carbon markets as well: See: “Money for Nothing: The Illusion of Carbon Offsets,” by Todd Wynn of the Cascade Policy Institute at: http://www.cascadepolicy.org/pdf/env/Climate_Trust_Audit_021009.pdf

¹⁴ Kwiaht, Center for the Historical Ecology of the Salish Sea is currently working with the Meyers Family at their Sweet Grass Farm on Lopez Island, WA in a practical study of this idea. Early reports suggest dramatic benefits for environmental performance as well as for farm productivity. The Kwiaht website is at: <http://www.kwiaht.org/>.

¹⁵ See The Nature Conservancy’s Farming for Wildlife project in the Skagit Valley, at: <http://www.nature.org/wherewework/northamerica/states/washington/misc/art21531.html>. Also see the “walking wetlands project” in the Klamath Basin. Both of these are described in Appendix A to this paper.

¹⁶ This idea has been suggested also as a potential aid in solving surface water flooding in Lynden, WA. Discussions with Heather MacKay, Research Associate, Faculty of Land and Food Systems, University of British Columbia. PO Box 332, Lynden, WA 98264, USA mackayh@gmail.com.

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¹⁷ For example, Cascade Land Conservancy is currently engaged in an on-the-ground study, in Kittitas County, to assess the environmental impact of “flash grazing” in riparian areas that might be treated as salmon buffers. Contact: Jill Arango, CLC Kittitas County Conservation Director, 509 962 1654, jilla@cascadeland.org. Appendix A

¹⁸ There is provision in wetland mitigation rules for crediting upland protection. See: Washington State Department of Ecology “[Wetland Mitigation in Washington State Part 1: Agency Policies and Guidelines](#)” at: <http://www.ecy.wa.gov/pubs/0606011a.pdf>, (Chapters 5 & 6).

¹⁹ Such as the Federal Farm and Ranchlands Protection Program, the Washington Wildlife and Recreation Program’s Farmland Protection Program, and local programs in King, Skagit, Whatcom, San Juan, Pierce, and a few other local Washington counties.

²⁰ USDA has, for example, specifically indicated that its conservation programs do not take any environmental market credit interest in the environmental services produced.

²¹ An example of private environmental market acquisitions benefiting from an existing publicly funded conservation program is the Clean Water Services (CWS) watershed program on the Tualitin River near Portland, OR. To secure NPDES permit compliance, CWS provides supplemental revenue that adds to the financial inducements for riparian plantings and protection already available to farmers through the Federal Conservation Reserve Enhancement Program (CREP). Taken together, this increased revenue seems to be providing sufficient incentives that farmer participation has increased, to the benefit of temperature (and other environmental values) along the Tualitin. See CWS Annual Report on its Temperature Management Plan Credit Trading Activities at: <http://www.cleanwaterservices.org/Content/Documents/Projects%20and%20Plans/Temperature%20Mgt%20Plan%20Annual%20Report%202005-06.pdf>

²² In 2009, the Washington Office of Farmland Preservation submitted a proposal to Washington NRCS under the new Farm Bill Cooperative Conservation Incentives Program to prioritize protected lands for EQIP funding. This proposal was declined. See Appendix A.

²³ See Appendix A for further details on this agreement. It is the writer’s understanding from recent communications with participants that this agreement is currently in abeyance. For more information, contact: Mike Rundlett, Project Coordinator, Western Washington Agricultural Association, (360) 424-7327, mwrundlett@fidalgo.net.

²⁴ At this time, it remains to be seen whether the new Puget Sound Partnership’s fee in-lieu program will work in this way. See “Q&A About the Proposed Puget Sound In-lieu Fee Mitigation Program” at: http://www.psp.wa.gov/downloads/EC2009/0409/03_InLieuFee_Questions_and_Answers_Final_041509_a.pdf.

²⁵ Many of these are collected in two papers: “[Washington Environmental markets Feasibility Study](#),” prepared by Evergreen Funding Consultants and AFT on line at: http://www.farmland.org/programs/states/wa/documents/WAConservationMarketsStudyReport_27Jan2009.pdf; and, “[Environmental markets for Agriculture Discussion Paper](#)” prepared by AFT on line at: <http://www.farmland.org/programs/environment/workshops/conservation-markets-november2008.asp>.