



SESSION 9: Crediting and Stacking

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What is Stacking?

- **Credit bundling:** selling credits representing a collection of spatially overlapping ecosystem services as *single* commodities.
- **Credit stacking:** selling credits representing two or more spatially overlapping ecosystem services as separate commodities, each compensating for different permitted impacts.
- **Double dipping:** selling the same ecosystem service credit, however defined, multiple times.

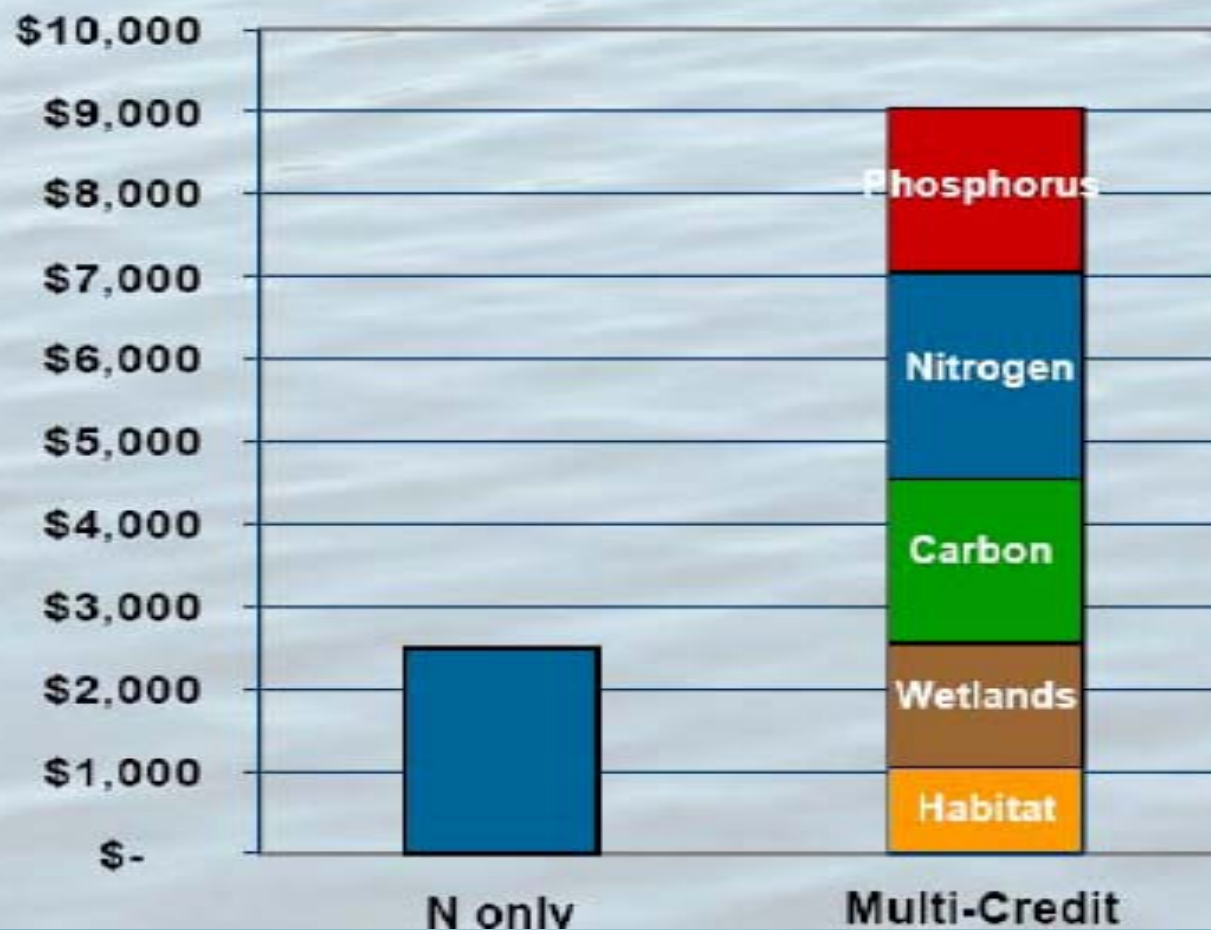
Not Stacked (Spatially Distinct)		Stacked (Spatially Overlapped)
1 acre forest earning carbon credits	1 acre forest earning endangered species habitat credits	1 acre forest earning both carbon credits and endangered species habitat credits
 <i>One property</i>		 <i>One property</i>
Total Credits = 2 Total Acres = 2		Total Credits = 2 Total Acres = 1

From: Fox, J. 2011. U.S. National Opinion Survey on Stacking Environmental Credits: Definition, Status, and Predictions of Wetland, Species, Carbon, and Water Quality Credit Stacking. Palo Alto, CA: EPRI.

http://my.epri.com/portal/server.pt?open=512&objID=423&&PageID=235467&mode=2&in_hi_userid=230564&cached=true



Bundling values in a multi-credit market increases incentives to act





NICHOLAS INSTITUTE WORKING PAPER

Stacking Ecosystem Services Payments Risks and Solutions

David Cooley* and Lydia Olander*

EPRI | ELECTRIC POWER
RESEARCH INSTITUTE

2011 TECHNICAL REPORT

U.S. National Opinion Survey on Stacking Environmental Credits

Definition, Status, and Predictions of Wetland, Species, Carbon, and Water
Quality Credit Stacking

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September 2011[®]

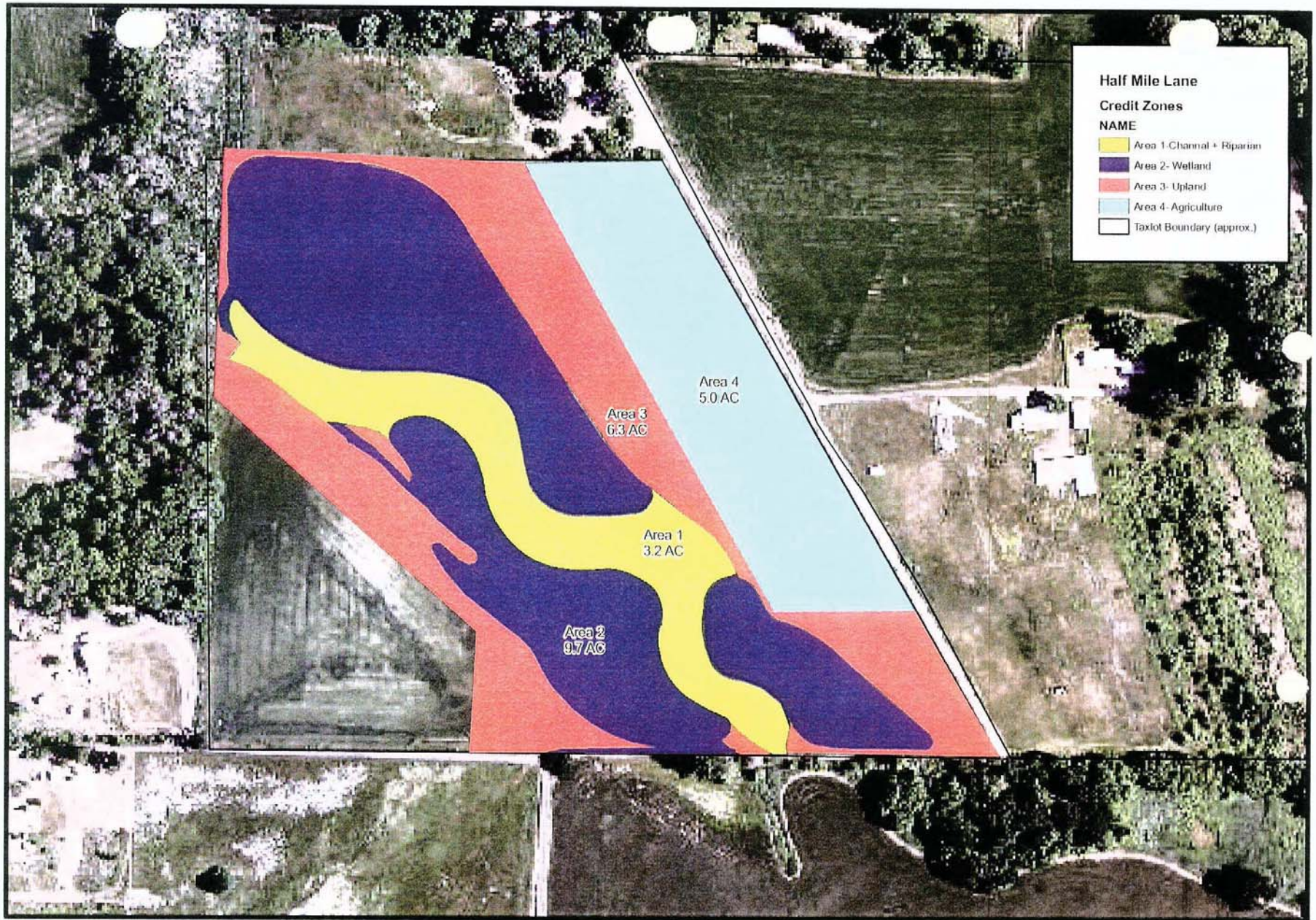


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* This is a revision of a version published in July 2011

NI WP 11-04





Wetland Area



0 75 150 300
Feet

Not intended as definitive property description. All users of this information should perform a separate investigation of conditions before commencing any plan, design, construction, watershed enhancement activities, or other work. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, concerning this information.

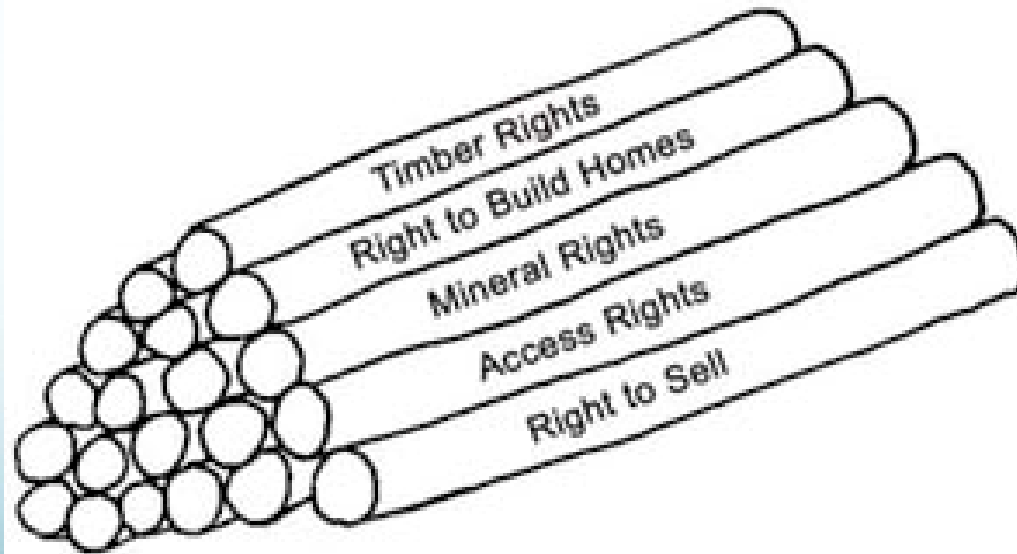
CleanWater Services
and more solutions

Benefits of Stacking

- Incentivizes broader range of participation by credit generators
- Multiple revenue streams from a single conservation project
- Makes the economic value of different ecosystem properties visible
- Credit generators are buffered/hedged against market instability
- Incentivizes improving the complexity/quality of credit generating sites, rather than creating single-function sites.
- One-stop shopping: Potential for compensation projects to address federal and state compensation requirements cross-programmatically.

Stacking and Property

- Credits created and defined by government are not considered true property
- Ownership of ecosystem services has never been tested in court



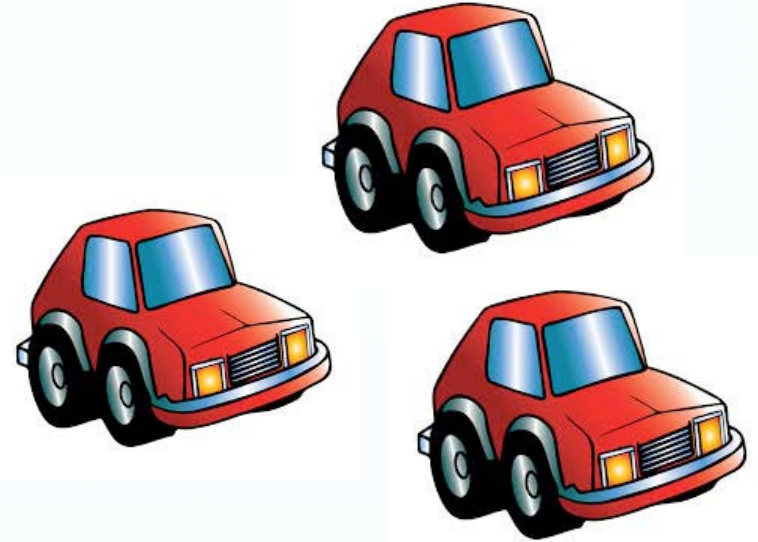
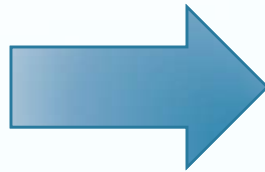
Additionality

The key questions are: how do we define what is 'extra' and what is this 'extra' measured against?

Michael Gillenwater

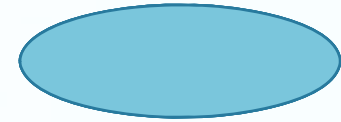
- Environmental additionality
- Regulatory additionality
- Economic additionality

How is a credit related to an ecosystem?

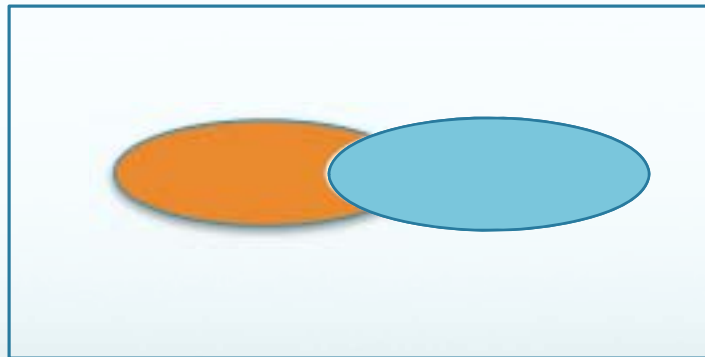




Impact 2



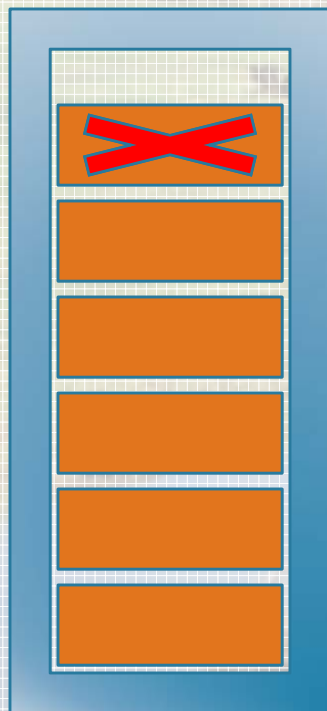
Impact 1



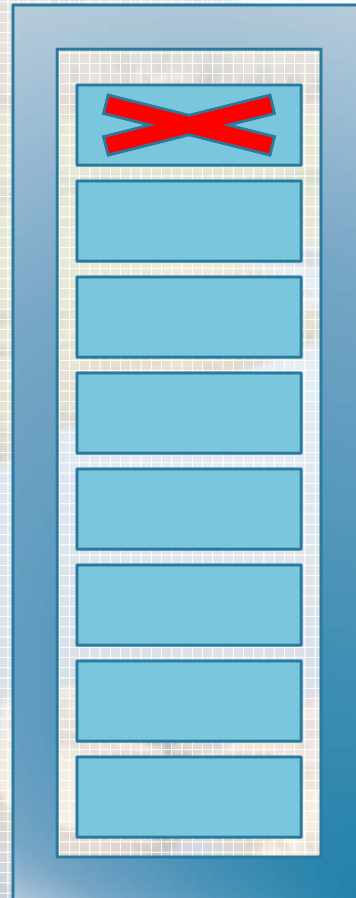
Multi-credit bank

Writing about stacking

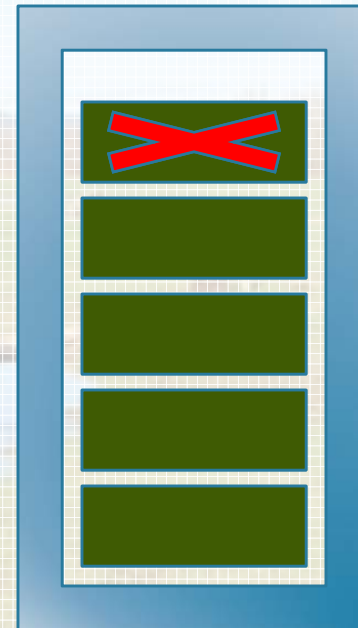
“The second concern was the “Ecological problem: integration of underlying functions.” I frankly don’t understand this concern. These commodities are sold in separate markets but a firm will evaluate the profitability of the entire process rather than the individual components. This whole section seems fundamentally misguided and I recommend deleting it entirely.”



***Salmonid
habitat***

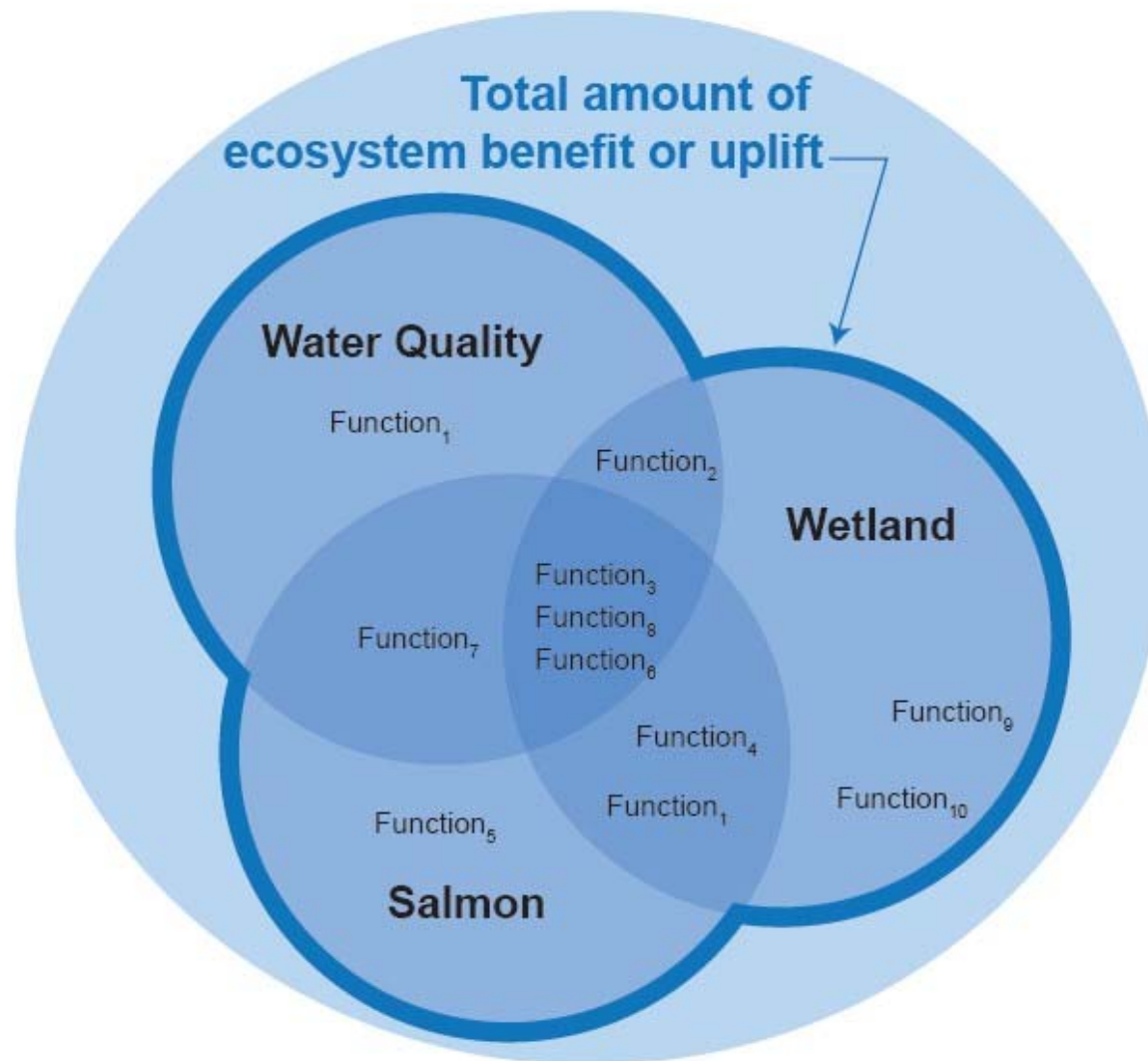


***Water
temperature***



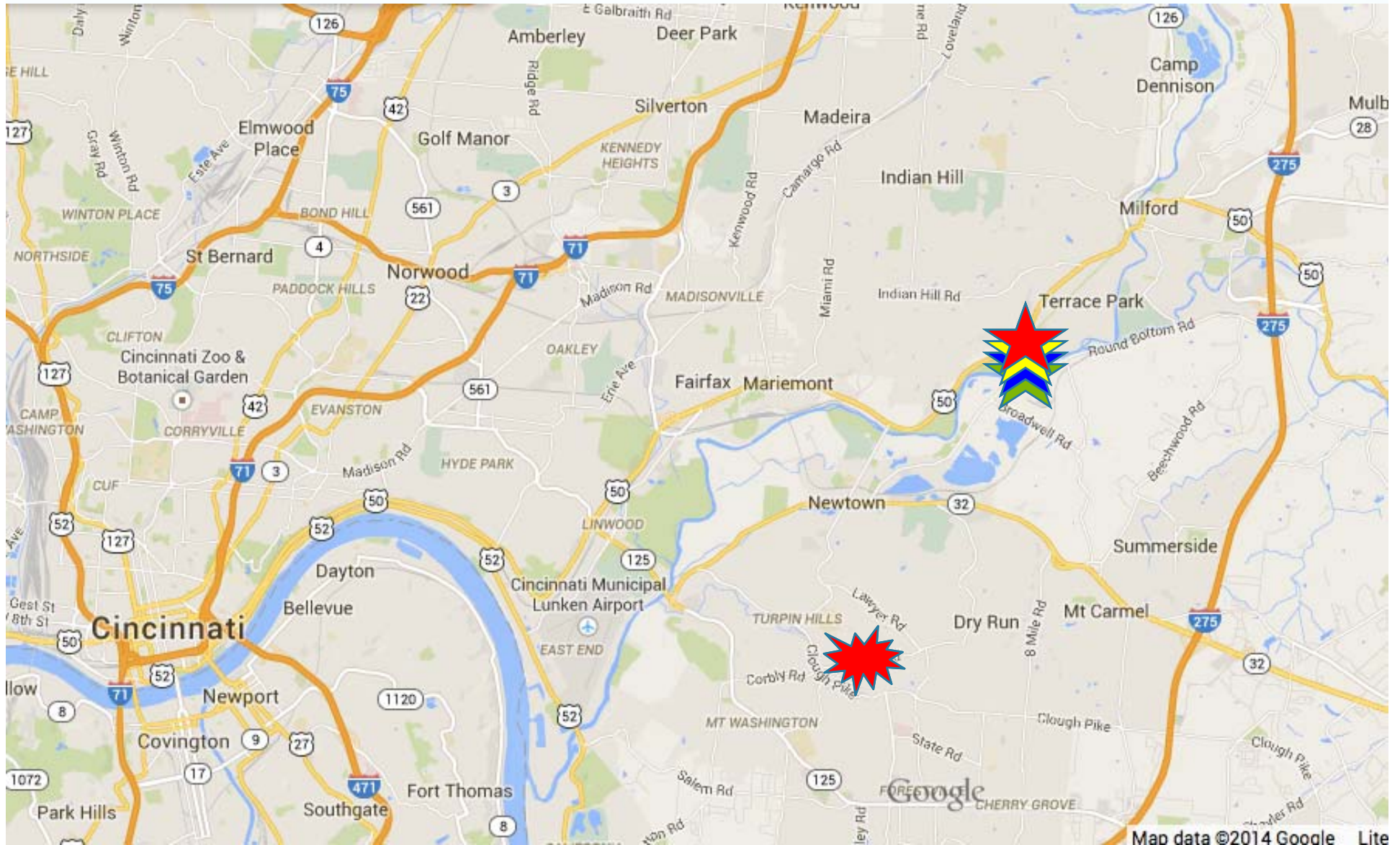
Wetlands

EcoMetrix Prevents a Given Credit from Being Sold More Than One Times



Parametrix, Inc. 2010. An Introduction to EcoMetrix™: Measuring change in ecosystem performance at a site scale. Portland, OR: Parametrix, Inc.

The Symmetry Problem



The Symmetry Problem

- *Gains will be tallied in response to the regulations of many jurisdictions;*
- *Losses will be tallied in response to the regulations applicable in only one jurisdiction.*
- *Solutions: a) same regulations everywhere, or
b) no cross-boundary trades*