



Land Use and Resource
Management Department

**Walworth County
Land Conservation Committee Meeting
Monday, March 19, 2012 at 1:30 p.m.**

**Walworth County Government Center
County Board Room 114
Elkhorn, WI 53121**

Dan Kilkenny – Chair, Jerry Grant - Vice Chair

Randy Hawkins - Supervisor

Sue Bellman – USDA/FSA Representative, Dorothy C. Burwell – Citizen Member

(Posted in Compliance with Sec. 19.84 Wis. Stats.)

It is possible that a quorum of the County Board or a committee of the County Board could be in attendance.

AGENDA

1. Call to order
2. Roll call
3. Approval of the Agenda
4. Approval of Minutes from February 20, 2012 LCC Meeting
5. Public Comment
6. Discussion/Possible Action – Notice of Noncompliance Farmland Preservation Program: William Wright, Elizabeth Smith Life Estate, and Harry and Helen Boehning - Louise Olson (enclosure, pages 1-6)
7. Discussion/Possible Action – “Rapid Assessment of the Economic Value of Wisconsin’s Wetlands” study by Earth Economics – Louise Olson (enclosure, pages 7-22)
8. Discussion/Possible Action – Farmland Preservation Program Update - County Staff
9. Discussion/Possible Action – Ordinance Amendment for Agricultural Structures - Deb Grube (enclosure, page 23)
10. Next meeting date: Monday, April 16, 2012, 1:30 p.m.
11. Adjournment

**Submitted by: Michael P. Cotter, Director, Land Use and Resource Management Department,
Louise Olson, Deputy Director, Land Conservation Committee Designee**

Posted: March 14, 2012

DRAFT

**Walworth County Land Conservation Committee
MINUTES**

Monday, February 20, 2012 at 1:30 p.m.

Walworth County Board Room 114
Elkhorn, WI 53121

The meeting was called to order by LCC Chair Kilkenny at 1:30 p.m.

Roll call - Committee members present included: Supervisors, Kilkenny, Grant, Citizen Member Burwell and USDA/FSA Representative Bellman. Supervisor Hawkins was absent. A quorum was declared.

County staff present – David Bretl, County Administrator; Michael Cotter, Director of Land Use & Resource Management (LURM); Louise Olson, Deputy Director, LURM; Fay Amerson, Urban Manager; Deb Grube, Sr. Zoning Officer; Neal Frauenfelder, Sr. Planner; and Joann Douglas, Recording Secretary.

Also in attendance – Nancy Russell, Walworth County Board Chair; Carl Redenius, CZA member; Jody, Godfrey Law Office; an unidentified person who did not sign in.

Approval of the Agenda – **Supervisor Grant and USDA/FSA Representative Bellman moved and seconded approval of the agenda. Motion carried 4-0.**

Approval of the Minutes – **Citizen Member Burwell and Supervisor Grant moved and seconded approval of the January 16, 2012 LCC meeting minutes as presented. Motion carried 4-0.**

Public Comment – none

Ordinance Amendment for Agricultural Structures - Discussion ensued regarding a proposed zoning ordinance amendment to reduce agricultural setbacks to buildings where animals are housed, as CZA is looking for a recommendation from the LCC. Points brought up were to be less restrictive, the conditional use is overly burdensome and costly and the overall animal unit per acre should be reviewed. It will be brought back before the LCC at the next meeting with recommendations from staff.

Land Conservation Division 2011 Annual Report – An annual report to the state from the LCC is a requirement under s.s. Ch. 92. Staff provided a copy of the report. **Supervisor Grant and Citizen Member Burwell moved and seconded placing the report on file. Motion carried 4-0.**

Communication Received from Secretary Ben Brancel, DATCP, Acknowledging Receipt of Resolution No. 77-01/12 – Opposing Further Land Conservation Staffing Grant Cuts – Louise Olson said that although Secretary Brancel did acknowledge receipt of the resolution, the cuts went through and the resolution was ignored. **Supervisor Grant and Citizen Member Burwell moved and seconded placing the correspondence on file. Motion carried 4-0.**

Farmland Preservation Plan Strategy and Legal Opinion – David Bretl said the legal opinion should be completed in approximately one week. It was decided after the legal opinion is given, a meeting will be planned with Kenosha County prior to scheduling a meeting with Secretary Brancel, DATCP. At this time, no action is required. However, if necessary, a special meeting could be called prior to the March LCC meeting.

Proposed ordinance amendment to Chapter 2 regarding Land Conservation Committee staff designation of responsibilities to County Conservationist – Michael Cotter said the language for a resolution brought up during the last LCC meeting to go before the Executive Committee was: to “review all Non-Walworth

County Conservation grant applications and forward a recommendation to the Walworth County Board of Supervisors. In cases where time limits prevent full board review, the Walworth County – County Conservationist may consider, respond, and endorse Non-Walworth County Conservation Grant applications after consulting Walworth County planning documents and general conservation practices.”

New LCC Draft for February 2012 meeting to be considered:

(5) The county soil and water conservation staff is responsible for the administration of the county soil and water conservation program and may exercise the powers granted to the land conservation committee under s.s 92.07. Staff will present Chapter 2 changes in language to present to the Executive Committee.

Citizen Member Burwell and Supervisor Grant moved and seconded to approve the language in item 5 and sending on to the Executive Committee. Motion carried 4-0.

DNR Stormwater Grant – Louise Olson said this grant was applied for in the past but was not awarded to Walworth County; it is a grant with a 50% match utilizing existing staff. Changes in criteria for the grant may make the state more receptive to our grant application. **Citizen Member Burwell and Supervisor Grant moved and seconded approval of the grant application to go on to the Walworth County Board. Motion carried 4-0.**

Next Meeting Date – Monday, March 19, 2012 at 1:30 p.m.

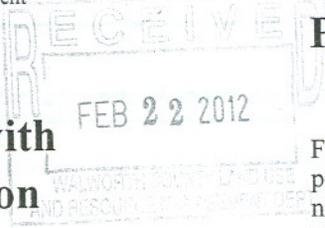
Adjournment – **On motion and second by Supervisors Grant and Citizen Member Burwell, Chair Kilkenny adjourned the meeting at 2:30 p.m. Motion carried 4-0.**

Submitted by Joeann Douglas, Recording Secretary. Minutes are not considered final until approved by the committee at the next regularly scheduled meeting.



Form prepared by:
Wisconsin Department of Agriculture, Trade & Consumer Protection
Division of Agricultural Resource Management
Bureau of Land and Water Resources
PO Box 8911
Madison WI 53708-8911
Phone: 608-224-4500

Farmland Preservation Program (FPP)



Notice of Noncompliance with Soil and Water Conservation Requirements (ss. 91.80 and 91.82, Wis. Stats).

Form must be used by counties to notify FPP participants and Department of Revenue of non-compliance with requirements specified in s. 91.82, Wis. Stats.

LANDOWNER

NAME **WILLIAM WRIGHT**

ADDRESS **10912 N COUNTY LINE RD**

CITY **WHITEWATER** STATE **WI** ZIP CODE **53190**

TELEPHONE NUMBER
(262) 473-2640

LOCATION

COUNTY **WALWORTH**

TOWN, VILLAGE, OR CITY **RICHMOND**

SECTION 31	TOWNSHIP 3N	RANGE 15E
SECTION	TOWNSHIP	RANGE
SECTION	TOWNSHIP	RANGE

AFFECTED PARCEL NUMBERS **C R 3100002**

Please continue on other side

Landowner Name: William Wright

FINDINGS UNDER s. 91.82, Wis. STATS.

To issue a Notice of Noncompliance the LCC must make one or more of the following findings:

The county land conservation committee finds that the owner has done one or more the following (check all that apply):

- Failed to comply with applicable land and water conservation standards required under s. 91.80, Wis. Stats.
- Failed to permit a reasonable inspection under s. 91.82 (1) (c) 1., Wis. Stats.
- Failed to certify compliance as required under s. 91.82 (1) (c) 2., Wis. Stats.
- Wishes to voluntarily refrain from collecting the tax credits and thus waives the right for a hearing and farm inspection. This voluntary option is not available for persons subject to a farmland preservation agreement.

William B. Wright 2-21-12
Landowner Signature

Based on the findings listed above and a review of the affected farm operations at a hearing of the County Land Conservation Committee as described below, the Committee hereby issues a Notice of Noncompliance under s. 91.82, Wis. Stats., for the landowner(s) and property described above. As of the date of this notice, the landowners are not eligible to claim Farmland Preservation Tax Credits under s. 71.613, Wis. Stats., on the property described above, unless this notice is subsequently canceled and not in effect at the end of the taxable year to which the claim relates.

HEARING

DATE	JURISDICTION (list county, village, city, or town)
	<u>Walworth County</u>

LAND CONSERVATION COMMITTEE AUTHORIZATION

CHAIR, COUNTY LAND CONSERVATION COMMITTEE OR DESIGNEE	DATE
ADDRESS 100 West Walworth P.O Box 1001 Rm 222 Eikhorn, WI 53121	TELEPHONE AND NAME OF CONTACT (262) 741-7903

If you have any questions regarding this notice, please contact the County Land Conservation Department at the address and phone number provided above.

This notice, issued by the Land Conservation Committee, shall be provided to the Wisconsin Department of Revenue. If a county land conservation committee determines that an owner has corrected the failure described in a notice of noncompliance, it shall withdraw the notice of noncompliance and notify the owner and the Department of Revenue of the withdrawal.

Send a copy of the notice to:

Wisconsin Department of Revenue
DOR-FARMLAND 5-144
RSOB - Audit Bureau
PO Box 8906
Madison, WI 53708-8906

2



Form prepared by:
 Wisconsin Department of Agriculture, Trade & Consumer Protection
 Division of Agricultural Resource Management
 Bureau of Land and Water Resources
 PO Box 8911
 Madison WI 53708-8911
 Phone: 608-224-4500

Farmland Preservation Program (FPP)

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Form must be used by counties to notify FPP participants and Department of Revenue of non-compliance with requirements specified in s. 91.82, Wis. Stats.

LANDOWNER

NAME ELIZABETH SMITH, LIFE ESTATE

ADDRESS W511 STATE RD 11

CITY BURLINGTON

STATE WI

ZIP CODE 53105

TELEPHONE NUMBER

(262) 763-3057

LOCATION

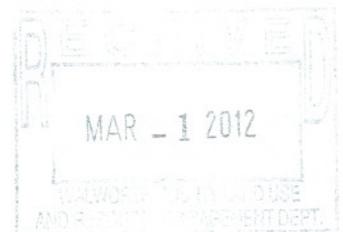
COUNTY WALWORTH

TOWN, VILLAGE, OR CITY SPRING PRAIRIE

SECTION 35	TOWNSHIP 3N	RANGE 18E
SECTION 36	TOWNSHIP 3N	RANGE 18E
SECTION	TOWNSHIP	RANGE

AFFECTED PARCEL NUMBERS SP3500001, SP3600005

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3

Landowner Name: Elizabeth Smith

FINDINGS UNDER s. 91.82, Wis. STATS.

To issue a Notice of Noncompliance the LCC must make one or more of the following findings:

The county land conservation committee finds that the owner has done one or more the following (check all that apply):

- Failed to comply with applicable land and water conservation standards required under s. 91.80, Wis. Stats.
- Failed to permit a reasonable inspection under s. 91.82 (1) (c) 1., Wis. Stats.
- Failed to certify compliance as required under s. 91.82 (1) (c) 2., Wis. Stats.
- Wishes to voluntarily refrain from collecting the tax credits and thus waives the right for a hearing and farm inspection. This voluntary option is not available for persons subject to a farmland preservation agreement.

Elizabeth Smith
Landowner Signature

Based on the findings listed above and a review of the affected farm operations at a hearing of the County Land Conservation Committee as described below, the Committee hereby issues a Notice of Noncompliance under s. 91.82, Wis. Stats., for the landowner(s) and property described above. As of the date of this notice, the landowners are not eligible to claim Farmland Preservation Tax Credits under s. 71.613, Wis. Stats., on the property described above, unless this notice is subsequently canceled and not in effect at the end of the taxable year to which the claim relates.

HEARING

DATE	JURISDICTION (list county, village, city, or town) <u>Walworth County</u>
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LAND CONSERVATION COMMITTEE AUTHORIZATION

CHAIR, COUNTY LAND CONSERVATION COMMITTEE OR DESIGNEE	DATE
ADDRESS <u>100 West Walworth P.O Box 1001 Rm 222</u> <u>Elkhorn, WI 53121</u>	TELEPHONE AND NAME OF CONTACT <u>(262) 741-7903</u>

If you have any questions regarding this notice, please contact the County Land Conservation Department at the address and phone number provided above.

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Send a copy of the notice to:

Wisconsin Department of Revenue
DOR-FARMLAND 5-144
RSOB - Audit Bureau
PO Box 8906
Madison, WI 53708-8906

4



Form prepared by:
Wisconsin Department of Agriculture, Trade & Consumer Protection
Division of Agricultural Resource Management
Bureau of Land and Water Resources
PO Box 8911
Madison WI 53708-8911
Phone: 608-224-4500

Farmland Preservation Program (FPP)

Notice of Noncompliance with Soil and Water Conservation Requirements (ss. 91.80 and 91.82, Wis. Stats).

Form must be used by counties to notify FPP participants and Department of Revenue of non-compliance with requirements specified in s. 91.82, Wis. Stats.

LANDOWNER

NAME HARRY & HELEN BOEHNING

ADDRESS W9310 COUNTY ROAD A

CITY DELAVAN

STATE WI

ZIP CODE 53115

TELEPHONE NUMBER

(608) 883-2918

LOCATION

COUNTY WALWORTH

TOWN, VILLAGE, OR CITY RICHMOND

SECTION 18

TOWNSHIP 3N

RANGE 15E

SECTION

TOWNSHIP

RANGE

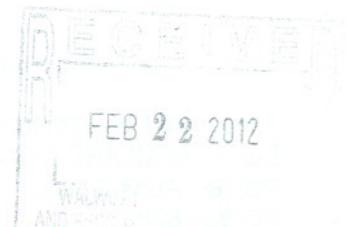
SECTION

TOWNSHIP

RANGE

AFFECTED PARCEL NUMBERS C R 1800009

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Landowner Name: Helen Boehning

FINDINGS UNDER s. 91.82, Wis. STATS.

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The county land conservation committee finds that the owner has done one or more the following (check all that apply):

- Failed to comply with applicable land and water conservation standards required under s. 91.80, Wis. Stats.
- Failed to permit a reasonable inspection under s. 91.82 (1) (c) 1., Wis. Stats.
- Failed to certify compliance as required under s. 91.82 (1) (c) 2., Wis. Stats.
- Wishes to voluntarily refrain from collecting the tax credits and thus waives the right for a hearing and farm inspection. This voluntary option is not available for persons subject to a farmland preservation agreement.

Helen Boehning

 Landowner Signature

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Send a copy of the notice to:

Wisconsin Department of Revenue
 DOR-FARMLAND 5-144
 RSOB - Audit Bureau
 PO Box 8906
 Madison, WI 53708-8906

(6)

Rapid Assessment of the Economic Value of Wisconsin's Wetlands

February 9, 2012



Prepared by:



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Tacoma, WA 98402
(253) 539-4801
www.eartheconomics.org

1121 Tacoma Ave S T 253 539 4801 eartheconomics.org
Tacoma, WA 98402 F 253 539 5054

Prepared for:



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www.wisconsinwetlands.org

Acknowledgments

This study was commissioned by the Wisconsin Wetlands Association in order to communicate with policy makers and the public about the value of Wisconsin's wetlands.

Earth Economics would like to thank all who supported this project, including the staff, Board and volunteers at the Wisconsin Wetlands Association and the U.S. Fish and Wildlife Service.

Thanks also to our Board of Directors, Joshua Reyneveld, Ingrid Rasch, David Cosman and Joshua Farley for your continued leadership and support of Earth Economics.

Earth Economics project team members for this project included David Batker, Jennifer Harrison-Cox, Noelani Kirschner, Jonathan Kochmer, Rowan Schmidt, Yvonne Snyder, Tedi Dickinson, Zachary Christin and Maya Kocian.

Cover photo

Milwaukee Metropolitan Sewerage District

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Introduction

Economic sustainability and resiliency both rely upon environmental sustainability and resiliency. The loss of natural infrastructure has real economic costs. Safeguarding the health of a wetland area, like keeping a house in good condition, provides value for everyone who utilizes or benefits from it, directly or indirectly. Unlike houses, levees, roads and other man-made infrastructure, wetlands are largely self-maintaining. Wetlands provide valuable goods and services across vast spans of time, and even well beyond their boundaries. Protecting and restoring Wisconsin's wetlands is critical to improving quality of life and to securing sustainability, public health and safety, and economic progress in the region.

This rapid assessment was commissioned by the Wisconsin Wetlands Association to provide initial baseline economic values for Wisconsin's 5.3 million acres of wetlands. Economic value is assessed using ecosystem service analysis which calculates the dollar value of resources and processes that are supplied by natural ecosystems to the benefit of humankind. Ecosystem services provided by wetlands include flood protection, ground water protection, water quality, recreation and biodiversity.

The dollar estimates in this report are very conservative and reflect baseline values of only 7 of the 22 ecosystem services. Similar in concept to a business or home appraisal, this assessment provides initial answers to questions such as:

- Can the wetlands be considered an economic asset?
- If wetlands are an economic asset, what is the range of probable dollar values in various degraded, restored and high-functioning conditions?
- How do the wetlands impact the local and regional economy?
- What is the opportunity cost to reducing or degrading wetlands and their functions?

Geography

The landscape of the 65,503 square miles that now constitute the state of Wisconsin was shaped by glaciers thousands of years ago. Due to the melting process, these glaciers left a large complex of lake basins, wetlands, and extremely fertile plains. One hundred and fifty years ago, more than 10 million acres of wetlands were found in Wisconsin. Today, wetland drainage, filling, levee development, and other human activity have reduced the area of wetlands to roughly 5 million acres, much of which is now degraded.¹ Despite this, the area remains spectacularly beautiful and ecologically diverse.

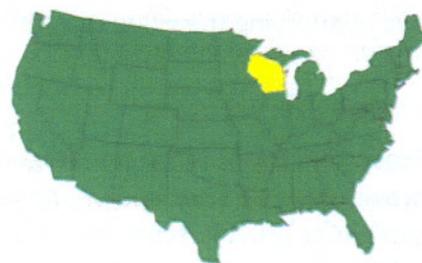


Figure 1: State of Wisconsin highlighted in yellow.

¹ Hagen, C. Reversing the Loss: A Strategy to Protect, Restore and Explore Wisconsin Wetlands, 2008. Accessible at http://dnr.wi.gov/topic/wetlands/documents/ReversingLoss08_gs.pdf.

Approximately 75% of Wisconsin's wetlands are owned and stewarded privately. Figure 2 shows the ownership breakdown.

The Connection between Wetlands and the Economy

Wetlands house economies through their environmental assets. The natural environment provides many foundations that human beings need for survival, including breathable air, drinkable water, food for nourishment, and stable atmospheric conditions. These “ecosystem goods and services,” are derived from ecosystems and provide essential benefits to humans. Ecosystems perform many functions, but only functions that provide human benefits are considered ecosystem goods or services. Every ecosystem produces a plethora of ecosystem services.

Healthy wetlands enable cities, communities, households and their residents to thrive. However, society has a tendency to under-invest in wetlands and take them for granted. For example, when flood protection provided for free by natural systems is lost, natural flood protection service must be replicated with levees, which can cause flooding in homes and businesses. When drinking water, storm water conveyance, local climate regulation, habitat and other benefits disappear, the economy suffers from both the direct damage and the imposition of expensive tax districts and construction costs that are needed to replace previously existing natural capital.

The economy of Wisconsin cannot be adequately understood without examining the contribution of wetlands and the associated value benefits of ecosystem services to the economy and well-being of people. To improve economic decision-making and better understand the explicit contribution of properly functioning ecosystems to economic activity and output, interest in identifying, describing, and quantifying the value of ecosystem services has grown tremendously over the past 20 years.²

Ecosystem Services

Ecosystem services can be categorized into four major types: regulating services, habitat services, provisioning services and information services (see Table 1). Ecosystem services in each of these categories provide economic value that can be measured in dollar terms. Specific ecosystems services exist within each category, as identified in Table 2.

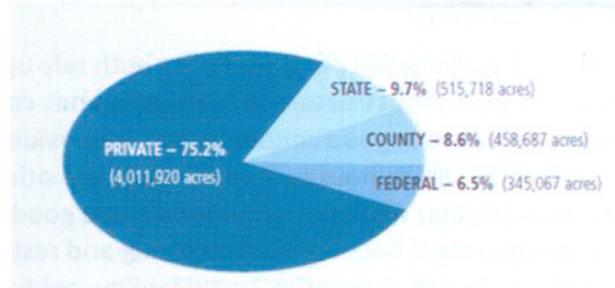


Figure 2: Wisconsin wetland ownership. Source: Hagen, C., 2008.

² Costanza, R., d'Arge, R., Groot, R.d., Farber, S., Grasso, M., Hannon, B., Naeem, S., Limburg, K., Paruelo, J., O'Neill, R.V., Raskin, R., Sutton, P., Belt, M.v.d., 1997. The value of the world's ecosystem services and natural capital. *Nature* 387, 253-260; Balmford, A., Bruner, A., Cooper, P., Costanza, R., Farber, S., Green, R.E., Jenkins, M., Jefferiss, P., Jessamy, V., Madden, J., Munro, K., Myers, N., Naeem, S., Paavola, J., Rayment, M., Rosendo, S., Roughgarden, J., Trumper, K., Turner, R.K., 2002. Ecology - Economic reasons for conserving wild nature. *Science* 297, 950-953.

Table 1: Categories of ecosystem services

<p>Regulating services are benefits obtained from the natural control of ecosystem processes. Intact ecosystems can provide regulation of climate, water, soil, flood and storms, and/or keep disease organisms in check.</p> <p>Habitat services provide refuge and reproduction habitat to wild plants and animals and thereby contribute to the (in situ) conservation of biological and genetic diversity and evolutionary processes.</p> <p>Provisioning services provide basic goods including food, water and materials. Forests grow trees that can be used for lumber and paper, wild and cultivated crops provide food, and other plants may be used for medicinal purposes. Groundwater provides fresh water for drinking or industrial activities. Lakes and rivers provide fish for food and recreation. Groundwater and lakes provide freshwater for drinking.</p> <p>Information services provide humans with meaningful interaction with nature. These services include spiritually significant species and natural areas, places for recreation, and educational opportunities through science.</p>
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Table 2: List of ecosystem services

Services		Ecosystem Infrastructure and Processes	Goods and Services (examples)
<i>Regulating Services</i>		<i>Maintenance of essential ecological processes and life support systems</i>	
1	Gas regulation	Role of ecosystems in bio-geochemical cycles	Provides clean, breathable air, disease prevention, and a habitable planet
2	Climate regulation	Influence of land cover and biological mediated processes on climate	Maintenance of a favorable climate promotes human health, crop productivity, recreation, and other services
3	Disturbance prevention	Influence of ecosystem structure on dampening environmental disturbances	Prevents and mitigates natural hazards and natural events, generally associated with storms and other severe weather
4	Water regulation	Role of land cover in regulating runoff and river discharge	Provides natural irrigation, drainage, channel flow regulation, and navigable transportation
5	Soil retention	Role of vegetation root matrix and soil biota in soil retention	Maintains arable land and prevents damage from erosion, and promotes agricultural productivity
6	Soil formation	Weathering of rock, accumulation of organic matter	Promotes agricultural productivity, and the integrity of natural ecosystems
7	Nutrient regulation	Role of biota in storage and re-cycling of nutrients	Promotes health and productive soils, and gas, climate, and water regulations
8	Water Quality and Waste Treatment	Role of vegetation & biota in removal or breakdown of xenic nutrients and compounds	Pollution control/ detoxification; Filtering of dust particles through canopy services



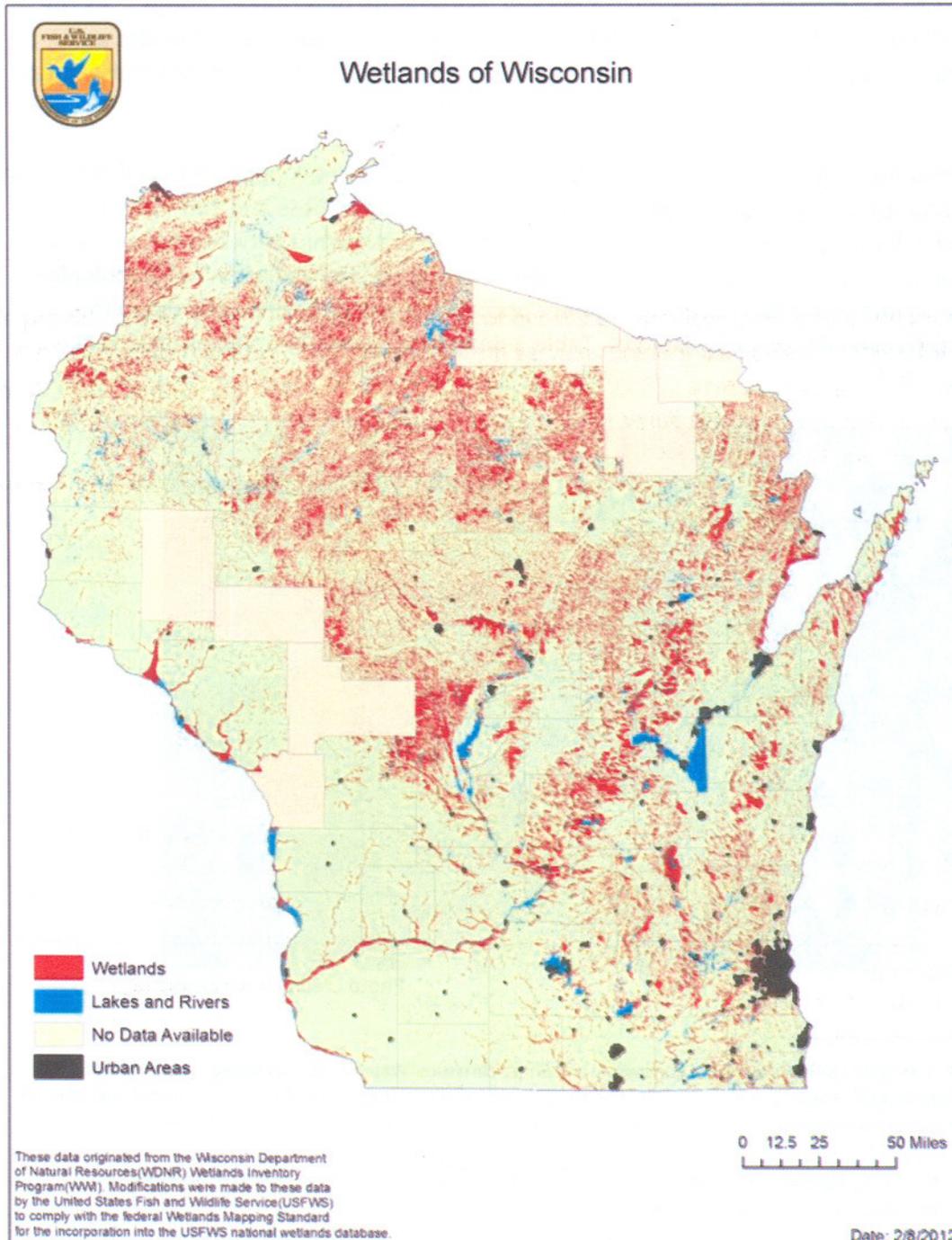
9	Pollination	Role of biota in movement of floral gametes	Pollination of wild plant species and harvested crops
10	Biological control	Population control through trophic-dynamic relations	Provides pest and disease control, reduces crop damage
Habitat Services <i>Providing habitat (suitable living space) for wild plant and animal species</i>			
11	Habitat and Biodiversity	Suitable living space for wild plants and animals	Maintenance of biological and genetic diversity (and thus the basis for most other functions)
12	Nursery	Suitable reproduction habitat	Maintenance of commercially and recreationally harvested species
Provisioning Services <i>Provision of Natural Resources</i>			
13	Food	Conversion of solar energy into edible plants and animals	Hunting, gathering of fish, game, fruits, etc.; small scale subsistence farming & aquaculture
14	Water supply	Filtering, retention and storage of fresh water (e.g. in groundwater aquifers)	Provision of water for consumptive or other use, includes both quality & quantity
15	Raw materials	Conversion of solar energy into biomass for human construction and other uses	Building and manufacturing; fuel and energy; fodder and fertilizer
16	Genetic resources	Genetic material and evolution in wild plants and animals	Improve crop resistance to pathogens & pests
17	Medicinal resources	Variety in (bio)chemical substances in, and other medicinal uses of, natural biota	Drugs, pharmaceuticals, chemical models, tools, test and assay organisms
18	Ornamental resources	Variety of biota in natural ecosystems with (potential) ornamental use	Resources for fashion, handicraft, jewelry, pets, worship, decoration & souvenirs
Information Services <i>Providing opportunities for cognitive development</i>			
19	Aesthetic information	Attractive landscape features	Enjoyment of scenery
20	Recreation	Variety in landscapes with (potential) recreational uses	Travel to natural ecosystems for eco-tourism, outdoor sports, etc.
21	Cultural and artistic information	Variety in natural features with cultural and artistic value	Use of nature as motive in books, film, painting, folklore, national symbols, architecture, advertising, etc.
22	Spiritual and historic information	Variety in natural features with spiritual and historic value	Use of nature for religious or historic purposes (i.e., heritage value of natural ecosystems and features)
23	Science and education	Variety in nature with scientific and educational value	Use of natural systems for school excursions, etc. Use of nature for scientific research

Based on: de Groot, R.S., Wilson, M.A., Boumans, R.M.J., 2002.

Valuation of the Wisconsin Wetlands

To provide a preliminary estimate the value of ecosystem services produced in Wisconsin's wetlands, Earth Economics first identified the ecosystem services present using Geographical Information Systems (GIS) data. The State of Wisconsin contains 5,331,392 acres of wetlands. Each acre of wetlands was assigned a total high and low annual per-acre dollar value for its ecosystem services.

Figure 3: Wisconsin wetlands in relation to urban areas



Valuation Methodology

Benefit Transfer Methodology (BTM) was used to estimate the approximate value of ecosystem services produced by the wetlands in Wisconsin. BTM is used when it is cost-prohibitive to conduct primary studies on every site in a study area for every vegetation type. BTM is a widely accepted economic methodology in which the estimated economic value of an ecological good or service is determined by examining previous valuation studies of similar goods or services in other comparable locations. The term “transfer” refers to the application of derived values and other information from the original study site to a new but sufficiently similar site, like a house or business “comp.”³ As the “bedrock of practical policy analysis”,⁴ BTM has gained popularity in the last several decades as decision-makers have sought timely and cost-effective ways to value ecosystem services and natural capital.⁵

Earth Economics maintains and continually expands a database of published, peer-reviewed ecosystem service valuation studies for use in benefit transfer studies. For example, Doss and Taff (1996) performed a study in Ramsey County Minnesota to examine the relationship between housing prices and wetland proximity. This study was used for the present valuation. The valuation methodologies used to derive the values in the database studies were primarily developed within the disciplines of Environmental and Natural Resource Economics. Table 3 describes the methodologies used in this rapid assessment.



Photo Credit: Steve Eggers

³ Brookshire, D.S., Neill, H.R., 1992. Benefit Transfers: Conceptual and Empirical Issues. *Water Resources Research* 28, 651-655; Desvousges, W.H., Naughton, M.C., Parsons, G.R., 1992. Benefit transfer: conceptual problems estimating water quality benefits using existing studies. *Water Resources Research* 28.

⁴ Desvousges, W.H., Johnson, F.R., Banzhaf, H.S., 1998. *Environmental Policy Analysis with Limited Information: Principles and Applications of the Transfer Method*. Edward Elgar, Northampton, MA.

⁵ Wilson, M., Hoehn, J., 2006. Valuing environmental goods and services using benefit-transfer: state-of-the-art and science. *Ecological Economics* 60, 335-342.

Table 3: Valuation methods used to value ecosystem services

<p>Avoided Cost (AC): Services that allow society to avoid costs that would have been incurred in the absence of those services; for example, floodwater regulation provided by wetlands avoids property damages to urban and rural areas.</p> <p>Replacement Cost (RC): Services that can be replaced with man-made systems; ex. nutrient cycling and waste treatment provided by wetlands can be replaced with expensive treatment systems whose replacement cost can be readily estimated.</p> <p>Factor Income (FI): Services that provide for the enhancement of incomes; for example, water quality improvements increase commercial and recreational fisheries catch and the incomes of communities or economies dependent upon fishing retailers.</p> <p>Travel Cost (TC): Service demand may require travel, which has costs that can reflect the implied value of the service; for example, recreation areas can be valued in part by the dollar amount that visitors are willing to pay to travel to it, including the imputed dollar value of their time.</p> <p>Hedonic Pricing (HP): Service demand may be reflected in the prices people will pay for associated goods, for example, housing prices along shorelines generally exceed the prices of inland homes.</p> <p>Contingent Valuation (CV): Service demand may be elicited by posing hypothetical scenarios that involve some valuation of alternatives; for example, when surveyed, people generally state that they are willing to pay for preservation of beaches and shoreline and will name a dollar amount they would be willing to pay per unit of time.</p> <p>Group Valuation (GV): This approach is based on principles of deliberative democracy and the assumption that public decision making should result not from the aggregation of separately measured individual preferences but from open public debate.</p>
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Adapted from Farber et al., 2006



Photo Credit: Steve Eggers

Table 4 provides a matrix that highlights ecosystem services identified for each land cover type in Wisconsin; those cells that were valued for this assessment are marked with an "X". Due to time constraints, not all ecosystem services that were identified for Wisconsin wetlands are assigned a value. Also, this assessment does not include valuation of non-wetland land cover classes, such as forest, pasture, riparian buffer, etc.

Table 4: Ecosystem services identified and valued for this assessment

	Agricultural Lands	Forest	Grasslands	Lakes/Rivers	Pasture	Riparian Buffer	Shrub/Scrub	Urban Green Space	Wetland
Provisioning Services									
Food									
Raw Materials									
Genetic Resources									
Medicinal Resources									
Ornamental Resources									
Regulating Services									
Gas Regulation									X
Climate Regulation									X
Disturbance Prevention									X
Soil Retention									
Water Regulation									X
Water Supply									X
Biological Control									
Waste Treatment									X
Soil Formation									
Nutrient Regulation									
Pollination									
Habitat Services									
Habitat and Biodiversity									X
Nursery									X
Information Services									
Aesthetic Information									X
Recreation									X
Cultural and Artistic Information									
Science and Education									
Spiritual and Historic Information									

Key:

	Ecosystem service produced by land cover but not valued in this report
X	Ecosystem service produced by land cover and valued in this report
	Ecosystem service not produced by land cover

Underestimated Value

A total of 22 ecosystem services were identified in Wisconsin's wetlands. Rapid assessment valuation was possible for 10 services. Table 4 suggests that, because a large number of ecosystem services and land covers have yet to be valued, this rapid assessment valuation provides a significant underestimate of the true value.

Annual Value of Wisconsin Wetlands

Transferred values were converted to 2010 dollars per acre per year, representing the annual flow of value generated by a single ecosystem service on a single land cover each year. Combining the available ecosystem service values (water regulation, habitat, recreation, etc.) for each wetland type yields a total value for that land cover in dollars per acre per year. Table 5 summarizes the range of ecosystem service values for wetlands in Wisconsin.

Table 5: Value of ecosystem services provided by each wetland sub-type in the State of Wisconsin

Ecosystem Service	Low Value (/acre/year)	High Value (/acre/year)
Disturbance Prevention	434	7,758
Waste Treatment	13	1,747
Water Regulation	148	6,877
Water Supply	10	4,289
Gas and Climate Regulation	5	534
Aesthetic and Recreation	2	4,985
Habitat and Nursery	6	2,242
Total (/acre/year)	617	28,422

Table 6 summarizes the annual flow of value provided across all wetlands in Wisconsin. Wisconsin wetlands provide over . billion dollars in economic benefits to the state per year.

Table 6: Annual value of ecosystem services provided by wetlands in Wisconsin

Low Value (/acre/year)	High Value (/acre/year)	Area of Wetlands in Wisconsin	Total Low (/year)	Total High (/year)
617	28,432	5,331,392	,291,961,752	151,580,506,001

Value Discrepancies

The wide ranges of the estimates for the subset of ecosystems and services available for this study can be attributed to a number of factors including wetland health and ecosystem service function and year of primary study. In general, the more degraded the ecosystem, or the older the source study, the lower the value. A total of 22 ecosystem services were identified in Wisconsin's wetlands. Rapid assessment valuation was possible for 10 services. Table 4 suggests that, because a large number of ecosystem services and land covers have yet to be valued, this rapid assessment valuation provides a significant underestimate of the true value.

Asset Value of Wisconsin's Wetlands

Like a traditional capital asset, an ecosystem produces a flow of valuable services across time. As long as the natural infrastructure of the wetlands are not degraded or depleted, this flow of value will likely continue into the future. In fact, it will become even more valuable as such natural infrastructure becomes scarcer or degraded elsewhere. This analogy can be extended by calculating the net present value of the future flows of ecosystem services, just as the asset value of a capital asset (such as a bridge or a building) can be calculated as the net present value of its future benefits. This calculation is no more than an economic exercise however, because ecosystems are not generally bought and sold in this manner; the usefulness of this exercise is to demonstrate their long-term economic value.

Calculating the net present value of an asset requires the use of a discount rate. Table 7 shows the net present value of the wetlands calculated using different discount rates. Using a 0% discount rate recognizes the renewable nature of natural capital and that people 100 years from now will enjoy the same level of benefits we enjoy today. In contrast, the federal discount rate for water resource projects in FY2012 is 4%, and lowers the value of the benefits by 4% each year into the future.

Table 7: Asset Value of Wetlands in Wisconsin

Discount Rate	Value for State of Wisconsin (low)	Value for State of Wisconsin (high)	Per-Acre Value (low)	Per-Acre Value (high)
0% (100 years)	\$329,196,175,226	\$15,158,050,600,129	\$61,747	\$2,843,169
4% (100 years)	\$80,669,519,438	\$3,714,480,147,549	\$15,131	\$696,719

At the 4% federal discount rate, the asset value of Wisconsin's wetlands is estimated between \$81 billion and \$3.7 trillion, and at a zero discount rate, is estimated between \$329 billion and \$15.2 trillion. Even with the most conservative estimate, this means that each acre of wetland is worth at least \$15,000, if treated as an economic asset.

Conclusion

This report provides a preliminary view of the value of Wisconsin's wetlands to the local community and the local, state and federal agencies that are responsible for serving the residents of the beautiful state of Wisconsin. The appraisal valuation of ecosystem services provided by wetlands in Wisconsin quantifies the economic value supplied by nature in the wetlands every year. By protecting against flooding, assuring water supply, buffering climate instability, maintaining critical habitat, providing waste treatment and other benefits, Wisconsin's wetlands provide between \$3.3 billion and \$152 billion in economic value every year to the local, regional and national economy. These wetlands provide tremendous benefits to the public over generations, at little or no cost.

Ecosystem services may also be treated like economic assets, as they provide a stream of benefits over time, similar to bridges, roads or other built infrastructure. Valued as such, a discount rate may be applied to these services, allowing for calculation of the present value (or asset value) of these systems. If treated like an asset with a lifespan of 100 years, the asset value of the Wisconsin's wetlands is between \$81 billion and \$3.7 trillion at a 4% discount rate. Using a 0% discount rate, which recognizes the renewable nature of natural capital and that people 100 years from now will enjoy the same level of benefits, Wisconsin's wetlands have an asset value of between \$329 billion and

\$15.2 trillion. Though a snapshot in time, these appraisal values are defensible underestimates and applicable to decision-making at every jurisdictional level.

The creation of macroeconomic measures in the 1930s, such as measures for the Gross Domestic Product, unemployment and inflation, transformed the United States because these measures enabled better economic decision-making. Built capital was scarce, and economic measures of built capital were essential to building a prosperous 20th century economy.

Today, scarcity has shifted from manufactured goods to ecosystem goods and services. To increase their production the value of ecosystems should be correctly measured and included in decision-making. Discovering and measuring the value of natural capital in Wisconsin is important, and ecosystem service valuations can aid effective and efficient natural resource management.

While this rapid assessment provides a valuation of ecosystem services provided by Wisconsin's wetlands, it is only a first step in the process of developing policies, measures and indicators that support discussions about the tradeoffs in investments of public and private money that ultimately shape the regional economy for generations to come.

Recommended next steps include:

- **Protect and Restore Natural Capital.** Consider both the conservation and the restoration of these Wisconsin ecosystems as a key investment in the future economy as supported by green infrastructure.
- **Apply Ecosystem Service Valuation to Support Funding Investment in Natural Assets.** Ecosystem service valuation can provide governments, organizations, and private owners with a way to calculate the rate of return on conservation and restoration investment. Beginning in late 2012, values in this report can be regularly updated and enhanced with information on more ecosystems and ecosystems services using Earth Economics' SERVES (Simple Effect Resource for Valuing Ecosystem Services), a web-based tool that can be accessed from www.eartheconomics.org.
- **Adopt an Ecosystem Services Approach to Rural Economic Development.** By including sustainable forestry, forest product development, agriculture, and access to quality outdoor recreation in economic development planning, long-term and sustainable jobs can be identified, quantified and secured. Restoration projects can and should be effectively linked to economic advancement, sustainability and long-term job creation.
- **Review Institutional Options for Planning and Management of Natural Assets.** Ecosystem services can be a guide for improvement by setting a context wherein alternative goals, such as flood control, storm water conveyance, habitat and water quality, can be simultaneously improved, thus avoiding infrastructure conflict. Wisconsin leaders should facilitate discussions about institutional improvements that facilitate the coordination of the leveraging of wetland benefits including the reduction of flood risk, provision of drinking water and water quality, resilience to changes in the climate, and ensuring the livelihood of forest and agricultural landowners. Earth Economics is working in Washington State to develop the first state **Watershed Investment District as an example of a new institution to manage natural capital.**

Such an institution would be positioned to take advantage in emerging ecosystem service markets to generate funding for investment in Wisconsin's natural capital, while also creating a mechanism for incentive funding for stewardship practices on private land through Payments for Ecosystem Services. Adopting an integrated approach will save money and provide greater economic benefits and higher quality of life for Wisconsin residents.

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Value Transfer Studies Used by Ecosystem Service

Ecosystem Service	Author(s)	Low	High
Disturbance Regulation	Allen, J. et al.	\$433.78	\$7,757.92
Waste Treatment	Pate, J. and Loomis, J.	\$76.39	\$344.14
	Olewiler, N.	\$154.68	\$434.60
	Wilson, S. J.	\$12.86	\$1,747.07
Water Regulation	Thibodeau, F. R. and Ostro, B. D.	\$6,876.67	\$6,876.67
	Wilson, S. J.	\$1,552.65	\$1,552.65
	Woodward, R., and Wui, Y.	\$148.48	\$2,914.64
Water Supply	Creel, M. and Loomis, J.	\$533.70	\$533.70
	Lant, C. L. and Tobin, G.	\$189.14	\$2,082.37
	Pate, J. and Loomis, J.	\$3,538.95	\$3,538.95
	Dodds, W.K., et al.	\$1,379.95	\$1,379.95
	Hayes, K. M., et al.	\$1,915.63	\$2,977.72
	Wilson, S. J.	\$704.81	\$704.81
	Brouwer, R., et al.	\$21.77	\$53.17
	Woodward, R., and Wui, Y.	\$10.01	\$4,289.38
Aesthetic and Recreational	Doss, C. R. and Taff, S. J.	\$4,118.83	\$4,984.78
	Kreutzwiser, R.	\$195.28	\$195.28
	Thibodeau, F. R. and Ostro, B. D.	\$30.95	\$645.51
	Whitehead, J. C.	\$1,027.44	\$2,065.76
	Dodds, W.K., et al.	\$1,689.67	\$1,689.67
	Allen, J. et al.	\$111.78	\$578.92
	Hayes, K. M., et al.	\$1,804.08	\$3,448.12
	Mahan, B.L.	\$49.21	\$49.21
	van Vuuren, W. and Roy, P.	\$853.81	\$853.81
	Wilson, S. J.	\$47.36	\$128.80
	Cooper J. and Loomis, J.	\$327.16	\$1,284.80
	Mahan, B. L., et al.	\$37.44	\$37.44
	Whitehead, J. C., et al.	\$237.71	\$237.71
Woodward, R., and Wui, Y.	\$1.67	\$4,641.41	
Gas and Climate Regulation	Dodds, W.K., et al.	\$123.79	\$123.79
	Wilson, S. J.	\$4.85	\$534.02
	Costanza, R., et al.	\$176.30	\$176.30
Habitat Refugium and Nursery	Pate, J. and Loomis, J.	\$99.76	\$317.15
	van Kooten, G. C. and Schmitz, A.	\$5.82	\$5.82
	Dodds, W.K., et al.	\$179.38	\$179.38
	Knowler, D. J. et al.	\$10.91	\$49.99
	Wilson, S. J.	\$2,241.85	\$2,241.85
	Woodward, R., and Wui, Y.	\$158.50	\$510.52
	Kazmierczak, R.F.	\$273.67	\$652.95
Streiner, C., Loomis, J.	\$274.09	\$274.09	

COMMENTS FROM LCC MEETING
OF
FEBRUARY 20, 2012

The Land Conservation Committee reviewed proposed ordinance amendment language from the CZA to reduce the rear yard and side yard setbacks, through a conditional use process, for agricultural structures on parcels of 10 acres or less in size zoned A-1, A-2, A-3, A-4, A-5, and C-2 provided the property is not abutting residentially (R) zoned property. The conditional use process would also require the applicant to file a deed restriction in the Register of Deeds office limiting the property to one animal unit per acre.

The Land Conservation Committee had the following comments:

1. The Conditional Use process is too restrictive, overly burdensome and expensive. Would like to have smaller animal units as a right not a conditional use.
 - a. *The County Zoning Agency will be reviewing this item on March 15, 2012.*
2. Would like to look at exempting small animals (such as sheep, lamb, chickens, rabbits, and goats) from the 100' setback.
 - a. *There is a legal concern about how to exempt some animals but not others. If weight is used, then a pig up to 55 lbs. equals a sheep.*
3. Would like to look at exempting small buildings of 50 to 100 square feet in size from the 100' setback.
 - a. *The concern that would have to be addressed is that animals tend to congregate near buildings irregardless of size. The well code requires a 50' setback from an animal shelter to a well.*

The Land Conservation Committee requested staff to research the above options and return to LCC in March for further discussion.