The Ins and Outs of Conservation Markets: Beginning to Answer the Tough Questions

Proceedings from the Conservation Marketplace Roundtable,
Willamette University, May 5, 2006

"The economy is a wholly owned subsidiary of environment."
Robert F. Kennedy, Jr.

Introduction

The Willamette River Basin is a complex landscape that supports nearly 70 percent of Oregon's human population. Prior to the influx of settlers that began in earnest in the 1850s, it supported a mosaic of upland conifer forests, oak woodlands, prairies, wetlands and riparian bottomlands. The Willamette River, fed by mountain streams, meandered across the valley floor, creating a system of braided channels, alcoves, gravel bars and wetlands that in places spread seven miles wide. This dynamic system, reformed and rejuvenated by large scale disturbances such as fire and flood, produced cold clean water and supported diverse plant and animal species.

Over the past 150 years, that system has been significantly altered. Today the basin supports 100 cities including three large riverside metropolitan areas; many small and large industries; and nearly 70 percent of Oregon's agricultural production. In the process of settling this space and obtaining these services we have dammed tributary rivers, diverted streams, drained floodplains and funneled sections of the Willamette River into a simple utilitarian channel. We tap the river for drinking water, irrigation and industrial processes and use it to carry away our waste products. Today's prairies and oak savannas cover less than one percent of their former extent. Along with riparian forests, they are succumbing to housing development and agriculture's more recent arrivals--wine grapes and nurseries.

Over three decades, Oregon's unique land use system has slowed the process of land conversion. Federal and state regulations have maintained standards for clean water and imperiled fish and wildlife. Meanwhile, we have greatly advanced our understanding of complex ecological processes and functions. Today, we recognize that in taming the landscape, even within regulatory protections, we have compromised some of the restorative capability of the basin's ecological systems—their ability to renew themselves.

We need to strategically restore these declining ecosystem renewal functions in key locations and at a scale that is meaningful. This will involve collaboration between many parties and significant financial investment. The Willamette Partnership, a non-profit coalition of leaders from across the basin, is seeking solutions and searching for appropriate tools to build the social, political, technical and financial support for this endeavor.

An Ecosystem Marketplace

One exciting new set of tools provides the means for trading ecosystem services such as clean air, clean water and fish and wildlife habitat. Around the world, societies are placing monetary value on these services, establishing a currency called "credits" and exchanging these credits for

money to fund retention or restoration of key ecological services. Carbon sequestration and wetland mitigation banking are perhaps the best known examples of this trading concept.

The Willamette Partnership is building an ecosystem marketplace in the Willamette Basin. We are not alone in this endeavor. The Partnership is comprised of representatives from agriculture, business, industry, urban management and academia, all of whom have an interest and stake in success of the marketplace. We expect our efforts will not stay confined to the basin, as these same mechanisms for trading are rising in use and acceptance throughout the Pacific Northwest. We wish to work with our neighbors to build a fully functional trading and banking system that benefits the larger Northwest landscape. Similar ideas are drawing broad support around the world and creative new models are emerging rapidly.

The US Environmental Protection Agency awarded $779,000 to the Partnership in 2005 to build a model multi-credit trading system focused on water quality, specifically temperature reduction. The National Fish and Wildlife Foundation provided support through The Oregon Governor's Fund to convene public and private interests in developing a regional marketplace.

Purpose of the Roundtable

Creating the means of exchanging money for ecological processes is not simple. Many big questions need to be answered. Toward this end, the Willamette Partnership and Willamette University hosted the first of what is hoped to be a series of roundtable discussions. These are not intended to be merely "think tanks" but to instead address the key challenges that arise during this development stage and draw ideas and pragmatic solutions from key players including regulators, landowners, land managers, restoration practitioners and investors. Additionally, we hope these gatherings will foster relationships between marketplace participants who might otherwise have few opportunities to meet or understand each others needs or seek mutually beneficial solutions.

On May 5, 2006, more than 90 invited participants gathered at Willamette University in Salem. Participants were government staff and directors, university students and professors, consultants, business owners, conservation organizations and private landowners. This first Conservation Markets Roundtable was convened to help participants reach some common understanding of the shared questions, innovations, and perceptions surrounding emerging conservation markets in the Northwest. The discussion from the day will be used to help shape new efforts to build conservation markets and opportunities for future dialogue. This report is intended to capture that discussion and provide some guidance for next steps in creating a vibrant ecosystem marketplace in the Pacific Northwest.

The report was funded by the U.S. Forest Service's Pacific Northwest Research Station, written by Marcia Sinclair, and enhanced by other members of the Willamette Partnership's staff and board. It is intended to summarize the issues discussed at the conference without attribution to particular participants other than guest speakers. Since it is a summary of diverse ideas, the report contains inconsistencies and the comments to follow do not necessarily reflect the position of the Partnership. The terms "ecosystem marketplace" and "conservation marketplace" were used interchangeably. This report will be posted on the websites of Willamette University, Biodiversity Partnership and the Willamette Partnership. Feedback is welcomed.

Roundtable structure

The roundtable was structured with two panels providing morning presentations. The first was focused on policy issues and was comprised of Linda Goodman, Regional Forester for the Pacific Northwest region of the US Forest Service; Louise Solliday, Acting Director of the Oregon Department of State Lands and former staff to Governors Kitzhaber and Kulongoski, and Mark Keiser of the Environmental Trading Network and Keiser and Associates, a consulting firm based in Michigan.

The second panel was comprised of practitioners with vast experience under their belts. Claire Schary, from the U.S Environmental Protection Agency focused on water quality trading. Jessica Fox, of the Energy Policy Research Institute, Inc. based in Palo Alto, is an expert on conservation banking. Dana Field manages wetland mitigation banking for the Oregon Department of State Lands and Charles Logue of Clean Water Services in Hillsboro has been a key player in developing the water quality trading model for the Tualatin Basin.

Following these presentations, participants headed for afternoon breakout groups where they addressed questions organized into three categories: *Nuts and Bolts* of a conservation marketplace, *Reasons* for setting up a marketplace, and *Roles* within the marketplace.

Ecosystem Markets at a Glance

The language of ecosystem service trading is new and evolving. Clearly one of the challenges of establishing a marketplace is building a relatively universal vocabulary and definitions to improve communication between trading parties. There seems to thus far be no universally accepted definition for these transactions involving payment for environmental services. Sven Wunder of the Center for International Forestry Research proposes five relatively simple criteria to describe the principle, paraphrased here:

1. Payments for environmental services are negotiated voluntarily.
2. Payments are made for a well defined service. This can be for either a directly measurable service (example: tons of carbon stored) or for land-uses that are likely to provide that service (example: floodplain restoration to provide cool river water).
3. Resources go from at least one buyer (example: developer)
4. To at least one provider (example: farmer or other land owner, although the transfer often occurs through an intermediary).
5. Payments are contingent upon the service being continuously provided (thus making monitoring and liability critical components of the transaction).

A second challenge is gaining familiarity with current programs and the services they trade. Roundtable morning speakers helped participants understand the programs in use in the U.S., particularly in Oregon:

Water quality trading involves paying landowners for conserving or restoring features of the landscape that maintain or improve water quality. In the United States, one of the primary incentives for these trades is the legal leverage of the Clean Water Act. Under this law, any entity that releases effluent (pollution or hot water) into a body of water must meet established standards for pollution and temperature. The Department of Environmental Quality, the agency

that enforces the Clean Water Act in Oregon, has established new thresholds for water temperature as part of their revised Total Maximum Daily Load or TMDL standards. These new stricter standards have placed greater urgency on permit holders to find better ways of cooling their effluent before it is released, or conversely, to find ways to cool river water. This opens opportunities for creative water temperature trades. In other states, trades are being made or explored for nutrients, sediment, bacteria, heavy metals and stormwater flows.

Conservation banking, sometimes called biodiversity banking, is based in the United States and driven by the U.S. Endangered Species Act. Generally modeled after wetland mitigation banking, fish and wildlife habitat and sometimes individual animals or plants found on a site generate sellable credits. According to Jessica Fox, from a landowner perspective this converts a liability (endangered species) to an asset (credit). Instead, the landowner/banker now sees endangered species habitat as a good thing with financial value. From the credit buyer's perspective, it provides quick and effective mitigation value that is often more effective than trying to find an offsite mitigation site. From the biologist's perspective they are more effective than traditional piecemeal mitigation. Rather than trying to do one project at a time, conservation banks consolidate conservation areas into much larger habitat with ecological data to support them. Typically the acreage has to be large enough to support breeding pairs of endangered animals. Most banks are in California, but they are spreading across the U.S. with approximately 50,000 acres protected.

Wetland mitigation is driven by the federal Clean Water Act, as well as Oregon's removal fill law. Both have a policy of no net loss of wetlands. Wetland mitigation banks are businesses that restore wetlands to generate sellable credits. The banker sells credits to developers who need to offset their wetland impacts to receive a permit. The regulatory agencies oversee the restoration plan and release wetland credits for sale when the site reaches its agreed-upon performance measures. According to Mark Keiser there are 550 wetland banks in over 30 states. Dana Field points out that a study completed by the National Academy of Sciences showed that a large number of mitigation projects were not meeting their objectives. Internal Division of State Lands studies showed that around 50 percent of Oregon wetland mitigation projects, excluding banks, were failing for various reasons. She is hopeful that new federal regulations will help address a majority of the problems. Mitigation banks get more agency attention than small permit projects, and have a much better success rate. Wetlands are such complex components of the landscape that they frequently have several ecosystem services bundled together including water quality and habitat.

Other markets hold opportunity for use in an ecosystem marketplace, but are not as well established in this country primarily because they lack a regulatory driver to motivate their use. Carbon trading, for example, is active in Europe and other industrialized regions a result of the Kyoto Protocol, an agreement made under the United Nations Framework Convention on Climate Change and effective in 2005 in which countries agree to reduce their carbon dioxide emmissions and other greenhouse gases. This form of banking is much less prevalent here because the United States did not ratify the treaty, but voluntary carbon markets have emerged through the Chicago Climate Exchange, Oregon Climate Trust, and Regional Greenhouse Gas Initiative in the Northeast. Other markets are driven by voluntary incentives. People are buying more sustainably produced and certified food and wood, corporations are offsetting impacts to

biodiversity to improve corporate image, and other organizations are making moves to reduce their ecological footprint by purchasing offsets or credits.

The following is a synthesis of the Willamette Conservation Roundtable afternoon small group discussion:

The Nuts and Bolts of a Conservation Marketplace

Goals

It is critical that we establish systems to determine our goals for complex ecosystem function. We must determine what we want on the landscape and what ecosystem functions we trying to protect. Goals should be framed at the appropriate ecological level and should be articulated in a way that can translate into market-based designs. Any mechanism we create should take into account the cumulative effects of our actions. In most cases, we do not have a starting baseline. The amount of ecosystem benefit produced above that baseline might generate credits. In many cases, where a baseline is hard to determine, "no net loss" is used as a baseline. Regardless of the baseline chosen, the broader goals should always guide the design and selection of market-based tools. We need to think creatively about what is currently being regulated to capture the habitat values of different systems.

Credits

A conservation credit is a tradable unit of conservation value. Credits are a common currency that gets at the value of the present resource. While that sounds simple, in practice it is not that easy to define. There are two categories of tradable units: Ecosystem function (water quality, air quality) and habitat/land (endangered species habitat, wetland, etc). Habitat credits often include a bundle of ecosystem function credits, but the tradable unit is often acres of land. Ecosystem function credits, like those for water quality, can be simpler to categorize and define than less specific ones like habitat where there are so many variables. Yet, habitat credits can capture a broader array of ecosystem benefits. There is currently a drive to tease out ecosystem function credits from habitat credits. This unbundling allows functions to be valued and regulated more clearly, but under current regulations, credits will need to be rebundled into marketable products for buyers. How do we agree to and establish broad ecological goals for the larger landscape where there are values that aren't currently regulated? How do marketplace organizers and participants value the services of wetlands and habitat and turn them into a tradable unit particularly where there is no regulation in place to anchor that value? Oak savannas and prairies provide good examples.

To Administer and track credits, we need

1. *An overarching entity.*
   This theme was repeated by several groups. The Willamette Basin for example needs a regional restoration authority so the administration role is assumed by one group. Ideally, we should start regionally and test a structure that might then be applied at a larger, perhaps statewide scale. Some suggested the Willamette Partnership was already in that role. Whether an authority or just a facilitator, whether the Partnership or some other group, there is a need to have clearly articulated governance roles and responsibilities to make the marketplace work. This is especially important because under the current

system, nobody is overseeing the full marketplace. According to Jessica Fox, only 25% of banks are visited.

2. *Lean Process:* efficient, easily understood and cost effective. There will be many challenges in keeping costs low.
    a. Build on federal guidelines.
    b. Buyers, sellers and the public must accept the fact that it is neither possible nor practical to measure every element of the environment with great precision.
3. *Different Scenarios*: Show outcomes of different policy options.
    a. What would happen under a trading program vs. existing mechanisms such as Senate Bill 1010 which requires farmers and ranchers to develop water quality management plans for their watersheds?
    b. How can you show additional ecological benefits beyond what is needed to meet Senate Bill 1010 requirements?
    c. How do you create a portfolio of ecosystem projects that capture the full range of ecological benefits?
4. *Transparency*: The process for establishing value, making trades and monitoring over time must be transparent. This is very important to make the trading process trustworthy. Credits must be established based on a scientifically sound analysis and the transaction must display the agreed-upon improvement in ecological function.
5. *Price covers costs*: Here, transparency is less critical. Some suggested an eBay-style trading system where the market determines the price. Prices must fully capture and incorporate long term monitoring and other costs. It was suggested that we use a Thomas Cooke exchange approach [a currency exchange system used in Europe] where all the costs are included. It was also suggested that we need a means for including the cost of public good.
6. *Creative model:* Trading program could be a vehicle for funding existing organizations/entities that provide value, e.g. the Willamette Partnership, Oregon State Extension Service, watershed councils, Oregon Watershed Enhancement Board and so on.
7. *Learn from others:* We should examine and learn from trading programs throughout the U.S.
8. *Consistency:* Need consistency over areas/regions, in part to keep transaction costs low. We need to use a geography people can relate to.

Monitoring

Effective monitoring has clear goals, is transparent, practical, broad in context, collects useful and relevant information. It tells us what we need to know and takes an integrated ecosystem management approach.

Banks must have clearly articulated goals in order to gauge success and those goals should be tied to statewide goals. The site baseline needs to be established early along with clear benchmarks. Monitoring needs to be integrated from the beginning. All of this needs to be agreed upon between the regulator and the banker. In other discussions, there have also been articulated roles for the public and third party marketplace facilitators in monitoring.

Broadly agreed upon ecological monitoring is a challenge. There isn't currently a consistent approach to ecological monitoring. Ecosystem characteristics are dynamic and difficult to measure. It is more difficult than compliance monitoring. Who does baseline monitoring and trade management? Minimize self monitoring to ensure credibility. Independent certified monitoring is necessary.

Incentives for strategic investment

Directing investment to high priority habitats is one of the primary goals of the Willamette Marketplace. There are a number of ways to do this. For example, a regulator can make one piece of land more appealing by adjusting the ratio that the permit holder must meet. For example a developer who damages an acre of wetland might have to restore four acres elsewhere. The regulator might offer a ratio of two acres restored to every one destroyed in order to steer investment to a high priority site. There may also be opportunities to provide low interest for investments in high priority habitat. Other incentives could include permitting the use of public incentive program funds to create private banks, and streamlined permitting. The issue of combining funding sources is currently being debated in several places around the country.

When is it stacking and when is it double-dipping?

It is worthwhile identifying parcels on which there are several significant ecosystem values to retain and manage. In fact this is the goal of banking. However the mechanism for valuing them and paying for them needs to be discrete so that a banker is not getting paid several times for the same ecosystem service or restoration action. How can this be done? If there are mutually exclusive segregated benefits, would the public be paying twice for the same thing? Benefits can be stacked once tradable units are identified. How should differences in time and classification of other stacked benefits be addressed?

A more integrated view of ecosystem management does not need to be complex and costly. Using key indicators, key organisms, and key quality measures can be an effective way to approach more complex measurement and monitoring.

There is no reason not to get compensation for multiple services from the same land. Stacking is likely to expand the supply of ecosystem services. It is often appropriate and can serve as an incentive for participation in protection and restoration. There are cost advantages to restoring, managing and monitoring fewer bigger places. Without this method of crediting more services from the land, bankers are likely to be driven to lower cost land rather than highest biological benefit. Stacking credits requires clear accounting mechanisms that transparently show what monies are funding which activities for which credits.

Liability

Different programs have different liability schemes. In ecosystem markets, there are large uncertainties surrounding the success of restoration, long-term management, and who is responsible for what. Different markets allocate risk differently. Increasing the credit ratio is a common tool. For example, one acre of impact to a wetland needs to be offset by buying two or three acres of credits. The extra credits protect against project failure. Other risk management tools in use include financial assurances, performance bonds, and long-term management endowments. Stakeholders need to find common ground on the best entity to hold liability, how

to manage risks, and how to effectively price risk. Some schemes are so complex that no one can follow, comply or understand and this adds to costs. Once again the system must be transparent and practical with clear goals and objectives.

Liability and risk become more complicated when markets deal with non-regulated ecosystem functions, or rapidly changing regulatory frameworks or environmental systems. Values for dynamic ecosystems also need to be dynamic, but this adds to uncertainty. If the focus will be on large-scale projects, how do market participants protect the integrity of those projects?

Reasons for setting up a conservation marketplace

What are the market drivers? What opportunities are there for conservation markets not tied to regulatory drivers?

Participants determined the marketplace is a three legged stool made up of environmental, economic, social elements.

Environmental

The following list of regulatory drivers includes some in active use and others with potential for future use:

- The Clean Water Act is the most urgent driver for trading in the Willamette Basin. National Pollution Discharge Elimination System permittees are facing strict requirements under the proposed Total Maximum Daily Load for temperature. Each permittee is given a load allocation. Permittees can trade to meet their requirements. Trading can also apply to pollutants such as nutrients, sediments, or storm water.
- Section 404 of the Clean Water Act and equivalents in state law are also drivers for wetlands mitigation banking. Section 404 requires "no net loss" of wetlands. A lot of money from large infrastructure projects, industrial land certification, and high density residential development is spent on small mitigation projects with limited ecological benefit to meet the "no net loss" goal. Wetland banking allows removal/fill permittees under Section 404 to meet their no net loss obligations in a more ecologically beneficial way.
- Endangered Species Act Section 7 requires a consultation for a project with federal nexus. These consultations can include requirements for mitigation in exchange for an incidental take permit. Habitat Conservation Plans can also include opportunities for conservation banking.
- Timber harvest rules could provide banking and trading options on projects where it isn't possible to mitigate strictly onsite.
- Oregon's Agriculture Senate Bill 1010 that requires farmers and ranchers to develop watershed water quality management plans.
- Federal Emergency Management Agency Floodplain fill regulations for any city or county in flood insurance program.
- Statewide planning in Oregon and Washington provides potential drivers. In the Oregon land use planning system, Goal 4 protects commercial forests and Goal 5 is intended to protect natural resources, historic resources, openspace and scenic quality. Washington manages land use through the Growth Management Act. These laws provide opportunities for defining and trading highest quality habitats and other services.

- Mine reclamation regulations provide opportunities for biodiversity offsets as well as water quality trading on releases of pollutants.
- Superfund and oil pollution through National Oceanic and Atmospheric Administration's Natural Resources Damage Assessment process. When releases of toxics damage natural resources, polluting parties are subject to Comprehensive Environmental Response, Compensation, and Liability Act, Oil Pollution Act, and/or Clean Water Act. The damage is quantified through the Natural Resources Damage Assessment process by a trustee agency (e.g. National Marine Fisheries Service), and responsible parties are required to compensate for the damage. It is feasible that damages could be offset by the purchase of restoration credits, but there is limited ability to create credits in advance of spills. Federal trustees have talked about creating regional restoration plans, which could be designated from existing plans.
- Tort cases provide opportunities through litigation surrounding environmental damages centered on private claims of injury incurred through pollution. Settlements from these cases could be used to buy credits, but often they are given to the plaintiff or to a trust fund to reinvest in the resource
- Third party litigation for enforcement (implementation settlements). Several environmental statutes include provisions for citizen suits. Settlement of these suits might result in acquisition of credits

Economic Drivers

- Urban growth
- Cost savings for infrastructure development needed to sustain growth. Some services can be provided offsite in a mitigation bank (transportation, dams, water supply)
- Agriculture conservation programs (Conservation Reserve Enhancement Program (CREP), etc.)
- Increased property values (sellers)
- Transfer of development rights
- Tax deferment
- Fire suppression/lower fuel load and combustion

Social Drivers

- Preservation of open pace, aesthetic and recreational values in response to urban growth
- Voluntary actions to address environmental concerns. These include salmon recovery efforts that are not legally required
- Pollutant reduction to create better corporate image

How do conservation markets fit in with other conservation tools?

They fit. The more challenging question to answer is *how* they fit. A marketplace involves willing buyers and sellers (if they are unwilling then it is a regulatory action, not a marketplace). There needs to be a free flow of information so that these willing parties can make choices, either on their own or with help from third party facilitators. The rules should be established by a governing body, but not necessarily government. Rules need to be enforced and monitored. That might be a role for government.

Buyers present goods and services such as wildlife habitat and recreation. Restored wildlife habitat will add benefit in water quality and soils. Buyers and sellers need to play fair by coming together at one time, looking at goods, agreeing to their value and bidding. Other parties can facilitate this transaction.

Looking at existing programs, frameworks, and currency, we need to get people engaged economically in a way that is attractive and simple. We need to define "multiple trades," "stacking" "double dipping" and decide if they are positive or not and under what circumstances. Different types of ecosystem functions occur naturally on the same site. Participants talked about the need to identify "surplus" created by restoration. Other terms have been used for the same concept. Carbon markets talk about "additionality," wetlands banking discusses "ecological uplift," and economists talk about "value added" or "externalities." Regardless of the term used, partners want to make sure market-based systems aren't paying for the same thing twice and that partners are getting the greatest benefits for the money invested. This requires an accounting system and definitions for the benefits created. There was concern at the Roundtable that focusing on exchanging the entire amount of extra environmental benefits will never get beyond "no net loss." It's un-American to reject too much of a good thing. More detailed accounting can clarify what is being bought and sold in ecosystem markets, but it is not a bad thing to have extra benefits created but not traded.

We have a number of educational opportunities as we develop this trading system. For example, the act of placing a dollar value on ecosystem services (monetizing) provides the opportunity to raise public understanding of the value of natural landscapes and waterways and the services they provide. We begin to create a common language. We begin to understand the needs for conserving larger scale landscapes rather than fragmented remnants. We put our money to best use. The marketplace can serve the interests of both urban and rural populations and create job opportunities.

There are challenges as well. Funding for a marketing strategy that helps get information out about the system, makes people aware and buying into it.

- Public outreach—translating the jargon of economics, regulation, and natural resource management into something understandable
- Credit currency—different values of an ecosystem. We need to be sophisticated about values. Social and environmental justice, commercial vs. Native American fisheries
- Effective leadership
- "Tyranny of the urgent"—we are all too busy with our regular activities to take on new creative approaches, particularly when they are in their infancy. We have conflicting priorities; we're too busy fighting fires every day and have no resources to make the transition
- Accountability vs. efficiency—not getting into quagmire of accountability with regulation getting in the way of efficiency
- The discussion took place in the absence of a hard core regulator, (one participant asked, "Is there such a thing as a soft core regulator?")

Roles Within the Marketplace

What are the different roles within the marketplace?

There are a number of important roles in the marketplace, some already filled, while others remain ill defined and as yet unfilled. Participants identified the following:

Regulators

They set up market potential and drivers. There are three potential drivers:

a. Regulatory, where one cannot proceed with an activity until legal criteria are met
b. Conservation or stewardship interest, the altruistic desire to restore or manage natural resources
a. Financial interest, using marketplace investment opportunities by buying and selling credits.

Intermediary/convener/champion (may help with evolution over time)

Conveners work at different scales and include nongovernmental organizations such as the Willamette Partnership, public agencies, and academic institutions. They provide the catalyst for developing the market. They are transaction brokers, directing buyers and sellers to the best investments. They provide technical formulas and establish rules of credit.

Strategists

We've got to have a plan. Willamette Partnership has the Willamette Subbasin Plan, Oregon Department of Fish and Wildlife Conservation Strategy, plus there is the work of the Pacific Northwest Ecosystem Research Consortium and agency plans like the Northwest Forest Plan that help get everyone working from a bigger picture perspective. Strategies need to converge into a synthesis of priorities.

Potential Buyers

These are the businesses and jurisdictions that have to obtain permission via permits to proceed with their activities. These include developers, utilities, cities and industries. They are "ecosystem disturbers" or "consumers." Permit applicants often find ecosystem trades less expensive or challenging than other processes they might use to meet permit requires. The transactions are voluntary. Investors and others may simply choose to participate.

Sellers

These are ecosystem service producers, e.g. acreage owners, farmers, land trusts, and resource owners.

Brokers

This is a key and seminal role. Brokers make the connection between buyers and sellers. We need people to know what's out there, where to get it, what it costs, help determine shared priorities and direct investment to priority areas.

Enablers

This party makes sure what we intended really happens. They provide long term monitoring.

Implementers

This is where private sector jobs are generated for designers, permitters, real estate appraisers, planners, scientists, monitors.

Insurers

Liability for the outcome of restoration actions is an important element of trading and varies from one regulatory driver to another. It may become appropriate to engage large firms to cover risks.

We need to decide who makes changes happen when it is time for this to evolve—conveners and enablers, civic forces or citizen oversight.

What are the advantages and disadvantages for different kinds of buyers?
Some groups felt buyers gain the greatest advantage from the marketplace. In particular the marketplace benefits those with limited financial resources because the cost of a permit violation taps a much larger percentage of the resources of small buyers. Other discussions have highlighted the benefits for sellers, such as agricultural landowners, and the public if the marketplace is successful.

One huge advantage to buyers is the ability to transfer risk, currently available to wetland and conservation credit buyers. By simply writing a check, these buyers are off the hook for the success of the restoration. Interestingly, this transfer is not available for water quality traders. This difference can cause problems when trying to do multi-credit trades. There may be a need to make the program rules more congruent.

There may be a negative public perception of transferring mitigation benefit and dollars offsite, which is a potential disadvantage. Current sequencing that requires permittees to avoid and minimize before mitigating can help. There could also be guidelines that reserve a percentage of mitigation dollars for local communities, allocating the rest to strategies priorities.

Costs are lower for bigger projects. There is an economy of scale with large mitigation or compensatory actions, both economically and ecologically. It is advantageous to have people who know how to combine credits.

This is a potentially great advantage for departments of transportation whose mission is not managing natural resources over time. They may benefit from being able to pay someone else who specializes in land management and can do it better.

At present, there is not a consistent approach to the legality of selling credits on land conserved or restored with of public funds. For example, credits on land covered by an easement through the Wetland Reserve Program, and land enhanced with Partners for Wildlife funds cannot be used for the sale of wetland credits to other parties. However, landowners receiving conservation money through Farm Bill programs can sell conservation credits. The rules associated with public funds and private credit sales need to be clarified.

<u>Accountability</u>

- In mitigation programs, permittees with habitat impacts can transfer their liability and accountability to the mitigation banker. For water quality trading, the discharging buyer of credits is still accountable for meeting their permit requirements.
- Fewer sites and fewer places in consolidated banking projects will make it easier to monitor and track success for banks.
- The market requires that someone act as clearinghouse and assume accountability.
- Shift regulators “no-net-loss” accounting from the current site by site and project by project approach to a systems or watersheds emphasis. Explore ways of pursuing net gain.

How can conservation markets help private landowners, watershed councils and others receive payment for their conservation work?
What are the roles?

1. *Federal/state regulators* validate credits produced by each technique, drive the market, provide funding for study and other things necessary to make the market work.
2. *Elected officials* work with the public to answer key questions of where resources be spent and sort out existing vs. new drivers or regulations.
3. *Intermediary* – manages the interaction between buyers and sellers by coordinating investment. Guarantor/broker to make sure value is added as expected and is directed toward the best investments. They develop technical formulas and define rules of credit.
4. *Catch all*: trade associations, conservation groups, professional associations somehow provide technical information to define what is currently ambiguous--an intact acre of "X" habitat. This is a joint effort among all these groups to create the market. Educate members on opportunities and raise awareness, examples: farm groups, realtors, sustainable industries and others who are doing the right thing. Those practitioners help sell credits.
5. *Effectiveness restoration practitioners* who can sell at market price (joint effort between 4 and 5) to create the market.
6. *Buyers* pay for credits and include
    a. Developers
    b. Permitted utilities
    c. Industries
7. *Educational nonprofit groups* produce useable knowledge and research
    a. Colleges
    b. Watershed councils
    c. Oregon Progress Board ideas and benchmarks

Closing

Dan Heagerty provided closing remarks for this first conservation roundtable. Dan is the Senior Vice President of David Evans and Associates and is Co-chair of the Oregon Watershed Enhancement Board. Here is a summary of his remarks:

Themes and central considerations

The most important thing we can to do is to get started now in the Willamette Basin. By focusing on water temperature initially, we can demonstrate how the concept works to supplement markets already in place. We must avoid getting bogged down in all of the possible complexities surrounding the marketing of ecosystem services.

The regulatory environment doesn't encourage innovation and does not provide certainty for investors. We need clear rules of engagement to attract investors and bankers.

The marketplace needs to address ecosystem function, not just single resources like wetlands and endangered species. Its name should reflect a more holistic purpose.

Stacking or bundling credits may be controversial and complicated, but combining payments for different services is a tremendous opportunity. We have some work to do to distinguish between

payments for multiple values and double dipping. But Clean Water Services has demonstrated that in combining revenue from state, federal, and local sources, it is possible to protect important ecological values by paying landowners for services. Combining different revenue sources is the key to achieving ecological goals. For example, conservation organizations may want to invest in the conservation of unregulated resources, like habitat for neotropical migratory birds. Others are investing in carbon. Utilities may invest in heat island reduction.

Challenges

How do we get agency alignments or can we, given mandates and case law? Should we limit third party litigation? How do we get past political parochialism? How should prices be set so that there is some certainty, but not fixed by government?

The current trajectory is setting us up for disappointment. We have huge capital investments that are further reducing ecosystem integrity. We're getting more species listed, not less. The basin population will double by 2040.

The ecosystems of the Willamette Basin are recoverable, and we know a great deal about how to address the problems. But we need to think big. Our biggest problems right now are our mental models, our training, our regulatory programs, our social perspective. We need to suspend that. We have to take the responsibility because we can't depend on policy makers or agencies to do so. It is up to us, the people who live in this basin, to clarify our vision and apply a marketplace approach because we'll never have enough money to get there using only public funds.

The next roundtable should be specifically on the Willamette. Let's start addressing the agriculture and forest land issues as working landscapes and how we can help municipalities redirect a tremendous amount of capital investment that's in the queue.

And we need to work on terminology—"marketplace, natural capital, surplus, ecosystem services."

I think what I heard today is very encouraging. I think that we can do a great deal. Our only limitation is ourselves. So I appreciate all of your thinking I think this is very good stuff. If we're smart and we work, this basin could be the healthiest place to live in the United States.

Next steps

Based on the discussion, conclusions and questions raised at the Willamette Conservation Roundtable, we have identified some key areas to further address and define. These include:

Goals

- Advantages and disadvantages to current regulatory drivers: are they helping us achieve desired conditions?
- Water quantity, its role in achieving water quality goals.

Accounting

- Establishing credit values: what is the value of a Willamette daisy?
- Address the extreme discrepancy between values of credits in a single market.

- Sorting out the pros and cons of "double dipping, bundling or stacking" credits.

Structure

- Establishing an overarching entity: perhaps the Willamette Partnership?
- Rules of engagement.
- Need for new rules through legislation.

Flexibility

- Creating ease of use
- Making it applicable for many participants

Thanks to our donors

The Willamette Partnership would like to thank our partner Willamette University and our sponsors who provided generous support for this first roundtable:

- Clean Water Services
- CH2M Hill
- Compton Foundation
- David Evans and Associates
- Defenders of Wildlife
- Oregon Department of Forestry
- Oregon Forest Resources Institute
- Sustainable Northwest
- USDA Forest Service Pacific Northwest Research Station
- US Environmental Protection Agency
- Willamette River Fund

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Participant Feedback

The Roundtables organizers expect these gatherings to evolve over time and are constantly looking to learn from past experiences. Through online surveys, thirteen people from local government, state government, non-government organization, public utility and research organizations gave us some great feedback. Overall, people were most pleased with the panel discussions before lunch and the overall quality of the first Roundtable. The reporting back at the end of the day and the small group discussion did not work as well for people.

When asked what they enjoyed most, people said the diversity of people and talking across various market-based approaches. The morning presentations, opportunities for networking, and the frank and thoughtful discussions were all mentioned as enjoyable. Participants recommended that next time we place more focus on discussing clearly defined questions with a more tangible outcome and set of answers.

Take-home messages included the need for listening, learning, and continual dialogue. Several comments were made about effective communication and stakeholder involvement. Some felt the agricultural community was missing from this first dialogue. Finally, there was strong feedback for early action and rapid follow-up from the Roundtable.
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Appendix 1….and more discussion keeps on coming

Since the Conservation Markets Roundtable conference on May 5 at Willamette University, several groups around the country have been tackling many of the same questions we struggled with. Two of these meetings included the 2nd National Water Quality Trading Conference held in late May in Pittsburgh and the Katoomba Group conference, "Making the Priceless Valuable," held in Portland in early June. Information and presentations from these meetings can be found on EPA's water quality trading website (www.epa.gov/owow/watershed/trading.htm), the Katoomba group's site (www.ecosystemmarketplace.com), or the Environmental Trading network site (www.envtn.org). Common themes across the gatherings included:

- Need for a common language to talk about market-based approaches and to communicate with a diversity of stakeholders.

On May 5th, it was clear that people talk about market-based approaches in many ways, using different words. A common and accessible language with clear definitions is an important element in ensuring transparency and sharing information.

There were some great indigenous perspectives at the Katoomba meeting. In one view, tribal and public trust obligations should be met before any banking is allowed. Some tribal representatives pushed back against the notion of anyone owning property and about the localized impacts of trading for tribes whose rights are tied to small patches of territory. Another perspective was that the language of credits, bundling values, trading, etc. is painful for many groups. Disaggregating services from an ecosystem that is viewed as a whole, as part of the family, strikes at the identity and "being" of many indigenous groups. In Hawaii, "if you grow the land, you grow the people, and it's OK to ask people to pay for that."

Many people at the Water Quality Trading Conference talked about the importance of communication and bringing "humanity" into trading programs. The focus should not be on meeting permit requirements; it should be on improving water quality. There were also a lot of differences in how people talked about water quality. For farmers, trading needs to be talked about in more than economic terms. Water quality is one of the most regulated natural resources in the country. Trading is now involving more partners (e.g. agriculture) in the water quality world, which demands a common language.

- Questions around the "stacking" or "bundling" of multiple types of environmental credits from the same land or set of activities.

Defenders of Wildlife is working with the Forest Service Pacific Northwest Research Station to develop a thought piece on generating multiple types of credits off of one site. Ricardo Bayon of the Katoomba Group's Ecosystem Marketplace commented at the Katoomba meeting that market-based approaches are trending toward the sale of multiple credits, but this generates other questions. "Stacking" credits will require more complex accounting, it may require potential buyers of credits to "unbundle" what they have to buy. For example, buyers of wetland mitigation credits buy a whole habitat (wetlands), which can have water quality, water supply,

and endangered species functions. Unbundling credits for sellers may require unbundling for buyers, which could decrease the price for any one type of credit.

A conference hosted by the Pacific Northwest Research Station in Portland in early June addressed the challenges of managing biodiversity in Pacific Northwest Forests. A presentation by Bettina Von Hagen described a strategy employed by Ecotrust designed to integrate the production of commodities and ecosystem services. Although "ecoforestry" may be profitable in the long run, it may not compete with industrial forestry models in the short run. Ecotrust is exploring ways to supplement ecologically sensitive wood production with payments from conservation easements, carbon credit sales, new market tax credits and other sources to make ecoforestry more economically viable and allow landowners to stay on the land.

- Challenges of combining other sources of public monies with the sale of mitigation credits.

There was a lot of discussion at the Water Quality trading conference about the use of other public funds to implement Best Management Practices on agricultural lands. The director of the Pennsylvania Department of Environmental Protection said no Farm Bill money could be used to generate creditable decreases in pollution. Bruce Knight, head of Natural Resource Conservation Service said unequivocally that Farm Bill money could subsidize creditable actions. This is an important policy question for Oregon and the rest of the country. The World Resources Institute will release a paper on the use of public funds in trading this July.

The U.S. Fish and Wildlife Service hosted a meeting in early June to discuss policy options for conservation banking in Oregon, specifically focused on the use of public funds to restore land that might eventually become a private bank. Several (but not all) programs administered by the Service prohibit the establishment of a private bank where federal funds have been used for the restoration. The concern is that there will be no net ecological improvement unless banks provide greater ecological benefits or "lift" than would have been gained through the federally funded programs. Several options for addressing the issue include adjusting the ratios to ensure improved conditions and allowing use of public funds for banks in priority habitat areas.

- Clarifying who ought to bear risk and liability in these market-based approaches and who has the best ability to bear the risk.

In lessons from Australia's Bush Tender program, defining risk and vulnerability were key.

Jessica Fox of Electric Power Research Institute (EPRI) Solutions talked about some of the challenges to species banking at the Katoomba meeting: political certainty, regulatory guarantees, knowledge and education, and market "thickness." She mentioned that bank credits/ratios should be adaptable, citing the example of San Diego banks that were burned over, but were still able to sell the same credits at the same ratios. A gentleman from a hedge fund remarked that asymmetric information was a good thing for him, and that political uncertainty was not a major problem. It allowed him to make money. There was a lot of disagreement on this point.

According to Ricardo Bayon of Ecosystem Marketplace, we need to be pushing toward long-term transparency, assigning risk to the people who can shoulder it, working with the financial sector to get markets over the liquidity problem, and if we unbundle credits, we need to unbundled impacts.

One speaker at Katoomba who works on forest issues commented that having a level supply and reducing risk for forest products is more important than increasing volume in terms of economic viability of producing timber or environmental credits like carbon sequestration.

There was a lot of discussion around the role of government at both meetings. Ricardo Bayon of the Ecosystem Marketplace said government should establish and enforce property rights. In many markets there is a tipping point where uncertainty decreases to the point where the market takes off. This happened in the carbon market. He also talked about the elements of a stable environmental currency. The European carbon market crashed on speculation of relaxed emission rules.

Government could hold “insurance” pools, which would manage risk for market-based approaches.

On June 22, researchers, waste water managers, regulators and restoration practitioners met to identify a process for valuing credits from floodplain restoration that could be purchased as offsets for Willamette River water temperature reduction. Agreeing that research currently supports floodplain restoration as a means to gain many beneficial uses identified in the Clean Water Act including cold water refuge sites for fish, the group agreed to take first steps toward developing a pilot floodplain restoration project. Researchers will define the requirements of a viable pilot project while representatives of Eugene and Springfield public works departments develop plans to help fund the project and Oregon Department of Environmental Quality crafts permit language that will open the opportunities for the cities to investment in the pilot project. Given the broad range of beneficial uses gained in addition to colder water, this may be an enticing opportunity for a wider group of investors. Expect to see more on this in the coming months.

Update provided by Bobby Cochran, Sara Vickerman and Marcia Sinclair.