AGRICULTURAL AND RESOURCE ECONOMICS REVIEW

Foreword: The Economics of Rural and Agricultural Ecosystem Services: Purism versus Practicality **•** Dana M. Bauer and Robert J. Johnston

Using Ecological Production Theory to Define and Select Environmental Commodities for Nonmarket Valuation **=** James Boyd and Alan Krupnick

Demand-side Value for Ecosystem Services and Implications for Innovative Markets: Experimental Perspectives on the Possibility of Private Markets for Public Goods **•** *Stephen K. Swallow*

Economics and Environmental Markets: Lessons from Water-Quality Trading - James Shortle

Sustainability Science: A Call to Collaborative Action • David D. Hart and Kathleen P. Bell

Economic Science and Public Policy • Katherine R. Smith

Stated Preferences for Intermediate versus Final Ecosystem Services: Disentangling Willingness to Pay for Omitted Outcomes **•** Robert J. Johnston, Eric T. Schultz, Kathleen Segerson, Elena Y. Besedin, and Mahesh Ramachandran

The Value of Forever Wild: An Economic Analysis of Land Use in the Adirondacks - *Carrie M. Tuttle and Martin D. Heintzelman*

Applying the Ecosystem Services Concept to Public Land Management *Jeffrey D. Kline, Marisa J. Mazzotta, Thomas A. Spies, and Mark E. Harmon*

Valuing Environmental Assets on Rural Lifestyle Properties
Maksym Polyakov, David J. Pannell, Ram Pandit, Sorada Tapsuwan, and Geoff Park

Social Cost of Biomass Energy from Switchgrass in Western Massachusetts • David Timmons

Tradeoffs among Ecosystem Services, Performance Certainty, and Cost-efficiency in Implementation of the Chesapeake Bay Total Maximum Daily Load **•** *Lisa A. Wainger, George Van Houtven, Ross Loomis, Jay Messer, Robert Beach, and Marion Deerhake*

Prioritizing Ecosystem Service Protection and Conservation Efforts in the Forest Plantations of the Red Hills **•** *Rebecca Moore*

Modeling the Production of Multiple Ecosystem Services from Agricultural and Forest Landscapes in Rhode Island • *Tingting Liu, Nathaniel H. Merrill, Arthur J. Gold, Dorothy Q. Kellogg, and Emi Uchida*

Published by the Northeastern Agricultural and Resource Economics Association Volume Number

42/1 *April 2013*

The Agricultural and Resource Economics Review (ISSN 1068-2805) (formerly the Northeastern Journal of Agricultural and Resource Economics, ISSN 0899-367X) is the official publication of the Northeastern Agricultural and Resource Economics Association (NAREA). The purpose of the *Review* is to foster and disseminate professional thought and literature relating to the economics of agriculture, natural resources, and community development. It is the editorial policy of the *ARER* to encourage manuscript submission without regard to author affiliation and/or location. The *ARER* is published three times a year. In addition to normal refereed articles, it also publishes invited papers presented at the annual meetings of the NAREA as well as abstracts of selected papers presented at those meetings. It periodically calls for articles written on a specific topic. Membership in the NAREA is open to all persons having an interest in agricultural and resource economics. Membership dues include a subscription to the *Review* and are \$25.00 per year for regular membership and \$5.00 per year for students. The single-copy price is \$15.00 per issue. The library (or institutional) subscription price is \$125 per year.

Address all manuscripts and editorial material to Dr. Kent Messer, Managing Editor.

Dr. Kent Messer Department of Applied Economics and Statistics University of Delaware 531 South College Avenue, #226 Newark, DE 19716 USA

Please see inside back cover for submission instructions.

Address requests for membership, subscriptions, and changes of address to:

Dr. Douglas E. Morris NAREA Secretary-Treasurer Department of Natural Resources and the Environment G68 James Hall 56 College Road University of New Hampshire Durham, NH 03824-2601 e-mail: dr.doug@unh.edu

Copyright © 2013 by the Northeastern Agricultural and Resource Economics Association. No article or other material appearing in the *Agricultural and Resource Economics Review* may be republished in full or in part without the written permission of the editor or the NAREA Secretary-Treasurer.

PUBLISHED BY THE NORTHEASTERN AGRICULTURAL AND RESOURCE ECONOMICS ASSOCIATION

PRINTED BY SHERIDAN PRESS, INC., HANOVER, PENNSYLVANIA

AGRICULTURAL AND RESOURCE ECONOMICS REVIEW

Volume 42 / Number 1 • April 2013

Contents

The Economics of Rural and Agricultural Ecosystem Services: Purism versus Practicality Dana M. Bauer and Robert J. Johnstonii	i
Invited Papers	
Using Ecological Production Theory to Define and Select Environmental Commodities for Nonmarket Valuation • James Boyd and Alan Krupnick	1
Demand-side Value for Ecosystem Services and Implications for Innovative Markets: Experimental Perspectives on the Possibility of Private Markets for Public Goods • Stephen K. Swallow	3
Economics and Environmental Markets: Lessons from Water-Quality Trading • James Shortle	7
Sustainability Science: A Call to Collaborative Action • <i>David D. Hart and</i> <i>Kathleen P. Bell</i>	5
Economic Science and Public Policy • Katherine R. Smith	0
Selected Papers	
Stated Preferences for Intermediate versus Final Ecosystem Services: Disentangling Willingness to Pay for Omitted Outcomes • <i>Robert L Johnston Fric T Schultz</i>	

Kathleen Segerson, Elena Y. Besedin, and Mahesh Ramachandran	98
The Value of Forever Wild: An Economic Analysis of Land Use in the Adirondacks • Carrie M. Tuttle and Martin D. Heintzelman	119
Applying the Ecosystem Services Concept to Public Land Management • Jeffrey D. Kline, Marisa J. Mazzotta, Thomas A. Spies, and Mark E. Harmon	139
Valuing Environmental Assets on Rural Lifestyle Properties • Maksym Polyakov, David J. Pannell, Ram Pandit, Sorada Tapsuwan, and Geoff Park	159
Social Cost of Biomass Energy from Switchgrass in Western Massachusetts • David Timmons	176
Tradeoffs among Ecosystem Services, Performance Certainty, and Cost-efficiency in Implementation of the Chesapeake Bay Total Maximum Daily Load • <i>Lisa A. Wainger,</i> <i>George Van Houtven, Ross Loomis, Jay Messer, Robert Beach, and Marion Deerhake</i>	196
Prioritizing Ecosystem Service Protection and Conservation Efforts in the Forest Plantations of the Red Hills - <i>Rebecca Moore</i>	225
Modeling the Production of Multiple Ecosystem Services from Agricultural and Forest Landscapes in Rhode Island • <i>Tingting Liu, Nathaniel H. Merrill, Arthur J. Gold, Dorothy Q. Kellogg, and Emi Uchida</i>	251

AGRICULTURAL AND RESOURCE ECONOMICS REVIEW

Volume 42 / Number 1 • April 2013

MANAGING EDITOR

Kent D. Messer University of Delaware

EDITORS

Sean B. Cash Tufts University Arnab Basu Cornell University

EDITORIAL BOARD

Marc Bellemare Duke University

Yanhong Jin Rutgers University

Barrett Kirwan University of Illinois

Travis Lybbert University of California, Davis

Michael Roberts University of Hawaii

Wolfram Schlenker Columbia University

Jordan Suter *Oberlin College*

Association Officers

PRESIDENT Kathleen Bell University of Maine

PRESIDENT-ELECT Joshua Duke University of Delaware

PAST PRESIDENT Jill Caviglia-Harris Salisbury University

SECRETARY-TREASURER Douglas E. Morris University of New Hampshire

EXECUTIVE COMMITTEE

Dana Bauer Boston University Director 2010–2013

Allison Borchers Economic Research Service, USDA Director 2012–2015

Carolyn Dimitri New York University Director 2010–2013

Martin Heintzelman Clarkson University Director 2012–2015

Ted Jaenicke Pennsylvania State University Director 2011–2014

Todd Schmit Cornell University Director 2011–2014

William Wheeler U.S. Environmental Protection Agency Government Representative (ex-officio)

TECHNICAL EDITOR

Natalie Karst West Sacramento, California