



Counting on the Environment

A project funded by an NRCS Conservation Innovation Grant

WORKSHOP #5 AGENDA

Tuesday, August 4, 2009

8:30 am – 4:30 pm

Willamette University, Montag Den
Salem, OR

Meeting Objectives:

- Seek agreement by all participants on:
 - Statement of Agreement;
 - Process and criteria for including new pilot projects;
 - Role of the Working Group through the 2-year testing period.

8:30 – 9:00

I. Welcome, Meeting Objectives, Agenda, Action Items

A. Introductions

B. Overview and Updates

- Technical Items (calculators, trading ratios, accounting)
-

C. Review and approval of Workshop 4 Meeting Summary and Action Items (*Attachments: Action Items and Meeting Summary*)

9:00 – 10:00

II. From Birth to Retirement: The Credit Accounting Process

(*Attachments: Guide to the Process of Credit Creation*)

A. Presentation of the final credit issuance process

B. Question/answer and group discussion

10:00 – 10:15

Break

Willamette University, Salem Oregon Montag Den

Directions to the Campus

From I-5 (North or South)

1. Take the Highway 22 exit (number 253).
2. At the first light, head west (a left turn for those coming from the south, a right when coming from the north).
3. Stay on Highway 22 for about 1.5 miles.
4. As you pass 17th Street, you'll start up an overpass.
5. At the top of this overpass there is an exit to the right.
6. Take this exit (Willamette University is indicated on the sign).
7. Keep left as the exit divides.
8. You'll see a green Willamette University sign on your right — pass by, and continue to Winter Street.
9. The guest parking lot is on the northeast corner of Bellevue and Winter Streets, entrance on Winter Street.

From the Oregon Coast

1. Take Highway 18 east from Lincoln City (off Highway 101).
2. Stay on Highway 18 for about 27 miles.
3. Take the Salem exit (Highway 22).
4. Stay on Highway 22 for about 26 miles.
5. Highway 22 will take you into downtown Salem, crossing a bridge over the Willamette River, onto Center Street.
6. Turn right on High Street.
7. Turn left on State Street.
8. Turn right on Winter Street.
9. Just past Mill Street, turn left into the guest parking lot.

From Central Oregon

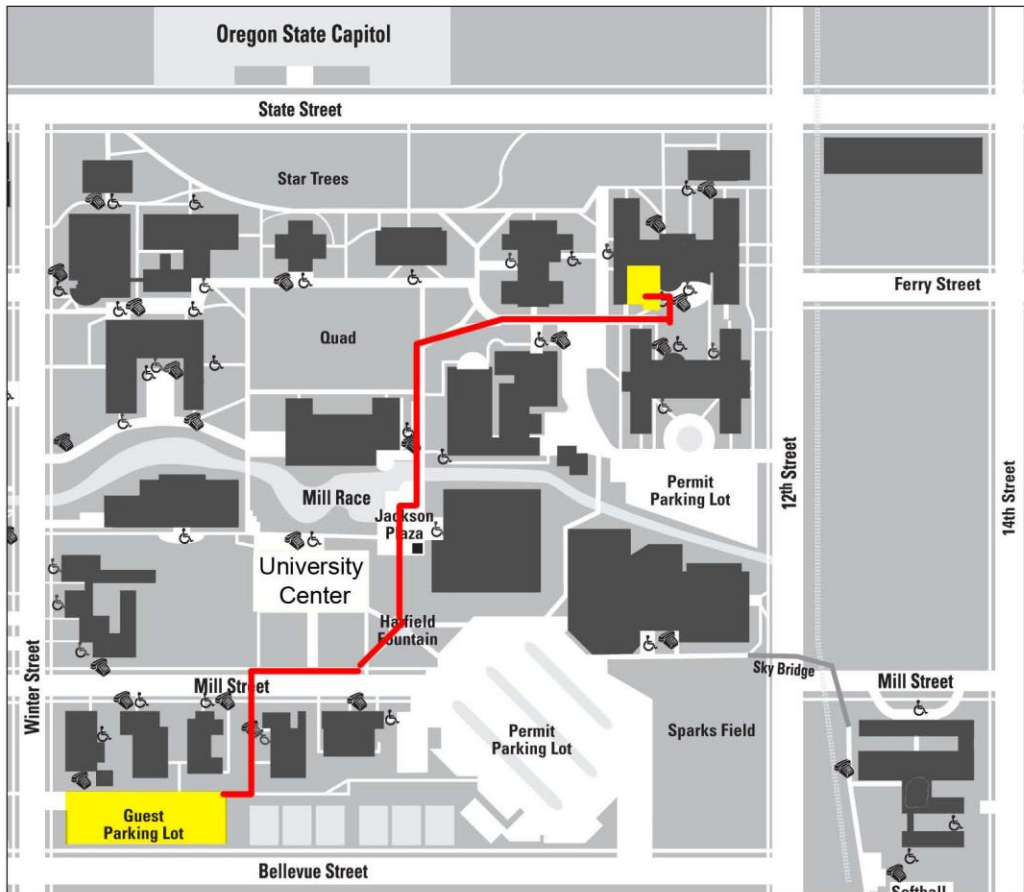
1. Take Highway 22 west.
2. After your pass over I-5, follow the I-5 directions above.

FOR PARKING:

We have 21 spots reserved on a first come first serve basis at no charge in the Guest Parking Lot at the northeast corner of Winter and Bellevue streets. Please contact Joni Shaffer jshaffer@willamettepartnership.org to reserve a parking place in advance as these spaces fill up.

Metered and un-metered city parking is also available on Winter, State and Cottage streets nearby.

Willamette University



From the guest parking lot, you can head to the back of the lot and walk between the buildings and across Mill Street, pass the University Center, pass the Eagle Fountain, go through Jackson Plaza, cross over the Mill Stream, go around Rogers Music Hall, turn right and go straight, when you see steps going down to the left take those down and turn left into the Montag Den.



June 5, 2009

MEMORANDUM

TO: Counting on the Environment Working Group Members

FROM: Debra Nudelman and Peter Harkema, Kearns & West

SUBJECT: Counting on the Environment – June 4, 2009 Meeting Action Items

Thank you for your participation and efforts at the Counting on the Environment Working Group meeting held June 4, 2009 at the Willamette University in Salem, Oregon. This memo includes the upcoming meeting dates, agreed-upon action items, and flip chart notes.

Upcoming Meeting Dates	Who	Location
<ul style="list-style-type: none"> <u>August 4, 2009</u> 8:00 am – 4:00 pm 	Working Group	Willamette University

Action Items	Who	When
1. <u>Information Follow up</u> <ul style="list-style-type: none"> Develop and distribute action items, and flip chart notes 	Kearns & West	By cob, June 5
2. <u>Salmonids</u> <ul style="list-style-type: none"> Modify to reflect need to mitigate for critical habitat impacts 	Project Team	ASAP
3. <u>Trading Ratios</u> <ul style="list-style-type: none"> Meet to further discuss trading ratios, develop written product, and distribute to Working Group for consideration 	Bill, Cathy, Kirk, Yvonne	Within next three weeks
4. <u>Water Quality</u> <ul style="list-style-type: none"> Review water quality trading Internal Management Directive (IMD) that is out 	Working Group members	In advance of cob, July 6

Action Items	Who	When
for public comment through close of business July, 6. (www.deq.state.or.us/wq/trading/trading.htm)		
5. <u>Map Unit Level Accounting</u>		
• Meeting to discuss accounting at the map unit level	Project Team with Brett, Meta, Gina, Bill W.	ASAP
• Provide an explanation of pre, post, and accounting map units	Project Team	ASAP
• Consider how to manage advance credits for those that have not yet met performance standards	Project Team	ASAP
6. <u>Agreement</u>		
• Consider adding a good faith clause to the agreement	Project Team	In advance of August 4 meeting

Bin List/August meeting
<ul style="list-style-type: none"> ▪ Consider role of the Working Group and how to stay in touch after the August meeting ▪ Provide a demonstration or mock-up of the TZ1 registry

Meeting Documents
<p>The following documents were distributed at this meeting:</p> <ul style="list-style-type: none"> ▪ Putting It All Together - Counting on the Environment Workshop #4 Materials Booklet ▪ Ecosystem Credit Calculator Assurances PowerPoint presentation handout <p><i>Copies of these documents can be obtained by contacting Kearns & West</i></p>

FLIPCHART NOTES

Decision Making

- April 17: Understand and actions to complete
- June 4: Agreement in Principle
- August 4: Complete package and concurrence

Water Quality

- For next phase, consider flow restoration and flow protocol

- Clarify language regarding ecologically appropriate, native/non-native species planting requirements

Salmonids

- Have a placeholder for when preference for priority populations become available
- Need to mitigate for critical habitat impacts
- Limiting factor in Willamette is spawning habitat and by coast it is summer rearing habitat

Wetlands example

Debit (10 acres)		Credit (10 acres) uplift	
Homes	0.3	Homes	0.6
Sponges	0.7	Sponges	0.8
Filters	0.2	Filters	0.4
Average	0.4	Average	0.6
Total (0.4 x 10 acres)	4 credits	Total (0.6 x 10 acres)	6 credits

Ecosystem Credit Calculations

- Credit Types:
 - Water Quality – Agreement in Principle
 - Prairie – Agreement in Principle
 - Salmonids – Agreement in Principle
 - Plug in priorities: if not able to do it now, include a statement about its importance. Also clarify for now in the fourth field HUC with priorities but may change in the future
 - Eligibility criteria: impacts to critical habitat need to be mitigated for by critical habitat for that same species
 - Weighting factors: consider TRT product – fourth field HUC, other?
 - Wetlands – Agreement in Principle
 - With recommended option for combing ORWAP scores with area to get credit

Trading Ratios

- Small group will take discussion outcome from today and craft written product for group consideration

Seller	Buyer
<ul style="list-style-type: none"> • In priority, high or medium success • Not in priority, Low success and in priority 	<ul style="list-style-type: none"> • In priority, and temporal loss (150%) • Not in priority/no temporal loss, priority/temporal loss (100%) • Priority and no loss (50%)

Supporting comments as offered by Working Group members along with their support for with pilot implementation

- Revisit eligibility actions on the stream
- Consider flow restoration and flow protocols
- Give consideration to agency’s statutory requirements and frameworks
- Provide a briefing paper, talking points, and boilerplate to help explain to decision makers
- Need sideboards on number of pilots to ensure it stays in the “experiment to learn from” phase
- Definition of riparian is really important – how big an area to protect?

- Be aware of side channel habitat that comes from flood plain gravel mining
- “Statement of Agreement” is the preferred descriptive phrase
- Reach out to some focus group of users/market banking groups
- Clarification around trading ratios
- Understanding how far through cycle and beyond
- Regulatory framework driving this, potential statutory and regulatory changes that might be needed → forecasting information will be critically valuable
- Consider temperature trade as one of the pilot projects
- Key will be to carefully look at the pilot project results
- Simplifications/assumptions need to be allowed to evolve to more complex approaches
- Others will want to know what is happening – and that you may be able to apply the tools as indicators elsewhere

Counting on the Environment Workshop #4 Meeting Summary

I. Welcome, Meeting Objectives, Agenda, Action Items

Introductions and Meeting Objectives

The Working Group Members were welcomed and thanked for attending the workshop. A round of introductions of those attending commenced. The meeting began with the objectives for the day. The Project Team’s goal was that the Working Group members would:

- Come to concurrence and agreement in principle on the different crediting protocols
- Think about whom they would need to involve from their agencies for ratification by August 4th.

At this meeting we are building the framework needed to take future steps. The process will be presented piece by piece and the group will be asked for concurrence on each piece and to check them off one by one. If anyone was unable to agree on a protocol, they were asked to voice this, say why not and describe what it would take for them to concur.

Overview and Updates

Registry and Credit Calculation platform:

The Project Team is moving along and acquiring the tools needed to make this process real and operational. The first step was to have a registry. We want consistency in how the markets develop and from an environmental perspective having a registry services makes sense. Through a public process we have selected TZ1 and have signed a term sheet with them. The Willamette Partnership and TZ1 will be moving to a formal contract prior to the Ecosystem Conference on June 18 & 19th. TZ1 is heavily engaged in the U.S. in water quality and habitats.

The next step is to acquire a user interface. Bay Bank is doing similar work with nutrients in the Chesapeake Bay and have offered to partner with us to develop a user interface. They already have the tools for a landowner to type in their address and see what opportunities are present, if the landowner is eligible to participate in markets in general, and if so, which ones would apply. We are currently looking at implementation in the Willamette Basin designing it such that it also has the ability to grow and be applied anywhere.

Overall ecosystem quality classification

Part of the original scope included a score for overall ecosystem benefit. Future work will refine this score, but for now, the Willamette Partnership will propose ranking criteria for classifying a site into high, medium, or low overall functionality based on their scores for each of the different ecosystem currencies.

Federal and State grant applications

The Willamette Partnership has submitted three additional grant proposals in the last couple of months, two state and one federal. The federal grant is designed to take what we are working on here and apply it to two other watersheds in the northwest. We have not yet decided which watersheds, and need to make sure this methodology is operational and replicable at a regional and ecological scale. Regulators don't work in the Willamette Basin alone but have to consider the whole state. A lot of training and certification of verifiers needs to be done to facilitate this process. We are teaming up with Fresh Water Trust in this effort and they are bringing a lot of projects on board.

The second grant application is a state application to develop nutrient calculations. This will include phosphorus, nitrogen, pesticides & chemicals. We need to work at a local level to get this started. There is nutrient work to be done in the near future by Clean Water Services on the Tualatin.

Most recently, the Willamette Partnership has teamed up with grant applicant, Yamhill County SWCD, to do trainings of SWCD office staff to apply this methodology locally. We need to get projects planned, registered and a pool of verifiers trained to see if this can be operational.

There is also a Bullet grant proposal for Willamette Partnership to work with Defenders of Wildlife on a generalized habitat credit that will not necessarily be used in a regulated market.

Review and Approval of Workshop #3 Meeting Summary and Action Items

The meeting minutes, action items and summary from Workshop #3 were approved.

II. and III. Final Draft of Integrated Ecosystem Credit Calculator

After each focus group meeting we took a summary of actions items and recommendations and incorporated them into the methodologies.

The Water Quality protocol for temperature was determined to be mostly complete and ready to roll out in the Willamette Basin for trial. It will be important to standardize this method. We are going to use the 6.2 version of DEQ's Shadelator, a standard time period for measuring temperature July 1st – August 30th and standard vegetation and tree heights that are similar to what Clean Water Services uses.

There was not solid enough information to address the issue of potential soil differences on the land with 40 different soil types possible in an acre of ground. It was determined that the difference in vegetation height and its affect on temperature change is small and can be accounted for in ratios. The DEQ Internal Management Directive (IMD) is available on their website for public review until July 15th. Everything we are proposing is consistent with the IMD and the current IMD has priority areas identified.

There was a concern over the required vegetation requirements and if they were practical enough to be able to compete with non-native species, and be functional and affordable. The current protocol calls for locally sourced native plants appropriate to the site based on a reference condition and for a variety of trees and shrubs. Performance standards require that maintenance of the vegetation will sustain less than 15% non native species. The Willamette Partnership wants this requirement to address the ecological needs of the Basin. We can take a look at a broader view of native vegetation considering practicality and affordability, and suggest any changes while DEQ's Internal Management Directive is still in review.

It was strongly suggested that the next phase of the credit calculator incorporate a flow protocol. At this time we still need more information to draft a protocol to credit flow but will add it if that information becomes available.

DECISION: After discussion, the group concurred and reached an agreement in principle on the water quality protocol.

General discussion at the Prairie Focus Group meeting centered on the critical issue that we are losing our remaining prairie habitat. We need to protect what we have by incentivizing preservation of the remaining prairies and the bigger the site that can be preserved the better. We are addressing this by giving restoration and preservation the same priority by basing the standards on post-action habitat function.

The rapid assessment is an initial credit assessment of the site. There are four additional questions using more detailed vegetation plot data that are optional. These questions need to be answered in future years to assess performance standards, and before additional credits can be released. There is no adjustment for the size of the prairie.

There was a question of how additionality will be addressed with the focus on preservation. When caring for prairie, the expectation is that there is work to be done to maintain it. There is currently nothing out there that is pristine; if you had a place that was even ½ native species you would be thrilled. After two years we can reevaluate and change the focus to restoration but for now we want to get what prairie is left under management.

DECISION: After discussion the group came to agreement in principal for the prairie protocol.

The Salmonid protocol is based on functionally weighted linear feet. To get a credit score you take the difference of the baseline and post action. The service area chosen is the 4th field hydrological unit. This score does not take into account the broader context of the site, just, functionality of the site. We are considering including priority areas by looking at the work done by NOAA regarding the legacy population in the Willamette Basin which includes the North Santiam, South Santiam, Mackenzie and Clackamas. We will need to have objective, clear information on priority areas before we can include them. There was discussion at the focus group meeting on in-kind trading for species and life stages but we found this overly complex and are currently focusing on the most sensitive species. The methodology gives the most credit for spawning habitat. It was also noted that opening up a side channel is one of the greatest scoring potential benefits.

It was recommended to add in priority areas when that information becomes available. It is important to specify that legally critical habitat cannot be traded for noncritical habitat. Within a 4th field hydrologic unit trading is very likely to stay in-kind regarding salmonid species. There was further discussion on evaluating each watershed to be more inclusive with species and life stages for in-kind trading and to only trade critical habitat for critical habitat. If the information is available with clear factors we may be able to scale the protocol to individual watersheds.

Discussion then progressed to if every trade would need to be reviewed on a case by case, project by project basis by NOAA and if they would also need concurrence and approval from the USACE. Currently, there is not any process in place and using this method would be better than what is being done now.

DECISION: After discussion and recommendations, the group came to agreement in principal for the salmonid protocol.

Oregon Rapid Wetlands Assessment Protocol (ORWAP) is now official- congratulations to Paul Adamus & Department of State Lands for all of the work done on this protocol. For the Wetlands Focus Group, there was a lot of good discussion on how to take indicators and turn them into credits. After working with small and large groups and integrating their feedback we have narrowed down the issues arriving at a recommended option for crediting wetlands.

1. An average ORWAP score and an exact match of function from impact site to credit site. This is the most consistent with the current Department of State Lands statute. This option does not provide incentive for mitigation being done in advance.

One of the differences in this protocol is that it does not provide as much incentive for enhancement as the current system. This does support broad scale restoration for better projects by applying better trading ratios. The wetlands focus group recommended a 1:1 ratio as a floor to protect against net loss. We have tested this on multiple scenarios and most of them fall between 1:1 and 3:1 when functional scores at the credit site are significantly better than at the impact site.

The discussion commenced on the issue that most current wetland mitigation is enhancement and how this will affect current wetland bankers. Another question raised was if the state will still accept data from the Hydro Geomorphic Math (HGM). The state cannot require a certain methodology be used to assess a site. They do want to be consistent in their assessments and may in the future require using ORWAP scores. A comparison of scoring between HGM & ORWAP will need to be done. Also, existing mitigation sites that already have contracts and can be grandfathered in.

DECISION: After discussion and recommendations, the group came to agreement in principal for the wetlands protocol.

IV. Assurances

The existing trading ratios being used are different from current trading ratio practices. Because we are creating a functional based accounting system, the value of a project is most dependent on its functional scores, but trading ratios are also important to incentivize advanced mitigation and priority areas. We presented three different approaches with Option 3 being the recommended approach:

1. The first is the most detailed with variables for sellers and buyers. On the seller's side it would adjust for risk, natural occurrences and priorities. On the buyers site it adjusts for financial risk and the largest deduction for temporal loss. This is good for being explicit but adds additional math and more layers.
2. All trades have a 2:1 trading ratio.
3. The buyers have to buy additional credits for temporal loss or if impacts are in priority areas. The seller has to hold back additional credits if they are not in a priority area or there is a low chance of success for their project.

There was discussion on who is responsible for risk and why. The idea is that the buyer is buying a kind of insurance, all projects are risky and we are asking the buyer to pay that premium. The obligation of the seller is in their site performance. If their site doesn't perform then they can't sell credits. In the current wetland mitigation the risk is attributed to the seller.

The purpose is to have reserves to make up for problems. We can't hold people responsible for things that they can't control like natural disturbances. Thus there need to be reserves. In wetland mitigation, this is currently addressed in four different ways; design eligibility, success criteria, annual monitoring and performance bonds.

The issues of long term stewardship, liability and permanent easements for permanent impacts were discussed, along with the surety of the math to provide appropriate ratios, the additional complication for regulators and business and the role of a record keeper and registry. It was decided that this would be a better item of discussion for a small group to discuss and provide the Working Group a draft of a simple written protocol with examples in the next three weeks. This would address the group's ambiguity as to what they are saying yes to.

Volunteers to participate in that group:

Kirk Jarvie

Yvonne Vallette

Cathy Macdonald

Bill Warncke

Map Units

We are recommending using smaller map units for accounting on one site rather than using one map unit on the entire site. 'Map unit accounting' for prairie, wetlands and water quality takes map units of homogenous vegetation. The map units for salmon are based on in stream habitat, riparian areas and 100 ft segments. This information is collected and calculated as the post restoration score subtracted from the baseline. The challenge is the map units are different after the restoration is done and the post action no longer geographically matches the initial map units. We are recommending lumping post action units into broad categories, wetlands, upland prairie, in stream temperature and salmon. Since salmon and temperature map units may be the same, if you sell 50 % of your temperature credits then that linearly reduces the amount of salmon credits that are available by 50%. The benefit of this system is that it gives landowners a choice of what markets they sell their credits in.

There was discussion on how you will be able to separate into separate map units the different currencies like carbon, endangered species and nutrients that may cross the map unit boundaries. Also it is important to distinguish how to apply the benefits when crediting temperature and salmon when riparian and in stream are so interwoven. Clearer definitions and standards for riparian areas would be helpful. Currently only salmon and temperature are in map units together because the benefits are overlapping. Additionally, the question was raised when dealing with temporal issues- if you sell 50% of your credits now but never meet all of your performance standards how will that be accounted for?

After considerable discussion it was determined that the confusion in accounting with the map units was that only two map units were presented and there are actually three map units; pre-restoration, post-restoration and accounting. We need to do a better job of clarifying and presenting this. We will have a better explanation of the pre, post and accounting map units and how they work in two weeks. We will also have clearer definitions of how we manage salmon and temperature.

Volunteers to further discuss and define the accounting and how to put that into map units:

Brett Brownscombe

Gina LaRocco

Meta Loftsgaarden (by email)

Bill Warncke

Final Package of Assurances

The broad scale purpose is to incentivize restoration in the best places, create a standard process and reduce impacts in the best areas. The assurances were reviewed from the previous meeting. There were only two main concerns; third party verification and registration of projects on the TZ1 registry. We are going to let the pilot project results help us determine if there are policy changes to be made. If there are policy changes to be made, we would start initiating that

process next year. It will be important to clarify what regulatory authorities like DSL, EPA USACE have to delegate and what will they still be on the hook for. Policy changes could be initiated as long as they are conservative. The Working Group would like examples on the pilots, to be taken through the entire crediting process and a TZ1 registry mock up at the August workshop.

V. What does Agreement and Success Look Like

This comprises all of the work, feedback, group discussion and an overview of all the pieces. What you see here is derived from all of your responses. The question is how good is good enough to start applying this to pilot projects? It is hard to gauge where all stakeholders are, and we need to know if any of you are really not ok moving on to the pilots. We also need to know if you understand this well enough that you can take it and explain it to the decision makers in your agency or department.

Individual input of Working Group members

Cathy Macdonald: On Board. Make sure there are sideboards and this is a test on pilots not a new program implementation.

Mark Livermann: On Board. Evaluate a potential seller and the value of adding side channels and flood plains. Create a better definition of riparian areas and revisit eligible actions.

Joe Zisa: On board. Let's get started.

Bill Ferber: On board. Consider flow in the next phase.

Mike Wolski: Can't speak for Diane but believes they are on board.

Kirk Jarvie: There is potential for statute and rule changes but you need to test this first. Prior to adoption, he will need a mock up and comparisons of credits and debits. He could issue a permit on a pilot if it is on a volunteer basis.

Bill Abadie: On board. He wants to go through the process to make sure it works and meets statutes and regulations. He would like a summary of what they are agreeing to.

Yvonne Vallette: On board. She prefers the language of "Statement of Agreement".

Mark Knaupp: On board. He wants to see the results of the pilots.

Brett Brownscombe: On board. He would like clarifications on the trading ratios and wants to see how far the pilots can be taken.

Amanda Punton sitting in for Katherine Daniels: Katherine on board. Some technical decisions need to be made.

Mike Wolf: On board with the assumption that it is consistent with the guidance on the street. He would like to see a temperature trade on one of the pilots.

Nikola Smith: Bob Deal is very supportive of the project.

Gina LaRocco: On board. There are a few rough areas that need to be sorted out with follow ups and pilots.

Mike Reed: On board. They are interested in looking at the results and testing if needed down the road. It would be good to have a buyer.

Bill Warncke: Very supportive, if credit was available today they would buy it and are highly invested.

Jimmy Kagan: His agency is completely supportive. Don't build it in a way that it cannot grow. Don't be scared of being too complicated. Provide maps that tell us what is happening and tools for rolling it up.

Eric Wold: On board. The City of Eugene is a seller, buyer & regulator. They will want to know:

- What is the regulatory framework driving this?
- How is the existing program going to be affected?
- How do you envision policy changes happening?
- How do you envision transition changes?

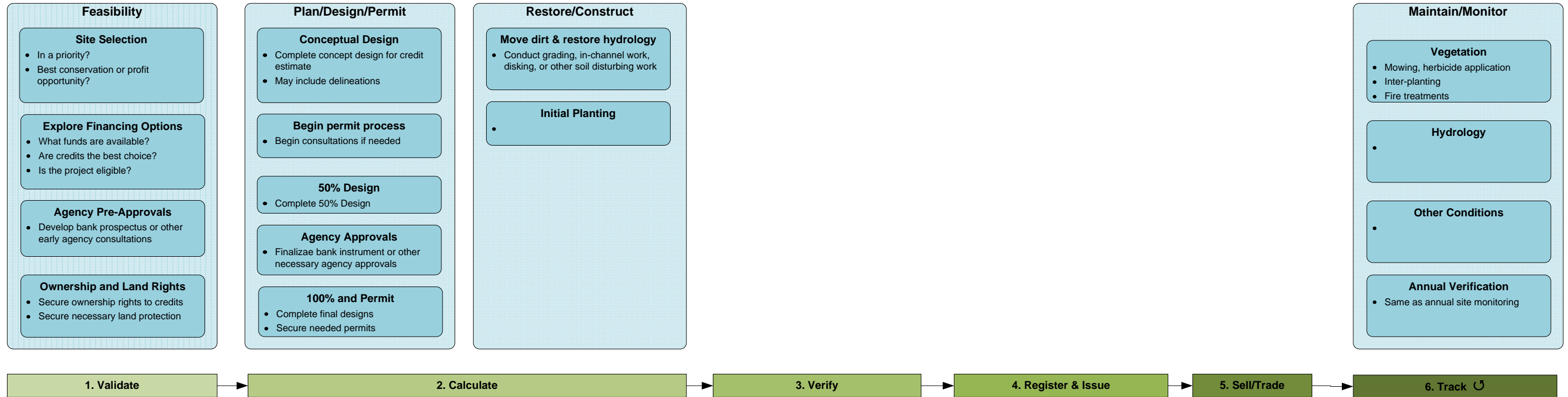
Proposed Framework for Agreement

The Agreement is on page 21 of your handout. Please read it carefully, this is what we are hoping for and what we are asking you to sign on to. Agencies need to be explicit on what they need; please don't wait. We are offering a Project Team person to come with you for a sit down meeting with anyone in your agency who you believe would need to be involved for you to sign. We will create talking points for anyone would like them. Many people have already started conversations so please let us know of any flags that are waiving.

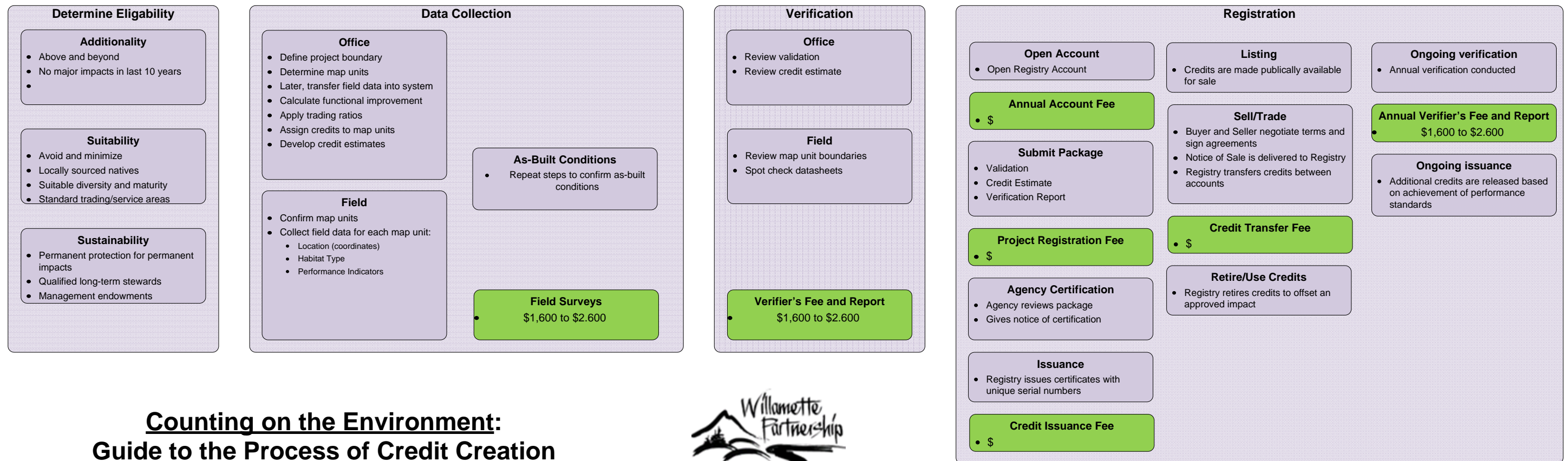
VI. Plan for Upcoming Meetings

August 4th is the last meeting for this Working Group. The Project Team has done an amazing amount of work. The Working Group was thanked for all of their time and efforts on this project. We would like to end early at the next workshop to be followed by a reception.

Project Implementation Process



Credit Issuance Process



**Counting on the Environment:
Guide to the Process of Credit Creation**





Ecosystem Credit Accounting

**Pilot General Crediting Protocol:
Willamette Basin Version 1.0**

September 1, 2009

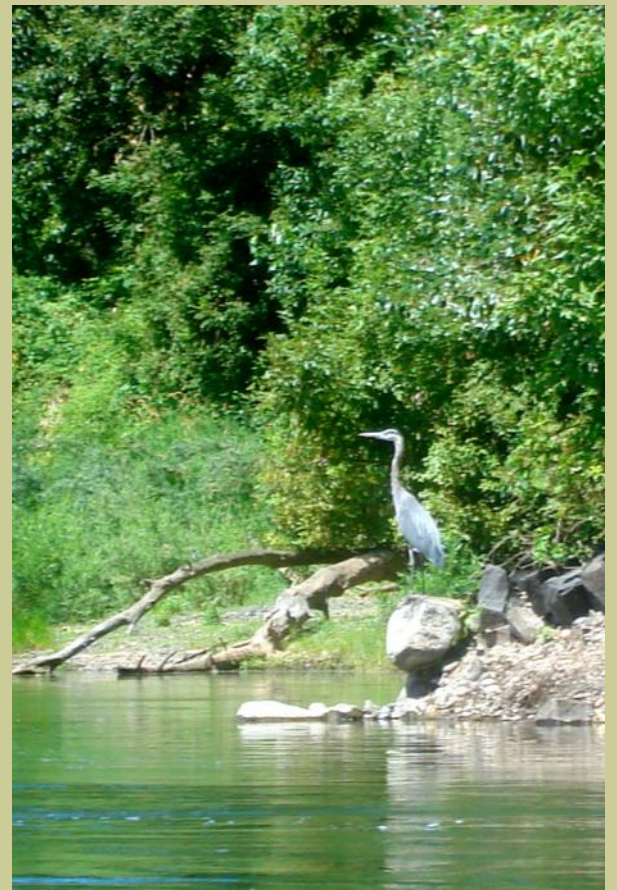


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Ecosystem Credit Accounting

Pilot General Crediting Protocol: Willamette Basin Version 1.0

The Willamette Partnership is a non-profit coalition of diverse leaders dedicated to increasing the pace, scope and effectiveness of restoration. With its partners it is developing an ecosystem credit accounting system.

Contact:

David Primozych, Willamette Partnership
2550 SW Hillsboro Hwy
Hillsboro, OR 97123
503-681-5112
info@willamettepartnership.org

Acknowledgements: The Counting on the Environment process that developed the Pilot General Crediting Protocol, associated metrics, and tools was funded by a Conservation Innovations Grant from the USDA Natural Resources Conservation Service.

The project was guided by a stakeholder Working Group made up of very knowledgeable and dedicated people and organizations listed in Appendix C.

Clean Water Services and the OR Dept. of Transportation provided critical staff, technical, and financial support throughout the project. Much of the technical material for the ecosystem currencies was developed under the leadership of Parametrix, INC and Paul Adamus, and the process was guided by Kearns and West and the Oregon Consensus Program.

The Willamette Partnership thanks everyone for all the hard and thoughtful work that has brought several years of experience and discussion into Version 1.0 of this protocol.

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Part I: Introduction

Emerging markets for ecosystem services will connect people who manage land and water in new ways. Markets provide land managers with a new suite of options for generating revenue from their land. Improved water quality, increased water quantity and habitat conservation represent some of the “products” land managers can produce and sell through ecosystem service markets. These markets also provide people who manage land and water with viable alternatives for reducing the effect of unavoidable environmental impacts—alternatives that meet regulatory standards, reduce costs and fortify natural resources.

This document is a guide for managers and regulated entities in the Willamette Basin interested in using an ecosystem credit accounting system for multiple ecosystem services, including wetlands, salmon habitat, upland prairie, and water quality.

Version 1.0 applies to a two-year pilot testing of the General Crediting Protocol: Willamette Basin (Protocol). The Protocol was designed to mesh within existing agency rules and practices, but does not necessarily reflect agency requirements in all cases. The piloting of the Protocol will not affect existing mitigation programs, and each agency will be in charge of its own policy changes. The Protocol will be revisited in August 2010 and August 2011 as part of the testing phase to make needed adjustments.

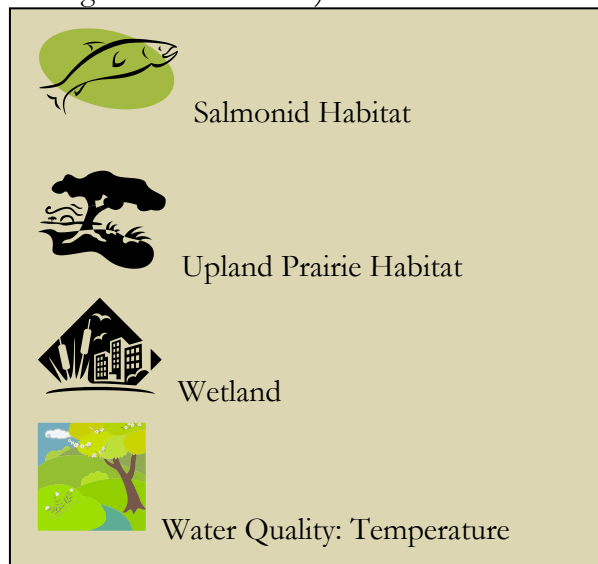
1.1 Objectives and How to Use the Pilot General Crediting Protocol

The Protocol provides market participants (managers, buyers, sellers, and third parties) with the overall process and framework they need to develop, sell, and buy ecosystem credits in the Willamette River Basin using the functions-based accounting system developed

as part of the Willamette Partnership’s Counting on the Environment process. The information contained in the Protocol was developed under the guidance of a stakeholder working group. This group is composed of federal, state, and local governments, conservation organizations, potential credit buyers, and potential credit sellers.

The Protocol describes an integrated, functions-based accounting system that includes the rules governing trades and the metrics required for quantifying ecosystem benefits and impacts. Version 1.0 will be updated periodically as we learn more from its pilot application. New ecosystem service protocols and approved methodologies will be added to it, existing protocols and rules will evolve with new information and knowledge gained from implementation, and the package will likely be expanded to new geographies.

Throughout , there will be call-out boxes containing the symbols below. These represent rules and information specific to the four Version 1.0 currencies, which include salmonid habitat, upland prairie habitat, wetlands, and cooler water derived from riparian restoration credits (referred to as “Temperature Credits” throughout the Protocol).



I.2 Background on the Willamette Partnership and Counting on the Environment

Emerging markets for ecosystem services will connect people in new ways. Markets such as these provide land managers with a new suite of options when it comes to generating profits from their land. Improved water quality, better wetland habitat, increased habitat for fish, and higher quality upland prairies represent some of the “products” land managers will soon be able to produce and sell through ecosystem service markets. These markets also provide anyone with unavoidable environmental impacts from legally permitted activity with viable alternatives for making-up for it—alternatives that meet regulatory standards, reduce costs, and fortify natural resources.

The Willamette Partnership formed in 2004 as a 501c3 non-profit coalition with a mission to expand the pace, scope, and effectiveness of restoration. Quantification of ecosystem services and development of an ecosystem credit accounting system are major components of the Partnership’s work. The Willamette Partnership will act as the accounting system’s administrator (Market Administrator) as it is fully-developed and deployed - ensuring its reliable and transparent operation.

I.3 Program Principles and Context

The Willamette Basin in Northwestern Oregon unfolds between the volcanic cones of the Cascade Range to the East and the forested Coast Range Mountains to the West. Over the last 150 years, the Basin has amassed a large human population and a diversified industrial economy anchored by the Portland Metropolitan Area to the North and past the Eugene Metropolitan Area to the South.

Amidst all the Basin’s natural amenities and human development the Willamette River and its tributaries drain enough water to make it the 13th largest river in the lower 48 states – the Willamette Basin drains more water per square mile than any other large watershed in the contiguous United States. The entire Willamette River Basin includes a land area of around 11,500 square miles, a population of around 2.5 million and around 75 percent of Oregon's economic activity. The changes made to the environment to maintain this economic productivity also produce impacts to the environment. All expectations are for the human presence in the basin to grow substantially over the next 30 years, along with the impacts such a presence carries with it.

There are several pieces in place to minimize and reduce these impacts (e.g. established prescriptive environmental polices, wetland mitigation banking and species conservation banking), but they do not always work in synergy. The Partnership’s work, including the Protocol, is based on the assumption that ecosystem markets should be tied to meeting overall environmental goals rather than just strict interpretations of current rules and program guidelines. The rules and guidelines described in this Protocol are designed to work within existing regulatory structures. As such, the ecosystem credit accounting system constantly strives to:

1. Produce the highest quality restoration and conservation where it makes the greatest ecological difference,
2. Foster transparency, accountability and credibility in emerging ecosystem markets, and;
3. Facilitate the connections among buyers and sellers that put the greatest amount of resources into real benefits with the least amount of transaction costs.

I.4 Overview of the Crediting and Debiting Process

PROJECT DEVELOPERS

The following steps outline the process a land manager would follow to generate, register and sell ecosystem service credits based off of a conservation project.

1. **Site Selection and Validation.** A seller selects a potential site to conduct conservation activities, and submits a validation checklist to the Market Administrator to confirm the project's eligibility. This stage provides a screen to minimize investment and expenditures on the part of market participants that for one reason or another would not be eligible to sell credits.
2. **Credit Calculation.** With a basic understanding of the site's location and the site's potential to generate ecosystem service credits, sellers may then choose to carry on with a more in-depth analysis of the site to determine the exact type and number of credits that can be produced using marketplace tools. Project developers apply approved methods to calculate a baseline condition and a post-action condition based on conservation or restoration designs. This stage produces a formal estimate of credit quantity that can be independently verified.
3. **Verification.** To provide assurance to regulators and to the public, all projects will undergo independent verification through the following process: by professional verifiers accredited by the Market Administrator or by the lead agency overseeing a specific currency. This process confirms calculations done by (or

for) the seller and confirms the work done on the ground. The last stage of verification includes any formal letters of credit certification or release needed from agencies.

4. **Registration and Issuance.** Once a project has been verified, a package of information is sent to the Market Administrator's registry, operated by Markit Environmental Registry (Markit). Markit will review the package for completeness, and if ready, will issue credits to the project developer's account. A registry account can be opened any time after the credit estimate is complete.
5. **Selling and Transferring Credits.** The actual sale of credits is a straightforward process that mainly involves the seller and buyer. Markit and the Market Administrator will not be involved with any financial transaction between buyers and sellers. Markit simply receives a report of a sale after a transaction is made and moves credits from one account to another.
6. **Track the Credits.** Sellers will need to conduct annual verifications of all credits they develop until the credits are sold. The failure to verify credits will result in their removal from the Markit Registry. Sellers will use the same verifier for the first five years. Ongoing verification reports will be used to release credits subject to phased credit releases and performance standards.

BUYERS

The buyers of ecosystem service credits include any public or private entity with a regulatory obligation to reduce the impact of their development actions. Buyers might also

include entities interested in voluntarily purchasing a credit to retire, use or resell. The process for these buyers to purchase credits demands interaction with many parties and a commitment to the long-term tracking of conservation projects associated with purchased credits.

1. **Permit Allowance/Validation.** In most cases, potential buyers of ecosystem service credits need formal approval from the necessary regulatory agencies to achieve partial or full compliance with their permit requirements through the trading of credits. This step also determines that buyers are eligible to purchase credits to offset their impacts
2. **Credit Calculation.** The number of credits a potential buyer is required to purchase depends on the amount of impact that their development action creates. For development actions covered by Version 1.0 of the Protocol, the process of calculation and verification is the same as for Project Developers.
3. **Set up a Buyer's Account.** Buyers must open an account on the Market Registry. Buyers will pay an account origination fee to help defer the costs of managing the Registry.
4. **Negotiate and Finalize a Credit Purchase.** The Registry does not set the price of the credits listed, nor does it set the terms and conditions of sales. The price, terms and conditions are all set and agreed upon by the seller and buyer—with the only exception being the verification requirements associated with final and ongoing certification.

5. **Annual verification Reports.** The natural landscape is dynamic, requiring the ongoing monitoring of conservation sites to make sure that they continue to provide the ecosystem services credits for which they were designed. Sellers will pay for a full verification of the entire credit calculation process, which is likely to include a site visit, in years one and five of a credit's life. A verifier will also conduct desk audits in years two, three and four. In every instance, the verifier will be selected through a standard process managed by the Market Administrator and paid for by the seller. Sellers are responsible for submitting annual monitoring reports to the Market Administrator, buyer and necessary regulatory agencies.

I.5 Web-Based Debiting and Crediting

Version 1.0 of the Protocol will be automated whenever possible. This automation occurs through the use of web-based applications that seamlessly transfer data entered by market participants

The buyers and sellers of credits will most likely interact with three major web-based tools supported by the Market Administrator: 1) a user interface or market portal that provides public information, direction to participants and a centralized hub for the rest of the market's tools to connect; 2) a credit calculator that uses data submitted by buyers and sellers to calculate credits and debits and, 3) a registry that performs the credit and debit tracking functions needed to ensure the transparency and legitimacy of the accounting system.

The level of automation, and therefore the overall efficiency of the accounting system, is expected to increase over time.

I.6 Technical Assistance

The Willamette Partnership will provide technical assistance to buyers, sellers and regulators encountering difficulties with the use of Version 1.0 of the Protocol.

I.7 Training and Orientation

Despite automation, and effort to create a practical system that various parties with different types of expertise can use, Version 1.0 of the Protocol will require that market participants go through some level of training and orientation prior to using it. Web-based training modules will be incorporated into all the major tools associated with Version 1.0. Training classes, organized by the Market Administrator, will also be scheduled on demand to accommodate new users of the system.

I.8 Key Questions

Q: Is Version 1.0 of the Pilot General Crediting Protocol designed for a specific type of user?

A: The Willamette Partnership designed Version 1.0 to be used by individuals that already possess some specialized training. Targeted users include trained watershed professionals from private consultancies, Soil and Water Conservation Districts and other public or non-profit organizations.

Q: Why does Version 1.0 calculate unregulated ecosystem services?

A: Version 1.0 includes calculations for ecosystem services for which there is already demand, ecosystem services for which demand may soon emerge, and ecosystem services that allow for a more comprehensive approach to

restoring the entire landscape. This also allows for the voluntary purchase of unregulated credits.

Q: How many different credit types will there be?

A: Version 1.0 will support four primary credit types, but as time goes on and more credit protocols are developed and there is demand for other ecosystem services, the Protocol will include new credit types.

Part II: Project Validation

2.1 Project Definition, Eligibility, & Validation

2.1.1 Defining Your Project Boundary

Land managers make two types of essential geographic determinations when using the Pilot General Crediting Protocol. The first determination sets the location of the entire area from which the land manager will seek to generate credits (the *project boundary*). The second type of determination a land manager makes sets the locations of map units within the project boundary. A map unit is a section of a property delineated by common habitat type, habitat structure, and habitat elements. These boundaries are first set through the interpretation of aerial photos and then confirmed or adjusted on the ground. A single project site will have as many map units (polygons) as it has diversity in habitat types. By using this map unit approach, the Protocol will be able to support and calculate multiple credit types on project sites with multiple habitat types.

Developers that are assessing the size and scope of their impact will also determine project and map unit boundaries for their initial impact calculations.



Stream map units are generally drawn in 100 foot segments from bank to bank starting from the downstream end of the project boundary and working upstream. Segments can be broken into smaller pieces when a significant habitat feature is present (e.g. a culvert, beaver dam, etc...).

2.1.2 Supported Credit Types & Project Actions

The Pilot General Crediting Protocol currently supports a subset of ecosystem credit types and actions that create benefits and impacts. This initial selection of credit types was based on market demand and available assessment methods. Credit types and their tradable units include:

- Wetland (functional acre)
- Salmonid habitat (functional linear foot)
- Upland prairie habitat (functional acre)
- Water quality: Temperature (kcal/day)

The near-term priorities for additional credit-type development include:

- Water quality: Nitrogen, Phosphorus, and Sediment (lbs/yr) [Available in Tualatin River]
- Generalized stream habitat (functional linear foot) Carbon (metric ton of CO₂ equivalent)
- Generalized rare habitat (functional acre)

Each of the credit types above may be generated by conducting different types of conservation actions. Over time the Protocol will include more types of credit generating actions. Approved action types are listed in Table 2a.

Table 2a: Version 1.0 Eligible Conservation Actions by Target Currency

	Conservation Actions	
Target Currency	Version 1.0 actions	Near-term priorities
Water Quality-Temperature	Plant native vegetation	Flow augmentation Floodplain restoration
Wetland Habitat	Improve function of an existing wetland	Protect existing wetland
	Restore and create wetland hydrology	
Salmonid Habitat	Plant native vegetation	Protect existing habitat
	Improve in-stream fish habitat: large wood placement	
	Improve fish passage: culvert removal	
	Manage sediment inputs: add fencing	
	Restore channel geomorphology: side channels, remeanders, etc...	
Prairie Habitat	Improve function of an existing prairie	
	Restore prairie functions	
	Protect existing prairie	
Water Quality-Nitrogen & Phosphorous	Crop cover	
	Fertilizer use	
	Irrigation type	
	Manage sediment	
	Plant native vegetation	

Just as there is an approved suite of credit-generation actions, an approved suite of development actions also exists. This set of approved impact-actions may also be expanded in the future (Table 2b).

Table 2b: Version 1.0 Eligible Development Actions by Target Currency

Target Currency	Development Actions
Water Quality- Temperature	N/A
Wetland Habitat	Altered vegetation
	Altered hydrology
Salmonid Habitat	Altered vegetation
	Altered hydrology
	Contaminants
	Natural system modifications
Prairie Habitat	Altered fire
	Altered vegetation
Water Quality- Nitrogen & Phosphorous	Change crops, fertilizer, or irrigation
	Altered vegetation
	Contaminants

2.1.3 Determining Eligibility to Trade & Additionality

Eligibility criteria determine who can buy credits, who can sell them and who can trade them with whom. They are designed to keep out overly-risky or inappropriate projects. Alternatively, for potential buyers like wastewater treatment plants, they must meet baseline standards for technology before they can trade to meet permitted allowances.

Additionality

All credited projects need to demonstrate that they provide “additional” benefits beyond what is required under current regulations (e.g. Forest Practices Act, SB 1010, or local

land use laws) and business as usual. The additionality requirement ensures credits are awarded for doing more than what would otherwise have happened without a market mechanism in place. Additionality does not include the use of trading to meet regulatory obligations.

All issued credits must result from conservation actions that are: 1) above and beyond a regulatory threshold for compliance, and 2) above and beyond business as usual. Defining “business as usual” will be based on

a set of questions answered by the landowner during the project validation process. A sample Validation Checklist is available on the Willamette Partnership's website at <http://www.willamettepartnership.org/ecosystem-credit-accounting/tools-and-templates>

Markets focused on restoration generally do not provide strong incentives for preserving high quality habitat. To counteract this shortcoming, credits generated within this suggested market must result only from conservation actions that occur a minimum of 10 years after a significant, intentional development action on the site. This disincentivizes the degradation of natural resources just to receive credit for restoring them soon after. For example, a landowner would be ineligible to sell credits for restoring riparian forest if they had removed any portion of a pre-existing riparian forest in the last 10 years. If land changes hands from the landowner conducting the development action to a new landowner not included in the Protocol's definition of landowners (see Footnote 1), and who is conducting the conservation action, the second landowner would be eligible to sell credits.

MINIMUM QUALITY STANDARDS

Not all projects will be eligible to use the accounting system. Both buyers and sellers will need to meet some minimum standards for reducing impacts and ensuring credit quality. The time and investments required to create, verify and register credits is significant. Quality standards help save time and money by ensuring good site selection and project design prior to making these investments.

If a conservation action includes planting as a component, that planting must consist of locally-sourced native species to the extent available. Planting must consist of suitable diversity and maturity, which are planted at established density levels based on appropriate reference conditions. Each market will set minimum standards. For riparian planting, the planting plan must include an appropriate mix of trees AND shrubs (e.g. no less than 20% of stems as trees and no less than 20% of stems as shrubs). Minimum standards for other types of conservation actions may be added for specific markets.

LAND PROTECTION

Creditable projects will also need to include land protection agreements to sell credits. These requirements may vary by market, but land protection ensures benefits are protected as landowners may change. Long-term agreements that run with the land, such as easements, are always preferable to short-term contracts. Yet, requiring permanent easements is a significant barrier to entry for landowners thinking of entering markets and is not recommended for temporal impacts.

For permanent impacts (e.g. wetland removal and fill or species take), creditable projects need permanent conservation easements or another equivalent agreement (deed restrictions, covenants, or agreements from public agencies). For temporal impacts (e.g. air or water pollution), creditable projects, at a minimum, need an appropriate agreement such as a lease, contract, or equivalent covering the crediting period of the project. For example, if nutrient reductions are sold for five years, there needs to be at least a five-year lease with the landowner to protect those reductions.

⁹ The landowner includes, "the wife, husband, son, daughter, mother, father, brother, brother-in-law, sister, sister-in-law, son-in-law, daughter-in-law, mother-in-law, father-in-law, aunt, uncle, niece, nephew, stepparent,



In special cases (e.g. fish barrier removal), where the credited stream reaches are not owned by the project developer, credit can only be awarded for those reaches where the landowners have signed agreements not to install barriers in the future and to retain whatever riparian corridors are there at the time of crediting. These agreements do not need to be recorded with the property, but they do need to be registered as part of the credit issuance process.

STEWARDSHIP

Mitigation for all permanent impacts needs a long-term stewardship plan before any credits can be released. That plan needs to identify a qualified long-term steward; include a long-term cost estimate and endowment amount supported by a qualified long-term steward; and include a clause that reverts the easement and/or long-term stewardship responsibility to another qualified entity in the case the steward is not longer able to meet their commitments.

The liability of long-term stewards for performance of mitigation projects is limited to the conduct of the activities outlined in the long-term management plan. In the case a steward fails to conduct these activities, agencies and/or bankers may require the return of any remaining endowment funds, land rights, or other stewardship responsibilities.

Endowments should cover the full cost of stewardship, and the amount set as a non-

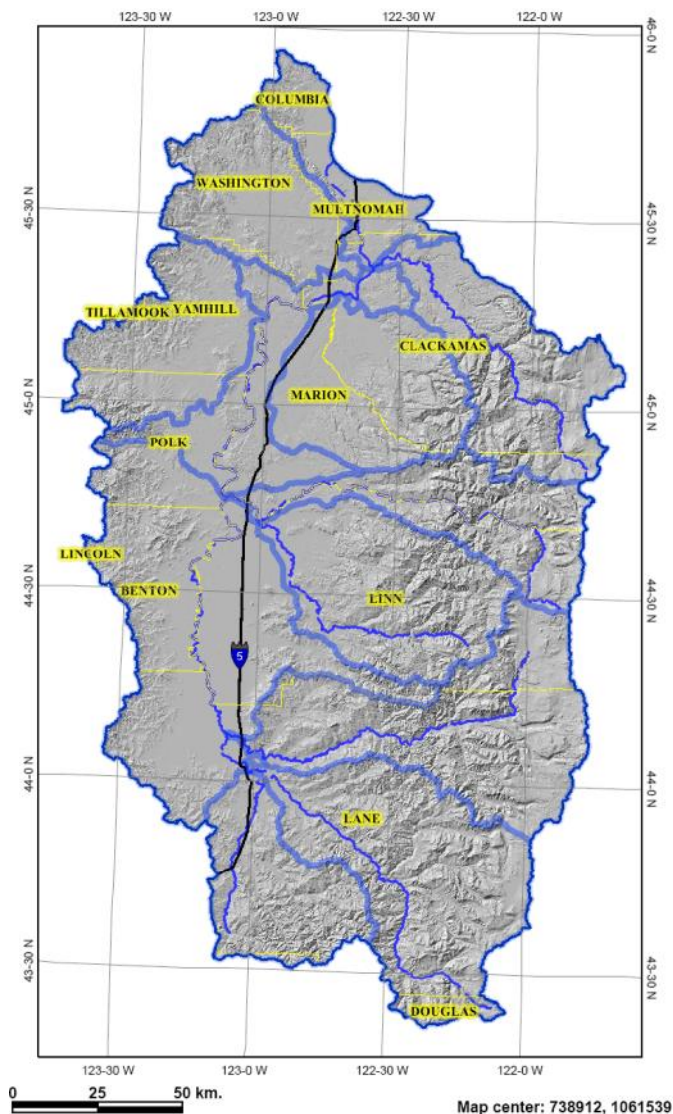
wasting endowment adjusted for inflation. Long-term stewards must be able to account for expenses and endowment gains/losses for reports to and audits from agencies and other parties. Endowment funds may be contributed as a lump sum or regular payments defined by time or on sale of credits.

DOCUMENTING AVOIDANCE AND MINIMIZATION

Buyers/permittees will also need to meet some minimum standards before accessing markets. These standards are often set in agency rules. Generally, these rules require that buyers avoid or minimize the impact of their development actions, by being in full compliance with all relevant laws and rules related to offsetting their impact through the best practicable technology and practice, prior to using credits to offset impacts. Agencies will provide buyers with documentation if this requirement is met at the planning level and/or design level of an impact project.

TRADE AND SERVICE AREAS

Service/trading areas make it clear to market participants which types of buyers and sellers can conduct trades with each other. They help to make trades spatially-relevant. All trades will abide by service area restrictions specific to the currency being traded.



Legend

- Interstate 5
- Major Rivers
- Counties
- 4th field watersheds



For wetlands and salmonids, the 4th-field hydrologic unit is the default size of the service/trading area unless a compelling case can be made by any party to expand or constrict the size.



For prairie and other upland species, the Eco-region (as defined by the nature Conservancy's Eco-Regional Plan document) is the default size of the service/trading area unless a compelling case can be made by any party to expand or constrict the size.



For water quality, the service area is defined by the area covered by the Total Maximum Daily Load (TMDL) or other regulatory instrument.



Service areas for salmon and prairie may change as Recovery Plans are approved or priority populations are further refined.

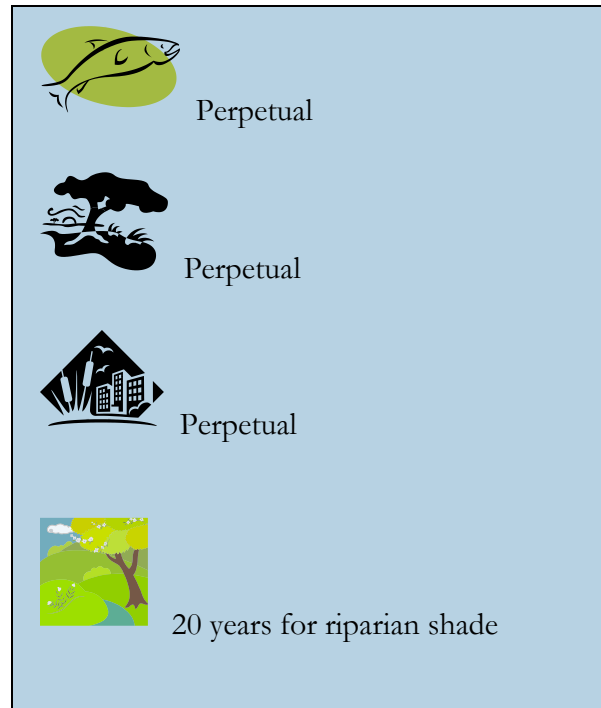
2.1.4 Project Start Date and Crediting Period





In general, the start date for a project will correspond to the start of the activity that generates environmental benefits or impacts.

The crediting period, sometimes called the “life of the credit”, is the period where conservation actions are eligible to receive credits. The crediting period differs by credit type.



-  Start date of riparian plantings or in-stream work
-  Recording date of easement or start date for restoration/enhancement work
-  Start date for site prep or hydro-logic improvements
-  Start date of riparian plantings



-  Perpetual
-  Perpetual
-  Perpetual
-  20 years for riparian shade

2.1.5 Determining a Buyer's Eligibility to Trade

For all Version 1.0 currencies, buyers will need approval from relevant agencies to purchase credits. To the extent feasible, buyers with potential ecosystem impacts should discuss trading options early in consultation with agencies. Buyers will need to avoid or minimize the impact of their development actions, by being in full compliance with all relevant laws and rules related to offsetting their impact through the best practicable technology and practice, prior to using credits to offset impacts.

Agencies will provide buyers with documentation if this requirement is met at the planning level and/or design level of an impact project, which the Market Administrator will use to determine a buyer's eligibility to trade.

2.1.6 Receiving a Notice of Validation from the Market Administrator

The first step in generating credits is getting your project validated. Validation is an optional step for buyers to help determine which credit they might be eligible to buy. Validation is mandatory for project developers. It provides them with an idea of which credits they will be eligible to sell, some technical commentary on project design and an estimate of how many credits they can expect to receive. The Market Administrator maintains a list of approved validators, who are often the same people accredited to verify credit estimates later in the process. A project developer can choose any validator they want, or complete the Validation Checklist themselves. The validator can help the project developer open an account on the Market Administrator's website and submit a

validation opinion. Validators are also free to provide technical advice on project designs.

Generally, if this opinion is complete, it will be automatically accepted by the Market Administrator, but acceptance may differ by credit type. Validation is a statement by the Market Administrator to the project developer that they have met eligibility requirements. It is not a confirmation on the quantity of credits issued.



The National Marine Fisheries Service is the lead permitting agency (e.g. Army Corps) need to confirm eligibility by letter or approved bank prospectus for salmon credits



The U.S. Fish and Wildlife Service is the lead permitting agency (e.g. Army Corps) need to confirm eligibility by letter or approved bank prospectus for prairie credits



The Army Corps and OR Dept. of State Lands need to approve a bank prospectus for wetland credits.



Market Administrator will review and accept Validation Checklist based on eligibility criteria set by the Oregon Department of Environmental Quality.

Example: Getting the Santiam Farms Project Validated

A farmer owns a 30-acre field that regularly floods and is bisected by a salmon-bearing stream. She thinks the field may generate more value as a wetland and salmon mitigation bank than a rye grass field. The farmer has a few conversations with local soil and water conservation district staff to discuss potential conservation options and determines she is interested in pursuing markets.

The farmer completes a validation checklist that says she is not otherwise required to restore wetlands, that not all farmers are doing this as part of normal farming practices, and that there has not been any new or, significant drainage installed to remove wetland in the last 10 years. As part of the validation checklist the farmer also notes that she plans to use a diversity of native plantings and place a conservation easement or equivalent protection on the property.

Since her property is located on Ames Creek, any credits generated will be limited to the South Santiam River watershed (the service area) for sale. The farmer will need to initiate the wetland bank prospectus process with the Interagency Review Team. Once the validation checklist is complete and the Interagency Review Team confirms the project is eligible, the Market Administrator will send the farmer a Notice of Eligibility and the farmer can move forward with more formal conservation designs and developing a banking instrument.

Part III: Credit/Debit Calculation

3.1 Credit Calculation Overview

Credit calculation involves both office and field work, and will require two site visits. Calculation of baseline conditions can be conducted any time before conservation actions begin. Post-action conditions are projected and require design documents for accurate estimates. Applying the Protocol and its approved metrics will require some training, which is offered by the Market Administrator. Depending on the types of credits being generated, experience in wetland and stream assessment, plant identification, and use of spatial data may be needed. The Market Administrator provides datasheets, a field guide, metric handbooks, and web-enabled tools to make credit calculation as easy as possible.

More on the development of each approved metric can be found in Appendix B, and detail on the application of the credit calculation tools are available on the Market Administrator's website.

http://www.willamettepartnership.org/ecosystem-credit-accounting/copy_of_field_tools

The approved metrics for Version 1.0 of the protocol include:



Counting on the Environment's Salmon Credit Calculation Method

<http://www.willamettepartnership.org/ecosystem-credit-accounting/salmon-habitat>



Counting on the Environment's Prairie Credit Calculation Method

<http://www.willamettepartnership.org/ecosystem-credit-accounting/upland-prairie-habitat>



Oregon Rapid Wetland Assessment Protocol (ORWAP)

<http://www.willamettepartnership.org/ecosystem-credit-accounting/wetlands>



Shade-a-Lator

<http://www.willamettepartnership.org/ecosystem-credit-accounting/water-quality-temperature>

3.2 Calculating Functional Ecosystem Scores

Once a project developer has delineated the project boundary, come up with a conservation design and determined their project eligibility, they are ready to begin calculating credits.

3.2.1 Establishing Your Baseline

The first step is establishing baseline ecosystem functions. The baseline defines the current condition from which a conservation action improves function or a development action that degrades function. Data collection occurs in two phases. The first phase occurs in the office through the collection of spatial data and information from existing databases. Sources include:



Aerial photos, Verification that the stream is salmon-bearing and whether spawnable substrate is present, location of fish passage barriers



Aerial photos, request to the Oregon Natural Heritage Information Center to determine if any rare plant or animal species are known to use the site



Aerial photos, topography, Natural Resources Conservation Service web soil survey, Oregon Explorer (species occurrences), OR Dept. of Environmental Quality (water quality issues), PRISM Data Explorer (precipitation)



Aerial photos, T-Tools ARC GIS extension

The second baseline data collection phase, field data collection, confirms the map unit boundaries defined in the office during validation. As map unit boundaries are confirmed, the field team assigns them unique identifiers and collects data for each map unit within the project boundary. See the Willamette Partnership's Field Guide for more guidance on data collection standards and designating map units.

Data is collected on general location, habitat type, and a variety of performance indicators that are associated with structural conditions and also individual habitat elements. These questions are used within the database to trigger relevant functional calculations, and also to establish the relationships existing between adjacent map units for calculations. Additionally, if present, information relating to existing conservation efforts or opportunities, current management activities, and observations on wildlife activities will also be noted. Data collected for each map unit is comparable from map unit to map unit and from property to property.

Upon completion of the field inventory, the data from the datasheets is transferred to the metric calculator database, hosted by the Market Administrator. Like the datasheet, the majority of the data is entered through the use of check boxes. In a few instances actual numeric or text data is required to be entered. The field maps are also reviewed and any changes or additions to the map unit boundaries are digitized to match field conditions.

3.2.2 Establishing Levels of Uplift or Impact

The amount of ecosystem improvement is calculated in the office using the baseline assessments and a set of project designs outlining the area, scope, and activities to be completed as part of the conservation actions. Map unit boundaries are adjusted based on the projected extent of common habitat types and features. The baseline data for these map units is adjusted based on these designs to create a post-action dataset and estimate of ecosystem function. The post-action data is projected from anticipated conditions 20 years from construction. New functional scores are calculated from the metrics' database.

3.2.3 Calculating Net Gains and Losses of Ecosystem Function

After future ecosystem functions are projected, the metrics subtract baseline condition from future condition to get a measure of ecosystem change by individual or overall function. Net losses are calculated in the same way, but by default, it is assumed ecosystem functions in the future drop to zero.



Prairie credits are determined using only the post-action, future conditions. This emphasizes preservation of high quality prairie.

3.2.4 Categorizing Overall Ecosystem Value

There has been enormous interest in calculating a single index of overall ecosystem gain and loss across habitat types. The Counting on the Environment process developed an overall rating category for ecosystem function to be used solely as additional project information. The rating is completely optional, and has no bearing on credit quantities, trading ratios, or credit approval processes. As the concept develops, the overall ecosystem rating can be used to provide incentives or potentially as a new, voluntary type of ecosystem credit.

Because of the consistent approach used by all three habitat metrics (salmon, prairie, and wetland) in using the percentage of optimal at which the properties were operating, the program was able to assign an overall ecosystem service rating using these same calculations.

The overall rating is based on 1) the number of credit types on the site as a measure of ecosystem diversity, and 2) the average percentage of optimal score across all the site’s credit types. The average percentage of optimal is calculated for credit projects by taking the average of the post-conservation functional score across salmon, prairie, and wetland scores. Debit projects will use baseline, pre-action conditions. Table 1 describes the criteria for assigning either *high*, *medium*, or *low* ratings. The more ecosystem credit types on a site, the greater the potential for broad ecosystem conservation and restoration. The higher the % of optimal, the greater the site’s likelihood to maximize the functionality for the ecosystems it targets.

Table 3.2.4: Matrix for Overall Ecosystem Rating			
	# of Credit Types		
Average % of Function	1	2	3 or more
0-33%	Low	Low	Medium
34-66%	Low	Medium	High
67-100%	Medium	High	High

3.2.5 Determining Reserve Pool Contributions

The accounting system builds from the common use of trading ratios. Trading ratios are used to account for risk, accuracy, time differences, and to ensure environmental gains. They either increase the amount of credits a buyer needs to buy or decrease the amount of credits a seller can sell. The accounting system uses both of these methods to populate a “Reserve Pool” of credits intended to cover risks in the market. Contributions to the Reserve Pool are obligatory and are not available for sale.

The following describes the approach for determining Reserve Pool contributions. The goal of this approach is to ensure that, after the functional assessment of credits and debits occurs, an average trade would receive a 2:1 ratio, no trade would be allowed to go below a 1:1 floor and that in only rare instances would a trade go above a 3:1 ceiling.

Trading ratios are applied to both the functional loss and functional gain using the factors below (Table 3.2.5 provides a summary of ratio factors).

For sellers, if a mitigation site is in a high priority area, no additional reserve is needed and the ratio remains unchanged, but if not, then a seller must hold back 25% of the functional gain. Priorities are determined slightly differently for each market...



Willamette Basin Salmon credit priority areas are established by the National Marine Fisheries Service and include the genetic legacy and core populations in the Clackamas, North and South Santiam, McKenzie Rivers, and Middle Fork Willamette tributaries.



Prairie priorities include areas identified in the Willamette Valley Synthesis Map.



Wetlands priorities include areas identified in the Willamette Valley Synthesis Map or on sites where the average OR Rapid Wetlands Assessment Protocol value score over the five functional groups is greater than 0.5.



Water temperature credit priorities include areas identified in the Willamette Valley Synthesis Map and areas identified within the OR Dept. of Environmental Quality’s Internal Management Directive.

Table 3.2.5 describes how a buyer’s Reserve Pool contributions are determined. Buyers will need to purchase, at minimum, an additional 50% of credits to cover the risk of natural disturbance to projects (i.e. flood and fire), potential inaccuracies in the method, and other risks (i.e. financial, rule changes, etc...). Buyer trading ratios are also determined by whether the impact site is located in a priority or if **any** portion of a buyer’s purchase comes from credits released in advance of performing their full function. If any credits are purchased in advance of full functionality and the impact site is not in a priority **or** in reverse, the restoration site is fully functioning and the impact site is in a priority, then a buyer must buy an additional 100% of credits. If credits are purchased in advance of full functionality **and** the impact site is in a priority, then a buyer must purchase 150% more credits.

that formalizes the credit estimate, project description and other elements required to maintain a bank.

Table 3.2.5 Trading Ratios

	No Time-loss	Time-Loss
Not Priority	+50	+100%
In a Priority	+100%	+150%

3.2.6 Completing Agency Banking Agreements

The final stage of credit calculation in many cases, but not all, is a banking agreement. This is true for salmon, prairie and wetland credits which requires the lead agencies approval of a banking agreement. This is an agreement between the agencies and project developers



National Marine Fisheries Service and the lead permitting agency (e.g. Army Corps) approves a bank agreement

US Fish and Wildlife Service and lead permitting agency (e.g. Army Corps) approve bank agreement

Army Corps and OR Dept. of State Lands approve a bank agreement (instrument)

Market Administrator-accredited verifier will review credit estimate

Part IV: Project Verification and Registration

4.1 Verification

4.1.1 Verification Principles and Process

The ecosystem credit accounting system requires third party verification of all projects. Third parties include both the lead agencies overseeing regulated markets and third parties accredited by the Market Administrator to verify credits. The Willamette Partnership will act as the Market Administrator for the Willamette River Basin. Once a Credit Estimate is passed on by a project developer for verification, the project developer will be assigned a verifier. The project developer will enter into a verification agreement with their assigned verifier.

The goal of verification is to confirm:

1. Credit generation protocols were followed completely and accurately
2. Proposed actions have been completed per the Credit Estimate
3. Appropriate documentation is in place to issue credits (e.g. land protection agreements, monitoring and maintenance plans, agency approvals)
4. The quantity of estimated credits is accurate within a tolerance level of plus or minus 15%

For a credit to be verifiable, the Credit Estimate must be free of material misstatements. A material misstatement must be declared if the reported credit generation information does not appropriately describe project conditions and differs greatly from the verifier's assessment of that same information.

To be verifiable, a verifier's estimates of credit quantity must be within 15% of information proposed by the project developer. There is inherent uncertainty involved in field data collection. The 15% standard is meant to capture differences in reporting uncertainty, stemming from sampling and calculation differences. If the difference in estimates is greater than 15%, the difference is material, and the verifier must use best professional judgment in determining the quantity of credits to verify.

If a verifier's estimate is within 15%, the original Credit Estimate is used to determine credit quantities. If not, the verifier and the Project Developer can either A) agree on the revised quantities recommended by the verifier or, B) refer the issue to the Dispute Resolution Committee of the Market Administrator. More detail is provided in the Verification Protocol (see footnote 2).

Once successful verification is complete, the verifier submits their Verification Report, which is attached to the credit records.

4.1.2 Becoming an Accredited Verifier & Conflict of Interest

Verifiers must be a lead agency overseeing a credit currency or must be accredited by the Market Administrator before they are eligible to conduct verification activities related to the Protocol. The Market Administrator will accredit verifiers that are qualified to review one or more types of credits. A verifier is an individual that has demonstrated their ability to assess a specific type of credit. A third party verifier must also demonstrate the means to accept the standard liability of professional services contractors. This liability will be determined in the Verification Services Agreement signed between the verifier and the

Project Developer. Verifiers bear no liability for project implementation or project performance. The Market Administrator will release a Request for Applications annually or as needed to allow interested verifiers to apply for accreditation. Interested verifiers must complete the following steps:

1. Submit an application in response to the Market Administrator's advertised request.
2. Receive notice from the Market Administrator that the application has been approved.
3. Attend a Verification Training Session (held approximately two months following the Market Administrator's notification of acceptance from its request for applications).
4. Keep the Market Administrator informed of any changes affecting the accreditation (e.g. potential conflicts of interest)

Accreditations granted in the 2009 and 2011 pilot phase will be good for two years. After that, accreditations are effective for 5 years from the time they are issued. After the 5 years has expired, verifiers must re-apply for renewal by responding to the request for applications the year their accreditation will expire.

The independence of verification is important. Verifiers acting on behalf of the Market Administrator must work in a credible, independent, nondiscriminatory, and transparent manner, complying with applicable state and federal law. This includes disclosing any pre-existing relationships between the Project Developer or Buyer and the verifier. Verifiers must provide a Notice of Verification and Conflict of Interest Form (see footnote 2) to the Market Administrator at least 10 business days before verification activities can proceed.

As an added protection, a verifier can only provide verification services to a Project Developer for a period up to five years. If a verifier violates these conditions, the Market Administrator at its discretion, may disqualify an accredited verifier for a period of up to five years. See the Conflict of Interest Code (see footnote 2) for full detail.

Please see the Verification Protocol (see footnote 2) for more detail on becoming an accredited verifier and the details of the verification process.

4.1.3 Regulatory Agency Role in Verification

All lead agencies for all currency types reserve the right to verify either the impacts or credits created by a project. For some currencies, agencies will use the verification reports submitted by third parties to determine whether they need to exercise this right. For others, agencies will act as the lead verifiers and submit those reports to the Market Administrator prior to registration.



For salmon, prairie, and temperature credits, third parties will lead verification.



For wetland credits, Army Corps and OR Dept. of State Lands will lead verification, but will consider third party reports

4.1.4 Key Verification Steps

Verification is conducted by a lead agency or individuals who have been accredited by the Market Administrator. Monitoring and reporting on credit performance occurs at least annually, is primarily the responsibility of the project developer, and occurs on a 5 year cycle. Full verification occurs in years 1 and 5 and every fifth year until the active crediting life of the project ends. Agencies may extend this cycle for ongoing monitoring. Full verification includes a site visit and detailed review of monitoring reports submitted by project developers. Verification in years 2-4 and 6-9 are streamlined reviews of monitoring reports to look for major changes in performance.

Site visits in these years may be conducted at the verifier’s discretion.

There are a number of core verification activities needed for all credit types. Table 4.1.4 contains the verification elements:

Table 4.1.4: Verification Process

Year 1 activities	
Review Notice of Eligibility	<ul style="list-style-type: none"> • Confirm Ownership & Stewardship • Confirm minimum quality standards • Confirm additionality
Verify Credit Estimate submitted to the Market Administrator	<ul style="list-style-type: none"> • Review supporting documentation (current conditions data, sampling points, data inputs into credit generation calculations, model outputs, contracts, etc.) • Confirm completion of appropriate implementation steps (planning docs, invoices, photos, etc.) • Conduct site visit • Revise credit estimates as necessary based on verifier feedback
Year 2-4	
Verifier reviews annual monitoring reports submitted by project developer	<ul style="list-style-type: none"> • Review supporting documentation (data sheets, model outputs, contracts, etc.) • Conduct site visit if needed

Once these core verification activities are completed, the verifier can complete a Verification Report (see footnote 2) that contains a summary (which will be available to the public), an opinion on the credit estimates, and a log of activities and findings. This report needs to be submitted to the Market Administrator's system. Projects need to submit annual verification reports to remain in the Registry.

4.1.5 Agency Certification of Verification Report and Project Documents

Many credits will need an agency certification before credits can be issued. Once a Verification Report has been submitted and if required, agencies will review the project documentation and give the Market Administrator approval to issue credits. For some credit types, agency approval will not be required, and the Market Administrator will act as the certifying agency.



Once project developers have assembled all of the necessary documentation and received their certification, they are ready to send their package to the Market Administrator's Registry operated by Markit to issue credits and make them available for sale.



Certification is **both** an approved banking instrument and credit release letter signed by National Marine Fisheries Service



Certification is **both** an approved banking instrument and credit release letter signed by US Fish and Wildlife Service



Certification is **both** an approved banking instrument and credit release letter signed by the OR Dept. of State Lands and the US Army Corps of Engineers.



Certification is completed by the Market Administrator and is reported to the OR Dept. of Environmental Quality

4.1.6 More Detailed Verification Information

The Partnership's Verification Protocol (see footnote 2) will have additional information on all of the following; Record Keeping and Retention, Publicly Available Information, Correcting or Revising Your Credit and Debit Report, Dispute Resolution, Key Verification Questions.

4.2 Registration

4.2.1 Registration Summary and Fee Structures

The entire focus of registration and verification is to ensure that credits are real, transparent, and traceable throughout their entire life. All verified credits need to be registered on the Registry operated by Markit <http://www.markitenvironmental.com/>. Project developers can open a Registry account any time after a credit estimate has been created. The Registry imposes required fees that are automatically charged to account holders during the project registration process. The fee structure for project registration will be determined through the piloting phase of the Protocol and credit issuance process to ensure registration does not create unnecessary financial burden. Markit will review the project documentation for completeness before issuing credits.

4.2.2 Opening a Registry Account

As a first step, a project developer must set up an account with the Registry. Account registration only needs to occur once; any number of projects can be registered under the same account. Any person or organization may apply for a Registry account regardless of location or affiliation.

Account applications are completed through the Registry software. Along with completing an online application, each user must also agree to the legal Terms of Use for the Registry. The Terms of Use document found at <http://www.markitenvironmental.com/>. When a new account is approved by the Registry, the account holder will receive an invoice for the account maintenance fee. Payment is due within 30 days of approval to avoid cancellation of the new account.

There are four types of accounts in the Registry:

1. **Project Developer.** An organization that wishes to develop projects that generate credits. This account type can also transfer and manage credits.
2. **Buyer/Trader/Broker/Retailer.** This type of account will transfer and manage credits, but not develop its own projects.
3. **Verifier.** Verifiers who have been accredited by the Market Administrator to verify projects. There is no annual account fee for verifiers.
4. **Reviewer.** This account type is for agencies who need to review and certify projects, and for those who have been asked by the Registry to serve as a project reviewer. There is no annual account fee for reviewers.

The public also has the ability to view some information on the Registry without opening an account. Some personal and project information will remain private.

4.2.3 Submitting Your Credit and Debit Report to the Registry

Throughout the credit issuance process, the Market Administrator will be maintaining a project file for Project Developers. When the

Project Developers say so, the Market Administrator will transfer this file to Markit.

4.2.4 Registry Guidance and Technical Assistance

Markit is available to provide technical assistance on accessing documents on the Registry, paying fees and other related activities.

4.3 Credit Sale & Transfer

4.3.1 Credit Issuance and Listing

All of a project's issued credits will be listed on the Registry website and available for the public to search. Both the Market Administrator and Markit are currently looking at additional ways to help project developers market their credits to potential buyers.

4.3.2 Transfer

The terms of credit sales are completed external to any of the Registry or Market Administrator processes. Project developers and buyers connect via the Registry or some other avenue, come to terms on credit quantities, price, and other terms. Once a sales agreement is complete, the project developer submits a Notice of Sale to the Registry, and the Registry transfers credits from the project developer's account to the buyer's account.

4.3.3 Retirement

For some credits that cannot be resold (e.g. wetlands), credits will be automatically moved into a buyer's retirement account after transfer. For credits that can be resold, a buyer must notify the Registry, and agencies if necessary, that they have used the credits to offset an

impact or otherwise want those credits permanently retired. The Registry then moves those credits into a retirement account that can be reported on, but not accessed to resell credits.



Salmon credits can be resold, and approval of a trade is required from the lead permitting agency (e.g. Army Corps).



Prairie credits can be resold, and approval of a trade is required from the lead permitting agency (e.g. County government).



Wetland credits cannot be resold, and approval of a trade is required from OR Dept. of State Lands and US Army Corps of Engineers.



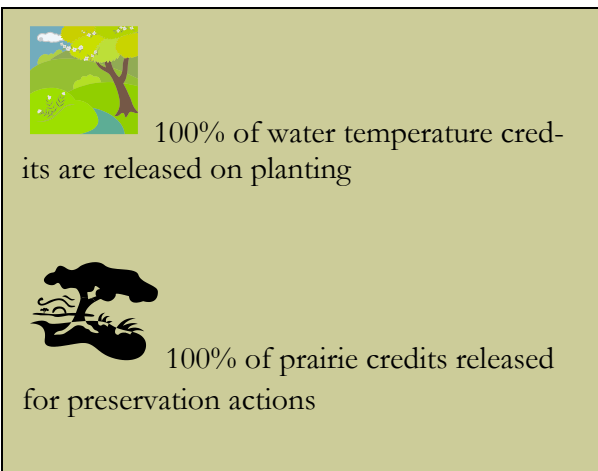
Water Quality credits can be resold, and **no** approval of individual trades is required from OR Dept. of Environmental Quality. Dept. will approve trading programs and discharge permits.


4.3.4 Transferring projects into or from the Marketplace Registry and another registry


Currently, there is no mechanism to transfer credits generated under the Protocol to other registries (e.g. the Voluntary Carbon Standard registries). The Willamette Partnership and Markit will be working on these protocols immediately.

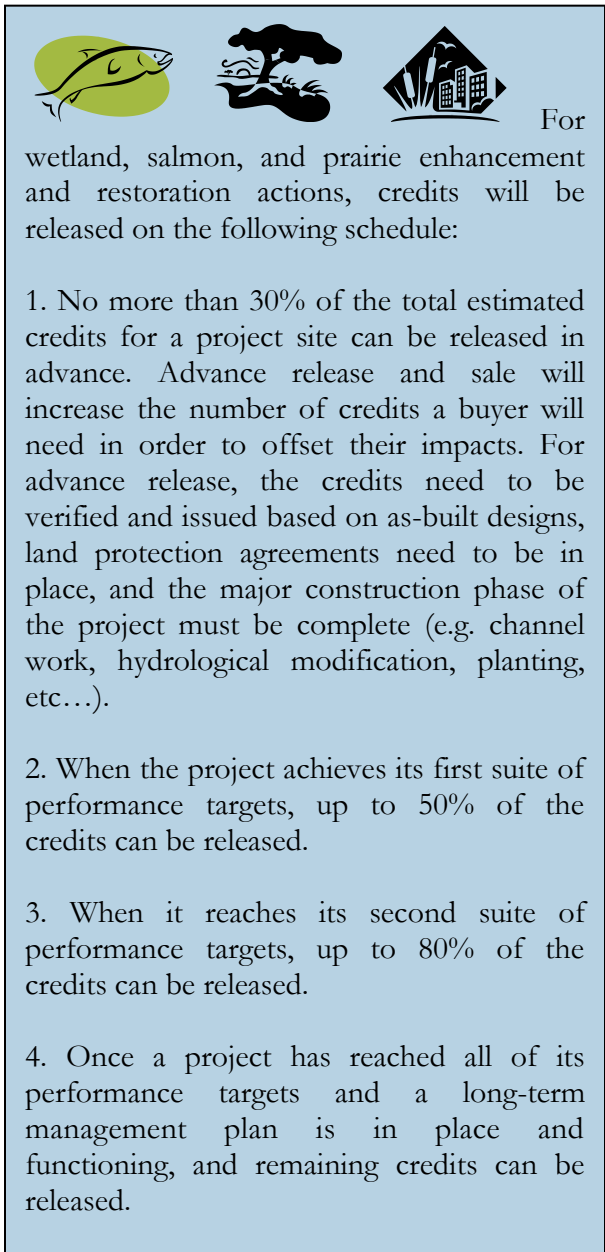
4.4 Ongoing Verification and Credit Release Schedules




Many credit types will release credits in phases as projects reach performance standards. There are two exceptions in the Version 1.0 currencies:



 100% of water temperature credits are released on planting

 100% of prairie credits released for preservation actions



   For wetland, salmon, and prairie enhancement and restoration actions, credits will be released on the following schedule:

1. No more than 30% of the total estimated credits for a project site can be released in advance. Advance release and sale will increase the number of credits a buyer will need in order to offset their impacts. For advance release, the credits need to be verified and issued based on as-built designs, land protection agreements need to be in place, and the major construction phase of the project must be complete (e.g. channel work, hydrological modification, planting, etc...).
2. When the project achieves its first suite of performance targets, up to 50% of the credits can be released.
3. When it reaches its second suite of performance targets, up to 80% of the credits can be released.
4. Once a project has reached all of its performance targets and a long-term management plan is in place and functioning, and remaining credits can be released.

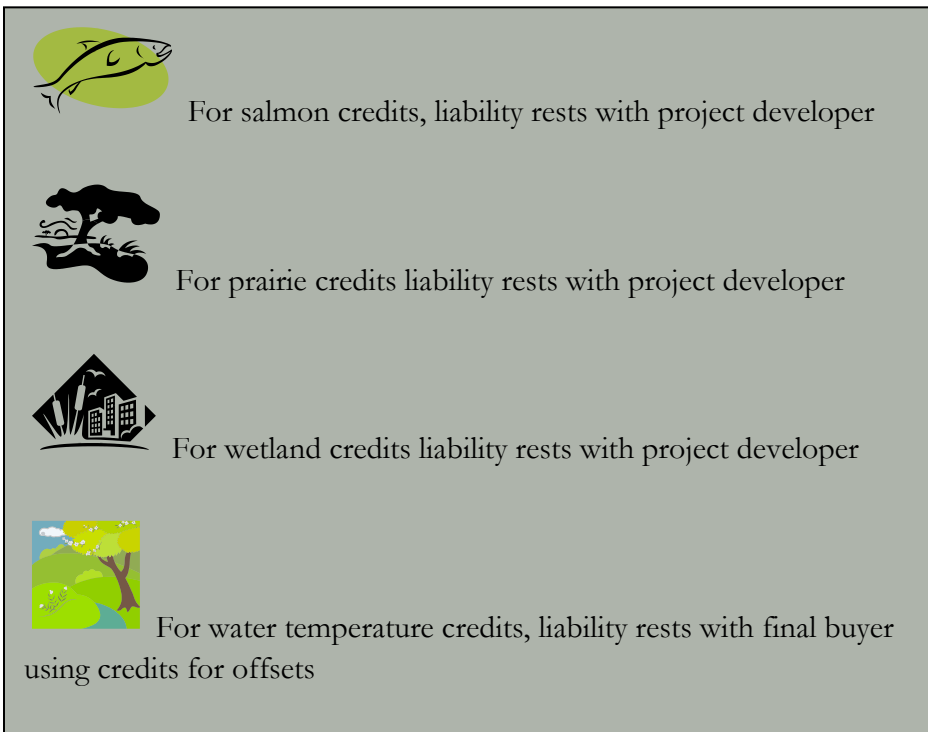
4.5 Liability for Performance





For existing markets, liability rules are fairly well established. There are two forms of liability. Regulatory liability stems from permits or agency enforcement rules and contract liability that rests in the agreement between buyers and sellers. In most cases, regulatory liability is transferred from buyers to sellers of ecosystem credits. Once an agency approves a buyer's mitigation plan, and the buyer purchases credits, the buyer is not responsible for the performance of credit projects. This is not true for most water quality trading programs, where the buyers or point sources holding discharge permits remain liable.

The Market Administrator will not change existing liability rules for current markets. For new markets (e.g. prairie and salmonids), project developers will be liable for meeting performance standards. Liability for credit project performance by currency is outlined below.

As sites transfer from a project developer to a long-term steward, liability for performance is removed from the project developer, but covered by the Reserve Pool. The Reserve Pool is managed by the Market Administrator as a pool of issued credits that can be accessed as a last resort for projects that fail because of force majeure or other acts beyond control of the seller, or for project failures that cannot be resolved. In addition, government or other funding may choose to invest in the Reserve to acquire more credits/fund more projects to create a stronger back-up to their trading programs.

A 5-year performance bond or other up-front financial insurance will be required for all currencies to ensure the money is available to acquire reserve pool credits in cases where a project developer goes bankrupt, or otherwise is unable to cover the costs of accessing the Reserve. An Agency may waive the performance bond requirement on a case-by-case basis.



-  For salmon credits, liability rests with project developer
-  For prairie credits liability rests with project developer
-  For wetland credits liability rests with project developer
-  For water temperature credits, liability rests with final buyer using credits for offsets

Part V: Protocol Development Process

5.1 Screening Process and Scoping

The Partnership's Counting on the Environment process uses three types of protocols. The first governs the overall credit accounting procedures and tools that apply to all currencies. The second defines the specific ecosystem currencies offered by the Partnership. The third defines the eligible metrics and actions that can generate credits or debits for those currencies. As the ecosystem crediting accounting system expands and revises its protocols, it is committed to using the open, public, and robust processes to build consensus around the substance and intention of these protocols.

The Partnership believes there is a balance between standardizing credit protocols as much as possible across geographies and across credits types and ensuring these protocols remain true to the localized differences in ecosystems and the people who rely on them. Every protocol used strives for this balance. The Partnership is using the Counting on the Environment process as a structured collaboration to develop its protocols. Partnership staff lead the process, but work with stakeholders to convene the expertise and representation to ensure high quality and credible protocols. Protocols rely on the best available ecological assessment methods, but use a standard framework to ensure consistent project boundary definition, data collection, and reporting formats. This enables rapid application of new protocols without sacrificing ecological integrity.

For new currency protocols, the Partnership will place priority on ecosystem services where there are existing buyers with unmet needs and that address a high priority habitat type or environmental concern. It will place priority

on the conservation actions and development actions that, when moved into a marketplace, have the greatest potential to accelerate conservation in actions and places that are needed. For eligible metrics, the Partnership will consider the certainty of existing science and data available and consensus among stakeholders on the need and validity of new credit or debit metrics.

Once initial screening is complete for additions/changes to overall accounting procedures or currency protocols, the Partnership will convene a stakeholder Working Group to assess protocol options, provide feedback on drafts, and give their approval for the protocol. For additional metrics, the Counting on the Environment process will conduct a more thorough evaluation of existing science and assessment methods to recommend metrics. Recommended metrics will be forwarded to the Working Group from a technical focus group, tested in the field, revised again, and then tested for repeatability and ease of use. This package will be brought before the Working Group for approval.

Protocol development is an iterative process. Protocols will be revised at least bi-annually, and the Partnership will collect ongoing comments from the public and protocol users.

Revisions will be conducted using a similar process to the one described above, but on an accelerated timeline, and with only one field test.

Appendices

- Glossary of Terms
- Approved Metrics
- Roster of Working Group Participants
- Willamette Partnership: Credit Issuance, Checklist and Log 7/31/09

Appendix A: Glossary of Terms

Accuracy: The degree to which something approaches reality. Depending on one’s purposes, “reality” may be represented simply by independent judgments of experts, or by extensive and intensive quantitative measurements of a function or other attribute.

Adaptive Management Mechanisms: The processes of implementing programs in a scientifically-based, systematically structured approach that tests and monitors assumptions and predictions in management activities and uses the resulting information to improve the programs or management activities used to implement them.

Additionality: the concept that calls for credited ecosystem improvements to represent an overall increase in, or avoided reduction of, ecosystem services, relative to those services that would have existed without creating the credits.

Approved Metrics: Approved metrics are the methods, equations, rules, and tools that translate indicators of ecosystem health (e.g. vegetation cover and composition, soils, hydrology) measured at a site and/or landscape scale into “credits” or “debits.” The approved metrics envisioned for this project includes the ability to generate 1) credit estimates for multiple types of tradable ecosystem services (e.g. wetlands, carbon, water quality, rare habitat), and 2) an index measure of overall ecosystem benefit that can be used as an indicator to communicate the additional benefits tied to creating one credit type (e.g. the biodiversity benefits of a carbon credit).

Attribute: Characteristics commonly valued by or warranting attention from society. Examples are individual or groups of functions, values, or services. Other attributes include integrity, health, hazards, suitability for development or enhancement, natural site potential, impacts, threats, sustainability. Not the same as *indicators*. The condition of attributes is measured or estimated *using* indicators.

Baseline: The current/existing conditions on a site before any action is taken that benefits or impacts ecosystem services. The baseline is the reference point by which improvement is measured to determine quantities and types of credit available. It is an important element of determining additionality.

Bundling payments for ecosystem services: Creating a diversified portfolio of payments that can be gathered by a single landowner or manager for actions taken on a site. Income may be derived from the sale of certified products, like lumber, from incentive programs, and/or from the sale of credits in an ecosystem marketplace.

Buyer: A likely buyer of credits.

Condition: (used synonymously with ecological or biological condition). The extent to which a given site departs from full ecological integrity or health. Specifically, the relative ability of a site to support and maintain its complexity and capacity for self-organization with respect to species composition, physicochemical characteristics and functional processes. Ultimately, condition results from the integration of the chemical, physical, and biological processes (or functions) and structures (e.g., species) that maintain the system over time. As a concept, “condition” is often used interchangeably with naturalness or closeness to some least-altered standard.

Conflict of Interest: A situation in which, because of other activities or relationships with other persons or organizations, a person or firm is unable or potentially unable to render an impartial verification opinion of a Project Developer’s estimated credits.

Context: A site’s position within a watershed, landscape, community, region, or other spatial unit which partially determines the level of functions, values, and services that may be delivered. Especially, the distance between where a function is performed naturally and where its benefits are realized.

Credit: a single unit of trade that quantifies the provision (or right of use) of a regulated or non-regulated ecosystem service. A credit becomes an offset when it is used to compensate for the unavoidable impacts on the environment. These offset credits are often called mitigation credits.

Currencies: a type of credit created through a specific Protocol.

Debit: A measure of the ecosystem impacts created by any project that decreases the available ecosystem services that project provides. The “debit” is used as a way to determine how many credits that project sponsor needs to offset the impacts they generate.

Ecosystem Services Markets: The full spectrum of regulatory, quasi-regulatory (cap-and-trade) and voluntary mitigation markets, such as wetland mitigation banking, habitat/conservation banking, water quality trading, environmental water transactions and carbon markets.

Ecosystem Services: benefits that human communities enjoy as a result of natural processes and biological diversity including (but not limited to) fish and wildlife habitat, the water cycle, filtration of air and water pollution, pollination, mitigation of environmental hazards, control of pests and diseases, carbon sequestration, avoidance of carbon dioxide emissions, and maintenance of soil productivity. “Ecosystem service” is also used to refer to the combination of a *function* and its *value*, the latter largely determined by *context*.

Eligible Actions: measurable conservation and development actions that have been approved by the Market Administrator for generating credits and debits.

Exchange: An institution that inventories and tracks all of the different credits available within a market or a marketplace by documenting their generation, ownership, and trade. An exchange generally requires credit traders to pass some sort of legitimacy or competency test prior to participation.

Functions: Naturally-occurring physical, chemical, and biological processes or groups of processes. In ecosystem marketplaces these are only rarely measured directly and in absolute terms. More often, *indicators* and *models* are used to estimate relative levels of functions.

General Crediting Protocol: a set of rules that defines the universal processes through which credits are issued within a distinct ecosystem credit accounting system or marketplace.

Habitat: The particular association of biotic and abiotic features with which individuals or populations of the same species are typically associated.

Indicators: Variables that correspond closely with and in some cases determine the relative levels of an *attribute*.

Market Administrator: An organization responsible for the operation and maintenance of an ecosystem credit accounting system or marketplace. For the Willamette River Basin, the Administrator is the Willamette Partnership. Specific responsibilities may include: defining credit calculation methods, managing the credit creation process, managing the credit verification process and managing the credit issuance process. It also may act as an information resource for market participants.

Market Environmental Registry: A database and protocols to track, register, certify, and bank credits and debits for an ecosystem marketplace. The system needs to accommodate credit definition and verification protocols across ecosystem services, geographies and jurisdictions. An ecosystem services credit registry differs from traditional commodity exchange platforms in that it will require strict performance standards, long contractual arrangements, and regular verification.

Material Misstatement: An error (for example from an oversight, omission or miscalculation) that results in the reported quantity of credits or debits being significantly different from the true value to an extent that will influence performance or decisions. A discrepancy is considered to be material if the overall credit estimate differs from the overall credits estimated by the verifier by 15% or more.

Measure. *verb:* To quantify something, usually on a continuous scale, using precise equipment. Contrast with estimation, which typically implies visual estimate without use of equipment. *noun:* something that is measured or estimated, such as the condition of an indicator.

Mitigation or conservation bank: An area of land conserved or restored to provide additional ecosystem services that is drawn on to compensate for adverse environmental impacts elsewhere.

Mitigation: Generally, a reduction in impacts. While used generically to refer to actions taken to reduce impacts, a more precise term is offset, if the objective is no net loss as in regulatory programs that call for mitigation or offset of impacts.

Offset: Generally, the act of fully compensating for unavoidable impacts. In a cap and trade system, an offset is an action carried out by a third party to generate credits (to reduce or avoid pollution or resource use). These offset credits can then be sold to polluters or resource users. These offset credits are often called mitigation credits.

Payments for ecosystem services: The variety of arrangements through which the beneficiaries of ecosystem services pay back the providers of those services. Payments encompass the full spectrum of options including, but not limited to, government incentives programs, mitigation banking programs and/or tax programs

Project Developer: An individual or organization proposing a credit or debit project for verification and entry into the registry.

Rapid assessment: By convention, an assessment requiring no more than a single day to complete.

Stacking credits: The creation of different credit types in the same geographic area. It allows landowners to market multiple ecological values at a single site, including those with and without specific geographic delineation. This project is not talking about stacking credits, but will show how to “bundle” different credits from the same project, by parsing the project into different areas for different markets.

Out-of-kind mitigation: Mitigation activities where the habitat functions and values created are not an exact equivalent to the impacted habitat functions and values being mitigated.

Service or Trading area: The geographic areas in which credits may be applied to offset debits associated with impact sites.

Validation: The process through which a project developer receives confirmation that their project is eligible to develop and potentially sell credits.

Validator: A validator is an individual or agency approved to conduct validations.

Values: Characteristics of a resource that are desired (usually) or considered detrimental. Includes the economic, ecological, and/or social importance or detriment assigned to a function or other attribute, as determined partly by its context, that is, (a) the opportunity to support the attribute; (b) the effectiveness of a site in supporting the attribute, and (c) the local, regional, and national significance of the attribute, as influenced partly by the scarcity of the function or attribute and the site’s position in the landscape. In ecosystem marketplaces, values are only rarely measured directly, e.g., in dollars. More often, indicators are aggregated into models which are used to estimate relative levels of the values.

Verification: Activities undertaken during third-party verification that include reviewing a Project Developer’s estimated credits, verifying the accuracy of measurement, and submitting a Verification Report to the Registry.

Verifier: A verifier is the person or institution that confirms actions taken on the landscape produce the desired ecological benefits necessary for credit creation.

Appendix B: Approved Metrics



Counting on the Environment's Salmon Credit Calculation Method

The Salmon Credit Calculation Method calculates scores for six ecological functions relevant to optimal habitat for the range of salmonid species. The output of the metric is a weighted linear foot that is based on the % of optimal functions performed by the stream and near-stream habitat.

The salmon metric began development as part of the Oregon Department of Transportation bridges project and was further refined by Parametrix, INC. The Counting on the Environment process of the Willamette Partnership convened a salmonid focus group to review the metric, assign weights to the six functions, and develop trading rules specific to the salmonid currency.

<http://www.willamettepartnership.org/ecosystem-credit-accounting/salmon-habitat>



Counting on the Environment's Prairie Credit Calculation Method

As the Counting on the Environment process reviewed existing metrics, it did not find an existing metric that meshed well with the other approved metrics or that had found common acceptance in Oregon. Paul Adamus, working with the focus group of state prairie experts, developed a new rapid assessment method for upland prairie.

The metric produces a functional score between 0 and 1 that is used to weight acreage to generate functional acres as a unit of trade. The metric's required, rapid portion includes questions that establish the site qualifies as upland prairie, assess the site's contextual value, and then scores the site-specific functions. The metric also includes an optional detailed assessment using vegetation plots. This portion is used to refine credit estimates and track performance over time.

<http://www.willamettepartnership.org/ecosystem-credit-accounting/upland-prairie-habitat>



Oregon Rapid Wetland Assessment Protocol (ORWAP)

ORWAP is a functions-based assessment developed by Paul Adamus and the Oregon Department of State Lands for use as a statewide rapid assessment for wetland conditions. It was not developed explicitly as a crediting metric. The Department of State Lands and the Army Corps of Engineers have approved ORWAP for use as a functional assessment http://www.oregon.gov/DSL/WETLAND/or_wet_prot.shtml. The Counting on the Environment process convened a wetlands focus group to assign rules for converting ORWAP scores into quantities of functional acres as tradable credits.

ORWAP computes a score for each of 16 wetland functions and their societal value. Although ecosystem services are considered to be the combination of a site's functional capacity and its value, ORWAP currently does not specify a process for combining the function and value score into an "ecosystem service" score based on each pairing. These 16 functions are grouped into 5 functional groups with a score between 0 and 10.

<http://www.willamettepartnership.org/ecosystem-credit-accounting/wetlands>



Shade-a-Lator v. 6.2

The Shade-a-lator is a model, developed by Oregon's Department of Environmental Quality that calculates thermal load reductions, in kcal/day/ft, from riparian shade restoration projects <http://www.deq.state.or.us/wq/trading/trading.htm>

Generally, these projects are linear, extending from several hundred feet to several thousand along a stream. The assessment's spatial unit is a stream reach whose upstream-downstream boundaries are defined by the user, and whose lateral boundaries extend outward and perpendicular to the stream to a distance also defined by the user, but typically not more than 150 feet (the usual size of recommended buffers). Within the lateral buffer, the Shade-a-lator samples one set of attributes in 100ft bands and samples dominant vegetation type at 15 foot bands, in both cases moving from the stream out through the buffer.

<http://www.willamettepartnership.org/ecosystem-credit-accounting/water-quality-temperature>

Appendix C: Roster of Working Group Participants

ORGANIZATION/AGENCY	REPRESENTATIVE
City of Albany	Diane Taniguchi – Dennis
City of Eugene	Eric Wold
City of Portland	Mike Reed
Cascades West Council of Governments	Cynthia Solie
Clean Water Services	Charles Logue
Defenders of Wildlife	Gina LaRocco
Ecotrust	Sarah Kruse
Office of Gov. Ted Kulongoski	Jane Bacchieri
The Freshwater Trust	Brett Brownscombe
Institute for Natural Resources	Jimmy Kagan/Sally Duncan
Mud Slough Wetland Mitigation Bank	Mark Knaupp
The Nature Conservancy	Cathy Macdonald
National Oceanic and Atmospheric Administration	Marc Liverman
Oregon Dept. of Agriculture	Dave Wilkinson
Oregon Dept. of Environmental Quality	Ranei Nomura
Oregon Dept. of Fish & Wildlife	Mike Pope
Oregon Dept. of Forestry	Jeff Brandt
Oregon Dept. of Land Conservation & Development	Katherine Daniels

ORGANIZATION/AGENCY	REPRESENTATIVE
Oregon Dept. of State Lands	Kirk Jarvie
Oregon Dept. of Transportation	Bill Warncke
Oregon Dept. of Water Resources	Bill Ferber
Oregon Watershed Enhancement Board	Ken Bierly
U.S. Army Corps of Engineers	Bill Abadie
U.S. Environmental Protection Agency	Yvonne Vallette
U.S. Fish and Wildlife Service	Joe Zisa
U.S. Forest Service	Robert Deal
U.S. Natural Resources Conservation Service	Meta Lofstgaarden/ Russ Hatz

Appendix D: Willamette Partnership: Credit Issuance Checklist and Log 7/31/09

Issuance Phase	Activity	Documentation	Who sends	Who receives	Currency Requirements			
						Temp	Wetland	Salmonid
1. Validation								
	Determine feasibility							
		Proof of rights to credits	ProjDev	NA	X	X	X	X
		Land protection documents	ProjDev	NA	X	X	X	X
		Agency pre-approval notices	ProjDev	NA		X	X	X
		Baseline wetland delineation	ProjDev	NA		X		
	Determine eligibility							
		Validation Checklist and Notice	ProjDev	Partnership	X	X	X	X
		Validation Notice	Partnership	ProjDev/Markit	X	X	X	X
2. Calculation								
	Complete plans							
		50% design	ProjDev	NA	X	X	X	X
		Agency approvals	ProjDev	NA		X	X	X
		100% design and permits	ProjDev	NA		X	X	X
	Create credit estimate							
		Baseline Maps & Datasheets	ProjDev	Partnership	X	X	X	X
		Post-Action Maps & Datasheets	ProjDev	Partnership	X	X	X	X
		As-built adjustment to Post-Action	ProjDev	Partnership	X	X	X	X
		Credit Estimate Report	ProjDev	Partnership	X	X	X	X
3. Verification								
	Verify credit estimate							
		Verification Notice and Conflict of Interest Form	Verifier	Partnership	X	X	X	X
		Adjusted Maps and Datasheets	Verifier	Partnership	X	X	X	X
		Verification Report	Verifier	Partnership	X	X	X	X
	Agency certification							
		Agency Certification	Agency	Partnership	X	X	X	X
4. Registration								
5. Sell/Trade								
	Open account							
	Submit package							
		Credit Issuance Package	Partnership	Markit				
		Document Q/A, Q/C	Markit	NA	X	X	X	X
	Issuance							
	Sales							
		Notice of Sale/Transfer	Markit	Agency	X	X	X	X
6. Track								
	Ongoing verification							
		See Verification phase	Verifier	Partnership	X	X	X	X

Ecosystem Credit Accounting System

Pilot Verification Protocol: Willamette Basin Version 1.0

September 1, 2009



Ecosystem Credit Accounting System

Pilot Verification Protocol: Willamette Basin Version 1.0

The system's Pilot Verification Protocol: Willamette Basin Version 1.0 is a product of the Counting on the Environment process managed by the Willamette Partnership. The Willamette Partnership is a non-profit coalition of diverse leaders dedicated to increasing the pace, scope and effectiveness of restoration.

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Acknowledgements: The Counting on the Environment process that developed the Verification Protocol, associated metrics, and tools was funded by a Conservation Innovations Grant from the USDA Natural Resources Conservation Service.

The project was guided by stakeholder Working Group made up of very knowledgeable and dedicated people and organizations.

Clean Water Services and the Oregon Department of Transportation provided critical staff, technical, and financial support throughout the project. Much of the technical material for the ecosystem currencies was developed under the leadership of Parametrix, Inc. and Paul Adamus. The process was guided by Kearns and West and the Oregon Consensus Program.

The Willamette Partnership thanks everyone for all the hard and thoughtful work that has brought several years of experience and discussion into Version 1.0 of this protocol.

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Key Terms

Baseline	Data against which to measure ecological benefits or impacts over time, usually the project conditions in a base year before credit actions began.
Conflict of Interest	A situation in which, because of other activities or relationships with other persons or organizations, a person or firm is unable or potentially unable to render an impartial verification opinion of a Project Developer's estimated credits.
Standard Agreement for Credit Registration ("Credit Report")	A report submitted to the Registry by a Project Developer that provides an estimate of the quantity of credits generated from a project. The estimate is submitted with supporting documentation.
Market participant	Either a Project Developer or a Buyer who participates in the Registry
Buyer	A likely buyer of credits.
Project Developer	An individual or organization proposing a credit project for verification and entry into the registry.
Registry	The electronic platform used to submit and track information related to estimated credits, verification, and credits available for sale.
Verification activities	Activities undertaken during third-party verification that include reviewing a Project Developer's estimated credits, verifying the accuracy of measurement, and submitting a Verification Report to the Registry.
Market Administrator	The governing body responsible for credit generation protocols, verification protocols, and other market activities.

Part I: Introduction

Overview

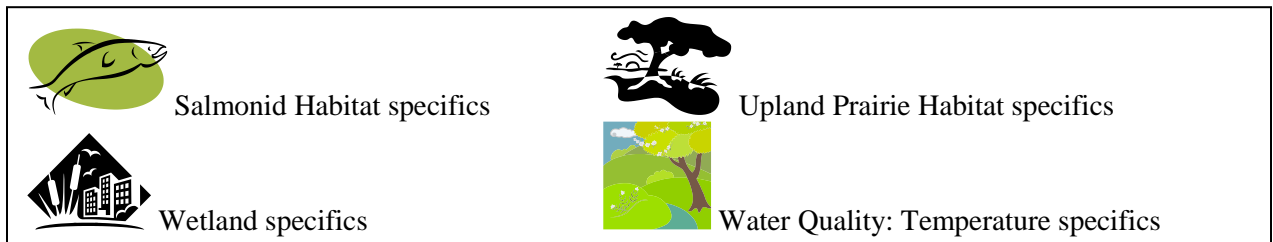
The Verification Protocol: Willamette Basin Version 1.0 (Protocol) is meant to provide standardized, specific guidance on the review and assessment of credit and debit projects under the approved currencies described in Version 1.0 of the General Crediting Protocol. Version 1.0 currencies include salmonid habitat, wetlands, upland prairie habitat, and water quality: temperature.

The ecosystem credit accounting system requires third party verification of all projects. Third parties include both the lead agencies overseeing regulated markets and third parties accredited by the Market Administrator to verify credits. The Willamette Partnership will act as the Market Administrator for the Willamette River Basin.

The Protocol is designed for those who are doing the verification, but the guidance will also be useful for other market participants. Lead agencies for individual currencies are considered accredited third parties. To become a Market Administrator-approved third-party verifier, an individual¹ must successfully complete an application to the Market Administrator and be approved to become an accredited verifier.

Third party verification is defined as an independent expert assessment of the accuracy and conformity of a Project Developer’s Credit Estimate with agreed upon criteria. The purpose of verification is to provide confidence to market participants that credits represent a faithful, true, and fair account of credit benefits and debit impacts—free of material misstatements and conforming to accounting and credit generation standards. To do this, information should be complete (project eligibility, baseline information, proposed actions, credit calculations, and protections of credit quality), consistent (comparable data over time), accurate (findings should be repeatable), and transparent.

Throughout the Protocol, there will be call-out boxes containing the symbols below. These represent rules and information specific to the four Version 1.0 currencies, which include salmonid habitat, upland prairie habitat, wetlands, and cooler water derived from riparian restoration credits (referred to as “Temperature Credits” throughout the Protocol).



¹ Under special circumstances, an organization might become accredited as a verifier subject to review by the Market Administrator

The Protocol is organized into six parts:

- Part I: Introduction
- Part II: Definition of accredited verifiers and process for becoming accredited
- Part III: Conducting verification
- Part IV: Completing the verification process
- Part V: Annexes

Who Benefits from Verification?

Verification provides assurances to buyers that their credits have met the ecosystem credit accounting system's standards for additionality, quality, and sustainability. It provides a standardized process for annual monitoring and reporting to lead agencies overseeing mitigation and trading programs. Complete, consistent and accurate verification provides the public with evidence that market activity is delivering real ecological benefits.

Verification is required for all credits listed under the ecosystem credit accounting system's standards on the Markit Environmental Registry.

Protocol Questions and Adaptive Management

All verifiers should be familiar with the Pilot General Crediting Protocol: Willamette Basin Version 1.0, which describes the overall credit issuance process and the approved metrics for the currencies they will verify. These documents are available at the Market Administrator's website: www.willamettepartnership.org. The accounting system's general crediting and verification protocols are designed to work together. If you have difficulty accessing any of the documents, or if you have any questions please call that Market Administrator at 503-681-5112.

Protocols and the science and information behind them can always be improved. The Market Administrator welcomes feedback and ideas on improving protocols. Comments can be submitted online at: www.willamettepartnership.org.

Verification Process Overview

Verification occurs in the first year of a project as part of assigning credit quantities and then annually through the active life of the project as part of monitoring and reporting on performance. Verification is the responsibility of the project developer. Verification is conducted by individuals who have been accredited by the Market Administrator and occurs on a 5-year cycle as follows:

- **Full verification** in years 1, 5, 10, and 20² which includes a review of eligibility documentation, credit calculations, and a site visit.

² These years were chosen to match A) the permit cycle used for issuing NPDES permits every five years, and B) estimates of check-ins for the wetland program.

- **Streamlined verification** of annual monitoring reports in other years. A site visit can be conducted if major changes have occurred to conditions on the site, or a credit release is proposed as a result of the monitoring report.

The goal of verification is to confirm that the:

1. Pilot General Crediting Protocol was followed completely and accurately
2. Proposed actions have been completed per the Credit Estimate
3. Appropriate monitoring and maintenance plans are in place to ensure longevity of credits
4. Credits and debits have been correctly estimated.

For a credit to be verifiable, the Credit Estimate must be free of material misstatements. A material misstatement must be declared if the reported credit generation information does not appropriately describe project conditions and differs greatly from the verifier's assessment of that same information. To be verifiable, a verifier's estimates of credit quantity must be within 15% of information proposed by the Project Developer. The Registry recognizes that there is inherent uncertainty involved in field data collection. The 15% standard is meant to capture differences in reporting uncertainty, stemming from sampling and calculation differences. If the difference in estimates is greater than 15%, the difference is material, and the verifier must use best professional judgment in determining the quantity of credits to verify.

As a general rule, if the difference is within 15%, the credit quantities in the original Credit Estimate will be used to issue credits.

Once successful verification is complete, the verifier submits their Verification Report to the Market Administrator, which is attached to the credit records.

Many credits will need an agency certification before credits can be issued. Once a Verification Report has been submitted and if required, agencies will review the project documentation and give the Market Administrator approval to issue credits. For some credit types, agency approval will not be required, and the Market Administrator will act as the certifying agency.

Once project developers have assembled all of the necessary documentation and received their certification, they are ready to send their package to the Market Administrator's Registry operated by the Markit Group to issue credits and make them available for sale.

Part II. Definition of accredited verifiers and process for becoming accredited

Becoming an Accredited Verifier

Verifiers must be accredited by the Market Administrator before they are eligible to conduct verification activities on behalf of Project Developers. Lead agencies are considered accredited. The Market Administrator will accredit third-party verifiers that are qualified to review one or more ecosystem currencies. A verifier is an individual that has demonstrated their ability to assess the underlying actions for credits and debits and their familiarity with the approved metrics for specific currencies. The skill sets needed are generally the same for conducting field ecological assessments for streams, wetlands, and upland prairie vegetation, which are outlined below:



Ability to assess stream channel shape and characteristics, identify non-native vs. native vegetation, assess flow and connection of the stream to surrounding floodplain, etc...



Ability to identify important upland prairie plant species, develop plant lists, search online spatial databases, etc...



Experience conducting wetland delineations, ability to assess wetland hydrology, knowledge of wetland native and non-native plants, search online spatial databases, etc...



Ability to assess stream channel shape, aspect, and classify riparian vegetative communities.

Verifiers must also demonstrate the means to accept financial liability³ for verification activities undertaken for a market participant. This liability will be determined in the Verification Services Agreement signed between the verifier and the Project Developer. The Market Administrator will release a Request for Applications (RFA) annually or as needed to allow interested verifiers to apply for Market Administrator accreditation. Interested verifiers must complete the following steps:

1. Submit an application in response to the Market Administrator's RFA.
2. Receive notice from the Market Administrator that the application has been approved.
3. Attend a Verification Training Session (held approximately two months following the Market Administrator's notification of acceptance from its RFA).

³ This is meant to cover standard liability coverage of consultants. This does not imply that verifiers bear additional liability under credit protocols beyond what is in current Federal, Oregon, and local statutes.

4. Keep the Market Administrator informed of any changes affecting the accreditation (e.g. potential conflicts of interest)

Accreditations issued during the pilot phase are effective for the two years of the pilot period. Going forward, it is estimated that accreditations will be good for five years. After the five years has expired, verifiers must re-apply for renewal by responding to the RFA in the year their accreditation will expire.

Conflict of Interest

The independence of verification is important. Verifiers acting on behalf of the Market Administrator must work in a credible, independent, nondiscriminatory, and transparent manner, complying with applicable state and federal law. This includes disclosing any pre-existing relationships between the Project Developer or Buyer and the verifier. Verifiers must provide a Notice of Verification and Conflict of Interest Form to the Market Administrator at least 10 business days before verification activities can proceed.

As an added protection, a verifier can only provide verification services to a Project Developer for a period up to five years. If a verifier violates these conditions, the Market Administrator at its discretion, may disqualify an accredited verifier for a period of up to five years. See the Market Administrator's Conflict of Interest Code for full detail.

Lead agencies⁴ may send representatives to accompany verifiers in the course of verification activities primarily for but not limited to information and educational purposes. In the very rare instance when a Project Developer may request that information resulting from these visits be kept confidential, the state agency and Market Administrator will consider the request to the limited extent authorized by ORS 468.095(2) governing state confidentiality and EPA's Regulations on the Confidentiality of Business Information (see 40 CFR Part 2).

⁴ Other representatives may accompany verifiers at the discretion of the Project Developer.

Part III: Conducting verification


The primary goals of verification are to ensure a Project Developer’s Credit Estimate and Ongoing Verification Reports meet the required level of accuracy. This does not include re-collecting data. Verification looks to see that data collection methodologies are consistent with the Pilot General Crediting Protocol and approved methodologies, actions are implemented as planned, and all the contracts are in place to ensure protection, maintenance, and monitoring of those credits. The Market Administrator currently recognizes a defined set of currencies and eligible conservation and development actions.

See Annex 1 for detailed explanation of verification process. All steps must be completed by the verifier to submit their report to the Market Administrator. The schedules below outline the minimum frequency and requirements for verification. A Project Developer, lead agency, or a contract between Project Developer and credit purchaser can require more frequent verification or additional steps. To meet the Market Administrator’s conflict of interest policies, one verifier would be able to complete verifications in years 1-5. Following that verification cycle, a new verifier must be chosen in year 6 for the next cycle. Under normal circumstances, verification activities should occur as follows:


Table 1: Verification timeline

<i>Year</i>	<i>Activities</i>
1	Review credit generation information Confirm as-built conditions for actions Confirm contracts are in place for protection, maintenance, monitoring
2-4	Streamlined review of annual monitoring reports
5	Visit site to confirm data in annual monitoring reports
	Change verifier
6-9	Streamlined review of annual monitoring reports
10	Visit site to confirm data in annual monitoring reports
11...	Continue as required for the active credit life of a project

Verification begins when Project Developers submit their Credit Estimates to the Market Administrator and request verification. At this point, either a lead agency conducts verification, or an accredited third party is assigned by the Market Administrator. See below for who will verifier different currencies.



For salmon, prairie, and temperature credits, third parties will lead verification.



For wetland credits, Army Corps and OR Dept. of State Lands will lead verification, but will consider third party reports

Once a verifier has been assigned, the verifier will have access to the Credit Estimate and other project information to use. Verifiers will also need to enter their reports into the Market Administrator's system. In reviewing annual monitoring reports on years where site visits are not required, verifiers must complete a cursory check of reported information to ensure the Project Developer has not overlooked an event that significantly impacts the status of their credits. Project Developers need to report any significant changes that might affect their credits (tree removals, significant natural disturbances, ownership change, etc.) These reports may also contain optional information beyond what is required (e.g. biodiversity benefits, additional protections, etc.). This data is optional and does not require verification.

Dispute Resolution

There may be instances where a verifier and a Project Developer cannot agree on the findings in a Verification Report. In such instances, both parties can request the Market Administrator's Dispute Resolution Committee to come to a unanimous, binding decision. Both the verifier and the Project Developer will pay an equal filing fee to submit their case to the committee. As part of every Verification agreement, both the verifier and the Project Developer will need to sign agreeing to this Dispute Resolution Policy.

Part IV: Completing the verification process

There are a number of core verification activities needed for all credit types. Table 1 contains the verification elements:

Table 2: Verification Process

Year 1 activities	
1. Review Notice of Eligibility	- Ownership & Stewardship - Minimum quality standards - Additionality
2. Verify Credit Estimate submitted to the Market Administrator	- Review supporting documentation (current conditions data, sampling points, data inputs into credit generation calculations, model outputs, contracts, etc.) - Confirm completion of appropriate implementation steps (planning docs, invoices, photos, etc.) - Conduct site visit - Revise credit estimates as necessary based on verifier feedback
Year 2-4	
1. Verifier reviews annual monitoring reports submitted by project developer	- Review supporting documentation (data sheets, model outputs, contracts, etc.) - Conduct site visit if needed

Once these core verification activities are completed, the verifier can complete a Verification Report that contains a summary which will be available to the public, an opinion on the credit estimates, and a log of activities and findings. This report needs to be submitted to the Market Administrator's system. Annual reports will need sign-off from verifiers for projects to remain on the Markit Environmental Registry. The final stage of verification includes agency or Market Administrator certification. Certification will work differently for different currencies.

Once project developers have assembled all of the necessary documentation and received their certification, they are ready to send their package to the Market Administrator's Registry operated by the Markit Group to issue credits and make them available for sale. The Markit Group will conduct a final review for documentation completeness.



Certification is **both** an approved banking instrument and credit release letter signed by National Marine Fisheries Service



Certification is **both** an approved banking instrument and credit release letter signed by US Fish and Wildlife Service



Certification is **both** an approved banking instrument and credit release letter signed by the OR Dept. of State Lands and the US Army Corps of Engineers.



Certification is completed by the Market Administrator and is reported to the OR Dept. of Environmental Quality

Annex 1. Overview of Verification Process

1. **Project Developer submits Credit Estimate:** The Credit Estimate is submitted once initial restoration or conservation actions have begun, and the Project Developer requests verification.
2. **Market Administrator assigns Verifier:** Either a lead agency conducts verification, or a third-party is assigned from a list of accredited verifiers. Verifiers are assigned on a rotating basis, moving through the list of the people qualified to conduct verification. Project Developers then work with the verifier and begin to negotiate agreement on the terms for providing verification services. If an agreement cannot be reached, the next verifier on the list is assigned.
3. **Verifier and Project Developer finalize Agreement and send Notice to Market Administrator:** When the verifier and Project Developer finalize a Verification Agreement, they must submit a Verification Notice to the Market Administrator. The Notice must be submitted 10 business days prior to beginning verification activities, and must include a Conflict of Interest Form from the verifier to establish the likelihood of a conflict of interest between the parties is low.
4. **Verifier conducts verification activities:** Verifier follows the guidance in the verification protocol to evaluate Project Developer's Credit Estimate.
5. **Verifier prepares Verification Report for Project Developer:** Verifier prepares a detailed summary of the verification activities for the Project Developer. This includes a draft opinion for Project Developer's review.
6. **Verifier and Project Developer discuss Verification Report:** Verifier meets with Project Developer to discuss Verification Report.
7. **Verifier submits final Verification Report to the Market Administrator:** Once authorized by a Project Developer, a Verifier completes the Verification Report Form on the Market Administrator's system.
8. **Market Administrator secures Agency Certification:** When all documentation is complete, the Market Administrator will secure the final letter of certification from the necessary agencies before sending the credit package to the Market Environmental Registry for credit issuance.
9. **Registry issues credits:** Registry reviews the credit documentation for completeness. Once accepted into the Registry, the credit will be available for sale and a project summary available to the public.

***Steps 4-9 are completed for years 2-4 of a Verification Cycle as well.**

Annex 2. Verification Notice and Conflict of Interest Form

Annex 3: Verification Report

Counting on the Environment Agreement Package

Talking Points: What are you agreeing to?

Introduction

In November 2008, a Working Group made up of federal, state, and local agencies and other stakeholders engaged in applying market-based approaches to restoring the health of ecosystems in the Willamette Valley began meeting. The Working Group was convened by the Willamette Partnership, a nonprofit coalition of leaders in the Willamette striving to expand the pace, scope, and effectiveness of habitat restoration with funding from a U.S. Department of Agriculture, National Resources Conservation Service (NRCS) Conservation Innovations Grant.

There are two attached agreements: 1) Agreement in Concept to be signed by Working Group members, and 2) Joint Statement of Agreement to be signed by organizational leadership.

The project was initiated because of the following existing conditions and assumptions:

- Current mitigation is not moving us as close to healthy ecosystems as we want
- Current mitigation is fragmented, making it difficult for land managers to restore ecosystems to their full and broad potential
- Current mitigation processes are often unpredictable
- Incentivizing high quality restoration in the best places is a better, more cost-effective approach

By August, 2009, The Willamette Partnership is asking each Working Group member for three things:

1. Sign a statement at the August 4, 2009 meeting indicating Working Group consensus about the draft crediting methodologies that were developed since November, 2008.
2. Get the highest appropriate level of their organization to sign a more detailed Statement of Agreement
3. Support the piloting and testing of an ecosystem credit accounting system (Accounting System) over the next 2 years

With these agreements in place, there is the potential to start a new, voluntary approach to mitigation that land managers with impacts to four specific habitats or ecosystem functions can opt into. Because these methodologies are still draft and because they do not alter any existing regulations, current mitigation requirements are not affected. In other words, at this time, this project is in the “pilot” stage.

Accounting system elements

- Four currencies (wetlands, salmonid habitat, upland prairie, and water temperature) to calculate impacts and benefits of actions on the land
- A standardized credit approval process
- Excel spreadsheets, web-based tools, and an online registry to make this easy to use.

Questions & Answers:

Q: What is the regulatory framework driving this?

In general, there has been a push from several agencies to increase the effectiveness of mitigation, for example, by requiring or incentivizing higher quality restoration compared to what has historically been accomplished on mitigation projects. The new federal compensatory mitigation rule for wetlands calls for functions-based accounting tied explicitly to wetlands and streams in the Clean Water Act Sec. 404 program.

The Department of Environmental Quality’s draft Internal Management Directive on trading sets goals for riparian restoration to meet temperature needs in NPDES permits.

USFWS and NMFS do not have standardized protocols and metrics for determining mitigation requirements as part of Endangered Species Act consultations. As a result, consultations and permits can often take a long time, and at the end, it is not clear what mitigation value is generated.

This Accounting System seeks to provide clarity, predictability, and incentives for higher quality mitigation across these regulatory frameworks.

The piloting of the Accounting System does not require any changes to the existing regulatory framework. It is an alternative pathway that is being tested and may lead to changes in the next year or two. However, we are not currently asking anyone to agree to those changes until we know what’s needed.

Q: How is the existing program going to be affected?

There will be no effect on existing mitigation programs. The pilot phase for the Accounting System is just that: a pilot phase. Even if elements eventually become incorporated into programs, it is envisioned that existing mitigation banks or other agreements will be honored and grandfathered in.

Q: How do you envision policy changes happening?

Each agency and organization is in charge of its own policy changes. For the Counting on the Environment Working Group, we will continue convening a Coordinating Team to discuss progress on the pilot program and any potential policy changes. We will reconvene the Working Group in August 2010 and August 2011 to evaluate progress and major changes needed.

Q: How do you envision transition changes?

For the next two years, pilot projects will be using the Accounting System. After the two year pilot, the group or individual agencies may decide to transition to an evolved system that incorporates some or many elements of the pilot program. At that point, state and federal regulatory agencies may need to modify their mitigation rules, policies, or both to adopt the changes. Some of these changes could require statutory changes, in which case, a strategy for seeking those changes will be developed. If this happens, it is anticipated that new banks or projects going forward would use the new system, while existing banks would operate under the previous version.

The two attached documents are Final

Agreement in Concept on Ecosystem Credit Accounting System

Issued and signed by Counting on the Environment
Working Group Members

August 4, 2009

Counting on the Environment Working Group Agreement in Concept on Ecosystem Credit Accounting System

Introduction

In November 2008 a Working Group made up of federal, state, and local agencies and other stakeholders began work to apply market-based approaches to restore the health of ecosystems in the Willamette Basin and beyond. The Working Group was convened by the Willamette Partnership, a nonprofit coalition of leaders in the Willamette striving to expand the pace, scope, and effectiveness of restoration with funding from an NRCS Conservation Innovations Grant. The Working Group has met in five intensive workshops and convened more than 10 focus groups to provide guidance and reach agreement on aspects of an integrated ecosystem credit accounting system. Although the focus of the group was on a pilot in the Willamette, the accounting system is designed to work in regions across Oregon and the broader Northwest. This statement represents the collective agreement of the Working Group.

Whereas the Working Group agrees that:

Restoration and conservation of Oregon's natural resources are critical to the provision of clean water, clean air, and natural places which are important elements of healthy communities, economies, and ecosystems.

The current mechanisms for investing in natural resources and mitigating for unavoidable environmental impacts do not provide adequate incentives for high quality conservation in areas of highest importance. And under current mitigation rules and practices, land managers face significant hurdles restoring a breadth of habitat types and ecosystem functions on their lands. There is little or no opportunity to create multiple types of credits, and if there is, transaction costs of working with vastly different credit issuance processes can be prohibitive.

Conservation and restoration activities should 1) be suitable to the site, 2) provide for and consider appropriate context and connectivity, and 3) be sustainable over the long term.

Toward this end, an ecosystem credit accounting system can quantify the flow of benefits and impacts for multiple ecosystem services stemming from actions taken on a site. It can verify, register, and track these ecosystem services over time.

It is important to provide cost-effective mechanisms to land managers to restore sites for a broad suite of ecosystem services, and the ability to sell multiple types of credits from the same site can help increase the pace, scope, and effectiveness of restoration.

Therefore, the Working Group agrees:

That the ecosystem credit accounting system, which includes 1) credit calculators for wetlands, salmonid habitat, upland prairie, and water temperature, 2) an integrated

package of assurances, and 3) a standard process for issuing credits is designed to be sound, ensure high quality restoration and adequate mitigation, and meet the needs of compensatory mitigation for these resources.

To encourage and support the voluntary testing and use of the ecosystem credit accounting system on a pilot basis from September 2009 through September 2011 with complete check-ins for revisions in August 2010 and August 2011. Eligible projects will include the pilot projects begun under the Willamette Partnership's Counting on the Environment project and any additional projects determined on a case-by-case basis by agencies and other partners. The criteria described in the Willamette Partnership's Management Plan and the recommendations of the Counting on the Environment Coordinating Team will be used to suggest new pilots.

The agencies will work together with support from other *Counting on the Environment* Working Group members to issue a Joint Statement of Agreement necessary to accept credits generated through the accounting system as adequate compensatory mitigation, so long as the pilot credit projects are also in accordance with current Agency credit issuance rules and applicable statutes.

Implementation

Working Group participants, as representatives of their organizations endorse and support the concept of an integrated ecosystem credit accounting system. Participants commend the Working Group process, conclusions and recommendations and agree to communicate this Agreement to their organizations and others as appropriate for consideration and support.

Signatures Attached

Joint Statement of Agreement for an Ecosystem Credit Accounting System

Issued and signed by organizational leadership

September 2009

Joint Statement of Agreement for an Ecosystem Credit Accounting System

Issued by: *U.S. Army Corps of Engineers, USDA Forest Service, Office of Governor Ted Kulongoski, Oregon Department of State Lands, Oregon Watershed Enhancement Board, Institute for Natural Resources, Oregon Department of Forestry, Mud Slough Wetland Mitigation Bank, Willamette Partnership, Ecotrust, Oregon Department of Water Resources, Defenders of Wildlife, Oregon Department of Land Conservation & Development, National Oceanic and Atmospheric Administration, Natural Resources Conservation Service, Cascades West Council of Governments, Clean Water Services, City of Albany, The Nature Conservancy, U.S. EPA – Region 10, Oregon Department of Transportation, Oregon Department of Agriculture, Oregon Department of Environmental Quality, The Freshwater Trust, Oregon Department of Fish & Wildlife, City of Eugene, U.S. Fish & Wildlife Service, City of Portland*

Introduction

This Statement represents the collective effort of a Working Group made up of federal, state, and local agencies and other stakeholders applying market-based approaches to restore ecosystem health in the Willamette Basin and beyond. The Working Group was convened by the Willamette Partnership, a nonprofit coalition of leaders striving to expand the pace, scope, and effectiveness of restoration. Funding for the project was made possible by a Natural Resources Conservation Service Conservation Innovations Grant. The accomplishments of the working group represent an integration of several years-worth of work conducted by all parties involved. This statement reflects a consensus agreement among all parties to test and pilot the system described in the ecosystem credit accounting system's Pilot General Crediting Protocol: Willamette Basin Version 1.0 (Protocol).

The Protocol includes A) methodologies for calculating credits and debits for wetlands, salmonid habitat, upland prairie, and water temperature, B) a standardized credit approval process that works across ecosystem types, and C) spreadsheet calculators, web-based tools, and an online registry to make the system easy to use.

The Willamette Partnership is asking the federal and state agencies, who will be responsible for issuing credits developed through this process, to jointly issue this Statement on a pilot basis for two years beginning September 2009 and carrying through to September 2011. The Statement will apply to eligible permitted impacts and eligible compensatory mitigation for wetlands, upland prairie, salmonid habitat, and thermal impacts to water quality. Eligible projects will include the pilot projects begun under the Willamette Partnership's *Counting on the Environment* process and any additional projects determined on a case-by-case basis by agencies and other partners. The criteria described in the Willamette Partnership's Management Plan and the recommendations of the *Counting on the Environment* Coordinating Team will be used to suggest new pilots. This Statement will be revisited in August 2010, and again in August 2011, to assess results and make adjustments, as necessary.

Whereas the Signatory Organizations agree that:

Under current mitigation rules and practices, land managers face significant hurdles in restoring the full breadth of habitat types and ecosystem functions on their lands. There is little or no opportunity to create multiple types of credits, and if there were, the transaction costs associated with vastly different credit issuance processes make it cost-prohibitive.

The credit calculation methods, integrated credit issuance processes, and joint assurances contained in Version 1.0 of the Protocol should enable land managers to:

- generate, quantify, and have options to sell multiple types of credits from their restoration projects;
- operate within predictable rules that outline the steps and processes necessary to develop those credits;
- restore whole ecosystems towards their full potential rather than to meet the requirements of several distinct regulatory programs; and
- generate higher credit value by restoring the best sites, in the best places, to a broad range of functions.

The Protocol should allow developers with unavoidable impacts to natural systems to:

- operate within predictable rules that outline the steps and processes necessary to determine their mitigation obligation; and
- base their mitigation obligation on the quality and context of the sites where impacts occur, providing an incentive to avoid the best sites, in the best places, that provide a broad range of ecological functions.

For agencies, the Protocol should allow them to:

- provide standard, functions-based credit calculation methodologies to measure both impacts and benefits in a way that provides new incentives for restoring the breadth of ecosystem functions and moving impacts from the highest functioning sites;
- provide a more routine, predictable, and less time/money-intensive process for most creditable restoration actions, reducing uncertainty and the time to implementation; and
- track and account for sites selling multiple credit types.

Therefore, the Signatory Organizations agree that:

For compensatory mitigation involving eligible development actions or conservation actions, agencies will accept credit estimates generated from pilot projects using the Protocol so long as pilot credit projects are also in accordance with current Agency credit issuance rules and applicable statutes.

These pilot credit estimates will be subject to the eligibility requirements, verification rules, and credit issuance processes for each market. For most credit types, agency certification will be required before credits and debits can be issued and registered.

Agencies will do their best to streamline their issuance process for pilot ecosystem credits estimated using the Protocol, verified according to the Willamette Partnership's standards, and registered with the Willamette Partnership's registry partner Markit Environmental Registry.

There are a number of recommendations developed as part of the Working Group process that require further work. Agencies will work with each other, the Willamette Partnership, and other signatories to use information generated during the pilot phase to continue work on these recommendations.

Signatures Attached