

What is Our Willingness to Pay for Open Space Protection? Results and Implications from a Study of Four Connecticut Communities

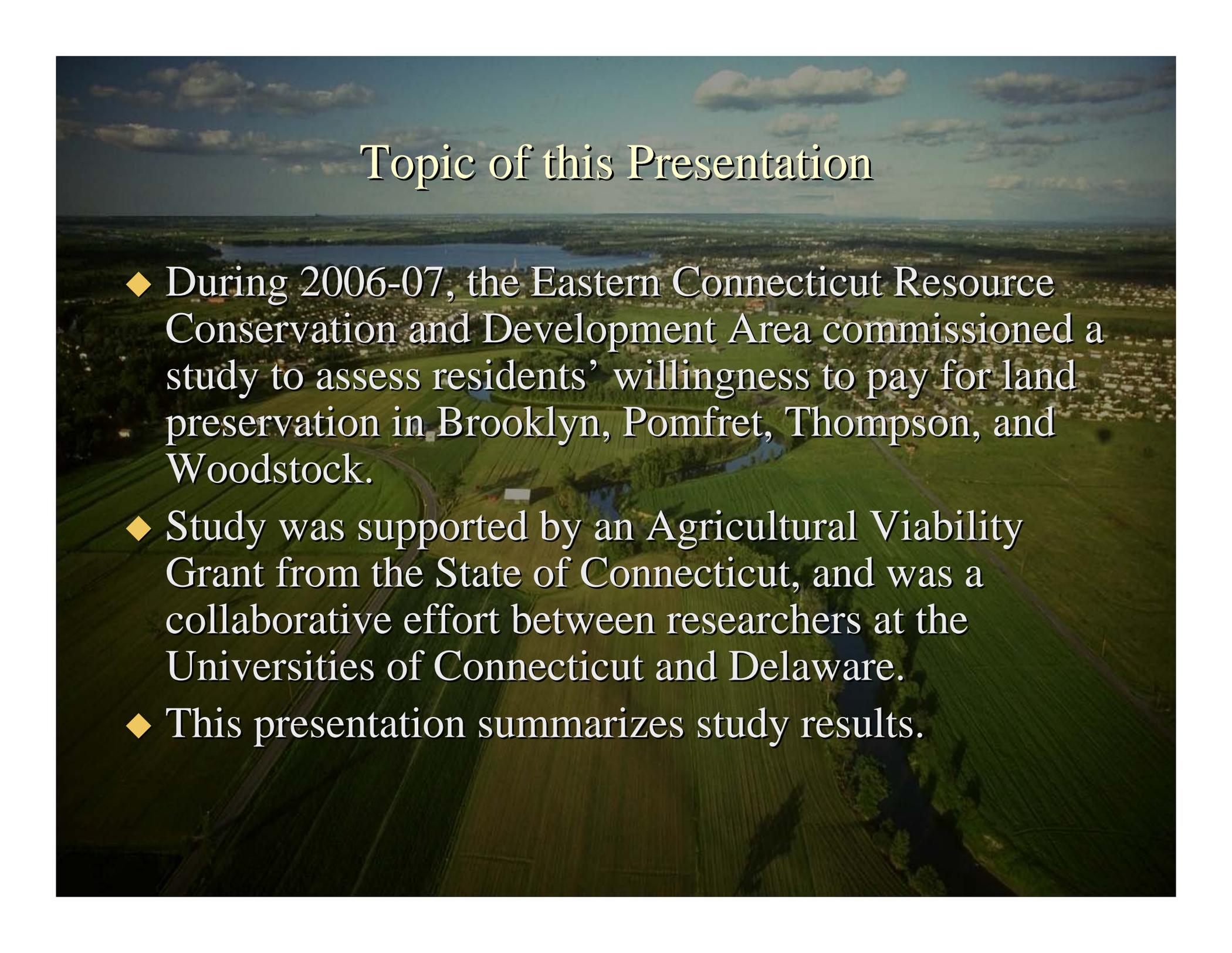
Robert J. Johnston, Jessica Kukielka
Department of Agricultural and Resource Economics
University of Connecticut

Joshua M. Duke
Department of Food and Resource Economics
University of Delaware

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Topic of this Presentation

- ◆ During 2006-07, the Eastern Connecticut Resource Conservation and Development Area commissioned a study to assess residents' willingness to pay for land preservation in Brooklyn, Pomfret, Thompson, and Woodstock.
- ◆ Study was supported by an Agricultural Viability Grant from the State of Connecticut, and was a collaborative effort between researchers at the Universities of Connecticut and Delaware.
- ◆ This presentation summarizes study results.

Non-Market Values

- ◆ Local farm, forest, and open space provides a variety *rural amenities* that are highly valued by residents.
 - Examples: scenic views, outdoor recreation, wildlife habitat, insulation from noise and the urban landscape, rural character, existence of historical farms, etc.
- ◆ Residents are *willing to pay* to maintain these valued services of undeveloped land. This willingness to pay (WTP) reflects their value for preserved farm, forest, and open space.

Why Do We Need Valuation Surveys?

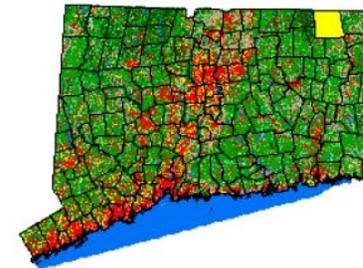
- ◆ For private market goods (e.g., houses, soda, cars), people make purchases that express their values and preferences.
- ◆ For public goods like rural amenities, no markets exist.
- ◆ Even when associated values are substantial, they are not reflected in markets.
- ◆ Economic valuation is required to assess *real values* held by residents, and what they would be WTP for preservation.



What is the WTP for Community Open Space?

- ◆ If residents could “buy” land preservation and rural character in the same way they buy market products, how much would they be willing to pay?
- ◆ What level of bond payments would residents support to obtain specific types of preservation?

Woodstock Land Preservation Survey 2007 Survey of Town Residents



Funded by the Connecticut Department of Agriculture, Agricultural Viability Grant Program and the Eastern Connecticut Resource Conservation and Development Area, Inc.



Willingness to Pay for Land Preservation

- ◆ *Stated preference surveys* mimic public votes—and elicit the total amount that respondents would be willing to pay (e.g., in bond payments or taxes) for specific types of land preservation.
- ◆ Established mechanism to assess values people hold for environmental policies.



How do Stated Preference Surveys Work?

- ◆ Individuals presented with different options for land preservation—can vote for a preferred option or can reject all options and maintain status quo.
- ◆ Analysis of votes over different types of policies allows calculations of tradeoffs and values.
- ◆ Analyzes values and tradeoffs for farm and forest preservation. Asks residents to make hard choices.



Example: A Stated Choice Question

Section II. Preservation Choices

This section asks you to choose between programs that might be used in your community. The choices are based on realistic situations and may be difficult.

- Your responses to this survey may influence real policy decisions. Please answer all questions the same way that you would if this were a real, binding vote in your community.
- Remember, money spent on land preservation cannot be used for other important uses or for household expenses.
- For all questions, please assume that current farm and forest uses will be maintained on all land that is preserved. (For example, when farmland is purchased, it may be leased back to farmers or operated as farmland by non-profit organizations, so that farming continues.)
- The survey will ask you to consider programs that would preserve farm and forest parcels that are 20-200 acres in size. This would represent 0.1%-1.0% of the total land area of your town.
- Please assume that all land would be preserved in the community in which you currently live, and that all funds are legally guaranteed to be spent on the specified land preservation programs.
- Please consider each question separately. **Do not add up costs or preservation across different questions.**

3. Assume that the following two preservation options were proposed for your community. How would you vote? Choose A, B or neither.

	Option A	Option B
Type of Land Preserved	Active Farmland (food or field crop)	Active Farmland (tree farm, forestry or orchard)
Acres Preserved (1 acre is the same size as 3/4 of a football field)	200 Acres (single lot)	20 Acres (single lot)
Method	PRESERVATION CONTRACTS by Town of Brooklyn	OUTRIGHT PURCHASE by State of Connecticut
Public Access	No Access Allowed	Access for Passive Recreation (hiking, bird watching, etc.)
What Happens if Not Preserved	Development NOT likely within 10 years if not preserved	Development likely in less than 10 years if not preserved
Cost to Your Household (for purchase and other costs)	\$60 per year (Increased State/Town Taxes & Fees)	\$60 per year (Increased State/Town Taxes & Fees)

Please check one:

- 1 I would vote for Option A, and pay \$60 per year.
- 2 I would vote for Option B, and pay \$60 per year.
- 3 I support these programs in general, but my household would/could not pay for either Option A or B.
- 4 I would not vote for either program.

What do Survey Responses Really Mean?

- ◆ These numbers are based on survey responses, not actual binding votes.
- ◆ Do people answer the way they would actually vote?
- ◆ Comparisons of matching surveys and actual votes show that these surveys can—if done right—predict actual votes and willingness to pay very closely.
 - People vote the way they say they would vote!
- ◆ Responses can give us an indication of whether respondents provide realistic answers.

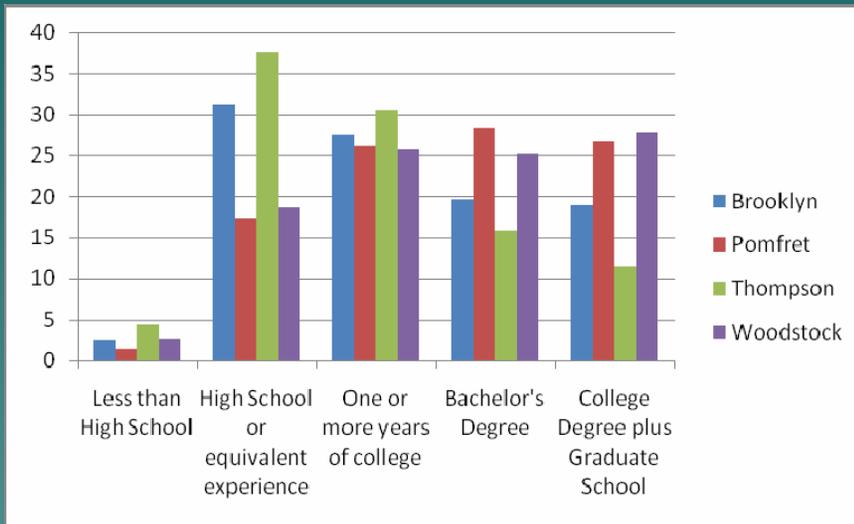
Land Preservation Attributes

Attribute	Available Options	Description
<i>Acres Preserved</i>	20, 60, 100, 200	Acres ranged from a typical “small farm” option to a “large farm”
<i>Land Type</i>	Food/Field Crop; Forestry/Orchard/Tree Farm; Dairy/Livestock Farm	Potential uses for farmland in Connecticut
<i>Method of Preservation</i>	State preservation contract; Town preservation contracts; State outright purchase; Town outright purchase	Four possible methods to preserve land in the state, ranging from state purchase to town-sponsored contracts
<i>Accessibility</i>	Access; No access	Preserved land is open for passive recreation (hiking, bird watching, etc.), or closed to public access
<i>Risk of Development</i>	Development likely; Development not	If not preserved, is the land likely to be developed for uses other than agriculture/open space in the next 10 years

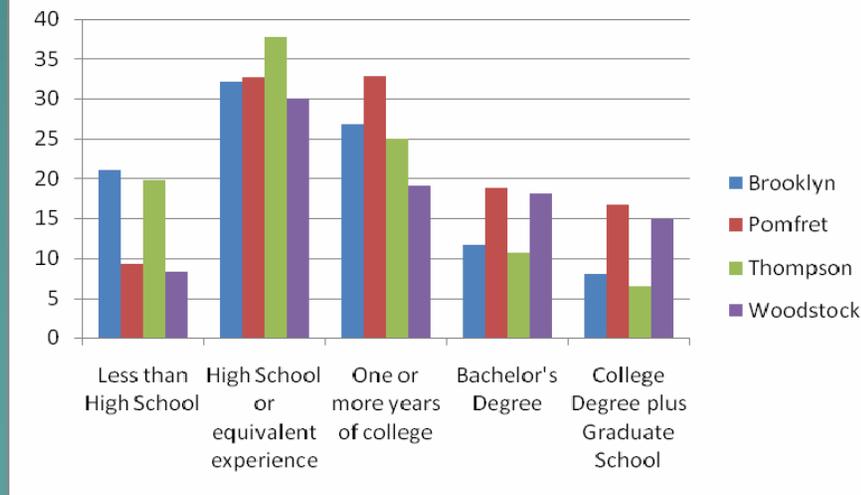
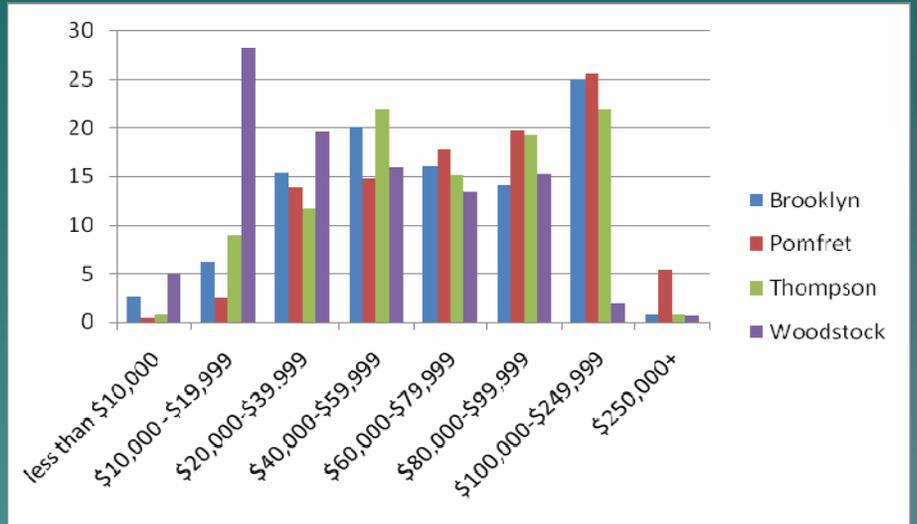
Survey Details

- ◆ Surveys were developed based on significant prior survey development efforts funded by the U.S. Department of Agriculture.
- ◆ Self-administered stated preference survey mailed to 1600 randomly-selected residents in Brooklyn, Pomfret, Thompson, and Woodstock (400 per town).
- ◆ Dillman total design method to increase response rates.
- ◆ 45.6% response rate from all four towns combined.

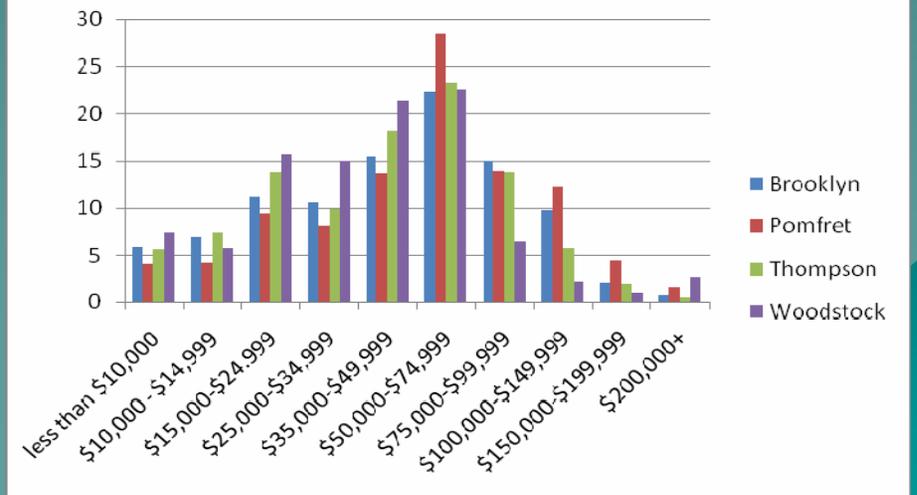
Are Survey Responses Representative?



(Survey demographic distributions)



(US Census 2000)



How are Values Calculated?

- ◆ Survey responses show what level of payments each responding household would be willing to pay, per acre, per year, for different types of preservation.
- ◆ Multiply survey response rates by number of town households to estimate conservative number of “households with value.”
- ◆ Multiply per household values by number of households with value (low estimate)
- ◆ Sum per year values over time, applying appropriate discounting to account for the time value of money.

What do Final WTP Results Mean?

- ◆ Results may be interpreted as the total economic value of preservation to town residents.
- ◆ Results are also directly comparable to the market cost of preservation.
- ◆ For any specific parcel, if $WTP >$ preservation cost, then preservation will generate positive net benefits for the town.
- ◆ Results tell us when and how preservation is a “good idea.”

Selected Results - Brooklyn

		Livestock/Dairy		Forest/Orchard		Food/Field	
		High Risk	Low Risk	High Risk	Low Risk	High Risk	Low Risk
Outright Purchase By Town	Passive	\$17,888	\$14,187	\$11,891	\$8,205	\$12,396	\$8,709
	None	\$3,427	\$0	\$0	\$0	\$0	\$0
Outright Purchase By State	Passive	\$20,070	\$16,362	\$14,063	\$10,372	\$14,569	\$10,876
	None	\$5,586	\$1,917	\$0	\$0	\$143	\$0
Preservation Contract By Town	Passive	\$25,402	\$21,680	\$19,372	\$15,666	\$19,879	\$16,172
	None	\$10,862	\$7,179	\$4,895	\$1,229	\$5,397	\$1,729
Preservation Contract By State	Passive	\$18,413	\$14,710	\$12,413	\$8,727	\$12,919	\$9,230
	None	\$3,947	\$283	\$0	\$0	\$0	\$0

Average WTP = \$7,517

Selected Results –Pomfret

		ACCESS		Livestock/Dairy		Forest/Orchard		Food/Field	
		High Risk	Low Risk	High Risk	Low Risk	High Risk	Low Risk	High Risk	Low Risk
Outright Purchase By Town	Passive	\$12,605	\$8,177	\$10,600	\$6,181	\$11,498	\$7,076		
	None	\$6,986	\$2,583	\$4,993	\$598	\$5,886	\$1,487		
Outright Purchase By State	Passive	\$12,860	\$8,432	\$10,855	\$6,435	\$11,753	\$7,329		
	None	\$7,240	\$2,836	\$5,246	\$850	\$6,139	\$1,740		
Preservation Contract By Town	Passive	\$14,437	\$10,001	\$12,429	\$8,002	\$13,328	\$8,898		
	None	\$8,808	\$4,397	\$6,811	\$2,408	\$7,705	\$3,299		
Preservation Contract By State	Passive	\$11,724	\$7,300	\$9,721	\$5,306	\$10,618	\$6,199		
	None	\$6,110	\$1,711	\$4,118	\$0	\$5,010	\$616		

Average WTP = \$6,849

Selected Results – Woodstock

		ACCESS		Livestock/Dairy		Forest/Orchard		Food/Field	
		High Risk	Low Risk	High Risk	Low Risk	High Risk	Low Risk	High Risk	Low Risk
Outright Purchase By Town	Passive	\$27,925	\$15,369	\$20,897	\$8,392	\$19,858	\$7,361		
	None	\$4,650	\$0	\$0	\$0	\$0	\$0		
Outright Purchase By State	Passive	\$34,883	\$22,276	\$27,827	\$15,271	\$26,783	\$14,236		
	None	\$11,514	\$0	\$4,552	\$0	\$3,523	\$0		
Preservation Contract By Town	Passive	\$32,512	\$19,923	\$25,466	\$12,927	\$24,424	\$11,893		
	None	\$9,175	\$0	\$2,223	\$0	\$1,196	\$0		
Preservation Contract By State	Passive	\$29,444	\$16,877	\$22,410	\$9,894	\$21,370	\$8,862		
	None	\$6,148	\$0	\$0	\$0	\$0	\$0		

Average WTP = \$8,238

Selected Results –Thompson

		ACCESS		Livestock/Dairy		Forest/Orchard		Food/Field	
		High Risk	Low Risk	High Risk	Low Risk	High Risk	Low Risk	High Risk	Low Risk
Outright Purchase By Town	Passive	\$19,764	\$19,543	\$16,050	\$15,829	\$16,714	\$16,493		
	None	\$0	\$0	\$0	\$0	\$0	\$0		
Outright Purchase By State	Passive	\$24,604	\$24,382	\$20,880	\$20,658	\$21,546	\$21,325		
	None	\$0	\$0	\$0	\$0	\$0	\$0		
Preservation Contract By Town	Passive	\$24,828	\$24,606	\$21,103	\$20,881	\$21,769	\$21,548		
	None	\$0	\$0	\$0	\$0	\$0	\$0		
Preservation Contract By State	Passive	\$18,098	\$17,877	\$14,387	\$14,166	\$15,051	\$14,830		
	None	\$0	\$0	\$0	\$0	\$0	\$0		

Average WTP = \$5,584

Example Comparisons

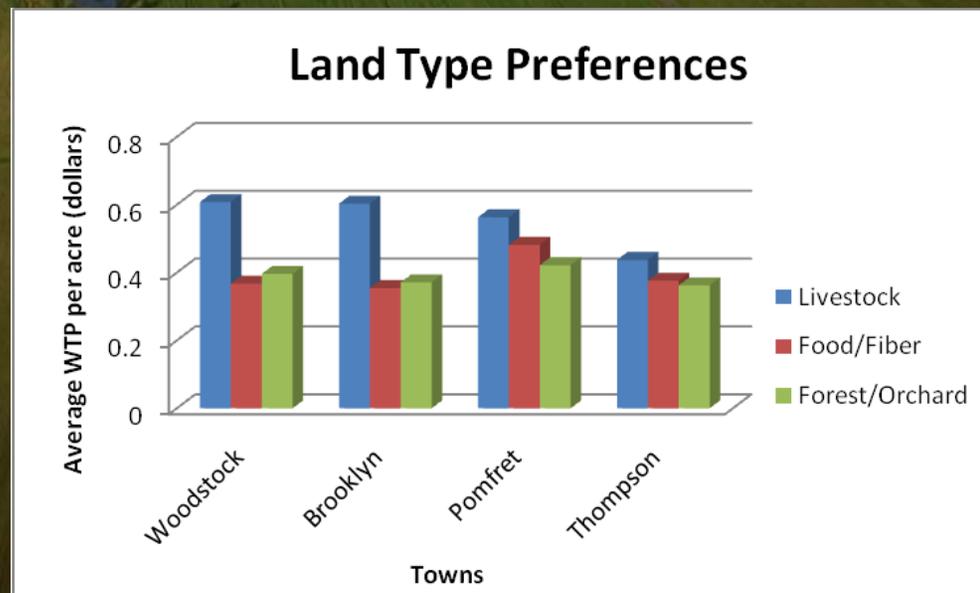
	Woodstock	Brooklyn	Pomfret	Thompson
Forest/Orchard ; State Contracted Preservation; Low Development Risk; No Access	\$0	\$0	\$0	\$0
Livestock/Dairy; Town Easement; High Development Risk; No Access	\$9,175	\$10,862	\$8,808	\$0
Livestock/Dairy; Town Contracted Preservation; High Development Risk; Access	\$32,513	\$25,403	\$14,438	\$24,828

An Illustration

- ◆ What if the Town of Woodstock were to consider preserving a working dairy farm using a conservation easement. Assume the farm offers no public access and is at high risk of development. The average easement price is \$9,000 / acre.
- ◆ Would residents be willing to pay this price—is this expenditure worth the public value?
- ◆ Yes. *Conservative* results show that the preservation value to Woodstock residents is \$9,175 per acre.
- ◆ This only considers value within Woodstock—other state residents may hold value as well.

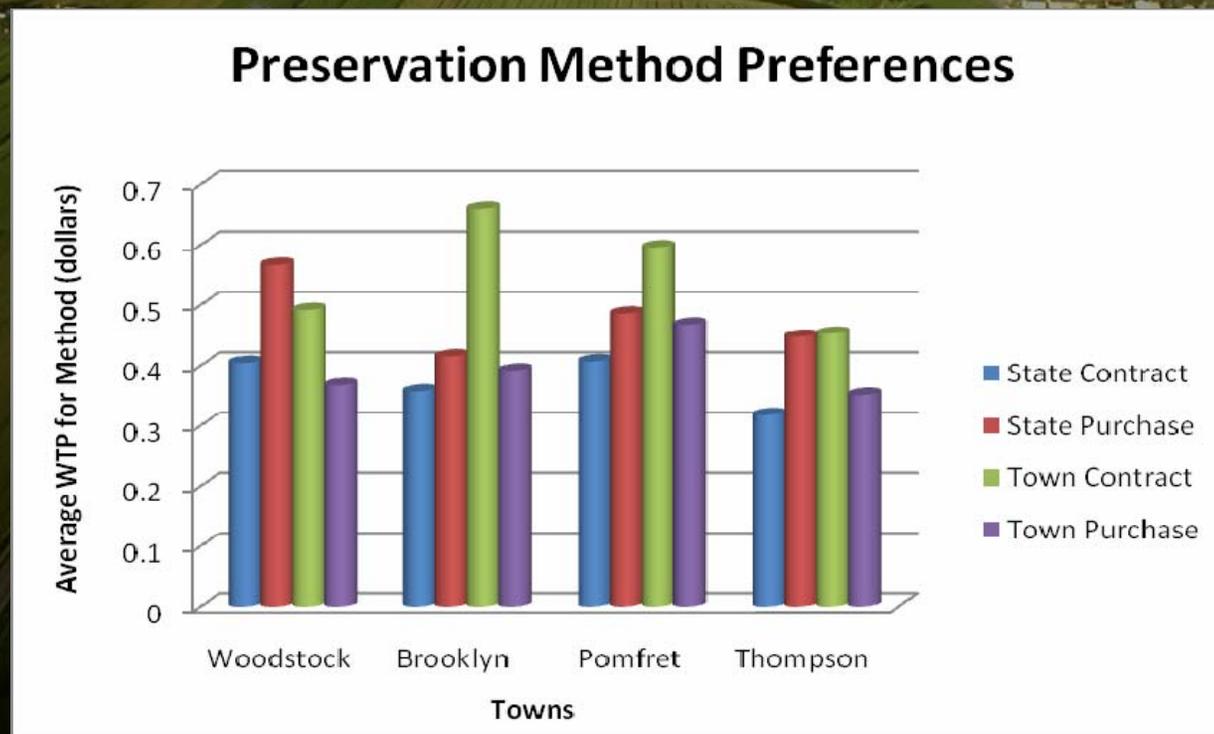
Results Help Prioritize Preservation

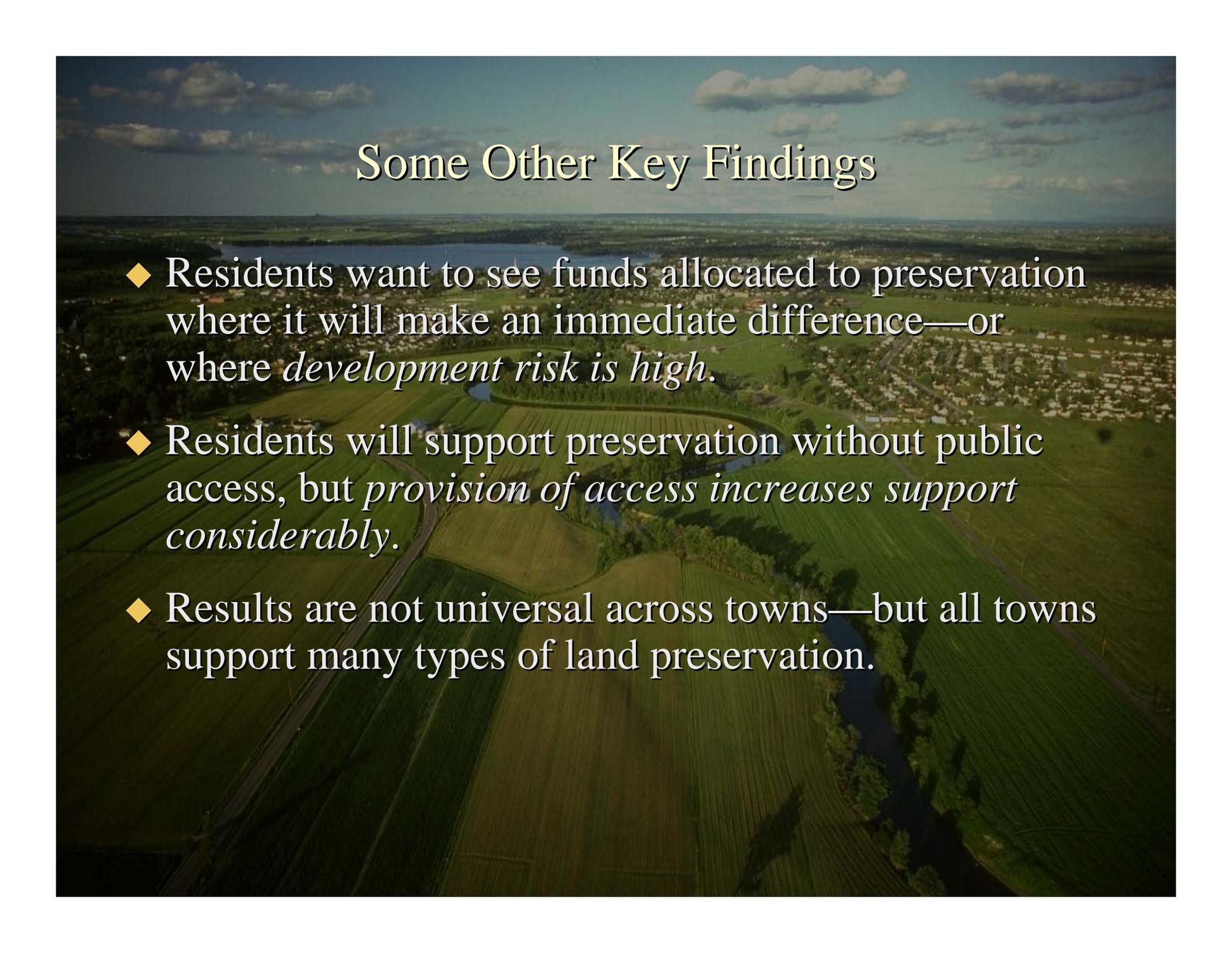
- ◆ If preservation targets land of higher values to residents, then residents are more likely to support preservation.
- ◆ For example, results show the residents tend to prefer the preservation of livestock farms.



Results Help Prioritize Preservation

- ◆ In most towns, residents prefer preservation conducted using town conservation easements. The exception is Woodstock.





Some Other Key Findings

- ◆ Residents want to see funds allocated to preservation where it will make an immediate difference—or where *development risk is high*.
- ◆ Residents will support preservation without public access, but *provision of access increases support considerably*.
- ◆ Results are not universal across towns—but all towns support many types of land preservation.

Conclusion

- ◆ Results indicate that respondents thought hard about their answers, and considered what they would *really* be willing to pay support.
- ◆ Residents of all four towns strongly support land preservation, but support depends on *what* is preserved and *how* it is preserved.
- ◆ Results show significant WTP for various types of land preservation.
- ◆ Preservation values are not identical across towns, but some patterns are relatively robust. Other patterns, in contrast, are unique to certain towns.



Thank You!

Questions?

Please contact Robert J. Johnston
at the University of Connecticut
(860) 405-9278
robert.johnston@uconn.edu