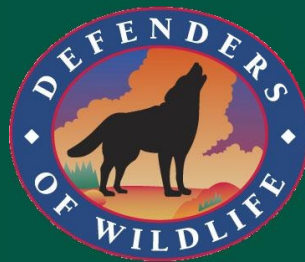


Introduction to the Wildlife Habitat Benefits Estimation Toolkit

Timm Kroeger (Defenders of Wildlife)
John Loomis (Colorado State University)
Frank Casey (Defenders of Wildlife)



*National Council for Science
and the Environment*



Biodiversity in a Rapidly Changing World
9th National Conference on Science, Policy and the Environment
National Council for Science and the Environment

December 10, 2008

Workshop Overview

9:00-10:00am Overview of the Toolkit

- » Why a “Benefits Toolkit”? - Origins and Need
- » Who can use it?
- » What is it? Purpose, Uses, & Components
- » Example
- » Development of the Toolkit

10:00-10:30 Closer look at the Toolkit models and tables

10:30-10:45 Break

10:45-11:30 Toolkit Application Examples

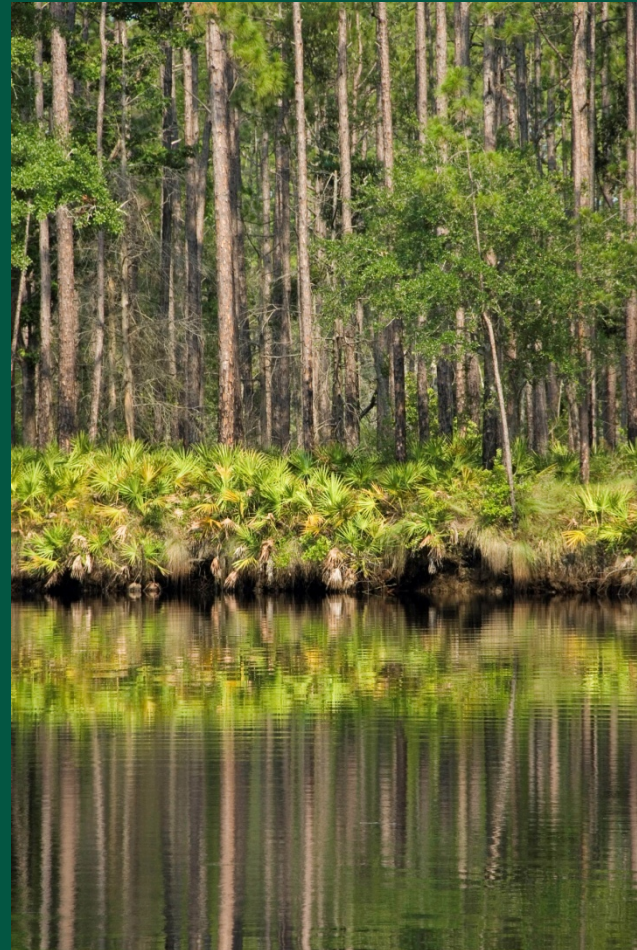
11:30-12:00 Q&A

12:00 Workshop Close

Why a “Benefits Toolkit”?

Project Funded by the National Council for Science and the Environment through the Wildlife Habitat Policy Research Program

Provide State-level agencies and others with a practical tool for estimating the economic benefits of implementing State Wildlife Action Plans and other conservation actions



Audience for the “Toolkit”

- State-level agencies charged with implementing State Wildlife Action Plans or other conservation actions
- Public and private policy makers charged with funding Action Plan implementation
- Public and private researchers charged with economic analysis of Plan Implementation
- State and county land-use planners and fiscal authorities



- Private Conservation organizations

What is the Purpose of the “Toolkit”?

- Demonstrate economic benefits of implementing State Plans or other conservation actions
- Save public and private organizations time and financial resources associated with conducting new research projects
- Strengthen case for public cost-share of conservation projects or tax credits
- Justify increased funding for protection of valuable natural lands
- Easy-to-use tool for generating estimates of the economic values associated with particular area



What are the Uses of the Toolkit?

- Quantify total economic value of a project site
 - Assess the potential financial return from a conservation site
 - Quantify the potential losses from land conversion
- Prioritize conservation \$\$\$ for sites that generate the highest value per \$
- Support zoning changes directing development away from valuable natural lands

What Types of Benefits Does the Toolkit Quantify?

- Outdoor recreation (wildlife-associated)
- Ecosystem services (e.g., water supply, habitat provision)
- Conservation of T&E/R species or ecosystems
- Increases in residential property values from nearby "open space"



The Need for the "Benefits Toolkit"

- Hundreds of economic valuation studies
- **But: values always depend on the particular context (site characteristics) !**

⇒ Values reported in one study generally are not applicable to other sites

⇒ Developing estimates for a "new" site requires new, original study

- Expensive
- Time-consuming
- ... often infeasible

Problem: No quick, easy way to develop reasonably reliable value estimates for an unstudied site

Benefits Toolkit: Components and Outputs

- Valuation models (spreadsheet-based)
- Value tables/databases (by activity, region, species)
- Recreation use models (number of visitors)
- Technical reports detailing analysis and model estimation; literature reviews
- User manuals for application of individual models (incl. examples)

Property value premium estimator model
 Instructions: Fill in all cells marked "ENTER >". (See accompanying user manual for detailed instructions and documentation.)

STEP 1: Select shape of area of analysis in which property value premiums are analyzed

Average Fishing Values (per angler day)
 converted to 2006 base year

Species Category	N	NORTHEAST	N	SOUTHEAST	N	INTERMOUNTAIN	N	PACIFIC
Cold Water	58		20		116			13

**National Wildlife Refuge and State Wildlife Management Area
 Freshwater Angler Days per Year (new Refuge/wildlife area)**

Inst... e or wildlife management area acres, incom
 ut box.
 documentation.

Introduction to the Wildlife Habitat Benefits

Community Economic Competitiveness Analysis

Technical Documentation of Benefit Transfer and

Open Space Property Value Premium Analysis

USER MANUAL
**Benefit Transfer and Visitor Use Estimating
 Models of Wildlife Recreation, Species and
 Habitats**

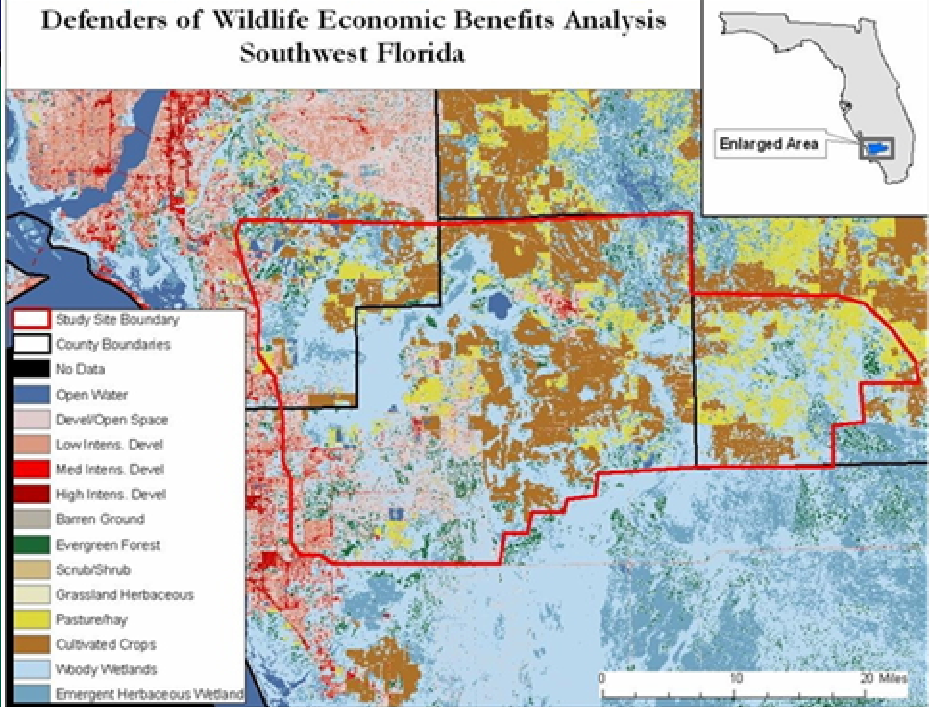
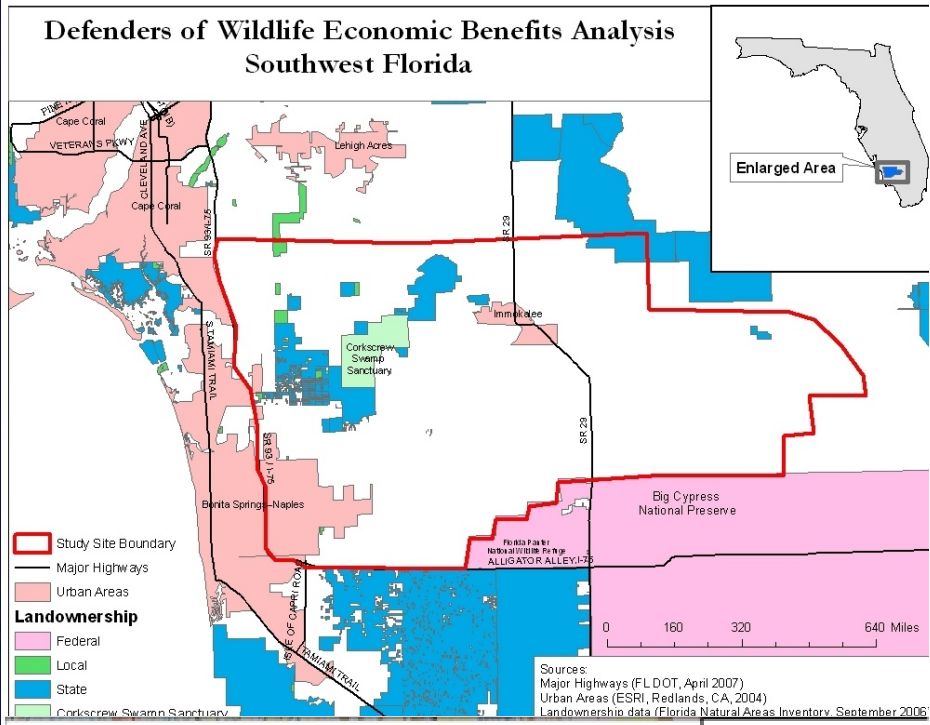
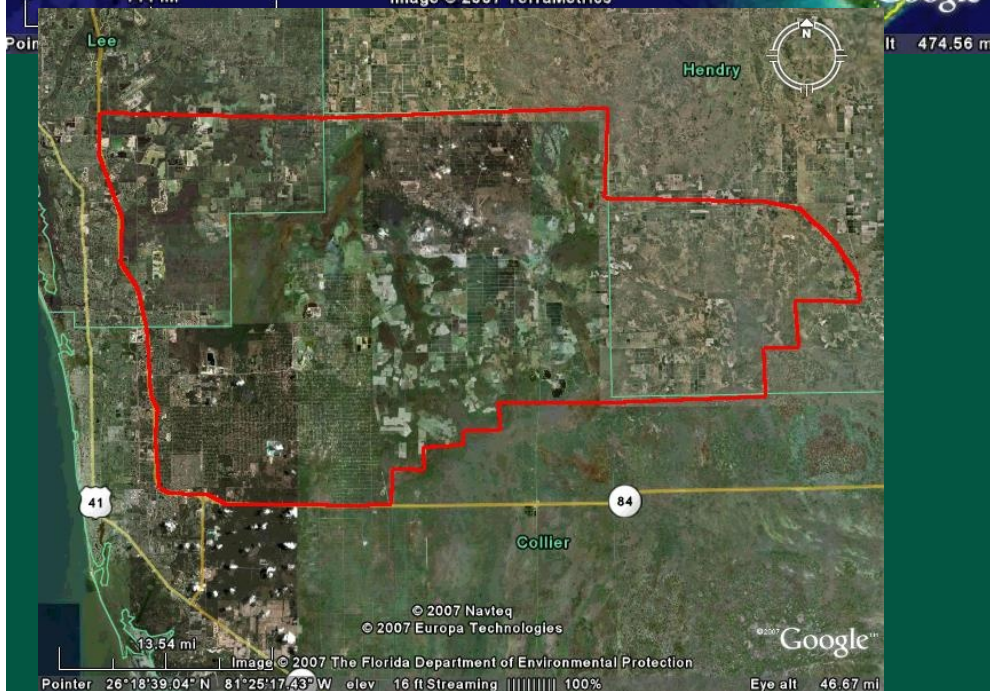
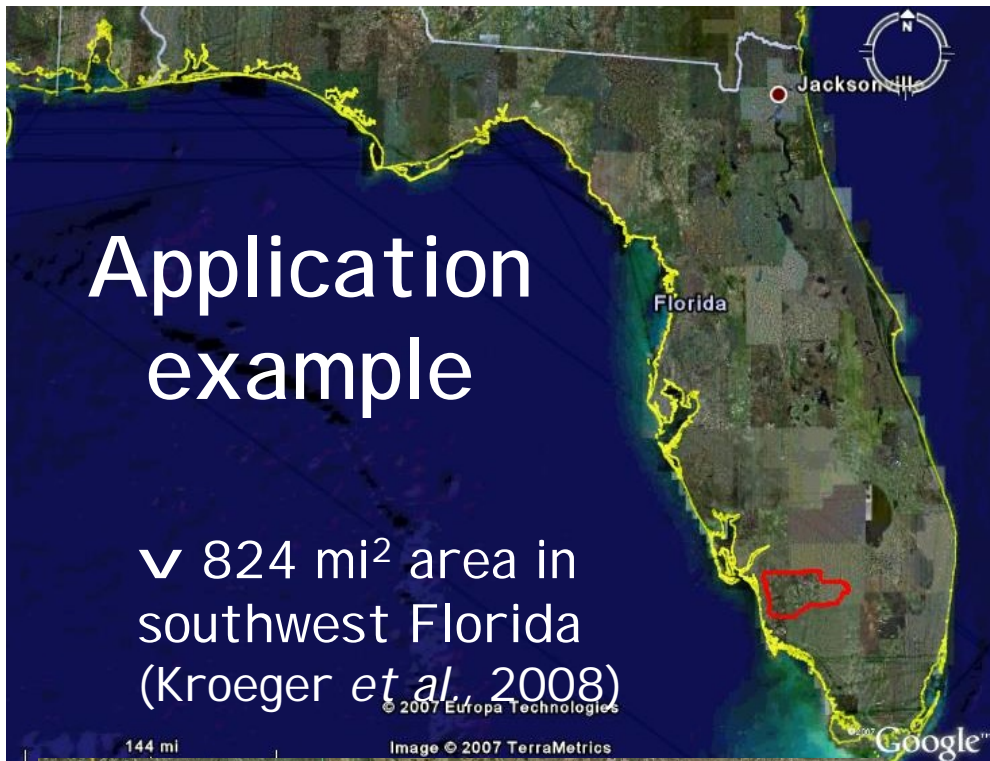
Dr. John Loomis and Leslie Richardson, Dept. of Agricultural and Resource
 Economics, Colorado State University, Fort Collins, CO 80523-1172

June 2008

National Council for Science and the Environment
 2006 Wildlife Habitat Policy Research Program
 Project Topic 1H:
 Development of an Operational Benefits Estimation Tool for the
 U.S.

Application example

▼ 824 mi² area in southwest Florida (Kroeger *et al.*, 2008)



✓ Analysis identified studies in the area to estimate service flows;

✓ Used published estimates to value service flows

► Recreation, water provision and net carbon sequestration estimates based on published studies for southwest Florida

Still leaves out many values provided by area

	<i>Location:</i>	Florida
<i>Benefit</i>	<i>Ecosystem type:</i>	- wetlands/ lowlands - (825 mi ²)
Direct uses	TIMBER EXTRACTION	✓
	NON-TIMBER PRODUCTS	?
	GRAZING	✓
	COMMERCIAL FISHING	-
	RECREATION	2.6 *
	- Camping	✓
	- Backpacking	✓
	- Picnicking and general relaxation	✓
	- Fishing	1.2
	- Hunting	0.03
	- Hiking	0.13
	- Wildlife watching	1.2
	- Cross-country/downhill skiing	-
	- OHV use	?
- Mountain biking	-	
RESEARCH AND EDUCATION	✓	
PROPERTY VALUE PREMIUMS		
Indirect uses	ECOSYSTEM SERVICES	135-306
	- Water supply	130-285
	- Water quality	✓
	- Species habitat provision	✓
	- Biodiversity maintenance	✓
	- Temperature modulation	✓
	- Crop pollination	✓
	- Carbon sequestration	5.1-21.2
- Air quality	✓	
Passive uses	PROVISION OF HABITAT FOR THREATENED, ENDANGERED, RARE OR "CHARISMATIC" SPECIES	✓
TOTAL ANNUAL VALUE OF QUANTIFIED USES (<i>million 2004\$</i>)		138 - 308

* incomplete estimate; ? not documented; - not applicable

✓ I identified studies in the area to estimate service flows;

✓ Used published estimates to value service flows

► Recreation, water provision and net carbon sequestration estimates based on published studies for southwest Florida

Still leaves out many values provided by area

✓ Apply Toolkit to fill in gaps:

- Open space property premium model
- Wetland value model (e.g., water quality)

	<i>Location:</i>	Florida
<i>Benefit</i>	<i>Ecosystem type:</i>	- wetlands/ lowlands - (825 mi ²)
Direct uses	TIMBER EXTRACTION	✓
	NON-TIMBER PRODUCTS	?
	GRAZING	✓
	COMMERCIAL FISHING	-
	RECREATION	2.6 *
	- Camping	✓
	- Backpacking	✓
	- Picnicking and general relaxation	✓
	- Fishing	1.2
	- Hunting	0.03
	- Hiking	0.13
	- Wildlife watching	1.2
	- Cross-country/downhill skiing	-
	- OHV use	?
- Mountain biking	-	
RESEARCH AND EDUCATION	✓	
PROPERTY VALUE PREMIUMS	6.5	
Indirect uses	ECOSYSTEM SERVICES	135-306
	- Water supply	130-285
	- Water quality	23
	- Species habitat provision	✓
	- Biodiversity maintenance	✓
	- Temperature modulation	✓
	- Crop pollination	✓
- Carbon sequestration	5.1-21.2	
- Air quality	✓	
Passive uses	PROVISION OF HABITAT FOR THREATENED, ENDANGERED, RARE OR "CHARISMATIC" SPECIES	✓
TOTAL ANNUAL VALUE OF QUANTIFIED USES (million 2004\$)		168 - 338

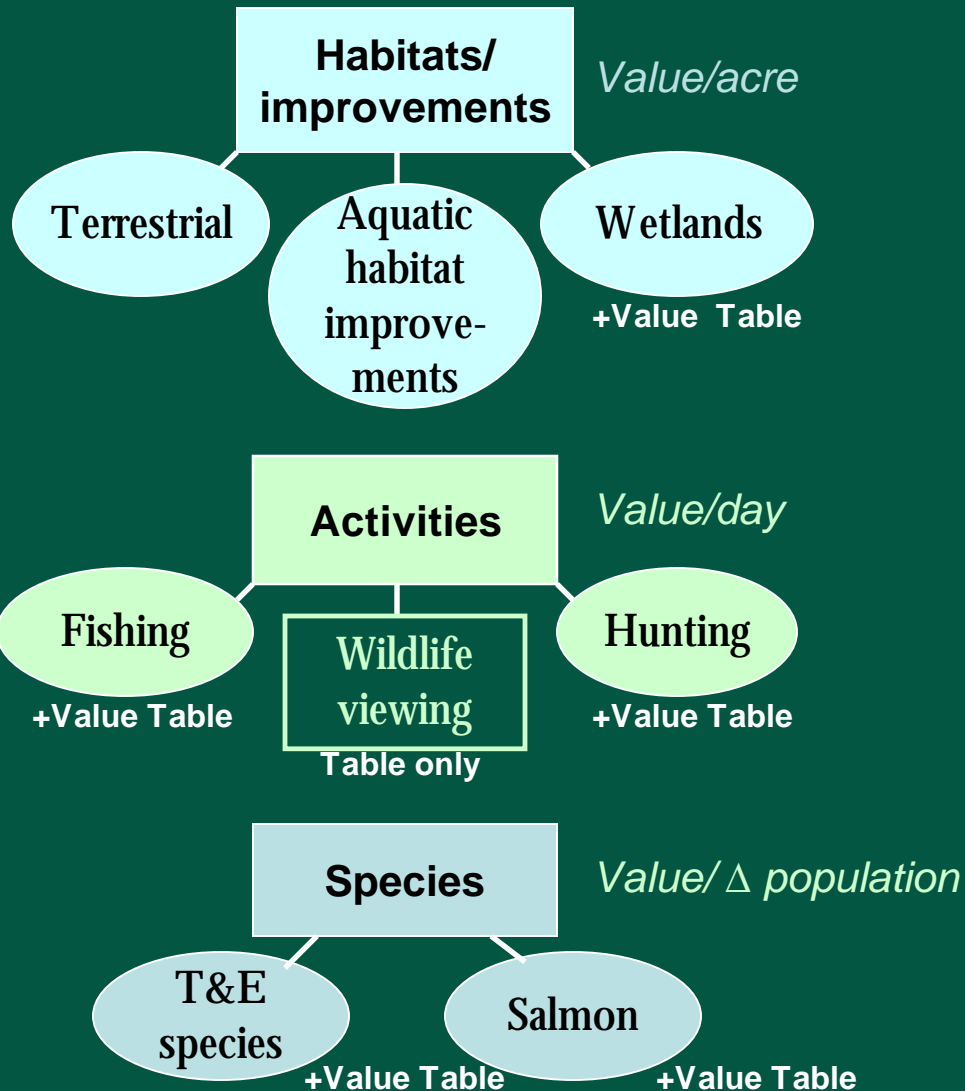
* incomplete estimate; ? not documented; - not applicable

- OVERVIEW OF MODELS -

Valuation models

Open space
property value
premiums

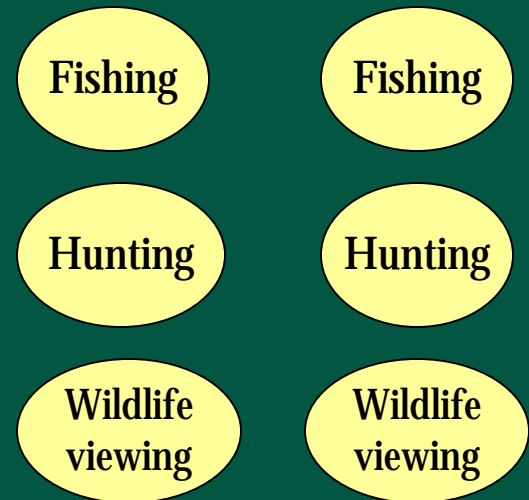
*% of property
value*



Visitor use estimation models

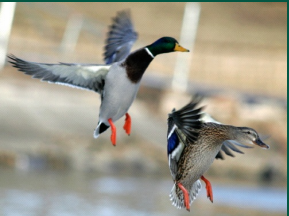
NWR/ Wildlife
Management
Area

State-level



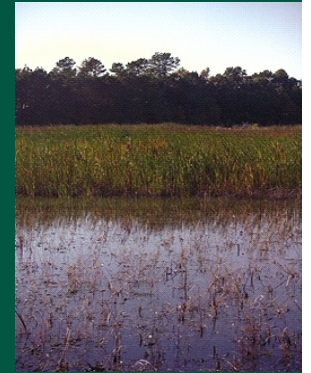
of Activity days/yr

ADDING THE OUTPUTS OF INDIVIDUAL TOOLKIT COMPONENTS



Activity value models (wildlife-associated recreation)

+ Ecosystem Service value models (wetlands, terrestrial, aquatic)



+ T&E/R Species value models (T&E/R, Salmon)

+ Open Space Property Value Premium model

= "Total" economic conservation value of site



Development of the Benefits Toolkit

Literature reviews and syntheses of:

- Open space property value premiums;
 - ▶ Estimation of property value premium model
- Economic values of wildlife and habitat;
 - ▶ Estimation of wildlife and habitat valuation models
- Community economic competitiveness impacts of habitat conservation



Models based on statistical (meta-) analyses of literature

- Dozens to several hundreds of observations for each particular use

§ Original meta-analyses (Open space property premiums; Salmon; Hunting)

§ Updated original meta-analyses (T&E/rare species)

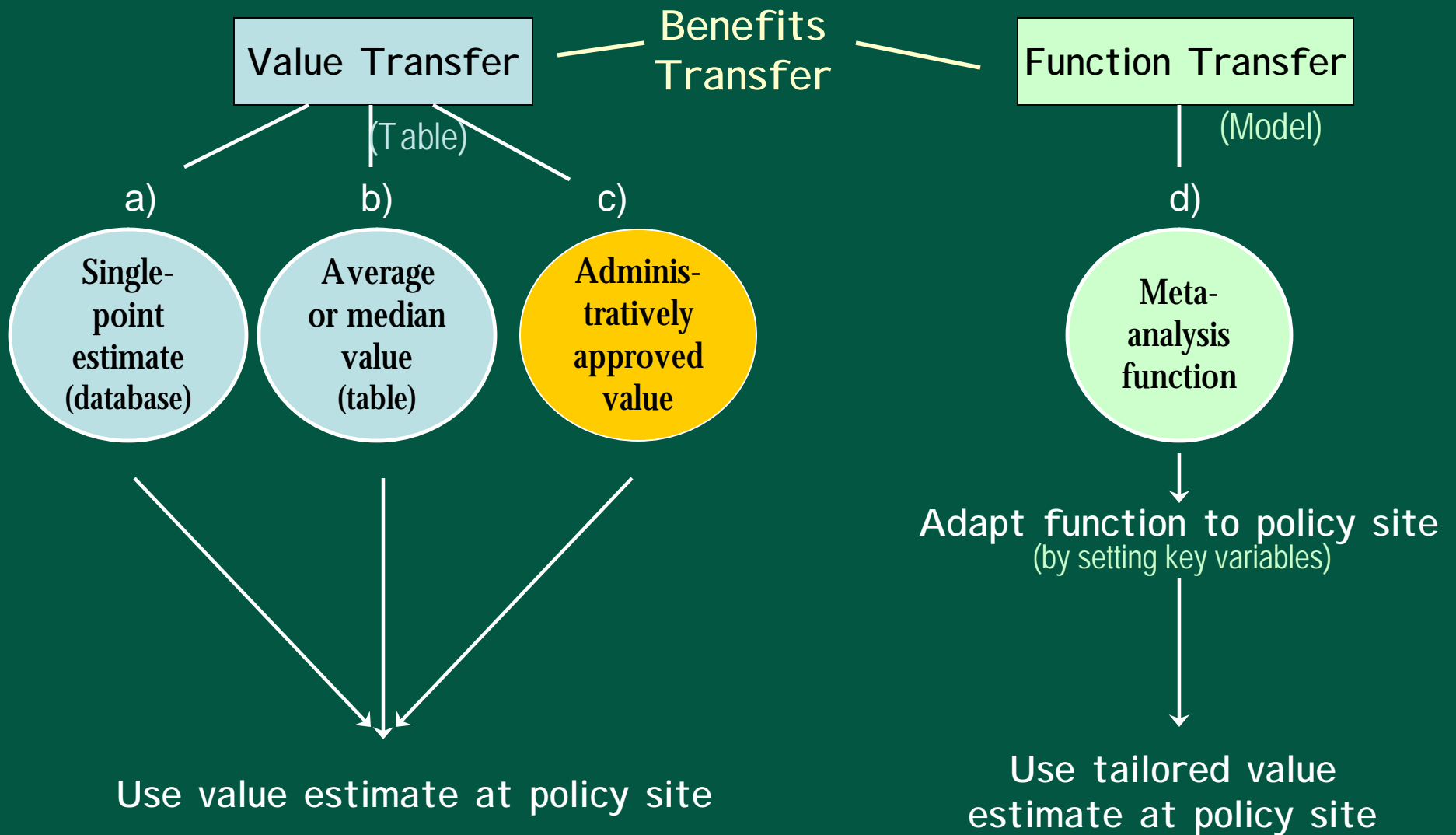
§ Existing meta-analyses (wetland & terrestrial ES, sport-fishing; aquatic habitat improvements)



Development of the Benefits Toolkit (contd.)

- Ø Analyses identify **significant variables** that drive economic value of particular uses (hunting, open space premiums etc.)
- Ø Significant variables are used to construct predictive valuation models for particular uses (hunting, ecosystem services etc.)
- User sets model variables at values that reflect the reality of their area of interest, model generates customized value estimates for that area (► *Benefits Transfer*)
- Models can be used to:
 - 1) **predict changes** in values associated with specific projects (habitat size change, land cover change, T&E species population change, water quality change)
 - 2) **assess the current economic value** of a site

VALUATION APPROACHES OFFERED BY THE TOOLKIT



Closer Look at Toolkit Models and Tables/Databases

Models

- User enters information into highlighted cells

ENTER >	0

- Cells correspond to statistically significant variables identified in meta-analyses
 - Binary dummy variables (0, 1) describing area characteristics; 1 = present in study area, 0 = not present
 - User sets these to appropriate values for site

1 ***Value of Fishing per Angler Day***

2

3 **Instructions:** Fill in the relevant cells marked "ENTER >" associated with the primary species and habitat you wish a value per day for.
4 Hit the enter key to get the value per day in output box.
5 See accompanying user manual for detailed instructions and documentation.
6

7 **STEP 1: Enter a 1 next to the primary species to be valued; 0 otherwise**

8			
9	ENTER >	0	Salmon
10	ENTER >	1	Trout
11	ENTER >	0	Pike
12	ENTER >	0	Bass
13	ENTER >	0	Walleye
14	ENTER >	0	Other freshwater species
15	ENTER >	0	Other saltwater species
16	ENTER >	0	Other aggregate groupings (bottomfish, etc.)

19 **STEP 2: Enter a 1 next to the type of water body containing the species; 0 otherwise**

20			
21	ENTER >	0	Lakes, ponds, and reservoirs
22	ENTER >	0	Brackish, saltwater embayments (bays)
23	ENTER >	0	Saltwater, offshore
24	ENTER >	1	Rivers, streams, flowing-water systems
25	ENTER >	0	Great Lakes

28			
29	OUTPUT	\$56.11	\$/ Angler Day (2006 base year)
30			

Microsoft Excel - Wetland Value per acre Meta Function 1

File Edit View Insert Format Tools Data Window Help

Print Paste Undo Redo Find & Replace Sort & Filter AutoSum Conditional Formatting Data Tables Help

	A	B	C	D
1	Total Economic Value of Wetlands per Acre			
2				
3	Instructions: Fill in relevant cells marked "ENTER >" for wetland acres, coastal vs. non-coastal wetland, and ecosystem service to be valued.			
4	Hit enter key to get value per acre.			
5	See accompanying user manual for detailed instructions and documentation.			
6				
7	STEP 1: Enter the total acres of the wetland to be valued			
8				
9		ENTER >	0.00	
10				
11				
12	STEP 2: Enter a 1 if the wetland is coastal; 0 otherwise			
13				
14		ENTER >	0	
15				
16				
17	STEP 3: Enter a 1 next to the ecosystem service to be valued; 0 otherwise			
18				
19		ENTER >	0	Flood Prevention
20		ENTER >	0	Water Quality
21		ENTER >	0	Water Quantity
22		ENTER >	0	Recreational Fishing
23		ENTER >	0	Commercial Fishing
24		ENTER >	0	Birdhunting
25		ENTER >	0	Birdwatching
26		ENTER >	0	Amenity
27		ENTER >	0	Habitat
28		ENTER >	0	Storm
29				
30				
31	OUTPUT			
32			\$0	Flood Prevention
33			\$0	Water Quality
34			\$0	Water Quantity
35			\$0	Recreational Fishing
36			\$0	Commercial Fishing
37			\$0	Birdhunting
38			\$0	Birdwatching
39			\$0	Amenity
40			\$0	Habitat
41			\$0	Storm
42				
43	Total for all Ecosystem Services-		\$0	\$/ Acre (2006 base year)
44				
45			\$0	Total Annual \$ Value of Wetland
46				

Model Input & Results / Variable Definitions & Citation / Definition of Benefits

Ready

start | Inbox - Microsoft ... | Meta Functions | Microsoft PowerPo...

1	<i>Total Economic Value of Wetlands per Acre</i>		
2			
3	Instructions:	Fill in relevant cells marked "ENTER >" for wetland acres, coastal vs. non-coastal wetland, and ecosystem service to be valued.	
4		Hit enter key to get value per acre.	
5		See accompanying user manual for detailed instructions and documentation.	
6			
7	STEP 1: Enter the total acres of the wetland to be valued		
8			
9	ENTER >	<input type="text" value="0.00"/>	
10			
11			
12	STEP 2: Enter a 1 if the wetland is coastal; 0 otherwise		
13			
14	ENTER >	<input type="text" value="0"/>	
15			
16			
17	STEP 3: Enter a 1 next to the ecosystem service to be valued; 0 otherwise		
18			
19	ENTER >	<input type="text" value="0"/>	Flood Prevention
20	ENTER >	<input type="text" value="0"/>	Water Quality
21	ENTER >	<input type="text" value="0"/>	Water Quantity
22	ENTER >	<input type="text" value="0"/>	Recreational Fishing
23	ENTER >	<input type="text" value="0"/>	Commercial Fishing
24	ENTER >	<input type="text" value="0"/>	Birdhunting
25	ENTER >	<input type="text" value="0"/>	Birdwatching
26	ENTER >	<input type="text" value="0"/>	Amenity
27	ENTER >	<input type="text" value="0"/>	Habitat
28	ENTER >	<input type="text" value="0"/>	Storm

35		<input type="text" value="\$0"/>	Recreational Fishing
36		<input type="text" value="\$0"/>	Commercial Fishing
37		<input type="text" value="\$0"/>	Birdhunting
38		<input type="text" value="\$0"/>	Birdwatching
39		<input type="text" value="\$0"/>	Amenity
40		<input type="text" value="\$0"/>	Habitat
41		<input type="text" value="\$0"/>	Storm
42			
43	Total for all Ecosystem Services-	<input type="text" value="\$0"/>	\$/ Acre (2006 base year)
44			
45		<input type="text" value="\$0"/>	Total Annual \$ Value of Wetland
46			

Closer Look at Toolkit Models and Tables/Databases (contd.)

- Other variables

- Required information contained on tabs of model files
- OR: Toolkit Manual gives step-by-step guidance to online sources (property value premium model → Census data)

Closer Look at Toolkit Models and Tables/Databases (contd.)

- Other variables

- Required information contained on tabs of model files
- OR: Toolkit Manual gives step-by-step guidance to online sources (property value premium model → Census data)

Microsoft Excel - Wetland Value per acre Meta Function 2

File Edit View Insert Format Tools Data Window Help

Type a question for help

H42

A	B	C	D
Total Economic Value of Wetlands per Acre			
Instructions: Fill in all cells marked "ENTER >". See accompanying user manual for detailed instructions and documentation.			
STEP 1: Enter average household income for the particular state the wetland is in; can be found in 'State HH Income' Tab- column B These are 2006 estimates, for updated information go to: U.S. Census Bureau Fact Finder			
ENTER >		\$0	
STEP 2: Enter the total acres of the wetland to be valued			
ENTER >		0.0	
STEP 3: Enter share of wetland acres for the particular state the wetland is in, can be found on 'Share' Tab, Column D			
ENTER >		0.00	
STEP 4: Place a 1 next to the type of wetland to be valued; 0 otherwise.			
ENTER >		0	Freshwater Marsh
ENTER >		0	Saltwater Marsh
ENTER >		0	Prarie Pothole
STEP 5: Place a 1 next to the region the wetland is in; 0 otherwise Explanation of regions can be found in the 'ERS Farm Regions' Tab			
ENTER >		0	Heartland
ENTER >		0	Northern Crescent
ENTER >		0	Mississippi Portal

Model Input & Results / State HH Income / Share / ERS Farm Resource Regions / Var | NUM

ready

Closer Look at Toolkit Models and Tables/Databases (contd.)

- Other variables

- Required information contained on tabs of model files
- OR: Toolkit Manual gives step-by-step guidance to online sources (property value premium model → Census data)

The screenshot shows a Microsoft Excel spreadsheet titled "Wetland Value per acre Meta Function 2". The spreadsheet is divided into several sections. The first section is titled "Total Economic Value of Wetlands per Acre" and contains instructions: "Instructions: Fill in all cells marked 'ENTER >'. See accompanying user manual for detailed instructions and documentation." The second section is titled "STEP 1:" and contains the instruction: "Enter average household income for the particular state the wetland is in; can be found in 'State HH Income' Tab- column B. These are 2006 estimates, for updated information go to: [U.S. Census Bureau Fact Finder](#)". The third section is titled "Place a 1 next to the type of wetland to be valued; 0 otherwise." and contains three rows of input fields: "ENTER >" followed by a text box containing "0" and a label: "Freshwater Marsh", "ENTER >" followed by a text box containing "0" and a label: "Saltwater Marsh", and "ENTER >" followed by a text box containing "0" and a label: "Prarie Pothole". The fourth section is titled "Place a 1 next to the region the wetland is in; 0 otherwise" and contains the instruction: "Explanation of regions can be found in the 'ERS Farm Regions' Tab". This section contains three rows of input fields: "ENTER >" followed by a text box containing "0" and a label: "Heartland", "ENTER >" followed by a text box containing "0" and a label: "Northern Crescent", and "ENTER >" followed by a text box containing "0" and a label: "Mississippi Portal". A red circle highlights the three rows of the region selection section. The spreadsheet is displayed in a window titled "Microsoft Excel - Wetland Value per acre Meta Function 2". The taskbar at the bottom shows several open applications: "2 Microsoft Offi...", "Meta Functions", "2 Firefox", "Microsoft PowerP...", and "Microsoft Ex".

Wetland Type	Value
Freshwater Marsh	0
Saltwater Marsh	0
Prarie Pothole	0

Region	Value
Heartland	0
Northern Crescent	0
Mississippi Portal	0

Closer Look at Toolkit Models and Tables/Databases (contd.)

- Other variables

- Required information contained on tabs of model files
- OR: Toolkit Manual gives step-by-step guidance to online sources (property value premium model → Census data)

Microsoft Excel - Wetland Value per acre Meta Function 2

File Edit View Insert Format Tools Data Window Help

H42

A	B	C
Total Economic Value of Wetlands per Acre		
Instructions: Fill in all cells marked "ENTER >".		
See accompanying user manual for detailed instructions and documentation.		
STEP 1:	Enter average household income for the particular state the wetland is in; can be found in 'State U.S.	
	These are 2006 estimates, for updated information go to:	
	ENTER >	\$0
Place a 1 next to the type of wetland to be valued; 0 otherwise.		
	ENTER >	0
	ENTER >	0
	ENTER >	0
Place a 1 next to the region the wetland is in; 0 otherwise		
Explanation of regions can be found in the 'ERS Farm Regions' T		
	ENTER >	0
	ENTER >	0
	ENTER >	0

Model Input & Results / State HH Income / Share / ERS Farm Resource Regions

Microsoft Excel - Wetland Value per acre Meta Function 2

File Edit View Insert Format Tools Data Window Help

Q36

Farm Resource Regions

- Basin and Range**
 - Largest share of nonfamily farms, smallest share of U.S. cropland.
 - 4% of farms, 4% of value of production, 4% of cropland.
 - Cattle, wheat, and sorghum farms.
- Northern Great Plains**
 - Largest farms and smallest population.
 - 5% of farms, 6% of production value, 17% of cropland.
 - Wheat, cattle, sheep farms.
- Northern Crescent**
 - Most populous region.
 - 15% of farms, 15% of value of production, 9% of cropland.
 - Dairy, general crop, and cash grain farms.
- Heartland**
 - Most farms (22%), highest value of production (23%), and most cropland (27%).
 - Cash grain and cattle farms.
- Eastern Upland**
 - Most small farms of an region.
 - 15% of farms, 5% of production value, and 6% of cropland.
 - Part-time cattle, tobacco and poultry farms.
- Fruitful Rim**
 - Largest share of large and very large family farms and nonfamily farms.
 - 10% of farms, 22% of production value, 8% of cropland.
 - Fruit, vegetable, nursery, and cotton farms.
- Prairie Gateway**
 - Second in wheat, oat, barley, rice, and cotton production.
 - 13% of farms, 12% of production value, 17% of cropland.
 - Cattle, wheat, sorghum, cotton, and rice farms.
- Mississippi Portal**
 - Higher proportions of both small and larger farms than elsewhere.
 - 5% of farms, 4% of value, 5% of cropland.
 - Cotton, rice, poultry, and hog farms.
- Southern Seaboard**
 - Mix of small and larger farms.
 - 11% of farms, 9% of production value, 6% of cropland.
 - Part-time cattle, general field crop, and poultry farms.

Model Input & Results / State HH Income / Share / ERS Farm Resource Regions

Value Tables

- **Summary tables:** Mean & median values
- **Detailed tables:** Mean, median, min & max values

by activity, ecosystem service and broad geographic region

Closer Look at Toolkit Models and Tables/Databases (contd.)

Fishing Value Table

Value Tables

Microsoft Excel - Fishing Value Table

File Edit View Insert Format Tools Data Window Help

Type a question for help

027 fx

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Average Fishing Values (per angler day)														
2	converted to 2006 base year														
3															
4	Species Category	N	NORTHEAST	N	SOUTHEAST	N	INTERMOUNTAIN	N	PACIFIC	N	ALASKA	N	NATIONAL		
5															
6	Cold Water	58		20		116		13		4		3			
7	Average		\$39.54		\$51.25		\$62.54		\$54.10		\$53.90		\$38.53		
8	Median		\$27.04		\$51.19		\$47.22		\$45.31		\$58.37		\$31.47		
9															
10	Warm Water	119		63		38		3				7			
11	Average		\$42.87		\$54.37		\$45.55		\$28.59				\$55.59		
12	Median		\$27.18		\$47.13		\$32.84		\$29.83				\$55.93		
13															
14	Coastal	11		34				24				9			
15	Average		\$68.47		\$144.74			\$140.09					\$73.70		
16	Median		\$7.34		\$73.32			\$102.10					\$59.66		
17															
18	Anadromous	33		1		16		27		18		3			
19	Average		\$39.41		\$138.22		\$51.20		\$65.61		\$40.76		\$103.36		
20	Median		\$4.69		\$138.22		\$49.21		\$57.92		\$38.90		\$78.30		
21															
22	Mixed	30		1		16				16					
23	Average		\$20.08		\$134.24		\$59.28				\$213.13				
24	Median		\$18.32		\$134.24		\$36.18				\$206.87				
25															
26	Not Specified	112		16		48		14		2		1			
27	Average		\$49.66		\$93.47		\$77.31		\$39.10		\$95.56		\$67.12		
28	Median		\$36.01		\$34.20		\$62.70		\$43.12		\$95.56		\$67.12		
29															
30															
31	ENTER appropriate value here for Summary Output sheet														
32	1) ENTER the average or median value from the column in the above table that matches your location for the Summary Output Table: ▶ <input type="text"/>														
33	OR, ENTER a value from the Detailed Table (next tab)														
34	OR, ENTER a value from the Database Table (from the characteristics in the study from which that value came)														

Summary Table / Detailed Table / Database / Code Sheet

Closer Look at Toolkit Models and Tables/Databases (contd.)

Value Tables

Fishing Value Table

Average Fishing Values (per angler day)
converted to 2006 base year

Species Category	N	NORTHEAST	N	SOUTHEAST	N	INTERMOUNTAIN	N
Cold Water	58		20		116		13
Average		\$39.54		\$51.25		\$62.54	
Median		\$27.04		\$51.19		\$47.22	
Coastal	11		34		24		9
Average		\$68.47		\$144.74		\$140.09	
Median		\$7.34		\$73.32		\$102.10	
Anadromous	33	1		16		27	18
Average		\$39.41		\$138.22		\$51.20	\$40.76
Median		\$4.69		\$138.22		\$49.21	\$38.90
Mixed	30	1		16			16
Average		\$20.08		\$134.24		\$59.28	\$213.13
Median		\$18.32		\$134.24		\$36.18	\$206.87
Not Specified	112		16		48		14
Average		\$49.66		\$93.47		\$77.31	\$39.10
Median		\$36.01		\$34.20		\$62.70	\$43.12

NATIONAL

3	\$38.53
	\$31.47
7	\$55.59
	\$55.93
9	\$73.70
	\$59.66
3	\$103.36
	\$78.30
1	\$67.12
	\$67.12

ENTER appropriate value here for Summary Output sheet

1) ENTER the average or median value from the column in the above table that matches your location for the Summary Output Table:

OR, ENTER a value from the Detailed Table (next tab)

OR, ENTER a value from the Database Table (from the characteristics in the study from which that value came)

Summary Table / Detailed Table / Database / Code Sheet

Closer Look at Toolkit Models and Tables/Databases (contd.)

Value Tables

Wetland value table

Microsoft Excel - Wetland Value Table

File Edit View Insert Format Tools Data Window Help

Type a question for help

K17

	A	B	C	D	E	F	G	H	I	J	K
1	Wetland Value Table (per acre)										
2	converted to 2006 base year										
3											
4		N	NORTHEAST	N	SOUTHEAST	N	INTERMOUNTAIN	N	PACIFIC	N	Canada
5											
6	Wetland \$/Acre	19		27		7		7		4	
7	Min		\$33		\$0.41		\$6		\$124		\$51
8	Max		\$908,492		\$6,494		\$456		\$5,657		\$198
9	Average		\$49,873		\$448		\$80		\$1,555		\$137
10	Median		\$618		\$21		\$17		\$718		\$149
11											
12											
13	Values represent Total Economic Value (recreational use and passive use, or existence, value)										
14											
15	Woodward, Richard and Yong-Suhk Wui. The Economic value of wetland services: a meta-analysis. <i>Ecological Economics</i> 37 (2001)										
16											
17											
18											
19											
20											
21											
22											

Summary Table Detailed Table Database Code Sheet

Closer Look at Toolkit Models and Tables/Databases (contd.)

Databases

T&E Species Value Database

Microsoft Excel - T&E Value Table

File Edit View Insert Format Tools Data Window Help

Type a question for help

MBO

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Total Economic Value of Threatened and Endangered Species (per household)														
2	converted to 2006 base year														
3															
4		Species	STATE	CHANGE SIZE	LOSS	PAY FREQUENCY	CVFORM	VISITOR	STUDYYEAR	VTP					
5															
6		Mammal													
7	1	Bighorn Sheep	AZ	100	1	0	0	0	1985	\$16.99					
8	2	Wolf	WY (YNP)	100	0	1	1	1	1990	\$93.92					
9	3	Wolf	WY (YNP)	100	0	1	1	1	1991	\$162.10					
10	4	Wolf	ID, MT, WY	100	0	1	1	0	1992	\$37.43					
11	5	Wolf	ID, MT, WY	100	0	1	1	0	1993	\$28.37					
12	6	Wolf	ID, MT, WY	100	0	1	1	0	1993	\$21.59					
13	7	Wolf	MN	100	1	1	1	0	2001	\$22.64					
14															
15		Marine Mammal													
16	8	Gray-blue Whale	CA	100	1	0	0	0	1984	\$45.94					
17	9	Sea Otter	CA	100	1	0	0	0	1984	\$39.80					
18	10	Dolphin	CA	100	1	0	0	0	1984	\$36.41					
19	11	Seal	CA	100	1	0	0	0	1984	\$34.50					
20	12	Monk Seal	HI	100	1	1	1	0	1986	\$165.80					
21	13	Humpback Whale	HI	100	1	1	1	0	1986	\$239.53					
22	14	Gray Whale	CA	50	0	0	0	0	1991	\$23.65					
23	15	Gray Whale	CA	100	0	0	0	0	1991	\$26.53					
24	16	Gray Whale	CA	50	0	0	0	1	1991	\$36.56					
25	17	Gray Whale	CA	100	0	0	0	1	1991	\$43.46					
26	18	Sea Lion	AK and US	100	1	0	1	0	2000	\$70.90					
27															
28		Bird													
29	19	Whooping Crane	TX and US	100	1	0	1	0	1983	\$43.69					
30	20	Whooping Crane	TX and US	100	1	0	1	1	1983	\$68.55					
31	21	Bald Eagle	WI	100	1	0	1	0	1984	\$21.21					
32	22	Northern Spotted Owl	WA	50	1	0	0	0	1987	\$38.61					
33	23	Northern Spotted Owl	WA	75	1	0	0	0	1987	\$39.99					
34	24	Northern Spotted Owl	WA	100	1	0	0	0	1987	\$60.84					
35	25	Turkey	New England	100	1	0	1	0	1989	\$11.38					
36	26	Turkey	New England	100	1	0	0	0	1989	\$15.36					
37	27	Bald Eagle	New England	100	1	0	1	0	1989	\$45.21					
38	28	Bald Eagle	New England	100	1	0	0	0	1989	\$31.85					
39	29	Bald Eagle	WA	300	0	1	1	1	1989	\$349.69					
40	30	Bald Eagle	WA	300	0	1	0	1	1989	\$244.94					
41	31	Northern Spotted Owl	US	100	1	0	1	0	1990	\$130.19					
42	32	Woodpecker	SC and US	99	1	0	0	0	1992	\$14.69					
43	33	Woodpecker	SC and US	99	1	0	1	0	1992	\$20.46					
44	34	Woodpecker	SC and US	99	1	0	0	0	1992	\$13.14					
45	35	Mexican Spotted Owl	US	100	1	0	1	0	1996	\$68.84					

Summary Table / Literature / Code Sheet

Ready NUM

Closer Look at Toolkit Models and Tables/Databases (contd.)

Databases

T&E Species Value Database

Microsoft Excel - T&E Value Table

File Edit View Insert Format Tools Data Window Help

Type a question for help

MBO

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Total Economic Value of Threatened and Endangered Species (per household)														
2	converted to 2006 base year														
3															
4		Species	STATE	CHANGE SIZE	LOSS	PAY FREQUENCY	CVFORM	VISITOR	STUDYYEAR	VTP					
5															
6		Mammal													
7	1	Bighorn Sheep	AZ	100	1	0	0	0	1985	\$16.99					
8	2	Wolf	WY (YNP)	100	0	1	1	1	1990	\$93.92					
9	3	Wolf	WY (YNP)	100	0	1	1	1	1991	\$162.10					
10	4	Wolf	ID, MT, WY	100	0	1	1	0	1992	\$37.43					
11	5	Wolf	ID, MT, WY	100	0	1	1	0	1993	\$28.37					
12	6	Wolf	ID, MT, WY	100	0	1	1	0	1993	\$21.59					
13	7	Wolf	MN	100	1	1	1	0	2001	\$22.64					
14															
15		Marine Mammal													
16	8	Gray-blue Whale	CA	100	1	0	0	0	1984	\$45.94					
17	9	Sea Otter	CA	100	1	0	0	0	1984	\$39.80					
18	10	Dolphin	CA	100	1	0	0	0	1984	\$36.41					
19	11	Seal	CA	100	1	0	0	0	1984	\$34.50					
20	12	Monk Seal	HI	100	1	1	1	0	1986	\$165.80					
21	13	Humpback Whale	HI	100	1	1	1	0	1986	\$239.53					
22	14	Gray Whale	CA	50	0	0	0	0	1991	\$23.65					
23	15	Gray Whale	CA	100	0	0	0	0	1991	\$26.53					
24	16	Gray Whale	CA	50	0	0	0	1	1991	\$36.56					
25	17	Gray Whale	CA	100	0	0	0	1	1991	\$43.46					
26	18	Sea Lion	AK and US	100	1	0	1	0	2000	\$70.90					
27															
28		Bird													
29	19	Whooping Crane	TX and US	100	1	0	1	0	1983	\$43.69					
30	20	Whooping Crane	TX and US	100	1	0	1	1	1983	\$68.55					
31	21	Bald Eagle	WI	100	1	0	1	0	1984	\$21.21					
32	22	Northern Spotted Owl	WA	50	1	0	0	0	1987	\$38.61					
33	23	Northern Spotted Owl	WA	75	1	0	0	0	1987	\$39.99					
34	24	Northern Spotted Owl	WA	100	1	0	0	0	1987	\$60.84					
35	25	Turkey	New England	100	1	0	1	0	1989	\$11.38					
36	26	Turkey	New England	100	1	0	0	0	1989	\$15.36					
37	27	Bald Eagle	New England	100	1	0	1	0	1989	\$45.21					
38	28	Bald Eagle	New England	100	1	0	0	0	1989	\$31.85					
39	29	Bald Eagle	WA	300	0	1	1	1	1989	\$349.69					
40	30	Bald Eagle	WA	300	0	1	0	1	1989	\$244.94					
41	31	Northern Spotted Owl	US	100	1	0	1	0	1990	\$130.19					
42	32	Woodpecker	SC and US	99	1	0	0	0	1992	\$14.69					
43	33	Woodpecker	SC and US	99	1	0	1	0	1992	\$20.46					
44	34	Woodpecker	SC and US	99	1	0	0	0	1992	\$13.14					
45	35	Mexican Spotted Owl	US	100	1	0	1	0	1996	\$68.84					

Summary Table / Literature / Code Sheet

Ready NUM

Closer Look at Toolkit Models and Tables/Databases (contd.)

Databases

T&E Species Value Database

Microsoft Excel - T&E Value Table

File Edit View Insert Format Tools Data Window Help

Type a question for help

MBO

1 **Total Economic Value of Threatened and Endangered Species (per household)**

2 converted to 2006 base year

3

	Species	STATE	CHANGE SIZE	LOSS	PAY FREQUENCY	CVFORM	VISITOR	STUDYYEAR	VTP
4									
5	Mammal								
6									
7	1 Bighorn Sheep	AZ	100	1	0	0	0	1985	\$16.99
37	27 Bald Eagle	New England	100	1	0	0	1	1989	\$45.21
38	28 Bald Eagle	New England	100	1	0	0	0	1989	\$31.85
39	29 Bald Eagle	WA	300	0	1	1	1	1989	\$349.69
40	30 Bald Eagle	WA	300	0	1	0	1	1989	\$244.94
41	31 Northern Spotted Owl	US	100	1	0	1	0	1990	\$130.19
42	32 Woodpecker	SC and US	99	1	0	0	0	1992	\$14.69
43	33 Woodpecker	SC and US	99	1	0	1	0	1992	\$20.46
44	34 Woodpecker	SC and US	99	1	0	0	0	1992	\$13.14
45	35 Mexican Spotted Owl	US	100	1	0	1	0	1996	\$68.84
46	36 Mexican Spotted Owl	US	100	1	0	0.5	0	1996	\$51.52
47	37 Falcon	ME	87.5	0	1	1	0	1997	\$32.27
48									
49	Fish								
50	38 Striped Shiner	WI	100	1	0	1	0	1984	\$8.32
51	39 Salmon/Steelhead	Pacific NW	100	0	0	0	0	1989	\$42.97
52	40 Salmon/Steelhead	Pacific NW	100	0	0	0	0.5	1989	\$95.86
53	41 Salmon/Steelhead	Pacific NW	100	0	0	0	1	1989	\$121.40
54	42 Atlantic Salmon	MA	100	1	0	1	0	1989	\$10.00
55	43 Atlantic Salmon	MA	100	1	0	0	0	1989	\$11.12
56	44 Arctic Grayling	US	100	1	1	0	1	1991	\$26.47
40	30 Bald Eagle	WA	300	0	1	0	1	1989	\$244.94
41	31 Northern Spotted Owl	US	100	1	0	1	0	1990	\$130.19
42	32 Woodpecker	SC and US	99	1	0	0	0	1992	\$14.69
43	33 Woodpecker	SC and US	99	1	0	1	0	1992	\$20.46
44	34 Woodpecker	SC and US	99	1	0	0	0	1992	\$13.14
45	35 Mexican Spotted Owl	US	100	1	0	1	0	1996	\$68.84

Summary Table / Literature / Code Sheet

Ready NUM

start 2 Microsoft Off... Value Tables 2 Firefox Microsoft Power... Microsoft Excel - ... 6:47 PM

SUMMARY OUTPUT MODEL

Input Area

<input type="text"/>	Enter discount rate (in %) for NPV calculation
<input type="text"/>	Enter number of years included in analysis

For ACTIVITY VALUES			
Hunting breakdown	Activity day values	Visitation	IF NWR/SWMA:
Enter "T" if you want to use the Total Hunting models/values, or "I" for individual (big/small/ waterfowl) models/values	Enter "T" for tabular value or "M" for model-based activity day value, depending on which of the two you want to use for the Summary Output	Enter "NWR" for NWR/State wildlife management area or "S" for state-level visitation	If NWR/SWMA, Enter "N" for new NWR/SWMA or "E" for change to existing NWR/SWMA
Activity: Total hunting Big game hunting Small game hunting Waterfowl hunting Freshwater fishing Saltwater fishing	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/>	<input type="text"/>

<input type="text"/>	For wetlands, Enter "T" for tabular values or "M" for model-based values
<input type="text"/>	If using wetland meta model, specify whether to use model "1" or "2"

<input type="text"/>	Enter "T&E" to use data from T&E/R species dataset or "S" for salmon dataset
<input type="text"/>	Enter "T" to use tabular value estimates or "M" for model-based estimates *

If >1 T&E/R species is present, we suggest using only one species in order to generate conservative value estimates. If inclusion of more than one species is desired, then use the E&T Value Table file. In this case, enter the combined value per household of the species in the indicated (blue border) cell on the Summary Table sheet of that file.

Output Area

Benefits Associated with Proposed/New Conservation Area/Habitat Acreage

OPEN SPACE PROPERTY VALUE PREMIUMS

Discount rate and time period used to derive Net Present Values of annual benefits:

Discount rate: /year
Time period: years

ACTIVITY-RELATED BENEFITS (Wildlife associated recreation)	2006 \$/year	NPV (2006\$)
Hunting-T total	<input type="text"/>	<input type="text"/>
or: Hunting - Small game	<input type="text"/>	<input type="text"/>
Hunting - Big game	<input type="text"/>	<input type="text"/>
Hunting - Waterfowl	<input type="text"/>	<input type="text"/>
Fishing - Freshwater	<input type="text"/>	<input type="text"/>
Fishing - Saltwater	<input type="text"/>	<input type="text"/>
Wildlife viewing/non-consumptive*	<input type="text"/>	<input type="text"/>
TOTAL ACTIVITY-RELATED	<input type="text"/>	<input type="text"/>

HABITAT-RELATED BENEFITS	2006 \$/year	NPV (2006\$)
Terrestrial	<input type="text"/>	<input type="text"/>
Aquatic habitat improvements	<input type="text"/>	<input type="text"/>
Wetlands	<input type="text"/>	<input type="text"/>

E&T/R SPECIES-RELATED BENEFITS

AVOIDED COST OF PUBLIC SERVICES (user estimate)

TOTAL BENEFITS, Net Present Value

Note: Only selected ecosystem services are included in estimates (see models for detail)

* Non-consumptive: includes wildlife viewing, picnicking, photography, nature trails, observation platforms, and beach/water use.

SUMMARY OUTPUT MODEL

- User enters data in individual model spreadsheets
- Selects values to include (hunting, wetlands, etc.) and valuation approaches (model/table) in Summary Output Model input fields



Input Area

Enter discount rate (in %) for NPV calculation
 Enter number of years included in analysis

For ACTIVITY VALUES

Hunting breakdown
 Enter "T" if you want to use the Total Hunting models/values, or "I" for individual (big/small/waterfowl) models/values

Activity day values
 Enter "T" for tabular value or "M" for model-based activity day value, depending on which of the two you want to use for the Summary Output

Visitation
 Enter "NWR" for NWR/State wildlife management area or "S" for state-level visitation

IF NWR/SWMA:
 If NWR/SWMA, Enter "N" for new NWR/SWMA or "E" for change to existing NWR/SWMA

Activity:
 Total hunting
 Big game hunting
 Small game hunting
 Waterfowl hunting
 Freshwater fishing
 Saltwater fishing

For wetlands, Enter "T" for tabular values or "M" for model-based values
 If using wetland meta model, specify whether to use model "1" or "2"

Enter "T&E" to use data from T&E/R species dataset or "S" for salmon dataset
 Enter "T" to use tabular value estimator or "M" for model-based estimator *

Output Area

Benefits Associated with Proposed/New Conservation Area/Habitat Acreage

OPEN SPACE PROPERTY VALUE PREMIUMS

Discount rate and time period used to derive Net Present Values of annual benefits:
 Discount rate: 0% /year
 Time period: 0 years

ACTIVITY-RELATED BENEFITS
 (Wildlife associated recreation)

	2006 \$/year	NPV (2006\$)
Hunting-Total		
or: Hunting - Small game		
Hunting - Big game		
Hunting - Waterfowl		
Fishing - Freshwater		
Fishing - Saltwater		
Wildlife viewing/non-consumptive*		
TOTAL ACTIVITY-RELATED		

HABITAT-RELATED BENEFITS

	2006 \$/year	NPV (2006\$)
Terrestrial		
Aquatic habitat improvements		
Wetlands		

E&T/R SPECIES-RELATED BENEFITS

	2006 \$/year	NPV (2006\$)

AVOIDED COST OF PUBLIC SERVICES: not included (user estimate)

TOTAL BENEFITS, Net Present Value: 0

Note: Only selected ecosystem services are included in estimates (see models for detail)

* Non-consumptive: includes wildlife viewing, picnicking, photography, nature trails, observation platforms, and beach/water use.

If >1 T&E/R species is present, we suggest using only one species in order to generate conservative value estimates. If inclusion of more than one species is desired, then use the E&T Value Table file. In this case, enter the combined value per household of the species in the indicated (blue border) cell on the Summary Table sheet of that file.

SUMMARY OUTPUT MODEL

Input Area

<input type="text"/>	◀ Enter discount rate (in %) for NPV calculation
<input type="text"/>	◀ Enter number of years included in analysis

For ACTIVITY VALUES			
Hunting breakdown	Activity day values	Visitation	IF NWR/SWMA:
Enter "T" if you want to use the Total Hunting models/values, or "I" for individual (big/small/waterfowl) models/values	Enter "T" for tabular value or "M" for model-based activity day value, depending on which of the two you want to use for the Summary Output	Enter "NWR" for NWR/State wildlife management area or "S" for state-level visitation	If NWR/SWMA, Enter "N" for new NWR/SWMA or "E" for change to existing NWR/SWMA
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Activity:		
	Total hunting	<input type="text"/>	<input type="text"/>
	Big game hunting	<input type="text"/>	
	Small game hunting	<input type="text"/>	
	Waterfowl hunting	<input type="text"/>	
	Freshwater fishing	<input type="text"/>	
	Saltwater fishing	<input type="text"/>	

<input type="text"/>	◀ For wetlands, Enter "T" for tabular values or "M" for model-based values
<input type="text"/>	◀ If using wetland meta model, specify whether to use model "1" or "2"

<input type="text"/>	◀ Enter "T&E" to use data from T&E/R species dataset or "S" for salmon dataset
<input type="text"/>	◀ Enter "T" to use tabular value estimates or "M" for model-based estimates *

* If >1 T&E/R species is present, we suggest using only one species in order to generate conservative value estimates. If inclusion of more than one species is desired, then use the E&T Value Table file. In this case, enter the combined value per household of the species in the indicated (blue border) cell on the Summary Table sheet of that file.

Model

the place

Input Area

Wetland Area/Habitat Acreage

Percent of annual benefits:

% /year

years

\$/year NPV (2006\$)

\$/year NPV (2006\$)

not included (user estimate)

0

See models for detail)

rails, observation platforms, and beach/water use.

SUMMARY OUTPUT MODEL

- User enters data in individual model spreadsheets
- Selects values to include (hunting, wetlands, etc.) and valuation approaches (model/table) in Summary Output Model input fields
- Summary Output model compiles all model outputs in one place and displays the total value estimate



Input Area

Enter discount rate (in %) for NPV calculation
 Enter number of years included in analysis

For ACTIVITY VALUES

Hunting breakdown
 Enter "T" if you want to use the Total Hunting models/values, or "I" for individual (big/small/waterfowl) models/values

Activity day values
 Enter "T" for tabular value or "M" for model-based activity day value, depending on which of the two you want to use for the Summary Output

Visitation
 Enter "NWR" for NWR/State wildlife management area or "S" for state-level visitation

IF NWR/SWMA:
 I NWR/SWMA, Enter "N" for new NWR/SWMA or "E" for change to existing NWR/SWMA

Activity:
 Total hunting
 Big game hunting
 Small game hunting
 Waterfowl hunting
 Freshwater fishing
 Saltwater fishing

For wetlands, Enter "T" for tabular values or "M" for model-based values
 If using wetland meta model, specify whether to use model "1" or "2"

Enter "T&E" to use data from T&E/R species dataset or "S" for salmon dataset
 Enter "T" to use tabular value estimator or "M" for model-based estimator *

Output Area

Benefits Associated with Proposed/New Conservation Area/Habitat Acreage

OPEN SPACE PROPERTY VALUE PREMIUMS

Discount rate and time period used to derive Net Present Values of annual benefits:
 Discount rate: 0% /year
 Time period: 0 years

ACTIVITY-RELATED BENEFITS (Wildlife associated recreation)

	2006 \$/year	NPV (2006\$)
Hunting-Total		
or: Hunting - Small game		
Hunting - Big game		
Hunting - Waterfowl		
Fishing - Freshwater		
Fishing - Saltwater		
Wildlife viewing/non-consumptive*		
TOTAL ACTIVITY-RELATED		

HABITAT-RELATED BENEFITS

	2006 \$/year	NPV (2006\$)
Terrestrial		
Aquatic habitat improvements		
Wetlands		

E&T/R SPECIES-RELATED BENEFITS

	2006 \$/year	NPV (2006\$)

AVOIDED COST OF PUBLIC SERVICES: not included (user estimate)

TOTAL BENEFITS, Net Present Value 0

Note: Only selected ecosystem services are included in estimates (see models for detail)

* Non-consumptive: includes wildlife viewing, picnicking, photography, nature trails, observation platforms, and beach/water use.

If >1 T&E/R species is present, we suggest using only one species in order to generate conservative value estimates. If inclusion of more than one species is desired, then use the E&T Value Table file. In this case, enter the combined value per household of the species in the indicated (blue border) cell on the Summary Table sheet of that file.

SUMMARY OUTPUT MODEL

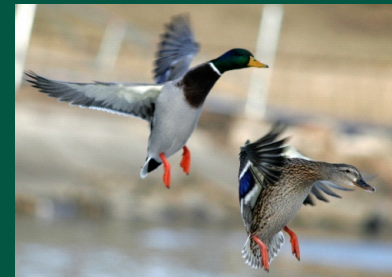
In	Output Area																																							
Benefits Associated with <i>Proposed/New Conservation Area/Habitat Acreage</i>																																								
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <input style="width: 100%; height: 20px;" type="text"/> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <input style="width: 100%; height: 20px;" type="text"/> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Hunting breakdown</p> <p>Enter "T" if you want to use the Total Hunting models/values, or "I" for individual (big/small/waterfowl) models/values</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Activity:</p> <p>Total hunting <input style="width: 100%; height: 20px;" type="text"/></p> <p>Big game hunting <input style="width: 100%; height: 20px;" type="text"/></p> <p>Small game hunting <input style="width: 100%; height: 20px;" type="text"/></p> <p>Waterfowl hunting <input style="width: 100%; height: 20px;" type="text"/></p> <p>Freshwater fishing <input style="width: 100%; height: 20px;" type="text"/></p> <p>Saltwater fishing <input style="width: 100%; height: 20px;" type="text"/></p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <input style="width: 100%; height: 20px;" type="text"/> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <input style="width: 100%; height: 20px;" type="text"/> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <input style="width: 100%; height: 20px;" type="text"/> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <input style="width: 100%; height: 20px;" type="text"/> </div>	<p>OPEN SPACE PROPERTY VALUE PREMIUMS <input style="width: 100%; height: 20px;" type="text"/></p> <p><i>Discount rate and time period used to derive Net Present Values of annual benefits:</i></p> <p style="text-align: right;">Discount rate: <input style="width: 50px; text-align: center; border: 1px solid black;" type="text" value="0%"/> /year</p> <p style="text-align: right;">Time period <input style="width: 50px; text-align: center; border: 1px solid black;" type="text" value="0"/> years</p> <p>ACTIVITY-RELATED BENEFITS (Wildlife associated recreation)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;"></th> <th style="width: 15%; text-align: center;">2006 \$/year</th> <th style="width: 15%; text-align: center;">NPV (2006\$)</th> </tr> </thead> <tbody> <tr> <td>Hunting-Total</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>or: Hunting - Small game</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>Hunting - Big game</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>Hunting - Waterfowl</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>Fishing - Freshwater</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>Fishing - Saltwater</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>Wildlife viewing/non-consumptive*</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>TOTAL ACTIVITY-RELATED</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> </tbody> </table> <p>HABITAT-RELATED BENEFITS</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;"></th> <th style="width: 15%; text-align: center;">2006 \$/year</th> <th style="width: 15%; text-align: center;">NPV (2006\$)</th> </tr> </thead> <tbody> <tr> <td>Terrestrial</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>Aquatic habitat improvements</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>Wetlands</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> </tbody> </table> <p>E&T/R SPECIES-RELATED BENEFITS <input style="width: 100%; height: 20px;" type="text"/></p> <p>AVOIDED COST OF PUBLIC SERVICES <input style="width: 100%; text-align: center; border: 1px solid black;" type="text" value="not included"/> (user estimate)</p> <p>TOTAL BENEFITS, Net Present Value <input style="width: 100%; text-align: center; border: 1px solid black;" type="text" value="0"/></p> <p><i>Note: Only selected ecosystem services are included in estimates (see models for detail)</i></p>		2006 \$/year	NPV (2006\$)	Hunting-Total	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	or: Hunting - Small game	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	Hunting - Big game	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	Hunting - Waterfowl	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	Fishing - Freshwater	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	Fishing - Saltwater	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	Wildlife viewing/non-consumptive*	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	TOTAL ACTIVITY-RELATED	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>		2006 \$/year	NPV (2006\$)	Terrestrial	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	Aquatic habitat improvements	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	Wetlands	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
	2006 \$/year	NPV (2006\$)																																						
Hunting-Total	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
or: Hunting - Small game	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
Hunting - Big game	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
Hunting - Waterfowl	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
Fishing - Freshwater	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
Fishing - Saltwater	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
Wildlife viewing/non-consumptive*	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
TOTAL ACTIVITY-RELATED	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
	2006 \$/year	NPV (2006\$)																																						
Terrestrial	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
Aquatic habitat improvements	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
Wetlands	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>																																						
<p>* If >1 T&E/R species is present, we suggest using only one species in c of more than one species is desired, then use the E&T Value Table file. in the indicated (blue border) cell on the Summary Table sheet of that fil</p>	<p>* Non-consumptive: includes wildlife viewing, picnicking, photography, nature trails, observation platforms, and beach/water use</p>																																							

TOOLKIT APPLICATION EXAMPLES

1) Wetland values



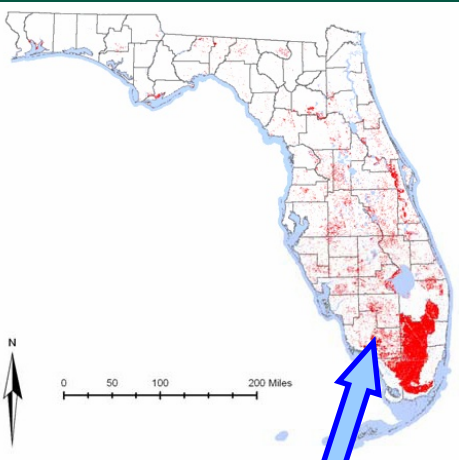
2) Value of an area open to migratory bird hunting



3) Value of open space for nearby properties



Example 1: Wetland conservation: Value of a 350-acre freshwater wetland in FL



3 possible valuation approaches:

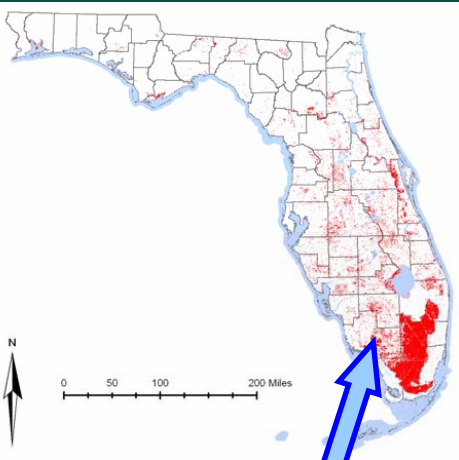
- Wetland **VALUATION MODEL**
- Wetland **AVERAGE VALUE TABLE**
- Wetland **VALUE DATABASE**



Example 1: Wetland conservation: Value of a 350-acre freshwater wetland in FL

- Using wetland value MODEL

[Wetland Value per acre Meta Function 2](#)



Wetland Valuation Model 2

Total Economic Value of Wetlands per Acre			
Instructions: Fill in all cells marked "ENTER >". See accompanying user manual for detailed instructions and documentation.			
STEP 1:	Enter average household income for the particular state the wetland is in; can be found in 'State HH Income' Tab- column B These are 2006 estimates, for updated information go to: U.S. Census Bureau Fact Finder		
	ENTER >	\$45,495	
STEP 2:	Enter the total acres of the wetland to be valued		
	ENTER >	350.00	
STEP 3:	Enter share of wetland acres for the particular state the wetland is in, can be found on 'Share' Tab, Column D		
	ENTER >	0.23	
STEP 4:	Place a 1 next to the type of wetland to be valued; 0 otherwise.		
	ENTER >	1	Freshwater Marsh
	ENTER >	0	Saltwater Marsh
	ENTER >	0	Prairie Pothole
STEP 5:	Place a 1 next to the region the wetland is in; 0 otherwise Explanation of regions can be found in the 'ERS Farm Regions' Tab		
	ENTER >	0	Heartland
	ENTER >	0	Northern Crescent
	ENTER >	0	Mississippi Portal
	ENTER >	1	All Other Regions
STEP 6:	Place a 1 next to the ecosystem service to be valued; 0 otherwise		
	ENTER >	1	Flood Prevention
	ENTER >	1	Water Quality
	ENTER >	0	Water Supply
	ENTER >	1	Recreational Fishing
	ENTER >	0	Commercial Fishing
	ENTER >	0	Birdhunting
	ENTER >	1	Birdwatching
	ENTER >	0	Amenity
	ENTER >	0	Habitat
OUTPUT			
		\$25	Flood prevention
		\$139	Water Quality
		\$0	Water Supply
		\$40	Recreational Fishing
		\$0	Commercial Fishing
		\$0	Birdhunting
		\$194	Birdwatching
		\$0	Amenity
		\$0	Habitat
Total for all Ecosystem Services---->		\$398	\$/ Acre (2006 base year)
		\$139,291	Total Annual \$ Value of Wetland

Total value/year

Example 1: Wetland conservation: Value of a 350-acre freshwater wetland in FL

- Using wetland **AVERAGE VALUE TABLE**

Wetland Value Table

Wetland Value Table (per acre)										
converted to 2006 base year										
	N	NORTHEAST	N	SOUTHEAST	N	INTERMOUNTAIN	N	PACIFIC	N	Canada
Wetland \$/Acre	19		27		7		7		4	
Min		\$33		\$0.41		\$6		\$124		\$51
Max		\$908,492		\$6,494		\$456		\$5,657		\$198
Average		\$49,873		\$448		\$80		\$1,555		\$137
Median		\$618		\$21		\$17		\$718		\$149

*Florida Fish and Wildlife
Conservation Commission (2005)*



Example 1: Wetland conservation: Value of a 350-acre freshwater wetland in FL

- Using wetland value **DATABASE**

[Wetland Value Table](#)

Study	State	Total Val	\$/Acre real	Acres	Coastal	Year	Flood	Quality	Quantity	RecFish	ComFish	Single	BirdHunt	BirdWatch	Storm	Amenity	Habitat	Publish	CS	PS	TotRev	Method	
NE																							
Amacher et al.(1989)	MI	37740	\$33.48	1700		1989	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0 HP	
Amacher et al.(1989)	MI	972400	\$172.54	8500		1985	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0 NFI	
Amacher et al.(1989)	MI	1321800	\$332.26	6000		1985	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0 TCM	
Amacher et al.(1989)	MI	2457000	\$617.62	6000		1986	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0 TCM	
Amacher et al.(1989)	MI	8850000	\$2,224.63	6000		1985	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0 NFI	
Amacher et al.(1989)	MI	3.61E+09	\$908,492.14	6000		1986	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0 EA	
Gupta, Foster(1975)	MA	417760	\$78.76	8000		0	1972	0	0	0	1	0	0	1	0	0	0	1	1	1	0	0 RC	
Gupta, Foster(1975)	MA	646978	\$115.86	8422		0	1972	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0 RC	
Gupta, Foster(1975)	MA	263099.3	\$253.23	1567		0	1972	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0 RC	
Gupta, Foster(1975)	MA		\$4,223.02			0	1972	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0 RC	
Joworski, Eugene (1978)	MI	68911605	\$981.85	105855		1	1980	0	0	0	1	1	0	1	1	0	0	0	0	0	0	1 RC	
Lant,Tobin(1989)	IL	216383.4	\$154.74	2109		0	1987	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0 CVM	
Lant,Tobin(1989)	IA	1251741	\$1,703.88	1108		0	1987	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0 CVM	
Joworski, Eugene (1978)	MI	1.48E+08	\$2,110.00	105855		1	1980	0	1	1	1	0	0	0	0	0	1	0	0	1	0	0 RC	
Mullarkey, D (1997)	WI	1484120	\$20,348.92	110		0	1996	1	1	0	0	0	0	1	0	0	0	1	0	1	0	0 CVM	
Thibodeau,Ostro(1981)	MA	17070000	\$3,016.44	8535		0	1976	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0 RC	
Thibodeau,Ostro(1981)	MA	861096.2	\$152.16	8535		0	1970	0	0	0	1	0	0	1	1	0	0	1	1	0	0	0 CVM	
Thibodeau,Ostro(1981)	MA	1280250	\$226.23	8535		0	1970	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0 HP	
Thibodeau,Ostro(1981)	MA	13314600	\$2,352.83	8535		0	1970	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0 RC	
SE																							
Batie ,Wilson(1978)	VA	72223.95	\$1.70	63915		1	1969	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0 NFI	
Batie ,Wilson(1978)	VA	9206.96	\$2.47	5614		1	1969	0	0	0	0	1	1	0	0	0	0	0	1	0	1	0 NFI	
Batie ,Wilson(1978)	VA	12449.36	\$2.84	8622		1	1969	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0 NFI	
Batie ,Wilson(1978)	VA	1848.64	\$6.39	436		1	1969	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0 NFI	
Batie ,Wilson(1978)	VA	85691.81	\$20.56	6287		1	1969	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0 NFI	
Batie ,Wilson(1978)	VA	244676	\$161.71	2282		1	1969	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0 NFI	
Batie ,Wilson(1978)	VA	159566.9	\$213.35	1128		1	1969	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0 NFI	
Bell(1989)	FL	28871328	\$53.72	310537		1	1984	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0 NFI
Bell(1997)	FL	34371900	\$120.21	431266		1	1984	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0 NFI	
Bell(1997)	FL	50414756	\$793.02	95882		1	1984	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0 NFI	
Bergstrom,Stoll,et al. (19)	LA	27365000	\$12.70	3E+06		1	1986	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0 CVM	
Breaux,Farber,Day(1995)	LA	153982.4	\$81.20	2860		1	1985	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0 RC	
Breaux,Farber,Day(1995)	LA	85567	\$226.38	570		1	1985	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0 RC	
Breaux,Farber,Day(1995)	LA	26697.2	\$6,494.40	6.2		1	1985	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0 RC	
Chabreck,R.H.(1979)	LA		\$5.85			1	1977	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1 MV	
Chabreck,R.H.(1979)	LA		\$14.48			0	1977	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1 MV	
Chabreck,R.H.(1979)	LA	241228.8	\$0.81	446720		1	1973	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1 MV	
Chabreck,R.H.(1979)	LA	110762.4	\$0.86	194320		0	1973	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1 MV	
Dillman,Hook(1993)	SC	265507.5	\$160.18	2500		0	1992	1	1	1	1	1	0	1	1	0	1	1	0	1	0	0 CVM	
Farber(1987)	LA	64000	\$0.60	160000		1	1980	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0 NFI	
Farber(1988)	LA	6513000	\$15.11	650000		1	1985	0	0	0	1	0	0	1	1	0	0	0	1	1	0	0 CVM	
Farber, Costanza(1987)	LA	2.73E+08	\$56.50	7E+06		1	1983	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0 NFI	
Farber, Costanza(1987)	LA	4.95E+09	\$1,022.57	7E+06		1	1983	0	1	0	1	1	0	0	1	0	0	1	0	0	0	0 EA	
Farber(1988)	LA	4238000	\$9.83	650000		1	1985	0	0	0	1	0	0	1	1	0	0	0	1	1	0	0 TCM	
Lynne,Conroy(1997)	FL	137891.6	\$0.41	501424		1	1974	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0 NFI	
Shabman,L.A. & Batie(19)	LA	47273365	\$1,314.87	54225		1	1984	0	0	0	1	1	0	1	1	1	1	1	1	1	0	0 RC	
Whitehead(1990)	KY	4350000	\$1,312.15	5000		0	1989	1	1	1	1	0	0	1	1	0	0	1	1	1	0	0 CVM	
Intermountain																							
Hovde,Brett(1993)	ND	18.39	\$9.25	3		0	1993	1	1	0	0	0	0	0	0	0	1	1	0	0	0	1 RC	
Hovde,Brett(1993)	ND	15.16	\$5.72	4		0	1993	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1 RC	
Hovde,Brett(1993)	ND	33.84	\$6.38	8		0	1993	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1 RC	
Hovde,Brett(1993)	ND	190.4	\$16.89	17		0	1993	0	1	0	0	1	0	0	0	0	1	1	0	0	0	1 RC	
Hovde,Brett(1993)	ND	43164	\$29.59	2200		0	1993	1	0	0	1	0	0	1	0	0	0	0	0	0	0	1 RC	
Johnson, Linder(1986)	SD	33855418	\$39.06	1E+06		0	1982	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0 CVM	
Poor,Joan(1997)	NE	12700000	\$456.11	41995		0	1996	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0 CVM	
Pacific																							
Cooper, Loomis(1991)	CA	16490000	\$292.59	85000		0	1987	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0 TCM	
Cooper, Loomis(1991)	CA	64685000	\$1,147.76	85000		0	1987	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0 CVM	
Creel, Loomis(1992)	CA	6970000	\$123.67	85000		0	1989	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0 CVM	
Creel, Loomis(1992)	CA	32980000	\$585.19	85000		0	1989	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0 CVM	
Creel, Loomis(1992)	CA	40460000	\$717.91	85000		0	1989	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0 CVM	
Loomis, Hanemann(1991)	CA	2.18E+08	\$5,657.34	58000		0	1990	0	0	0	0	0	1	1	0	0	1	1	1	0	0	0 CVM	
Loomis, Hanemann(1991)	CA	62680000	\$2,363.38	40000		0	1990	0	0	0	0	0	1	1	0	0	0	1	1	1	0	0 CVM	
Canada																							
Phillips,Haney(1993)	Canad	4076400	\$51.23	120000		0	1993	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0 CVM	
Vuuren,Roy(1993)	Canad	61935.62	\$126.01	741.3		0	1985	0	0	0	0	0	1										

Example 1: Wetland conservation: Value of a 350-acre freshwater wetland in FL

- Using wetland value **DATABASE**

[Wetland Value Table](#)

Florida Fish and Wildlife Conservation Commission (2005)

Study	State	Total Val	\$/Acre	real Acres	Coastal	Year	Flood	Quality	Quantity	RecFish	ComFish	Single	BirdHunt	BirdWatch	Storm	Amenity	Habitat	Publish	CS	PS	TotRev	Method
NE																						
Amacher et al.(1989)	MI	37740	\$33.48	1700		1989	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0 HP
Amacher et al.(1989)	MI	972400	\$172.54	8500		1985	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0 NFI
Amacher et al.(1989)	MI	1321800	\$332.26	6000		1985	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0 TCM
Amacher et al.(1989)	MI	2457000	\$617.62	6000		1986	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0 TCM
Amacher et al.(1989)	MI	8850000	\$2,224.63	6000		1985	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0 NFI
Amacher et al.(1989)	MI	3.61E+09	\$908,492.14	6000		1986	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0 EA
Central, Eastern (1987)																						
Mullarkey, D (1997)	WI	1484120	\$20,348.92	110		1996	1	1	0	1996	1	1	0	0	0	0	0	0	0	0	1	
Thibodeau,Ostro(1981)	MA	17070000	\$3,016.44	8535		1976	1	0	0	1976	1	0	0	0	0	0	0	0	0	0	0	
Thibodeau,Ostro(1981)	MA	861096.2	\$152.16	8535		1970	0	0	0	1970	0	0	0	1	0	0	0	0	0	0	1	
Thibodeau,Ostro(1981)	MA	1280250	\$226.23	8535		1970	0	0	0	1970	0	0	0	0	0	0	0	0	0	0	0	M
Thibodeau,Ostro(1981)	MA	13314600	\$2,352.83	8535		1970	0	0	0	1970	0	1	0	0	0	0	0	0	0	0	0	M
SE																						
Batie ,Wilson(1978)	VA	72223.95	\$1.70	63915		1969	0	0	0	1969	0	0	0	0	0	0	1	1	0	0	0	M
Batie ,Wilson(1978)	VA	9206.96	\$2.47	5614		1969	0	0	0	1969	0	0	0	0	0	0	1	1	0	0	0	
Batie ,Wilson(1978)	VA	12449.36	\$2.84	6622		1969	0	0	0	1969	0	0	0	0	0	0	1	1	0	0	0	
Batie ,Wilson(1978)	VA	1848.64	\$6.39	436		1969	0	0	0	1969	0	0	0	0	0	0	1	1	0	0	0	
Batie ,Wilson(1978)	VA	85691.81	\$20.56	6287		1969	0	0	0	1969	0	0	0	0	0	0	1	1	0	0	0	
Batie ,Wilson(1978)	VA	244676	\$161.71	2282		1969	0	0	0	1969	0	0	0	0	0	0	1	1	0	0	0	
Batie ,Wilson(1978)	VA	159566.9	\$213.35	1128		1969	0	0	0	1969	0	0	0	0	0	0	1	1	0	0	0	
Bell(1989)	FL	28871328	\$53.72	810537		1984	0	0	0	1984	0	0	0	0	0	0	1	0	0	0	0	
Bell(1997)	FL	34371900	\$120.21	431266		1984	0	0	0	1984	0	0	0	0	0	1	0	0	0	0	0	
Bell(1997)	FL	50414756	\$793.02	95882		1984	0	0	0	1984	0	0	0	0	1	0	0	0	0	0	0	M
Bergstrom,Stoll,et al. (1988)	LA	27365000	\$12.70	3E+06		1986	0	0	0	1986	0	0	0	0	1	0	0	0	0	0	1	
Breaux,Farber,Day(1995)	LA	153982.4	\$81.20	2860		1985	0	1	0	1985	0	1	0	0	0	0	0	0	0	0	0	
Breaux,Farber,Day(1995)	LA	85557	\$226.38	570		1985	0	1	0	1985	0	1	0	0	0	0	0	0	0	0	0	
Breaux,Farber,Day(1995)	LA	26697.2	\$6,494.40	6.2		1985	0	1	0	1985	0	1	0	0	0	0	0	0	0	0	0	
Chabreck,R.H.(1979)	LA		\$5.85			1977	0	0	0	1977	0	0	0	0	0	0	0	0	0	0	1	
Chabreck,R.H.(1979)	LA		\$14.48			1977	0	0	0	1977	0	0	0	0	0	0	0	0	0	0	1	M
Chabreck,R.H.(1979)	LA	241228.8	\$0.81	446720		1973	0	0	0	1973	0	0	0	0	0	0	0	0	0	0	1	M
Chabreck,R.H.(1979)	LA	110762.4	\$0.86	194320		1973	0	0	0	1973	0	0	0	0	0	0	0	0	0	0	1	M
Dillman,Hook(1993)	SC	265507.5	\$160.18	2500		1992	1	1	1	1992	1	1	1	1	1	1	1	0	0	0	1	M
Farber(1987)	LA	64000	\$0.60	160000		1980	0	0	0	1980	0	0	0	0	0	0	0	0	0	0	0	
Farber(1988)	LA	6513000	\$15.11	650000		1985	0	0	0	1985	0	0	0	0	1	0	0	0	0	0	1	M
Farber, Costanza(1987)	LA	2.73E+08	\$56.50	7E+06		1983	0	0	0	1983	0	0	0	0	0	0	1	0	0	0	0	
Farber, Costanza(1987)	LA	4.96E+09	\$1,022.57	7E+06		1983	0	1	0	1983	0	1	0	0	1	1	1	0	0	0	0	
Farber(1988)	LA	4238000	\$9.83	650000		1985	0	0	0	1985	0	0	0	0	1	0	0	0	0	0	1	
Lynne,Conroy(1987)	FL	137891.6	\$0.41	501424		1974	0	0	0	1974	0	0	0	0	0	0	1	1	0	0	0	
Shabman,L.A. & Batie(1984)	LA	47273355	\$1,314.87	54225		1984	0	0	0	1984	0	0	0	0	1	1	1	0	0	0	1	
Whitehead(1990)	KY	4350000	\$1,312.15	5000		1989	0	0	0	1989	1	1	1	1	1	1	0	0	0	0	1	M
Intermountain																						
Hovde,Brett(1993)	ND	18.39	\$9.25	3		1993	0	0	0	1993	1	1	0	0	0	0	0	0	0	0	0	M
Hovde,Brett(1993)	ND	15.16	\$5.72	4		1993	0	0	0	1993	0	0	0	0	0	0	0	0	0	0	0	M
Hovde,Brett(1993)	ND	33.84	\$6.38	8		1993	0	0	0	1993	0	1	0	0	0	0	0	0	0	0	0	M
Creel,Loomis(1992)	CA	40400000	\$777.37	60000		1992	0	0	0	1992	0	0	0	0	0	0	0	1	1	0	0	CVM
Loomis,Hanemann(1991)	CA	2.18E+08	\$5,657.34	50000		1990	0	0	0	1990	0	0	0	1	1	0	0	1	1	1	0	CVM
Loomis,Hanemann(1991)	CA	62680000	\$2,363.38	40000		1990	0	0	0	1990	0	0	0	1	1	0	0	1	1	1	0	CVM
Canada																						
Phillips,Haney(1993)	Canad	4076400	\$51.23	120000		1993	0	0	0	1993	0	0	0	0	0	0	0	1	1	1	0	CVM
Vuuren,Roy(1993)	Canad	61935.62	\$126.01	741.3		1985	0	0	0	1985	0	0	0	1	0	0	0	0	1	1	0	TCM
Vuuren,Roy(1993)	Canad	42063.6	\$171.24	370.65		1985	0	0	0	1985	0	0	0	1	0	0	0	0	1	1	0	TCM



Example 1: Wetland conservation: Value of a 350-acre freshwater wetland in FL

- Using wetland value **DATABASE**

[Wetland Value Table](#)

Only studies for coastal wetlands in FL!

► Better use meta-model

Florida Fish and Wildlife Conservation Commission (2005)

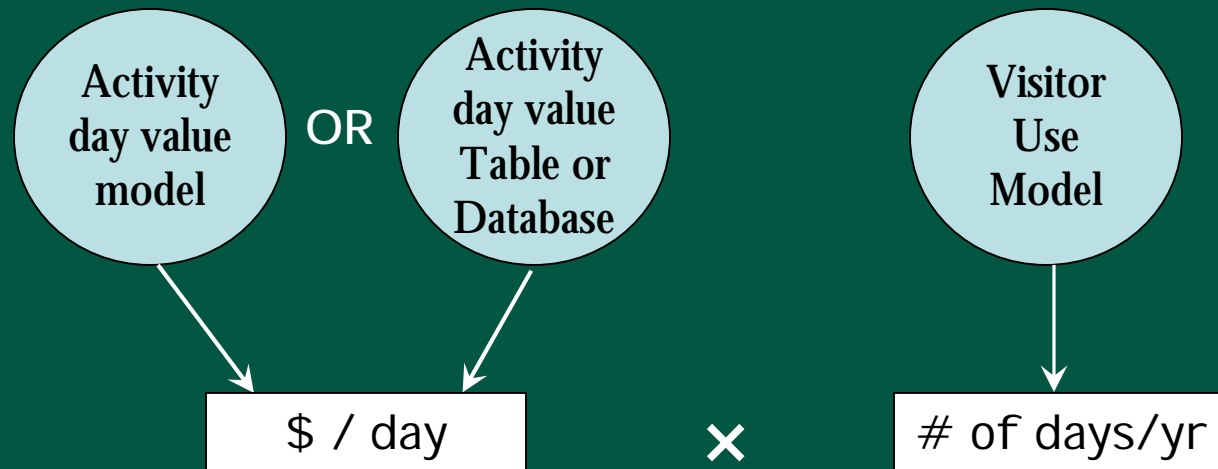
Study	State	Total Val	\$/Acre	real Acre	Coastal	Year	Flood	Quality	Quantity	RecFish	ComFish	Single	BirdHunt	BirdWatch	Storm	Amenity	Habitat	Publish	CS	PS	TotRev	Method	
NE																							
Amacher et al.(1989)	MI	37740	\$33.48	1700	1	1989	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	HP
Amacher et al.(1989)	MI	972400	\$172.54	8500	1	1985	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	NFI
Amacher et al.(1989)	MI	1321800	\$332.26	6000	1	1985	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	TCM
Amacher et al.(1989)	MI	2457000	\$617.62	6000	1	1986	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	TCM
Amacher et al.(1989)	MI	8850000	\$2,224.63	6000	1	1985	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	NFI
Amacher et al.(1989)	MI	3.61E+09	\$908,492.14	6000	1	1986	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	EA
Coastal																							
Mullarkey, D (1997)	WI	1484120	\$20,348.92	110	1	1996	0	1996	1	1	0	0	0	0	0	0	0	0	0	0	1	0	
Thibodeau,Ostro(1981)	MA	17070000	\$3,016.44	8535	0	1976	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Thibodeau,Ostro(1981)	MA	861096.2	\$152.16	8535	0	1970	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
Thibodeau,Ostro(1981)	MA	1280250	\$226.23	8535	0	1970	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M
Thibodeau,Ostro(1981)	MA	13314600	\$2,352.83	8535	0	1970	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	M
SE																							
Batie ,Wilson(1978)	VA	72223.95	\$1.70	63915	1	1969	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	M
Batie ,Wilson(1978)	VA	9206.96	\$2.47	5614	1	1969	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	
Batie ,Wilson(1978)	VA	12449.36	\$2.84	6622	1	1969	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	
Batie ,Wilson(1978)	VA	1848.64	\$6.39	436	1	1969	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	
Batie ,Wilson(1978)	VA	85691.81	\$20.56	6287	1	1969	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	
Batie ,Wilson(1978)	VA	244676	\$161.71	2282	1	1969	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	
Batie ,Wilson(1978)	VA	159566.9	\$213.35	1128	1	1969	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	
Bell(1989)	FL	28871328	\$53.72	810537	1	1984	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
Bell(1997)	FL	34371900	\$120.21	431266	1	1984	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
Bell(1997)	FL	50414756	\$793.02	95882	1	1984	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	M
Bergstrom,Stoll,et al. (19)	LA	27365000	\$12.70	3E+06	1	1986	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
Breaux,Farber,Day(1995)	LA	153982.4	\$81.20	2860	1	1985	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Breaux,Farber,Day(1995)	LA	85557	\$226.38	570	1	1985	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Breaux,Farber,Day(1995)	LA	26697.2	\$6,494.40	6.2	1	1985	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Chabreck,R.H.(1979)	LA		\$5.85		1	1977	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Chabreck,R.H.(1979)	LA		\$14.48		1	1977	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	M
Chabreck,R.H.(1979)	LA	241228.8	\$0.81	446720	1	1973	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	M
Chabreck,R.H.(1979)	LA	110762.4	\$0.86	194320	0	1973	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	M
Dillman,Hook(1993)	SC	265507.5	\$160.18	2500	0	1992	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	M
Farber(1987)	LA	64000	\$0.60	160000	1	1980	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Farber(1988)	LA	6513000	\$15.11	650000	1	1985	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	M
Farber, Costanza(1987)	LA	2.73E+08	\$56.50	7E+06	1	1983	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
Farber, Costanza(1987)	LA	4.96E+09	\$1,022.57	7E+06	1	1983	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	
Farber(1988)	LA	4238000	\$9.83	650000	1	1985	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
Lynne,Conroy(1987)	FL	137891.6	\$0.41	501424	1	1974	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	
Shabman,L.A. & Batie(19)	LA	47273355	\$1,314.87	54225	1	1984	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	
Whitehead(1990)	KY	4350000	\$1,312.15	5000	0	1989	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	M
Intermountain																							
Hovde,Brett(1993)	ND	18.39	\$9.25	3	0	1993	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M
Hovde,Brett(1993)	ND	15.16	\$5.72	4	0	1993	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M
Hovde,Brett(1993)	ND	33.84	\$6.38	8	0	1993	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M
Creel,Loomis(1992)	CA	40400000	\$777.37	80000	0	1992	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CVM
Loomis, Hanemann(1991)	CA	2.18E+08	\$5,657.34	56000	0	1990	0	0	0	0	0	0	0	1	1	0	0	1	1	1	0	0	CVM
Loomis, Hanemann(1991)	CA	62680000	\$2,363.38	40000	0	1990	0	0	0	0	0	0	0	1	1	0	0	1	1	1	0	0	CVM
Canada																							
Phillips,Haney(1993)	Canad	4076400	\$51.23	120000	0	1993	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	CVM
Vuuren,Roy(1993)	Canad	61935.62	\$126.01	741.3	0	1985	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	TCM
Vuuren,Roy(1993)	Canad	42063.6	\$171.24	370.65	0	1985	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	TCM



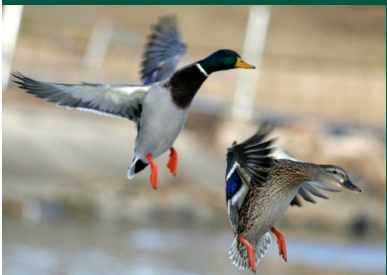
Example 2: Estimating the net value (consumer surplus) of a 500-acre mixed private/public site in Nebraska for migratory bird hunting

STEP 1: Estimate value/visitor day

STEP 2: Estimate # of visitors/year



= \$ / yr for activity at the site



Example 2: net value of a 500-acre mixed private/public wetland in Nebraska for migratory bird hunting

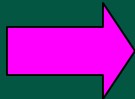
STEP 1: Value per activity day - OPTION 1: Use AVERAGE VALUE TABLE

Hunting Value Table

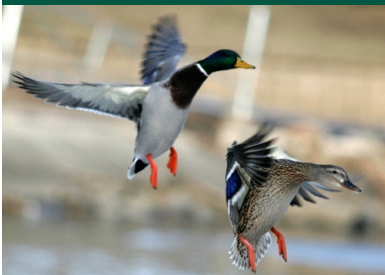
Average Hunting Values (per hunter day)

converted to 2006 base year

Species Category	N	NORTHEAST	N	SOUTHEAST	N	INTERMOUNTAIN	N	PACIFIC	N	ALASKA	N	NATION
Big Game	142		66		141		30		13		6	
Average		\$58.45		\$54.94		\$71.37		\$59.16		\$62.82		\$186.12
Median		\$52.15		\$50.34		\$58.43		\$54.31		\$50.07		\$192.02
Small Game	11		1		27		4				7	
Average		\$32.40		\$165.04		\$65.51		\$155.62				\$69.07
Median		\$33.88		\$165.04		\$46.67		\$140.07				\$74.57
Waterfowl	39		24		31		12				2	
Average		\$35.99		\$45.85		\$51.77		\$64.82				\$134.23
Median		\$29.21		\$35.42		\$35.42		\$47.98				\$134.23
AVERAGE, all game		\$42.28		\$88.61		\$62.88		\$93.20		\$62.82		\$129.81



OPTION 2: Use VALUE DATABASE with over 500 observations for hunting values to search for a study that matches your context



Example 2: net value of a 500-acre mixed private/public wetland in Nebraska for migratory bird hunting

STEP 1: Value per activity day – OPTION 3: Use VALUE MODEL

Value of Hunting per Hunter Day

Instructions: Fill in relevant cells marked "ENTER >" associated with the region the hunting value is for, the land ownership type, and if the type of species being valued is waterfowl.
Hit the enter key to get the value per day in output box.
See accompanying user manual for detailed instructions and documentation.

STEP 1: Enter a 1 next to the site location; 0 otherwise

ENTER >	1	Intermountain region (AZ, CO, ID, KS, MT, ND, NE, NM, NV, SD, UT, WY)
ENTER >	0	Northeast region (CT, DE, IA, IL, IN, MA, MD, ME, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WI, WV)
ENTER >	0	Pacific region (CA, HI, OR, WA)
ENTER >	0	Southeast region (AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA)

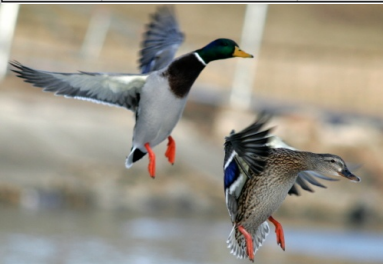
STEP 2: Enter a 1 if land ownership is public; 0 if private or mixed public private)

ENTER > 0

STEP 3: Enter BIG, SMALL or WATER in the appropriate cell(s) depending on the type(s) of hunting practiced

ENTER >		Enter "BIG" if the site supports BIG GAME hunting OR if you want to estimate TOTAL hunting instead of individual BIG/SMALL/Waterfowl hunting; otherwise, leave cell blank
ENTER >		Enter "SMALL" if the site supports SMALL GAME hunting; otherwise, leave cell blank.
ENTER >	Water	Enter "WATER" if the site supports WATERFOWL hunting; otherwise, leave cell blank.

OUTPUT: Big Game/TOTAL hunting:	\$0.00	\$/ Hunter Day (2006 base year)
OUTPUT: Small Game:	\$0.00	\$/ Hunter Day (2006 base year)
OUTPUT: Waterfowl:	\$51.18	\$/ Hunter Day (2006 base year)



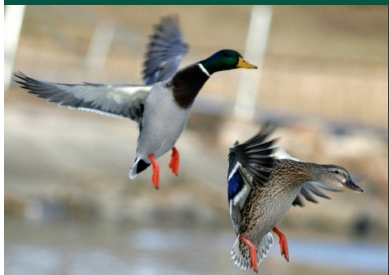
[Hunting Value Per Day Model](#)

Example 2: net value of a 500-acre mixed private/public wetland in Nebraska for migratory bird hunting
STEP 2: State-level visitation attributable to the site

of state-wide bird hunting days from a 500-acre wetland

[State Level Migratory Bird Hunting Visitor Use Estimating Model](#)

1	State Migratory Bird Hunting Days		
2			
3	Instructions:	Fill in relevant cells marked "ENTER >" associated with acres of land and state income and population.	
4		Hit the enter key to get the change in migratory bird hunting days.	
5		See accompanying user manual for detailed instructions and documentation.	
6			
8	<i>CURRENT STATE VALUES (from the 'State Variable Input Tab')</i>		
9	STEP 1:	Enter the two-letter state abbreviation to obtain the current acres of each type of land within the state of interest	
10		(from the 'State Variable Input Values' Tab)	
11			
12	ENTER >	NE	
13		<i>acres:</i>	
14		647,600	Federal Land
15		19,469,200	Cropland
16		826,000	Private Forest Land
17		1,178,200	Total Wetlands
18			
19	STEP 2:	Household median income for the state of interest (from the 'State Variable Input Values' Tab)	
20		These are 2006 estimates, for updated information go to: U.S. Census Bureau Fact Finder	
21			
22	ENTER >	\$45,474	(The 2006 value is filled in automatically; if you have more recent data, enter that into the cell)
23			
24	OUTPUT	0.29	State Migratory Bird Hunting Days / capita / year
25			
26	STEP 3:	State population (from the 'State Variable Input Values' Tab)	
27		These are 2007 estimates, for updated information go to: U.S. Census Bureau Fact Finder	
28			
29	ENTER >	1,774,571	(The 2007 value is filled in automatically; if you have more recent data, enter that into the cell)
30			
31	OUTPUT	512,043	State Total Migratory Bird Hunting Days / year
32			
33			
35	<i>STATE VALUES WITH MANAGEMENT/POLICY ACTION</i>		
36	STEP 1a:	Enter the total state-wide number of acres of each type of land under the proposed project	
37			
38	ENTER >		Federal Land
39	ENTER >		Cropland
40	ENTER >		Private Forest Land
41	ENTER >		Total Wetlands
42			
43	OUTPUT		Total Migratory Hunting Days / year for the site of interest
44			
45			
47	CHANGE		
48			
49	OUTPUT		Change in Total Migratory Bird Hunting Days / year
50			
51			

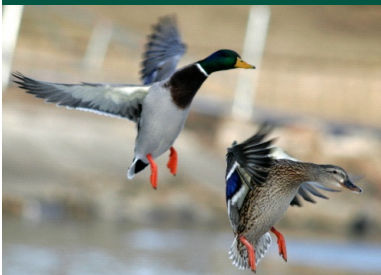


Example 2: net value of a 500-acre mixed private/public wetland in Nebraska for migratory bird hunting
STEP 2: State-level visitation attributable to the site

of state-wide bird hunting days from a 500-acre wetland

State Level Migratory Bird Hunting Visitor Use Estimating Model

+ 500 ac

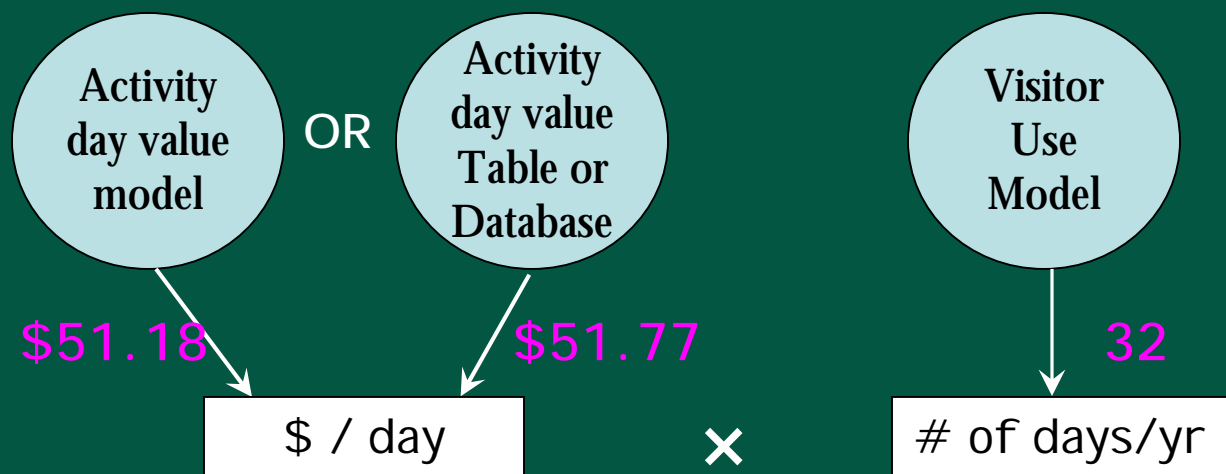


1	State Migratory Bird Hunting Days		
2			
3	Instructions:	Fill in relevant cells marked "ENTER >" associated with acres of land and state income and population.	
4		Hit the enter key to get the change in migratory bird hunting days.	
5		See accompanying user manual for detailed instructions and documentation.	
6			
8	<i>CURRENT STATE VALUES (from the 'State Variable Input Tab')</i>		
9	STEP 1:	Enter the two-letter state abbreviation to obtain the current acres of each type of land within the state of interest (from the 'State Variable Input Values' Tab)	
10			
11			
12	ENTER >	NE	
13		acres:	
14		647,600	Federal Land
15		19,469,200	Cropland
16		826,000	Private Forest Land
17		1,178,200	Total Wetlands
18			
19	STEP 2:	Household median income for the state of interest (from the 'State Variable Input Values' Tab)	
20		These are 2006 estimates, for updated information go to: U.S. Census Bureau Fact Finder	
21			
22	ENTER >	\$45,474	(The 2006 value is filled in automatically; if you have more recent data, enter that into the cell)
23			
24	OUTPUT	0.29	State Migratory Bird Hunting Days / capita / year
25			
26	STEP 3:	State population (from the 'State Variable Input Values' Tab)	
27		These are 2007 estimates, for updated information go to: U.S. Census Bureau Fact Finder	
28			
29	ENTER >	1,774,571	(The 2007 value is filled in automatically; if you have more recent data, enter that into the cell)
30			
31	OUTPUT	512,043	State Total Migratory Bird Hunting Days / year
32			
33			
35	<i>STATE VALUES WITH MANAGEMENT/POLICY ACTION</i>		
36	STEP 1a:	Enter the total state-wide number of acres of each type of land under the proposed project	
37			
38	ENTER >	647,600	Federal Land
39	ENTER >	19,469,200	Cropland
40	ENTER >	826,000	Private Forest Land
41	ENTER >	1,178,700	Total Wetlands
42			
43	OUTPUT	512,075	Total Migratory Hunting Days / year for the site of interest
44			
45			
47	CHANGE		
48			
49	OUTPUT	32	Change in Total Migratory Bird Hunting Days / year
50			
51			

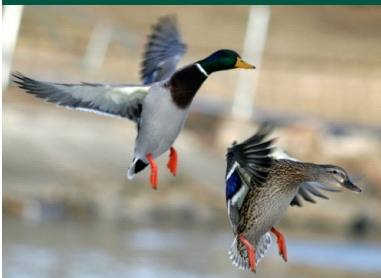
Example 2: Estimating the net value of a 500-acre mixed private/public wetland in Nebraska for migratory bird hunting

STEP 1: Estimate value/visitor day

STEP 2: Estimate # of visitors/year

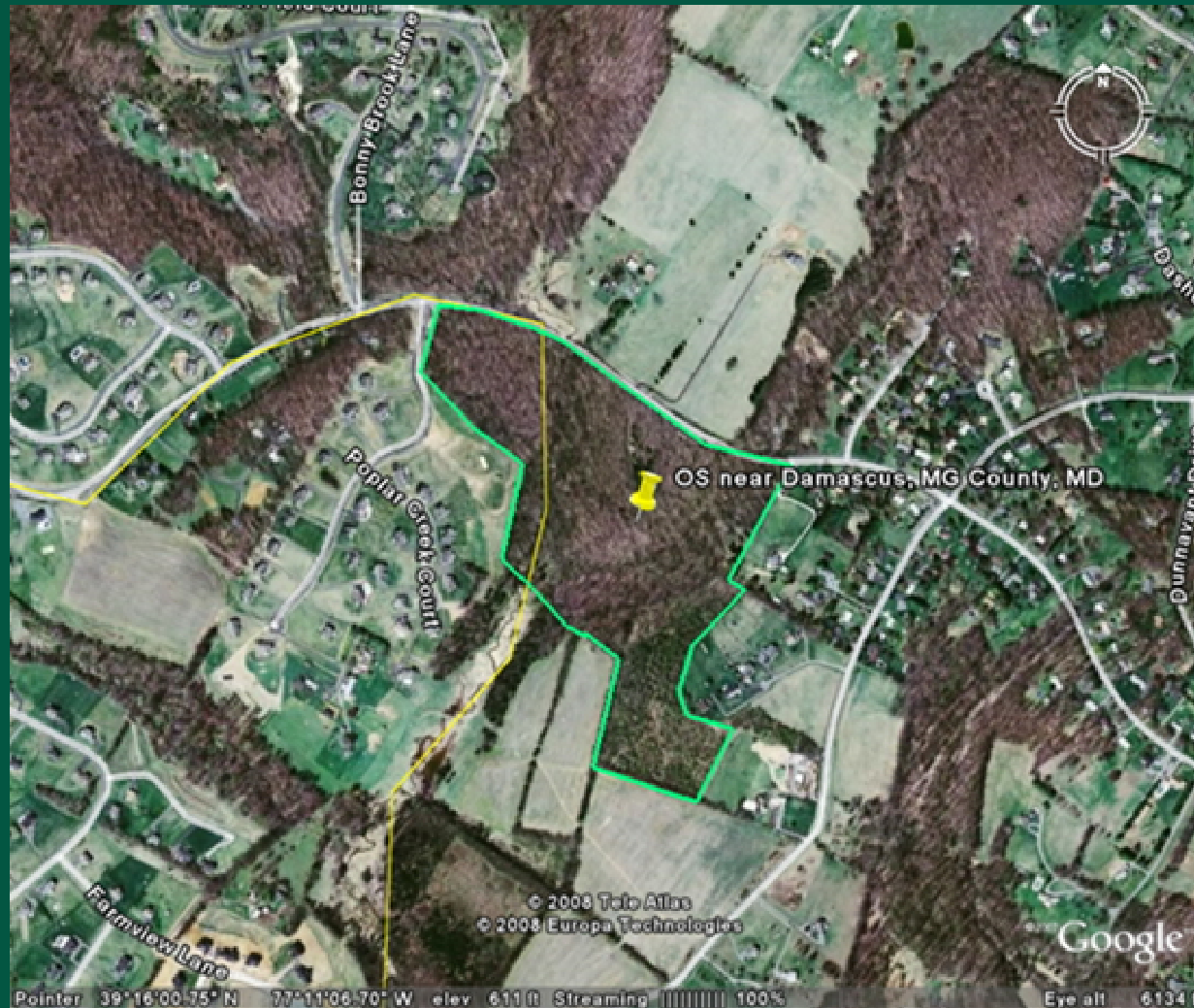


= ~\$1640/yr for migratory bird hunting at the site



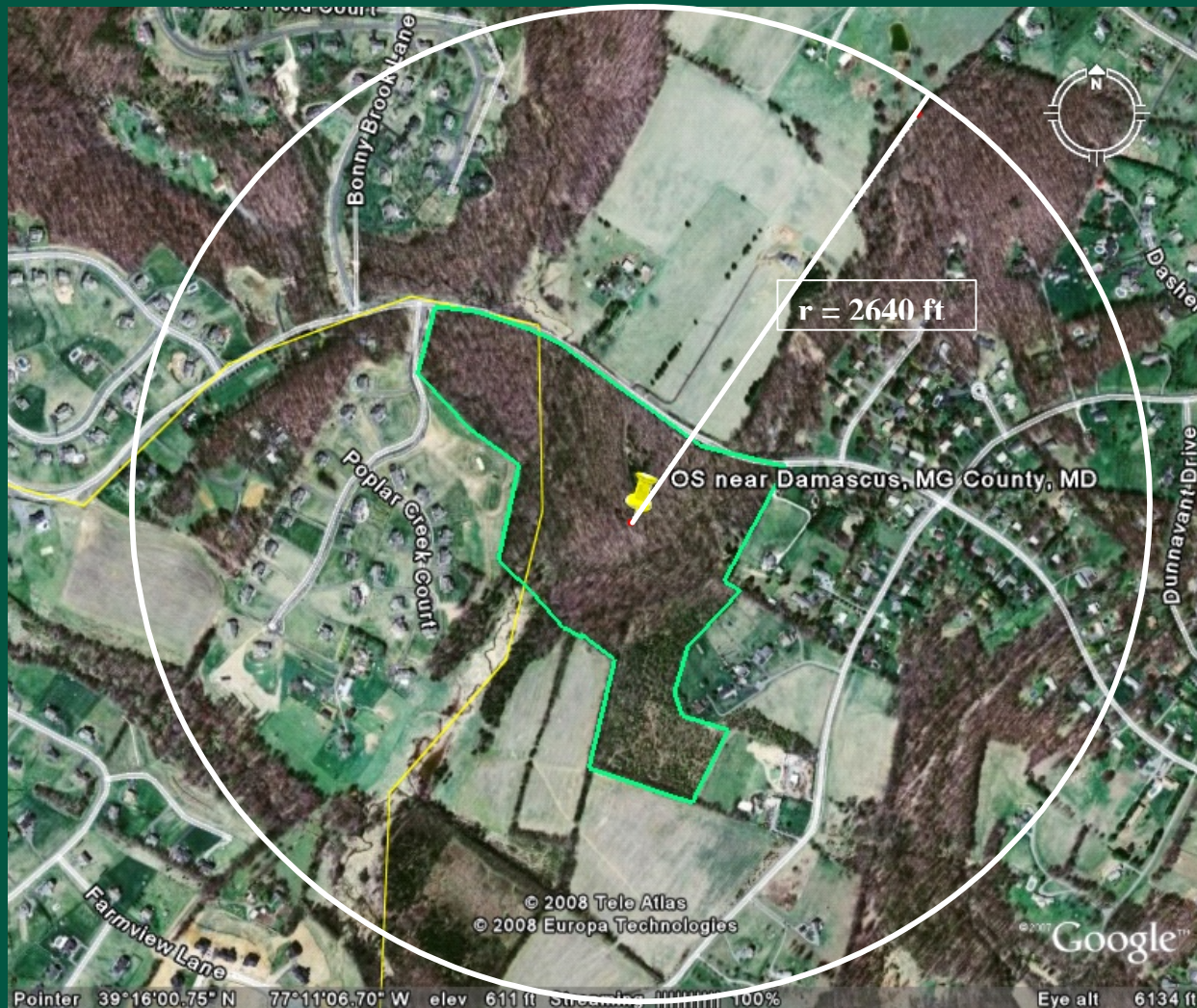
Example 3: Open space-related property value premiums

Case A: Small open space: 50-acre forested area, privately owned, under conservation easement; suburban Maryland



Example 3: Open space-related property value premiums

Q: What are the property value impacts of this OS within a ½-mile radius?



Microsoft Excel - OS property premium model

File Edit View Insert Format Tools Data Window Help

Type a question for help

\\BASTION\VOL1\USERS\TIMM\WHPRP proposal 2006\WHPRP Bene

N29

Property value premium estimator model

ENTER > Size in acres of the open space whose property value impact is to be estimated

OUTPUT: 9.9 **%OSChange.** Percentage of the study area occupied by the open space of interest.
Example: A 20 percent share of open space in the area of interest is indicated as "20".

STEP 4: Enter the appropriate values for the indicator variables (see the Land Cover Definitions tab for how to code a particular land cover)

ENTER > **FOR.** Enter "1" if the open space is a forest. Otherwise, enter "0".

ENTER > **PARK.** Enter "1" if the open space is a park. Otherwise, enter "0".

ENTER > **WET.** Enter "1" if the open space is a wetland. Otherwise, enter "0".

ENTER > **PROT.** Enter "1" if the open space is protected. Otherwise, enter "0". Protection is defined as the absence of the possibility of development (i.e., easement, public ownership).

ENTER > **PRIY.** Enter "1" if the open space is privately owned. Otherwise, enter "0".

$P_{OS} = 5.0$ % increase in average residential property value from open space of interest

STEP 5: Enter the number of residential properties located in the area

ENTER > Number of properties located in study area. NOTE: Include only single-family homes.

ENTER > Average value of properties (\$)

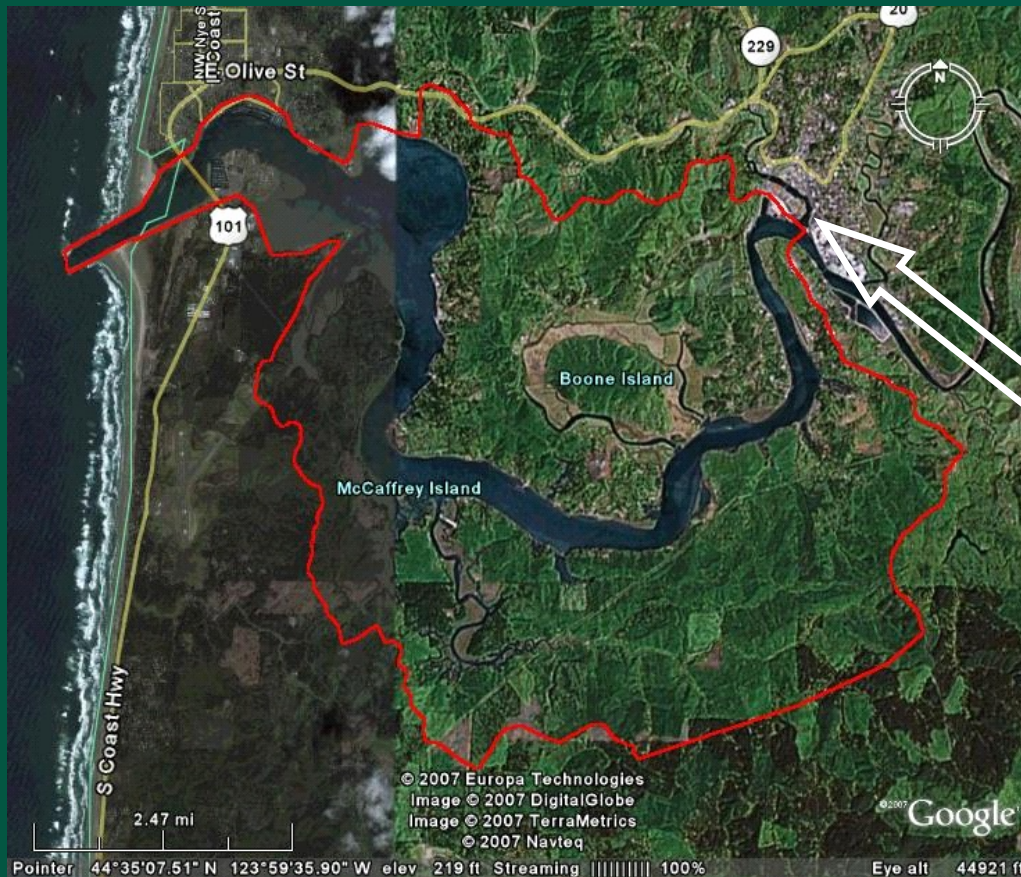
OUTPUT: \$3,191,962 **Estimated total property premium in study area attributable to open space of interest**

Lit data PropValEstimator Land Cover Definitions

start | Inbox - Microsoft ... | Toolkit application | 2 Microsoft Pow... | montgomery coun... | 2 Microsoft Excel | 6:37 PM

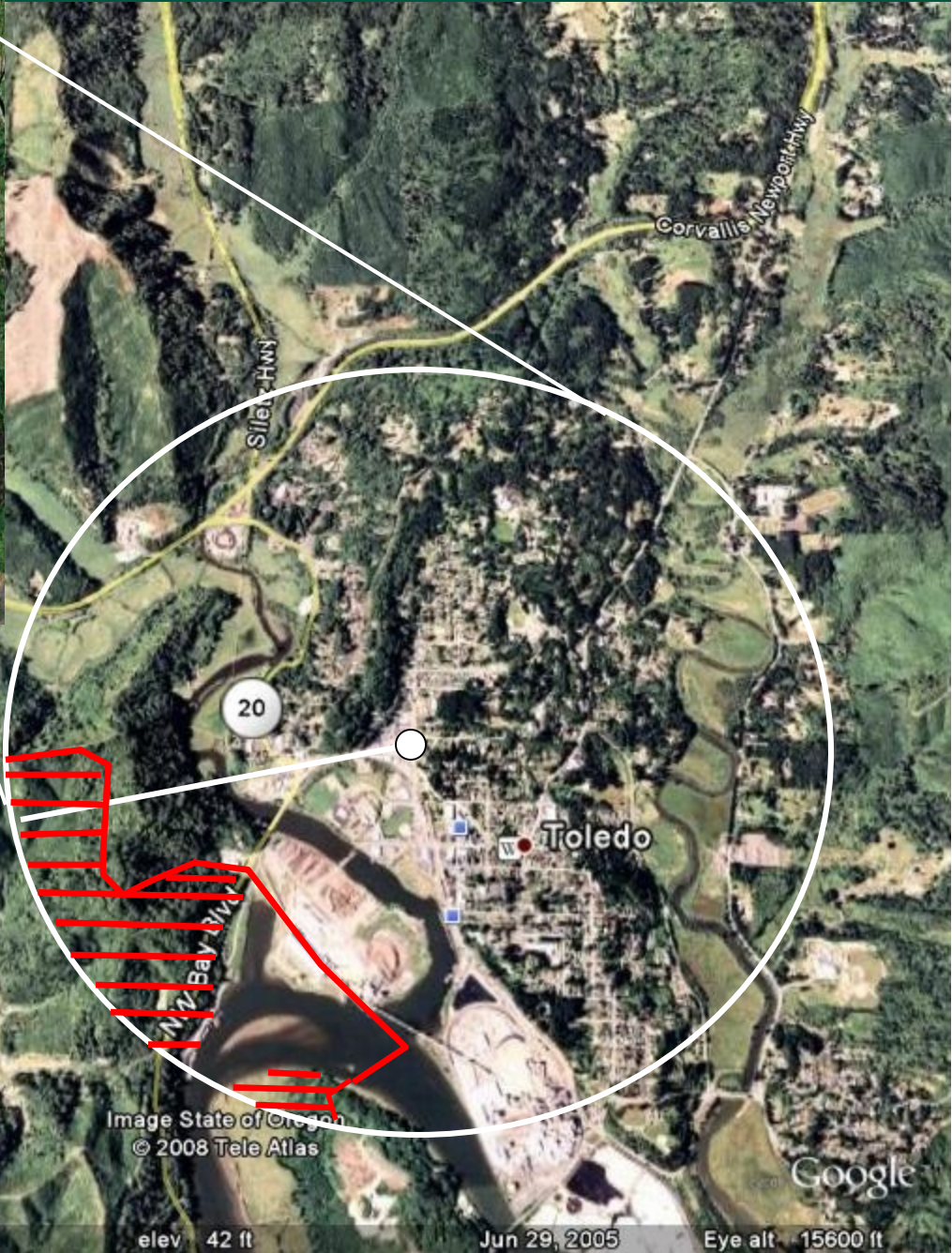
Case B: large open space

Yaquina Bay Conservation Opportunity area (OR)



- Mostly privately owned
- Unprotected

Q: Property value premiums in Toledo urban area attributable to Yaquina Bay COA?



Yaquina Bay
open space =
7% of area in
1-mile radius
of average
property

Property value premium estimator model

Instructions: Fill in all cells marked "ENTER >". (See accompanying user manual for detailed instructions and documentation.)

STEP 1: Select shape of area of analysis in which property value premiums are analyzed

ENTER > Enter "C" for circular and "R" for rectangular shape of area

STEP 2: Enter the radius (circular area) or length and width (rectangular area) of the area of analysis

OUTPUT: 0 Size of study area (acres)

STEP 3: Enter the size of the open space

ENTER > Size in acres of the open space whose property value impact is to be estimated

OUTPUT: 7.0 %OSChange. Percentage of the study area occupied by the open space of interest.
 Example: A 20 percent share of open space in the area of interest is indicated as "20".

STEP 4: Enter the appropriate values for the indicator variables (see the Land Cover Definitions tab for how to code a particular land cover)

ENTER > FOR. Enter "1" if the open space is a forest. Otherwise, enter "0".

ENTER > PARK. Enter "1" if the open space is a park. Otherwise, enter "0".

ENTER > WET. Enter "1" if the open space is a wetland. Otherwise, enter "0".

ENTER > PROT. Enter "1" if the open space is protected. Otherwise, enter "0". Protection is defined as the absence of the possibility of development (i.e., easement, public ownership).

ENTER > PRIV. Enter "1" if the open space is privately owned. Otherwise, enter "0".

$P_{OS} =$ 4.1 % increase in average residential property value from open space of interest

STEP 5: Enter the number of residential properties located in the area

ENTER > Number of properties located in study area. NOTE: Include only single-family homes.

ENTER > Average value of properties (\$)

OUTPUT: \$1,963,428 Estimated total property premium in study area attributable to open space of interest

Special thanks to:

- Dr. Alan Randall
- Dr. John Loomis
- Dr. Frank Casey
- Participants in our April 2008 workshop
- NCSE's WHPRP committee

Timm Kroeger

Natural Resources Economist

tkroeger@defenders.org

(202) 772-3204

