



Delivering Real Conservation Benefits

Willamette Partnership's Ecosystem Credit Accounting System



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28 March 2014

What is the Partnership Working For?

Increasing the Pace, scope, & effectiveness of conservation



- Investing in what Mother Nature would invest in
- A fair and transparent way for people to buy, sell, and track the benefits of restoration
- Rules and tools that make restoring things that matter a practical business decision for private land managers



Tualatin River, Oregon

Restoration for compliance

Cooling Towers

\$60 -
\$150
million

35 miles of restoration

\$6
million

FROM THIS...



...TO THIS



Grey Infrastructure

Cooling Towers

Compliance – *Achieved*

Cost – *A lot*

Ecological Value – *Not Much*



Green Infrastructure

Restore 35 miles of stream

Compliance – *Achieved*

Cost – *A lot less*

Ecological Value – *Huge*

Ecosystem Service Markets / Payments for Ecosystem Services

Ecosystem Service Credits

Carbon sequestration: CA \$13.62 tCO₂e

Wetland function: \$85,000/acre

Breeding pair Least Bell's Vireo:
\$125,000/acre

Water Temperature: \$0.56/Kcal/day

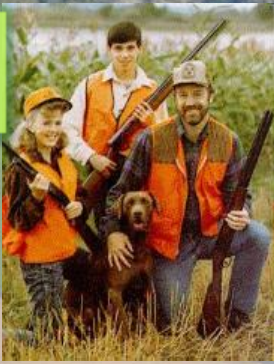


Willamette Partnership's

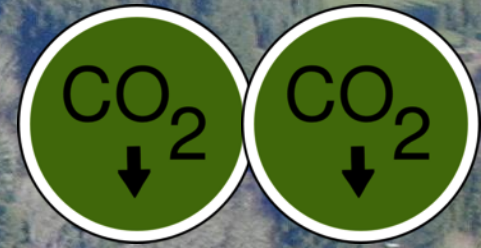
Ecosystem Credit Accounting System



Recreation
leases

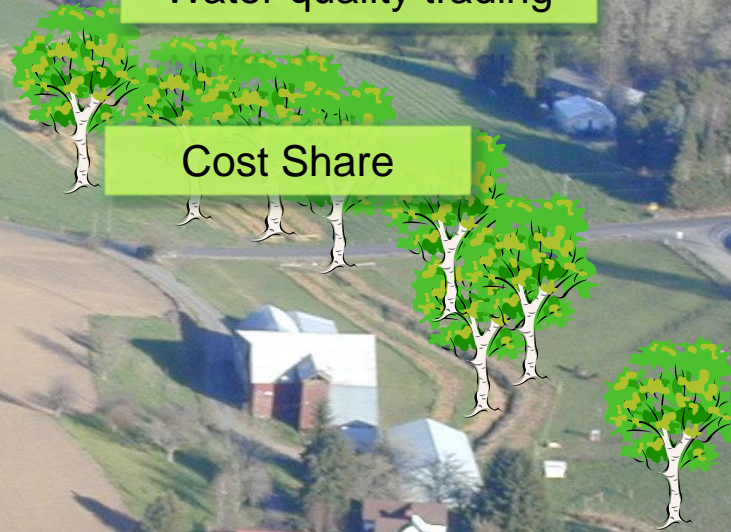


Stream restoration and
Water quality trading



Carbon sequestration

Cost Share



Sustainable
forestry/agriculture



Wetland restoration



Species recovery



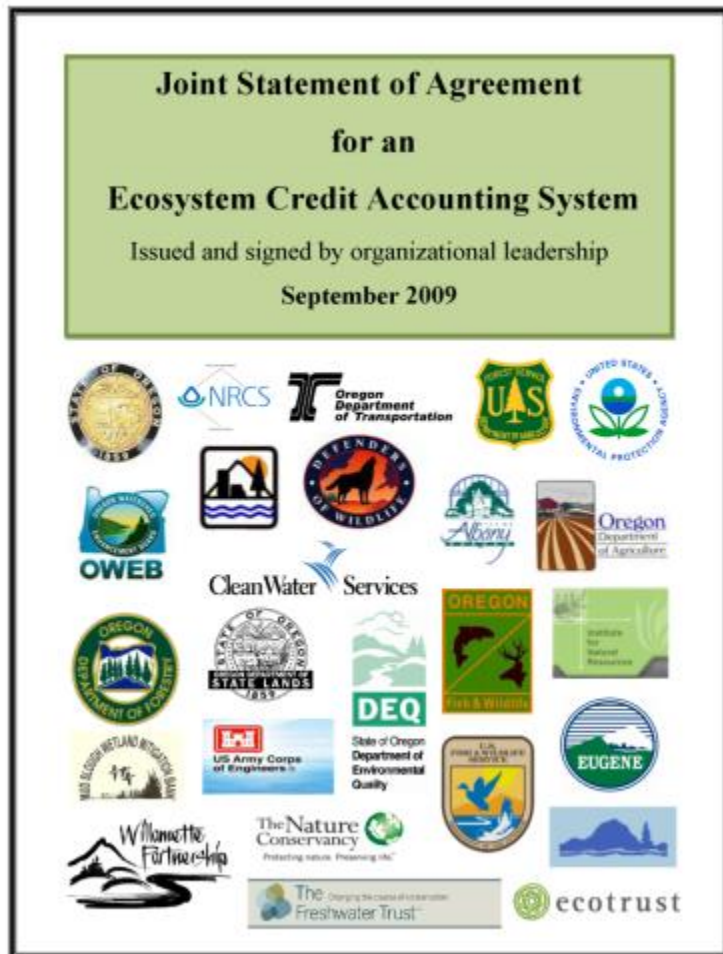
Conservation
easement

Imagine...

The portfolio approach to land
management: multiple income
streams

Ecosystem Credit Accounting System

Standards, Metrics, and Process



Protocols, standards, and quantification methods that translate **actions** that affect the environment into quantified, verified, and tradable **units** (aka “credits”).

Protocols - steps of the credit issuance process; rules for how credits can be bought, sold, and accounted for.

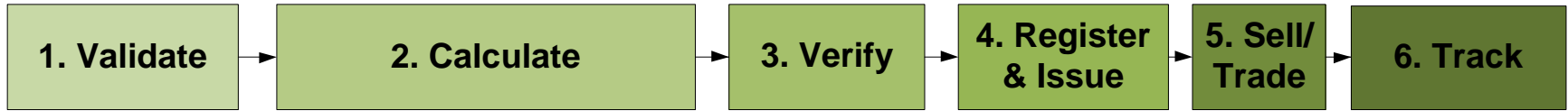
Standards - thresholds that must be met at various stages of the process.

Quantification methods - calculate the credit value of a given action.

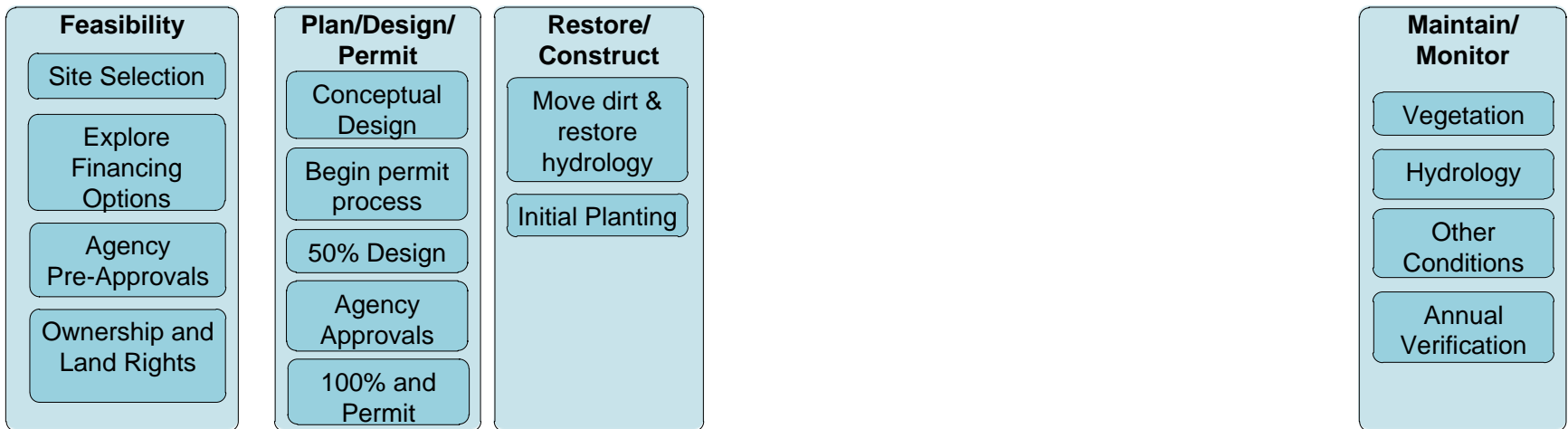
Guide to the Process of Credit Creation:

The General Crediting Protocol provides market participants with the overall framework they need to develop, sell, and buy ecosystem credits using the Ecosystem Credit Accounting System. This system is designed to deliver transparency, predictability and ecological integrity. It can be tailored to specific places.

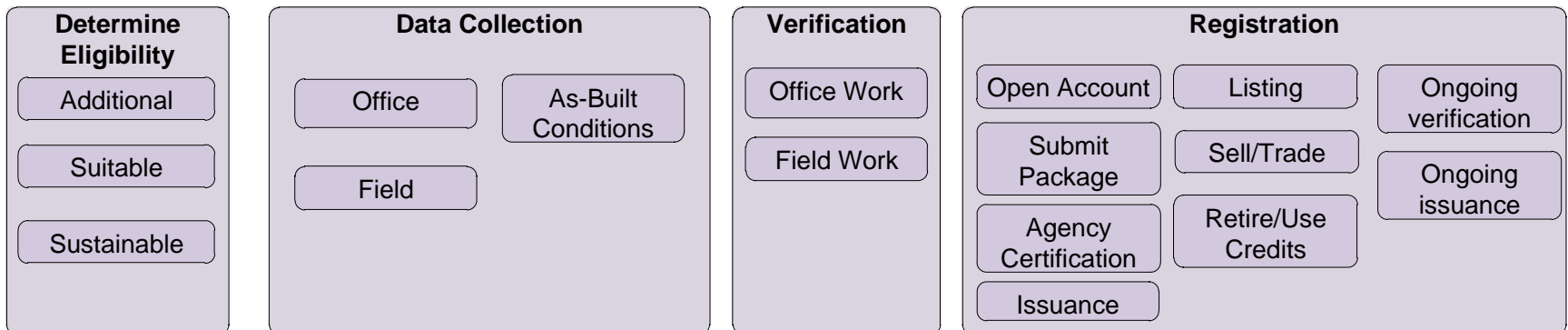
Major Steps



Project Implementation Process

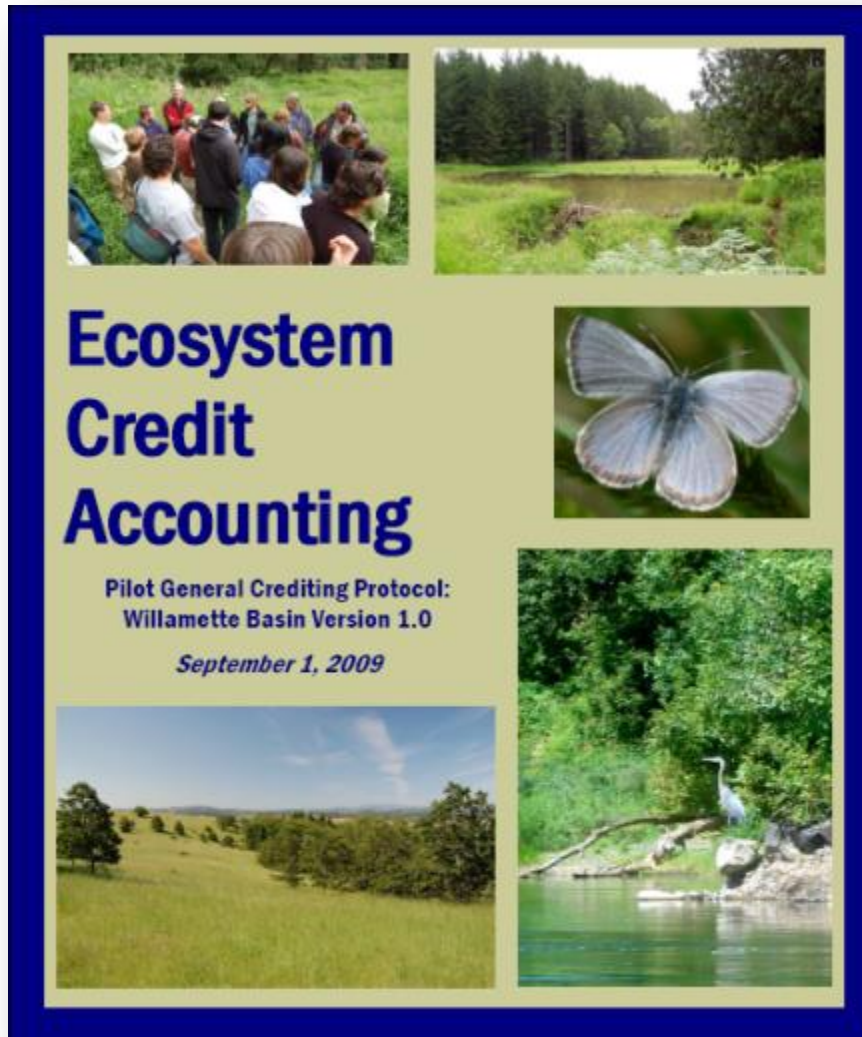


Credit Issuance Process



Crediting Protocol

Standards, Metrics, and Process

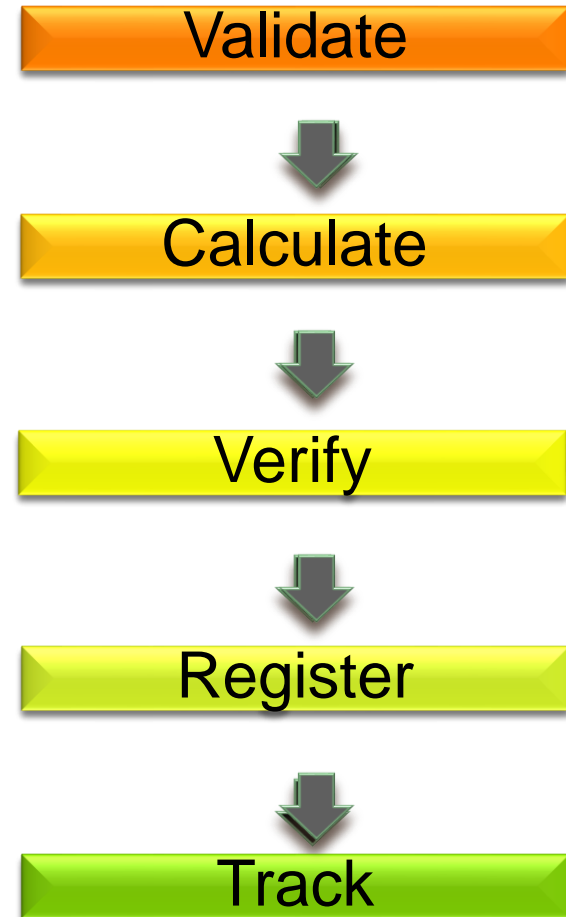


**Ecosystem
Credit
Accounting**

Pilot General Crediting Protocol:
Willamette Basin Version 1.0

September 1, 2009

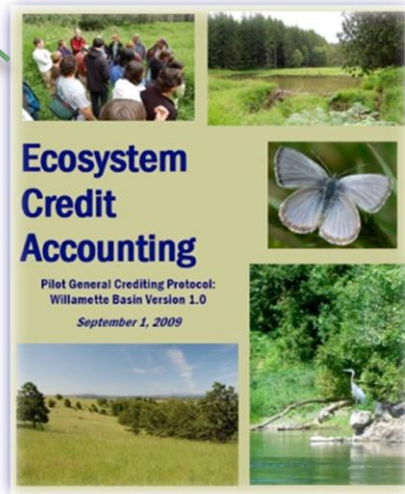
The cover features four photographs: a group of people in a field, a pond in a forest, a white butterfly, and a white egret on a log over a stream.



Credit Types

Terrestrial
Habitat

Aquatic
Habitat



Water
Quality

Credit Types: terrestrial habitat



Credit Types: aquatic habitat

Terrestrial
Habitat

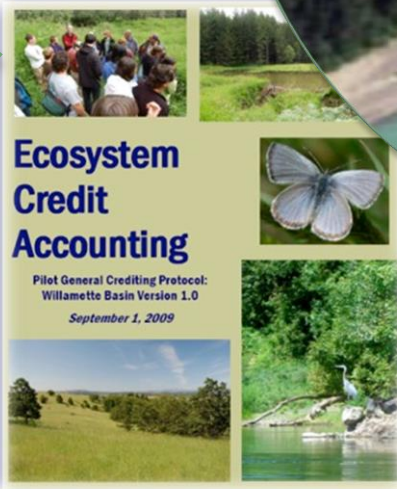
AQUATIC HABITAT CREDIT TYPES

Floodplain

Salmon Habitat

Wetland Function

Stream Function

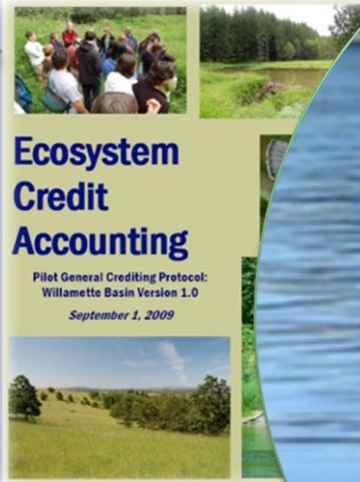


Water
Quality

Credit Types: water quality

Terrestrial
Habitat

Aquatic
Habitat

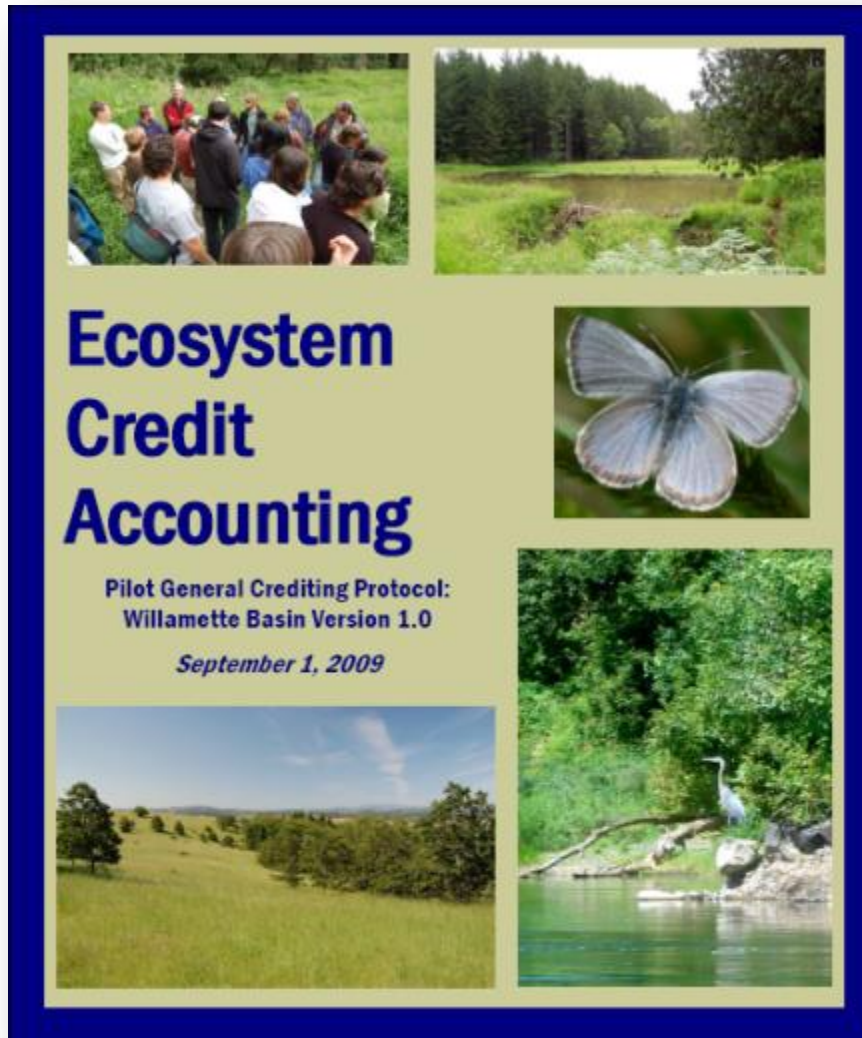


**WATER QUALITY
CREDIT TYPES**

Water Temperature
Nutrients

Crediting Protocol

Standards, Metrics, and Process

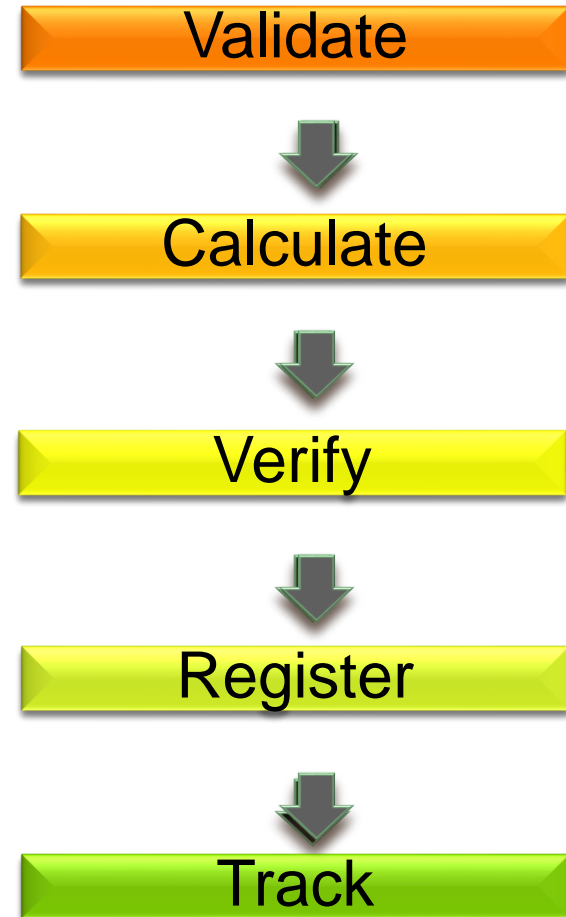


**Ecosystem
Credit
Accounting**

Pilot General Crediting Protocol:
Willamette Basin Version 1.0

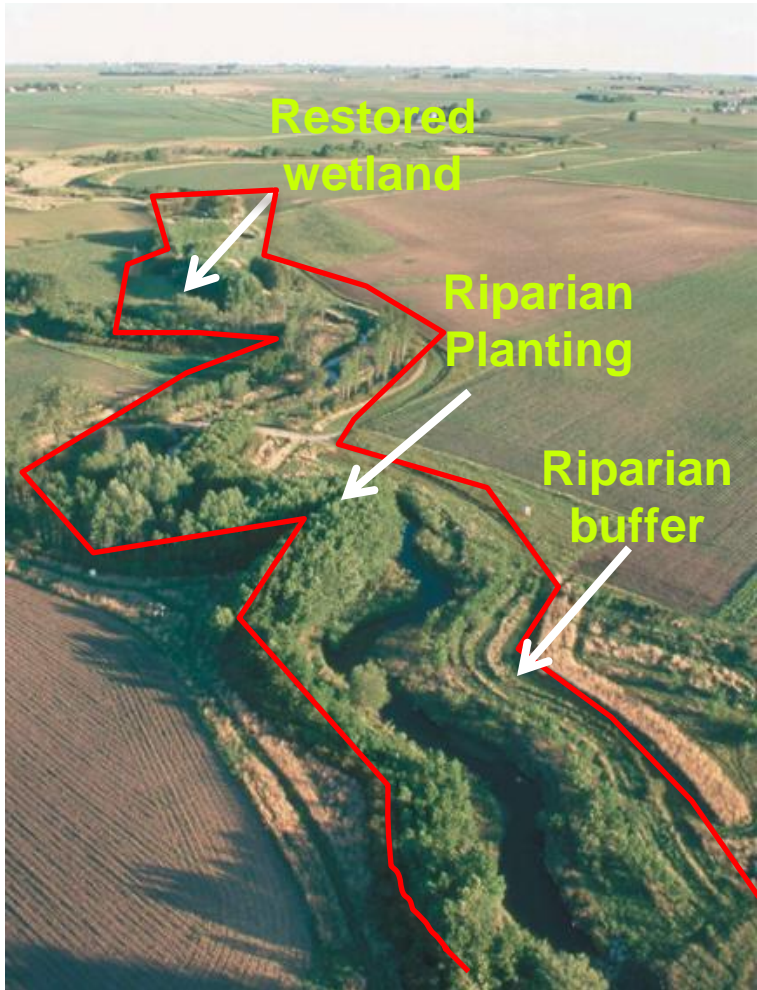
September 1, 2009

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Crediting Protocol

Quantification = Investment



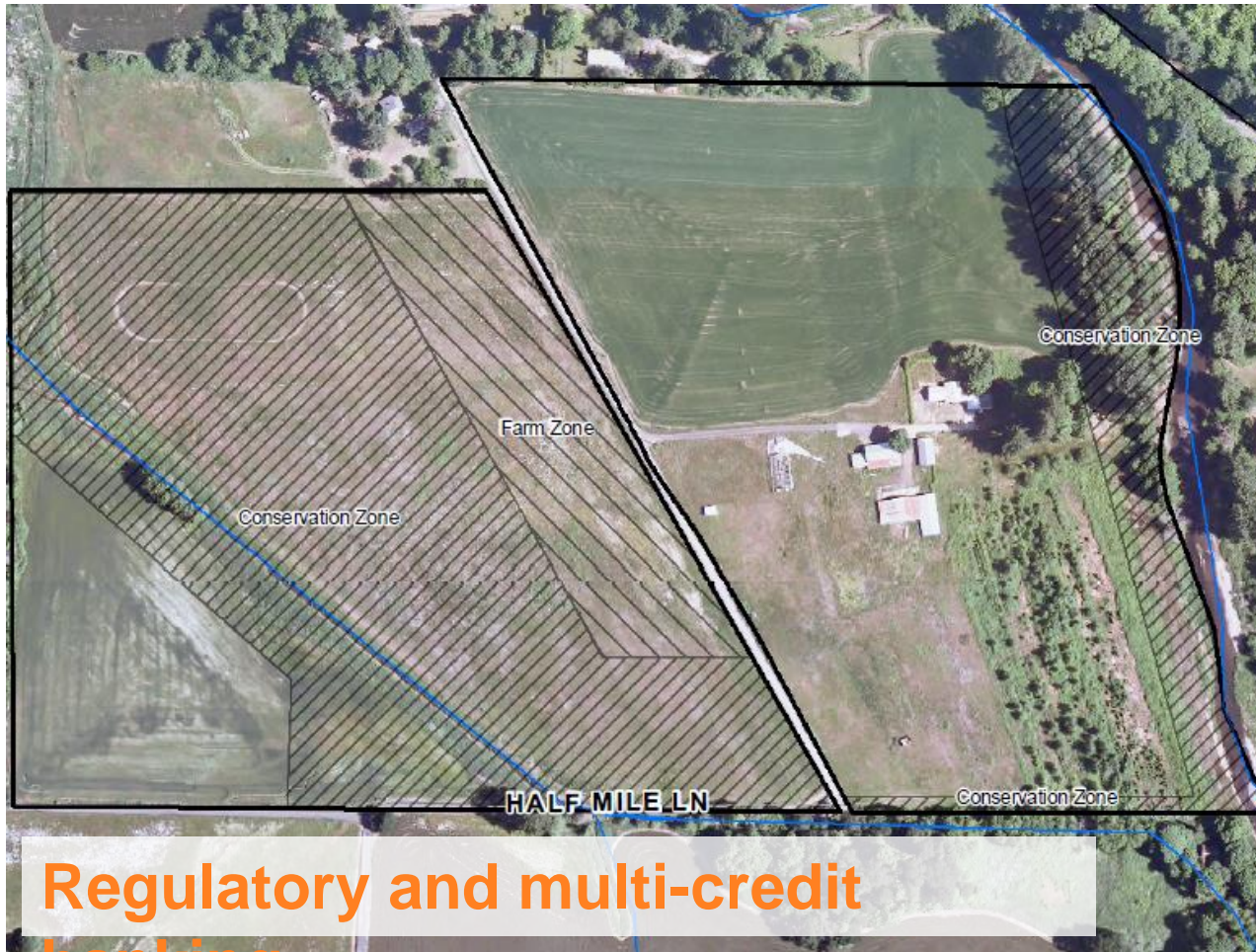
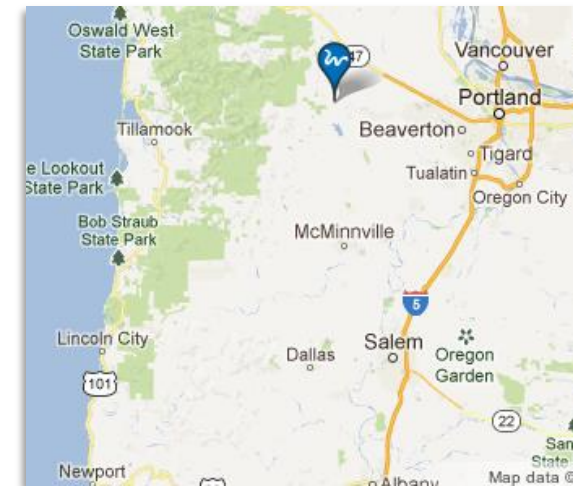
What did you do?

Conservation actions \times Area treated = **CREDITS**

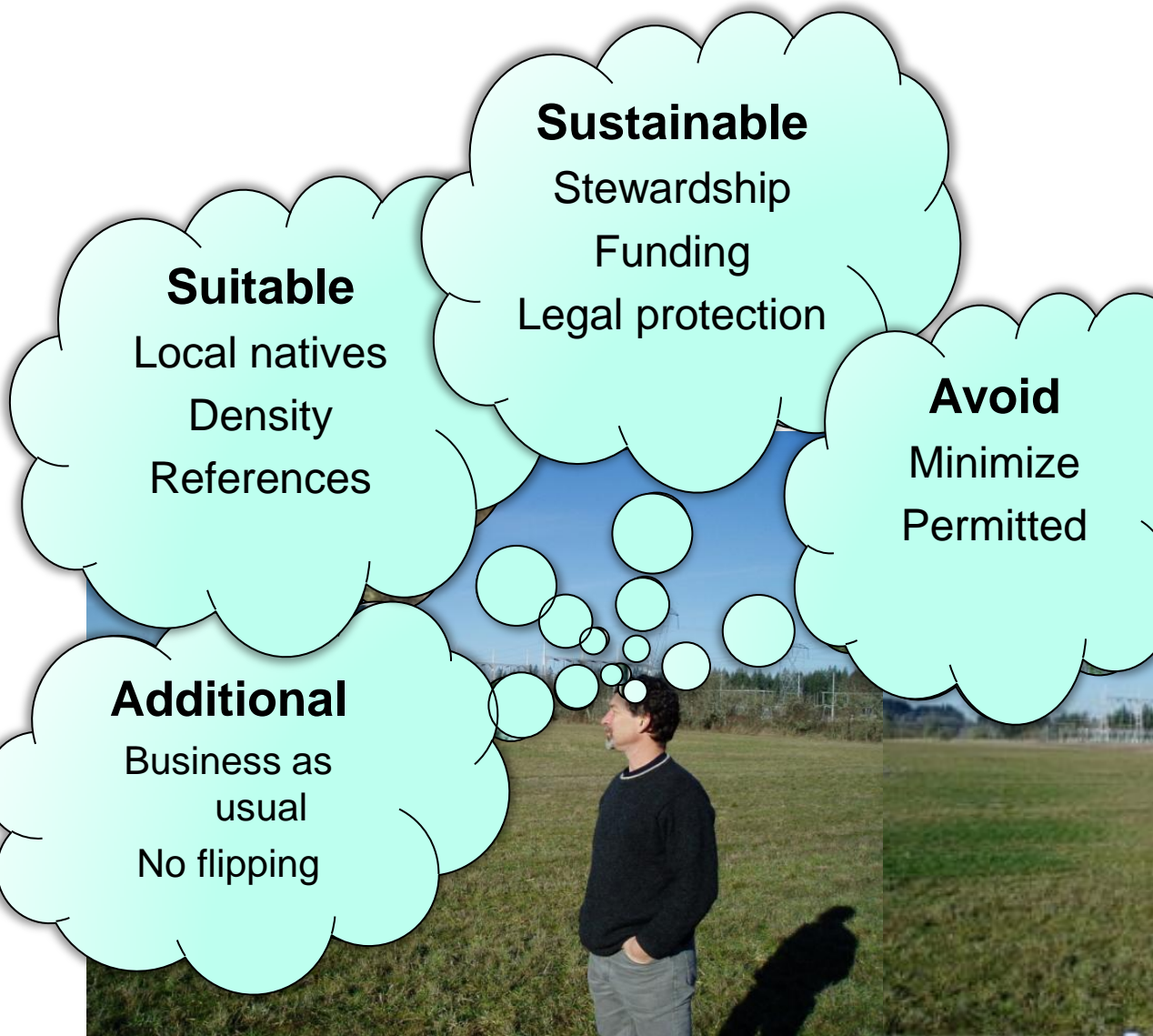


Multi-Credit Accounting

Half-Mile Lane Mitigation Bank



Regulatory and multi-credit banking



Validate



Calculate



Verify



Register



Track

Multi-Credit Accounting

Half-Mile Lane Mitigation Bank

- Farm Bill (NRCS EQIP)
- COTE Wetland (CWA 404)
- COTE Water Quality: Temperature (TMDL)
- COTE Salmon Habitat (ESA)

Farm Zone

Conservation Zone

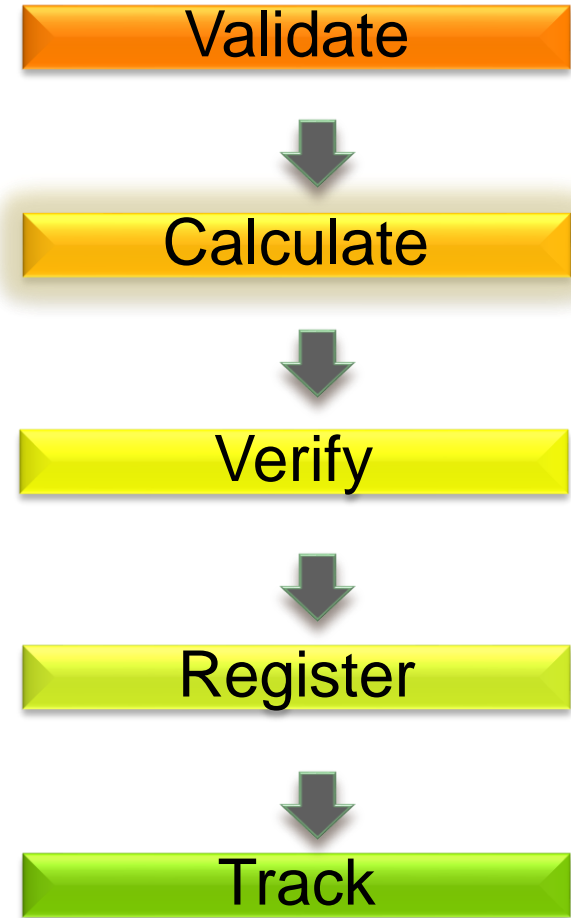
Conse

nZone

HALF MILE LN

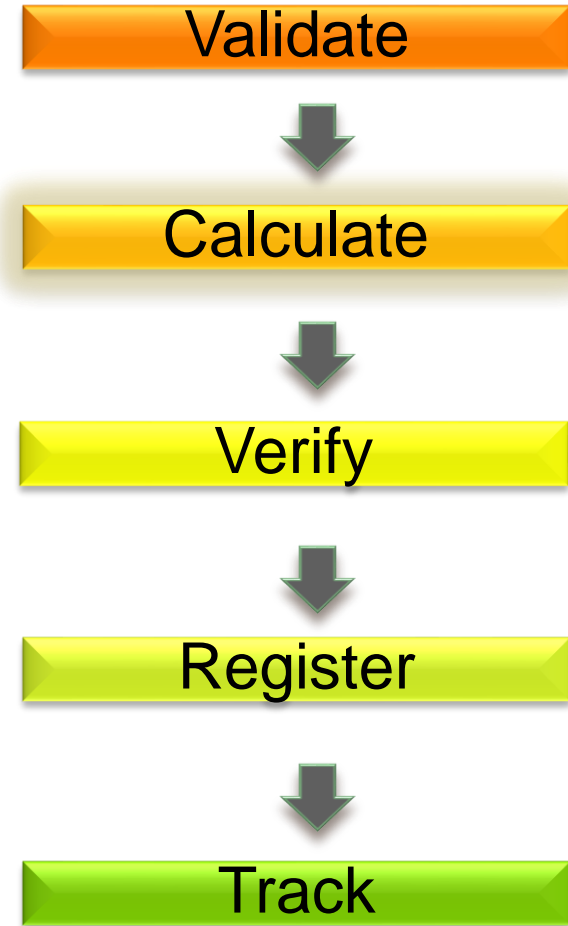
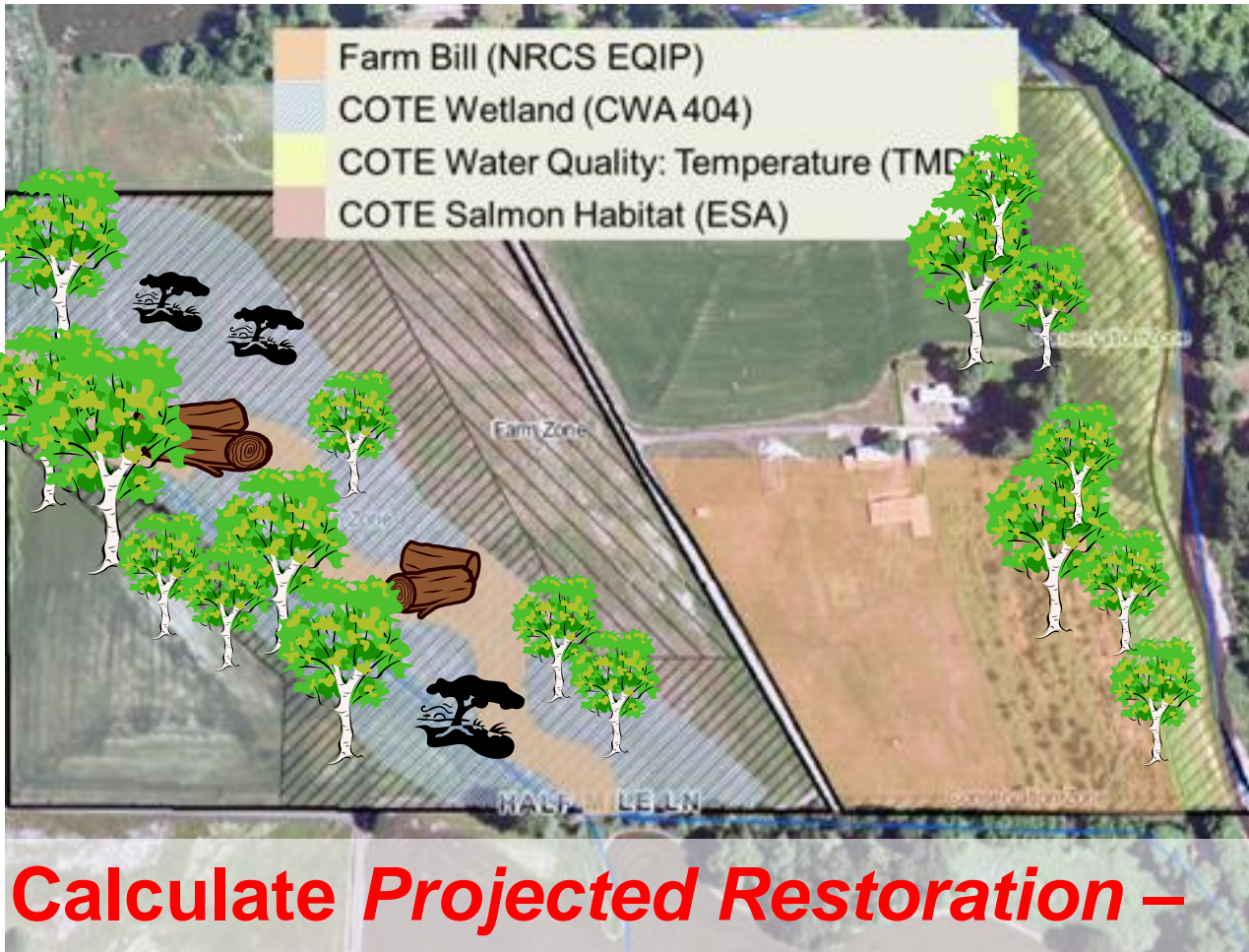
Conservation Zone

Calculate Baseline



Multi-Credit Accounting

Half-Mile Lane Mitigation Bank



Assessment Tools/Credit Calculators

JULY 2010



Manual for the Oregon Rapid Wetland Assessment Protocol (ORWAP)

version 2.0.2

Paul Adamus, Ph.D.
Adamus Resource Assessment, Inc.

Janet Morlan, PWS
Kathy Verble, CPSS



ORWAP SCORE x SITE AREA = CREDITS

70%




20 acres

=

14

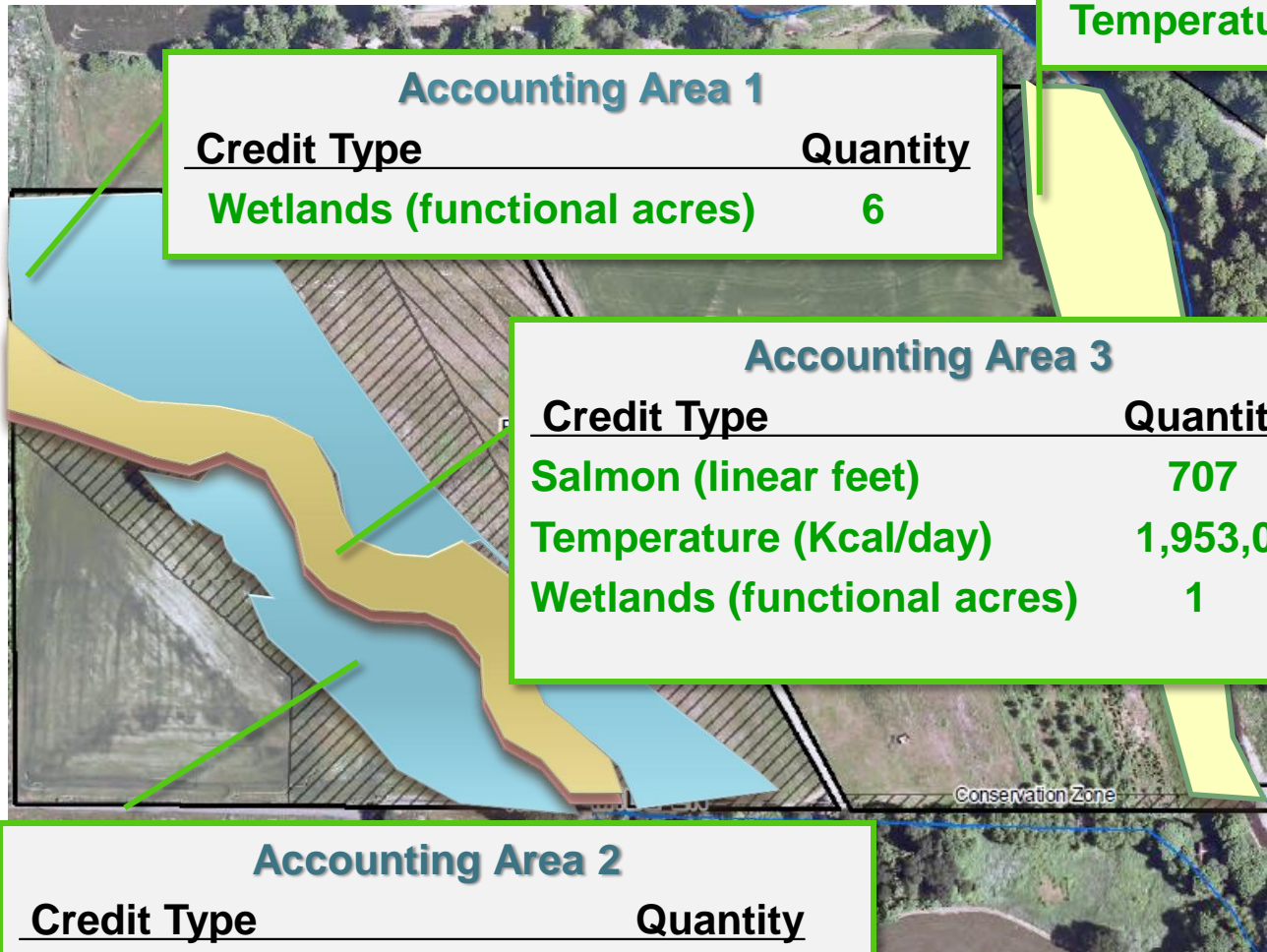
OREGON RAPID WETLAND ASSESSMENT PROTOCOL					
#	Indicator	Conditions	Data	Explanations, Definitions	Check
D1	Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PU+]	
		(no information)	0		
D2	Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary- WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of DWEB-funded projects are mapped at http://www.oregonexplorer.info/town_vector/interior.aspx [PU+]	
		(no information)	0		
D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Preservation vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0 if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INV-FAC-FRC-SBM-PD-CQ-SENS]	
D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely enclose the AA? (0= no, 1= yes)	1	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, Rangeland (AM-SBM-Stress+)	
D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/minute is: >1 mile 0.5-1 mile 1000-2600 ft 500-1000 ft 100-500 ft <100 ft	0 0 1 0 0 0	Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-WEN-SBM, PD-STR+]	1
D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch size) is: <5% of the circle 5 to 20% 20 to 50% 50 to 80% >80%	1 0 0 0 0	Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]	1
D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is: <100 ft, or 100-500 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft. 100-500 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1 0	forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]	1

Calculating Credits

Credit Type		Baseline	Post-Restoration	Functional Gain
Wetlands <i>(Functional acres)</i>		1.07	11.12	10.05
Salmonid Habitat <i>(Functional in feet)</i>		723	1,429	707
Temperature <i>(kcal/day)</i>		8,015,377	10,968,404	2,953,027

Multi-Credit Accounting

Half-Mile Lane Mitigation Bank



Accounting Area 1

Credit Type	Quantity
Wetlands (functional acres)	6

Accounting Area 3

Credit Type	Quantity
Salmon (linear feet)	707
Temperature (Kcal/day)	1,953,027
Wetlands (functional acres)	1

Accounting Area 2

Credit Type	Quantity
Wetlands (functional acres)	3.05

Accounting Area 4

Credit Type	Quantity
Temperature (Kcal/day)	1,000,000

Calculate

Verify

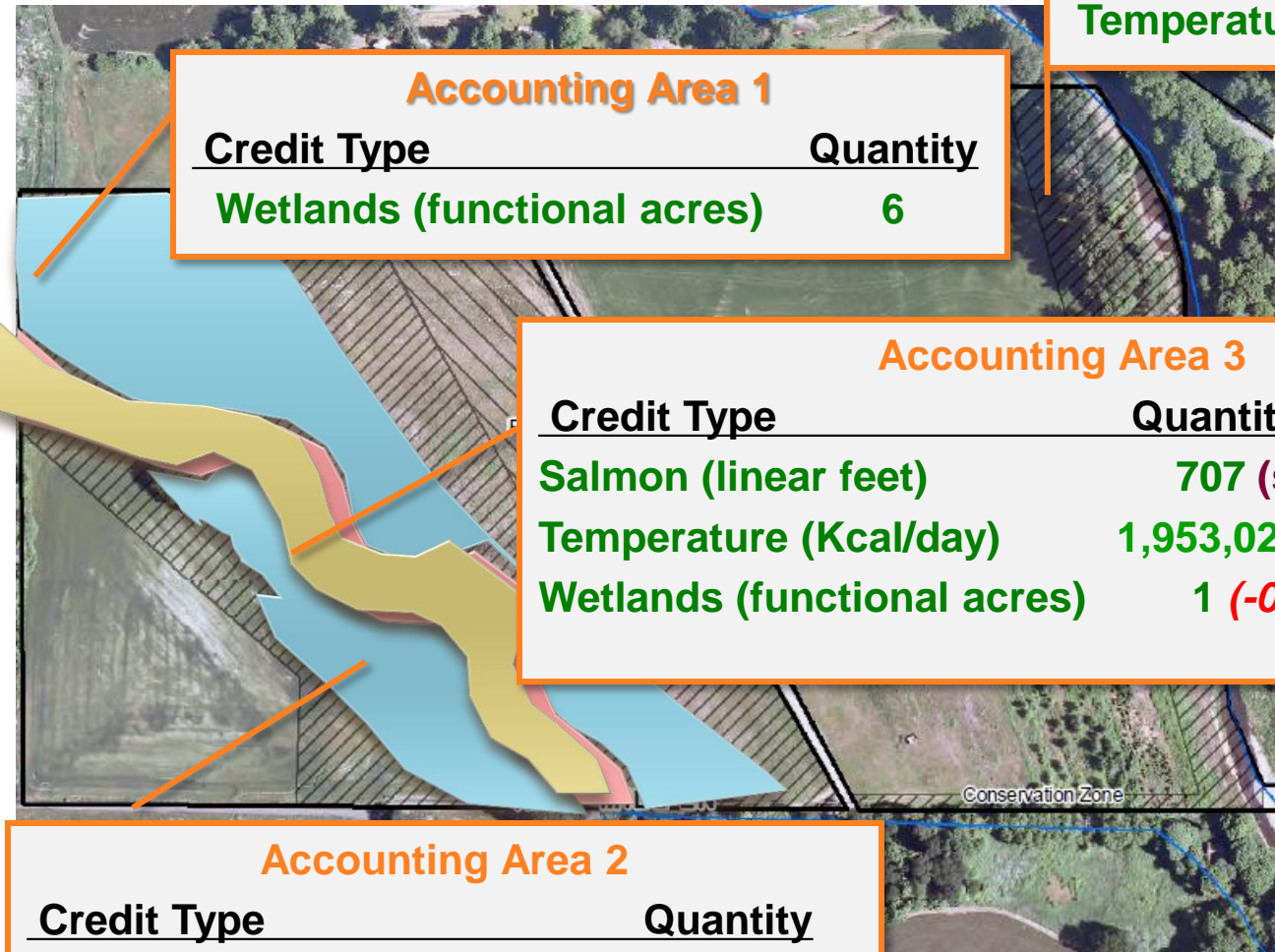
Register

Track



Multi-Credit Accounting

Half-Mile Lane Mitigation Bank



Accounting Area 1

Credit Type	Quantity
Wetlands (functional acres)	6

Accounting Area 4

Credit Type	Quantity
Temperature (Kcal/day)	1,000,000

Accounting Area 3

Credit Type	Quantity
Salmon (linear feet)	707 (sell 353.5)
Temperature (Kcal/day)	1,953,027 (-976,513.5)
Wetlands (functional acres)	1 (-0.5)

Accounting Area 2

Credit Type	Quantity
Wetlands (functional acres)	3.05



Calculate



Verify



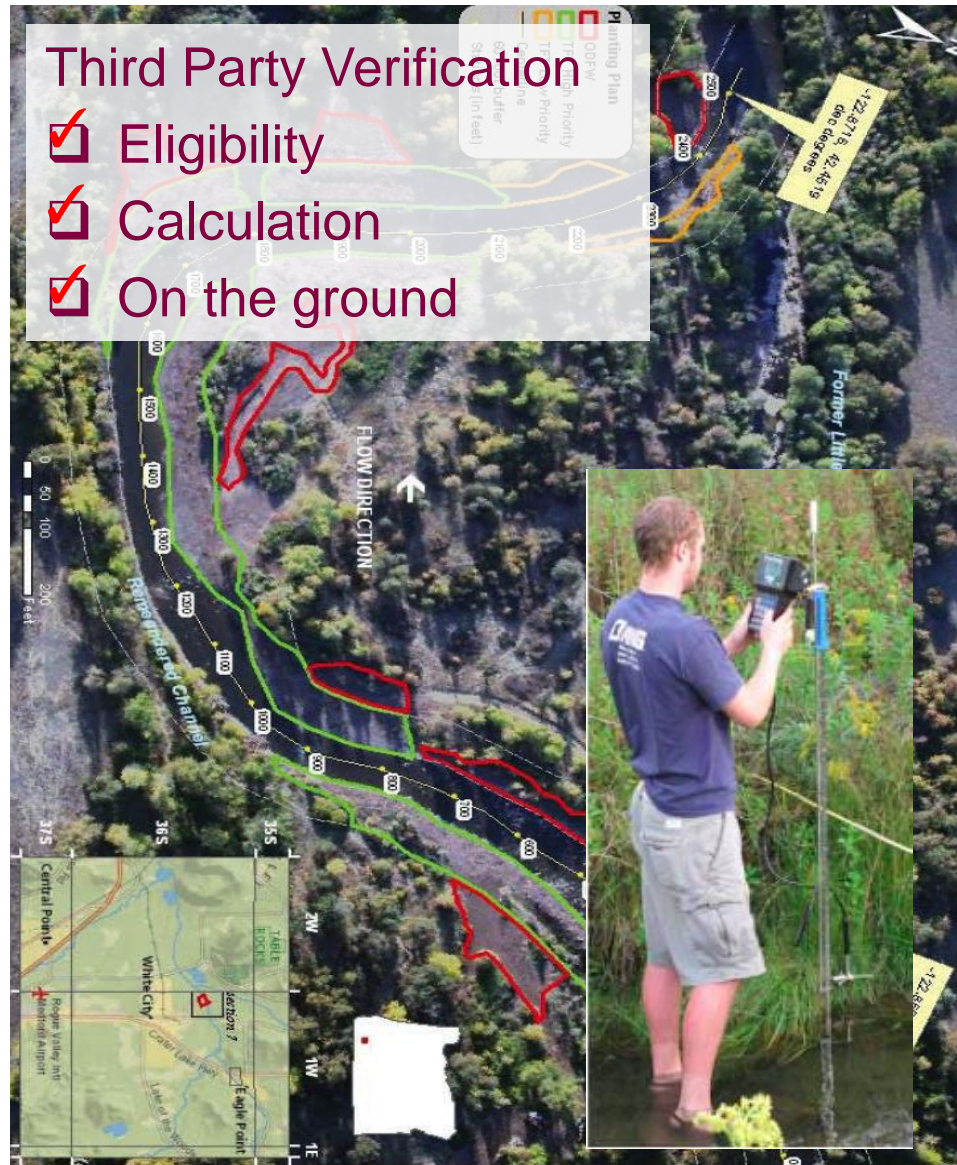
Register



Track



Multi-Credit Accounting



Goals

- Protocols followed
- Actions complete
- Documentation in place
- Estimates +/- 15%

Activities

- Review docs
- Review map unit boundaries
- Spot check data sheets

Multi-Credit Accounting

Secure, transparent & publicly accessible

markit Welcome to the Markit Ecosystem Registry - Demo Region
BRENDANM | POWERUSER | 000000010 | 31/07/2009

Reports Business Relations Instruments User Administration Accounts Registry Calendar System Parameters Logout

Create Query Check Correct

Home Create Project Details

PROJECT AND ISSUANCE DETAILS Save Clear Back

Project Details

Project ID	GCHM0001	Project Name	Gales Creek Half Mile
Project Developer	Markit WILLAMETTE	Validator	Markit DETNOR001
Project Web Site	http://www.willamettepartnership.org/galescreek		
Regulator Tracking Nr	WILLAMETTE000012345678	Other Tracking Nr	
Land Manager		Land Protection Instrument Holder	
Start Date	01/09/2009	End Date	31/08/2019
Approval Date	01/09/2009		
Site Address	NW Gales Creek Rd Oregon USA	GPS Coordinates	galescreek.kml Upload KML File

Add Accounting Unit

Validate



Calculate



Verify




Register



Track

Traditional Restoration vs. Compliance Grade Credits

Traditional Restoration Steps	Compliance-Grade Credit Generation Steps
Identify project site	Identify project site
Fundraising	Financing
	Negotiate 20+ year contract with landowner
	Collect baseline data
Project design	Project design
	Estimated credit values
Implement	Implement
	Verification that implementation meets standards
	Certification that credits meet accounting protocols
	Credit registration
Monitoring and maintenance (Years 1 – 3)	Monitoring and maintenance (Years 1 – 3)
	Monitoring and maintenance (Years 4 – 20)
	Annual payments to landowners (20+ years)

 = Local Project Managers

 = The Freshwater Trust

Ecosystem Crediting Platform

o.ecosystemcredits.org



Google



LOGIN ►

Ecosystem Crediting Platform

Project
Information

Project
Baseline

Project
Design

Project
Verification

Project
Certification

Credit
Registration

Credit
Issuance

Project
Monitoring



Welcome to the Willamette Partnership's Ecosystem Crediting Platform (ECP)

This tool translates environmental restoration and conservation actions into ecosystem service credits using the Willamette Partnership's Counting on the Environment standards. Users of this software can map their projects, create multiple project designs, and manage their projects through the required approval process.

Interested in using the ECP?

The Ecosystem Crediting Platform (ECP) is designed for use by land managers and project developers generating credits under Willamette Partnership's Counting on the Environment protocol and standards. To determine if your project is eligible, review the General Crediting Protocol and Self-Validation Checklist form and then contact the Local Administrator to open an account on the ECP.

Concluding thoughts

Ecosystem credit accounting



- Tools: best available science but practical & economically feasible
- System: transparent; repeatable
- Economies of scale in calculating and verifying multiple credits
- Multi-credit approach acts as a diverse portfolio



QUESTIONS?



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maness@willamettepartnership.org