

FROM THE PRESIDENT...

Within the past year, both AERE and the *Journal of Environmental Economics and Management (JEEM)* passed important milestones. AERE celebrated (albeit rather quietly) its 20th anniversary and *JEEM* marked its 25th birthday with the special Silver Anniversary issue dedicated to its first three editors—Allen V. Kneese, Ralph d'Arge, and Ron Cummings. In Allen's words in the *Forward* to that volume, one of *JEEM's* most important functions has been to provide "an intellectual home for the community of environmental and natural resource economists" especially as *JEEM* became the official journal of AERE. "The two have grown so close that it is hard to imagine the one without the other."

- **The tribute to *JEEM's* first three editors is a fitting one.** The Anniversary Issue includes seven invited papers that together provide a "policy report card" for the profession. David Brookshire undertook the arduous task of editing this special issue. The seven papers, outstanding in their depth and insights about the progress the profession has achieved, were authored by Maureen Cropper; David Brookshire and David Scrogin; Anthony Fisher and Michael Ward; Robert Hahn; Charles Kolstad; Kerry Smith; and James Wilen. It is an issue that will be much cited in the future.

- **Both AERE and *JEEM* are doing extremely well these days.** Recent citation indices used by publishers place *JEEM* among the very best economics journals, and *JEEM* is subscribed to by over 1000 institutional libraries around the world. With a little more attention to renewals, AERE could break the 1000 member mark. More important, however, is the status the field of environmental and resource economics is gaining within economics. The outgoing president of the American Economic Association (AEA) has been much quoted now, after telling the Boston Globe "how far interest in microeconomics has moved toward health and environmental issues." In more concrete terms, AERE has just been informed of some good news by the AEA. You may recall that the AEA had threatened to cut back the number of sessions awarded to each association attending the annual Allied Social Science Association (ASSA) meetings because of the growth in number of associations. We have just received word that because AERE's session attendance over the last few years has

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Enclosure: Luncheon Reservation Form

compared favorably with attendance at other associations' sessions (including the AEA sessions), we are being offered an *increase* in our quota beginning with the Atlanta meetings in 2002.

- **The AERE Board is now in the process of finding a new editor for *JEEM*, since Bob Deacon has, understandably, declined to accept another term as editor.** The request for proposals was announced in the May 2000 *AERE Newsletter* and the proposals are being reviewed as this issue goes to press. The selection committee reviewing the proposals is chaired by Anthony Fisher. Three additional voting members were drawn from the AERE Board, and Bob Deacon is acting as an *ex officio* member of the committee. We hope that the new editorship can be announced to the membership at the AERE luncheon at the ASSA meetings in January.

- **Last June's AERE Workshop was held in La Jolla, California on the topic of "Effectiveness of Resource and Environmental Regulation".** By all accounts it was a great success. Thanks are due to Peter Berck who chaired the workshop committee and Dale Squires who took responsibility for on-site arrangements. This is a great deal more work than people realize, and we're extremely lucky to find individuals willing to take it on each year. Next year's workshop committee is chaired by Laura Taylor, who deserves my special thanks for assuming this responsibility at the 11th hour. In the spirit of "diversity", the location for the 2001 Workshop will be Bar Harbor, Maine. The topic is the assessment and management of risks affecting public health, the environment, and economic well-being. Abstracts are due early this year—by December 15, 2000. Suggested topic areas for the submission of abstracts include modeling of behavioral responses to risk, including responses to insurance; the valuation of risk reductions; and the design of policies appropriate to these issues. Laura's committee consists of Rich Ready, Don Fullerton, Carol Jones, Norman Meade and John Charbonneau, and the on-site arrangements have been made by Kevin Boyle. Funding is being provided by the National Oceanic and Atmospheric Administration; the Economic Research Service, U.S. Department of Agriculture; and the Fish and Wildlife Service, U.S. Department of the Interior; and support for organization and transportation is being provided by the University of Maine.

- **Look for the call for abstracts for both the summer AAEA and winter ASSA meetings elsewhere in this newsletter.** This year's program committee is chaired by Larry Goulder, and committee members are Heidi Albers, George Parsons, and Carlo Carraro. This year's Publication of Enduring Quality Award commit-

tee is made up of Chuck Howe (chair), Tim Haab, and Gardner Brown. The results of their deliberations as well as the names of new board members will also be announced at the AERE luncheon. John Loomis chaired the nominating committee this year with members Kathy Segerson and Peter Parks. Thanks to all of these people for being willing to volunteer their time – and a special thanks to Anna Alberini who has just stepped down from serving two years as the chair of the program committee.

- **This is the last newsletter message I will be writing, as Charlie Kolstad takes over as president of AERE in January.** I'd like to thank the membership of AERE who have, collectively, made the job an easy one. It never seems difficult to find great people to serve on AERE's committees, even though everyone is busy and many of these committee assignments take a lot of time and yield few personal rewards. I would also like to thank Kerry Smith for his invaluable help and advice over the last two years. Finally, no one in AERE has contributed more time to the cause than Bob Deacon has over the five years that he has served as *JEEM's* editor. We will soon have another name to add to a stellar list of retired-editors who have made *JEEM* a great journal. I'm personally very sad to see Bob step down and want to thank him publicly for all of us for five years of wisdom, judicious management, and extraordinary dedication. Thank you, Bob.

Nancy E. Bockstael
Dept. of Agricultural and Resource Economics
University of Maryland, College Park

AERE Newsletter

Co-Editors

John Loomis
Dept. of Agricultural and Resource Economics
Colorado State University
Fort Collins, CO
Telephone: 970-491-2485
Facsimile: 970-491-2067
E-mail: jloomis@ceres.agsci.colostate.edu

Marilyn M. Voigt
AERE Business Office
1616 P Street, NW, Room 507
Washington, DC 20036
Telephone: 202-328-5077
Facsimile: 202-939-3460
E-mail: voigt@rff.org

Publisher:

Association of Environmental and Resource
Economists (AERE)
1616 P Street, NW, Room 507
Washington, DC 20036

AERE ANNOUNCEMENTS

BOARD OF DIRECTORS' MEETING

The annual meeting of the AERE Board of Directors will be held on Friday, January 5th from 5:30 to 7:30 p.m. at the Hilton New Orleans Riverside Hotel in the Durham Room. Anyone with matters to be brought before the Board should contact the president:

Nancy Bockstael
Dept. of Agricultural and Resource Economics
University of Maryland, College Park
College Park, MD 20742-5535
E-mail: nancyb@arec.umd.edu
Telephone: 301-405-1263
Facsimile: 301-314-9091

WORKSHOP 2000

The workshop on "Effectiveness of Resource and Environmental Regulation" was held at the Scripps Institute of Oceanography in La Jolla, Ca June 11-13. Twelve papers were presented on a wide range of subjects, including fisheries, cooperative environmental agreements, and the political economy of regulation. Most of these papers are available on the conference website, <http://are.berkeley.edu/~peter/workshop.htm>.

We were also privileged to hear from two regulators with very different perspectives: Elaine Chang, who regulates pollution in the Los Angeles basin, and Bill Fox, who has a long career in fisheries regulation. The organizers were the AERE Workshop committee, Peter Berck, chair, Laura Taylor, John Beghin, Joseph Charbonneau, Carol Adaire Jones, and Norman Meade and Dale Squires who made many of the local arrangements.

Peter Berck
Department of Agricultural and Resource
Economics and Policy
224 Giannini Hall
University of California, Berkeley
Berkeley, CA 94720-3310
pberck@uclink4.berkeley.edu

WORLD CONGRESS OF ENVIRONMENTAL AND RESOURCE ECONOMISTS

Second World Congress 2002 Extended by a Day

The Organizing Committee for the Second World Congress of Environmental and Resource Economists has decided to expand the Congress by one day to accommodate an enhanced international participation, especially from countries in Africa, Asia, Eastern Europe and South America that have tended to be underrepresented at AERE and EAERE meetings in the past. The Congress will now run from Monday, June 24 through Thursday, June 27, 2002, with an initial reception and registration session on the late afternoon of Sunday, June 23rd. The Congress will be held at the Monterey Marriott Hotel in Monterey, California.

The Call for Papers for the Congress will be issued in the Spring of 2001. At that time, a web page will be opened at which information about the Congress can be obtained and registration can be completed. The Organizing Committee is still considering adding some special events such as short courses covering particular areas of interest or perhaps mini-conferences on more specialized topics, in addition to the usual array of sessions, symposia and invited keynote speeches. These additional events would be held just before or just after the Congress. The Organizing Committee welcomes any suggestions for activities that could enrich the intellectual fare at the Congress; these suggestions should be submitted to the Committee **by March 31, 2001**.

Michael Hanemann
Chancellor's Professor
Dept. of Agricultural & Resource Economics
and Goldman School of Public Policy
207 Giannini Hall
University of California
Berkeley, CA 94720
Telephone: 510-642-2670
Fax: 510-845-8639

CALLS FOR PAPERS

AERE WORKSHOP 2001

Assessing and Managing Environmental and Public Health Risks

**June 13 - 15, 2001
Bar Harbor Hotel
Bar Harbor, Maine**

The next AERE workshop will be held at the Bar Harbor Hotel, June 13 - 15, 2001 in Bar Harbor, Maine. The topic is the assessment and management of risks affecting public health, the environment, and economic well-being. Suggested topic areas for the submission of abstracts include the following: modeling of behavioral responses to risk, including responses to insurance; the valuation of risk reductions; and the design of policies appropriate to these issues.

Important sources of risks to public health arise from exposures to toxins and pollution and from consumption of market goods (e.g., food and water). It is important to develop better methods for the valuation of morbidity, mortality, and latent risk reductions. Papers addressing these issues might include the modeling of behavioral responses to risk in unitary, Nash, or collective frameworks for household behavior, and the policy design appropriate to those behaviors. Empirical applications might use a variety of methods to estimate values, including both stated and revealed preference methods (e.g., dollar/risk or risk/risk tradeoffs to estimate the value of a statistical life); and might include the evaluation of benefits transfer of estimated values or the evaluation of public decision making with respect to risks.

Risks to the environment, such as potential effects of pollution (including ozone depletion and climate change), land use change, natural hazards, or use of genetically-modified organisms, may have outcomes that are experienced now or in the distant future. Theoretical and empirical research topics might include the role of insurance markets, the conduct of benefit/cost analysis (including discounting issues), modeling of market failures and behaviors inducing these risks, and the design of appropriate policy. Special challenges to policy formation that may be addressed include

large uncertainties; learning and response to potentially catastrophic risks associated with future impacts; the role of information in risk perception and risk management; and the treatment of risk over long time horizons.

To present a paper at this workshop, please submit an abstract of no longer than 3 pages, double-spaced, to Laura Taylor, Workshop Chair, at the address below. **Abstracts are due December 15, 2000.** Expenses of paper presenters will be covered up to a maximum of \$1,000, including registration, airfare, ground transportation, hotel, meals, and incidental workshop-related expenses. All conference presenters and attendees must be AERE members. Nonmembers may join at the time of registration. Authors will be notified of the status of their submissions by January 31, 2001. Accepted papers are due May 1, 2001 and must not be published before the time of the workshop. Further information, including registration forms and travel and lodging information, will be mailed to AERE members in early 2001.

AERE gratefully acknowledges the funding provided by the National Oceanic and Atmospheric Administration; the Economic Research Service, U.S. Department of Agriculture; and the Fish and Wildlife Service, U.S. Department of the Interior; as well as the support provided by the University of Maine in helping to provide on-the-ground transportation and organization services.

Send abstracts to Prof. Laura Taylor:

By U.S. Mail or Overnight Service:
Department of Economics
Andrew Young School of Policy Studies
35 Broad St., Room 600
Georgia State University
Atlanta, GA 30303-3083

By E-mail: taylor@gsu.edu
(Use the words "AERE Abstract" as the e-mail subject.)

No facsimiles, please.

AERE NEWSLETTER

The AERE Newsletter is soliciting essays about natural resource and environmental economics issues of general interest to the membership. These essays can be relatively short (6-10 double space pages) and address a topic that does not fit into the traditional journal outlet. There is currently no backlog, so your essay would likely be published in the following AERE Newsletter. Marilyn Voigt and I need your essay in February for the May issue and August for the November issue. If you wish to float an idea by me, feel free to e-mail me at: Jloomis@ceres.agsci.colostate.edu. Or feel free to call at 970-491-2485.

John Loomis
AERE Newsletter Co-Editor

ACADA BOOKS

Acada Books is seeking book manuscripts on resource and environmental economics as well other environmental-related topics. They are interested in book manuscripts tailored for undergraduate college courses that have an appeal to general audiences as well. Acada Books publishes college texts and supplements that inspire a transformation in the relationship of people to each other and the natural world. To learn more about Acada Books, please visit www.acadabooks.com, or call Brian Romer, president, toll free at 888-242-6657.

ALLIED SOCIAL SCIENCE ASSOCIATIONS (ASSA)

The 2002 Winter meetings of the ASSA will be held in Atlanta, Georgia in January, 2001. Those wishing to have a paper considered for AERE's sessions should send six copies of a 1-3 page abstract. Submissions must be postmarked or sent via facsimile **by May 15, 2001** to Prof. Larry Goulder.

Proposals for complete sessions are also invited. Organizers of proposed sessions should submit abstracts of papers following the above instructions. Papers may be accepted or rejected on an individual basis unless the organizer specifically requests the session be considered only in its entirety.

Due to limited resources, those wishing to have receipt of their submissions must also submit a self-addressed, stamped postcard.

Lawrence H. Goulder
Department of Economics and
Institute for International Studies
Landau Economics Building Room 328
Stanford University
Stanford, CA 94305-6072
Facsimile: 650-725-5702
E-mail: goulder@stanford.edu

AMERICAN AGRICULTURAL ECONOMICS ASSOCIATION (AAEA)

The 2001 Summer meeting of the AAEA will be held in Chicago, Illinois. AERE will sponsor three selected papers sessions. Those authors wishing to have a paper considered for AERE's sessions should send six copies of a 1-3 page abstract. Submissions must be postmarked or sent via facsimile **by January 15, 2001** to Prof. Larry Goulder.

Proposals for complete sessions are also invited. Organizers of proposed sessions should submit abstracts of papers following the above instructions. Papers may be accepted or rejected on an individual basis unless the organizer specifically requests the session be considered only in its entirety.

Due to limited resources, those wishing to have receipt of their submissions must also submit a self-addressed, stamped postcard.

Lawrence H. Goulder
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Institute for International Studies
Landau Economics Building Room 328
Stanford University
Stanford, CA 94305-6072
Facsimile: 650-725-5702
E-mail: goulder@stanford.edu

**EUROPEAN ASSOCIATION OF
ENVIRONMENTAL AND RESOURCE
ECONOMISTS (EAERE)**

11th Annual Conference

June 28 - June 30, 2001

University of Southampton, United Kingdom

EAERE's 11th annual conference is a three-day program consisting of plenary sessions with keynote speakers and parallel sessions. The keynote topics are:

**Growth and the Environment
Valuation
Incentives**

The following themes will also be covered: Sustainable Development; International Environmental Agreements; Trade and Environment; Environmental Policy Instruments; Forestry Management; Fisheries Management; Waste Management and Recycling; and Transport.

All paper submissions must be received **by January 15, 2001**. Those who wish to submit a paper to the Conference Secretariat should either mail four copies (including a one-page abstract) or e-mail a PDF file to:

**EAERE 2001 Conference Secretariat
Index Communications Meetings Services
Crown House
28 Winchester Road
Ramsey, Hampshire S051 8AA
United Kingdom
E-mail: eaere.icms@dial.pipex.com**

Additional information about the program, registration, and accommodations will be available on the Conference web site at: www.eaere.org.

**INTERNATIONAL ATLANTIC
ECONOMIC SOCIETY (IAES)**

52nd IAES Conference

October 11-14, 2001

Philadelphia, Pennsylvania

The 52nd IAES Conference will be held in Philadelphia, Pennsylvania on October 11-14, 2001. A session on the economics of natural resources will be organized by M. Peter van der Hoek, regional editor of "International

Advances in Economic Research", one of the two official journals of the IAES, in cooperation with Joe Lewis, U.S. Forest Service.

Authors interested in presenting a paper in an organized session on the economics of natural resources are invited to submit abstracts by e-mail either to M. Peter van der Hoek (vanderHoek@frg.eur.nl) or Joe Lewis (jlewis02@fs.fed.us). The submission deadline for abstracts is **May 1, 2001**. The full paper should be available six weeks prior to the conference.

See IAES's web site (www.iaes.org) for more information. Please note that each participant is responsible for her/his own expenses and fees. However, the submission fee (\$70 for members, \$100 for non-members) will be waived for papers to be presented in an organized session.

Authors need to submit at least a 500 word abstract including: (1) Objectives; (2) Background; (3) Data and Methods; (4) Results/Expected Results; and (5) Discussion. On a separate cover page list: (1) Conference location; (2) Name; (3) Position or title; (4) Affiliation; (5) Mailing address; (6) Phone and fax numbers and e-mail address; (7) Category number of article topic (see listing in the Journal of Economic Literature); (8) Indicate if the paper has primarily a macro or micro focus.

**NORTHEASTERN AGRICULTURAL AND
RESOURCE ECONOMICS ASSOCIATION
(NAREA)**

Annual Meeting

June 11 - 13, 2001

**Holiday Inn Sunspree Resort
Bar Harbor, Maine**

The 2001 annual meeting of NAREA will be held at the Holiday Inn Sunspree Resort in Bar Harbor, Maine from June 11 - 13, 2001. A two-page abstract of proposed papers or symposiums should be sent to Dr. Lyndon Goodridge in the Department of Resource Economics and Development at the University of New Hampshire (lyndon.goodridge@unh.edu). Abstracts are due **by February 15, 2001**. The symposium or paper can be on any topic of interest to agricultural or resource economists. Abstracts of 100 words will be published in the October 2001 issue of *The Agricultural and Resource Economics Review*. For further information, access the NAREA website at <http://www.narea.org>.

RESOURCES FOR THE FUTURE (RFF)

Conference on Economics of Resistance

April 5-6, 2001
Washington D.C.

The problem of resistance is common to all efforts to control biological agents harmful to humans and human enterprise. In the past, pests have developed resistance to pesticides, bacteria to antibiotics and weeds to herbicides. Pest resistance to transgenic or genetically modified (GM) crops and viral resistance to HIV medication threaten to undo some of the most remarkable scientific achievements of the past century. The evolution of resistance is strongly affected by the economic behavior of individuals and institutions. The problem arises from the absence of economic incentives for individual decision-makers (such as physicians or farmers) to take into account the negative impact of their use of antibiotics or genetically modified crops on future social wellbeing. Natural resource economics offers a valuable framework for analysis of the optimal use of biological control agents such as antibiotics, anti-virals and pest-resistant transgenic crops.

RFF will host a two-day conference on April 5-6, 2001 in Washington D.C. to encourage research that will help improve the analytical framework of "resistance economics." The conference will focus on

- *Analytical methods* to study resistance as a negative externality associated with the use of antibiotics, transgenic crops and pesticides.
- *Incentive structures* that will influence socially optimal pricing of biological control agents and research spending on new control agents.
- *Regulatory regimes* that take into account the public good embodied in the effectiveness of biological control agents.

Further, it will provide an opportunity for interdisciplinary research between social scientists, medical professionals and policy experts to forge innovative approaches to the study of resistance. Papers are invited for inclusion at this conference. General topic areas for papers include (but are not restricted to) *optimal policies* to manage resistance such as formulary strategies in hospitals and refuge strategies in transgenic agriculture; *incentives faced by firms* that produce resistance inducing products, and their incentives to invest in R&D into new products; and *analysis of the public externality*

imposed by the use of resistance inducing products, and regulatory options to reach socially optimal outcomes.

Multi-disciplinary endeavors between social scientists and natural scientists are encouraged. The deadline for acceptance of papers is **January 1, 2001**. All submissions should be mailed to:

Resources for the Future
c/o Resistance Conference
1616 P Street NW
Washington DC 20036

Electronic submissions may be sent as e-mail attachments to resistance@rff.org. Fax submissions will not be accepted. A preliminary program and list of accepted papers, as well as information on travel, accommodations and conference registration will be circulated by February 5, 2001. Online updates will be posted at www.rff.org/resistance. If you are interested in attending or have any questions, please write to resistance@rff.org.

UNITED STATES SOCIETY FOR ECOLOGICAL ECONOMICS (USSEE)

Inaugural Conference

July 11-13, 2001
Duluth Entertainment and Convention Center
Duluth, Minnesota

First Call For Abstracts:

Please include the following: Title; Author(s); Affiliation(s); Indicate for Parallel Paper or Poster; Abstract; Four Key Words; Presenting author contact information.

Abstracts will be selected based on originality and relevance to Ecological Economics. Please limit abstracts to 300 words, and all abstract information to a single page.

Electronic versions in Microsoft Word Format may be submitted to: conferenceinfo@ussee.org. or mailed to:

USSEE Conference
c/o Institute for A Sustainable Future
5815 Glenwood Street
Duluth, MN 55804

Abstracts must be received by February 1, 2001.

MEETINGS

ALLIED SOCIAL SCIENCE ASSOCIATIONS (ASSA)

January 5-7, 2001
New Orleans, Louisiana

AERE PAPERS SESSIONS

Valuation Methods: Addressing Fundamental Questions

Presiding: Anna Alberini
University of Maryland
Date/Time: Friday, January 5th, 8:00 a.m.
Place: Hilton, Grand Salon 13

Papers:

John Whitehead (East Carolina University) "Can Stated Preference Data Be Used to Predict Actual Behavior?"

V. Kerry Smith (North Carolina State University), Subrendhu Pattanayak (Research Triangle Institute), George van Houtven (Research Triangle Institute) and Kevin Boyle (University of Maine) "Benefits Transfer in a Moment? GMM for Benefits Estimation"

John Horowitz and Kenneth E. McConnell (University of Maryland) "Willingness to Accept, Willingness to Pay, and the Income Effect"

A.C. Burton (Leeds University), Katherine Carson (US Air Force Academy), Susan Chilton (University of York) and W.G. Hutchinson (Queens University, Belfast) "Are Inconsequential Referenda Incentive Compatible?"

Discussants:

John Loomis (Colorado State University)
Trudy Cameron (University of California, Los Angeles)
Tim Haab (Ohio State University)
Laura Taylor (Georgia State University)

Recreation Demand

Presiding: George Parsons
University of Delaware

Date/Time: Friday, January 5th, 10:15 a.m.
Place: Hilton, Grand Salon 13

Papers:

Roger von Haefen and Daniel Phaneuf (North Carolina State University) "A Comparison of Economic and Statistical Approaches to Corner Solutions with an Applications to Seasonal Recreation Demand"

Dietrich Earnhart (University of Kansas) "The Value of Time: Combining Revealed and Stated Preference Data to Estimate Recreation Demand"

Anders Kalstrom (Royal Institute of Technology, Sweden) and Edward Morey (University of Colorado) "Calculating Welfare Measures in Random Utility Models with Income Effects: Functional Forms, Exact Measures and Approximations"

William Breffle and Robert Rowe (Stratus Consulting) "Comparing Simple Versus Complex Choice-Question Strategies for Evaluating Natural Resource Trade-offs"

Discussants:

Joseph Herriges (Iowa State University)
Paul Jakus (University of Tennessee)
Catherine Kling (Iowa State University)
V. Kerry Smith (North Carolina State University)

**Responses of Firms and Agencies to
Environmental Regulation**

Presiding: Scott Farrow
Carnegie Mellon University
Date/Time: Saturday, January 6th, 8:00 a.m.
Place: Hilton, Grand Salon 13

Papers:

Wayne Gray (Clark University) “Technology Change, Emissions Reductions, and Productivity”

Eric Helland (Claremont McKenna College) and Andrew Whitford (University of Michigan) “Pollution Incidence and Political Jurisdiction: Evidence from the TRI”

Rolf Fare (Oregon State University), Shawna Grosskopf (Oregon State University) and Carl Pasurka (U.S. Environmental Protection Agency) “Estimating Pollution Abatement Costs: A Comparison of ‘Stated’ and ‘Revealed’ Approaches”

J.R. DeShazo and Andres Lerner (University of California, Los Angeles) “Budgetary Pressures and the Strategic Behavior of Regulatory Agencies Under the Clean Air Act”

Discussants:

Virginia McConnell (University of Maryland)
Sarah Stafford (College of William and Mary)
Scott Farrow (Carnegie Mellon University)
Amy Ando (University of Illinois)

**Economic Incentives and Voluntary
Approaches**

Presiding: Ian Parry
Resources for the Future
Date/Time: Saturday, January 6th, 10:15 a.m.
Place: Hilton, Grand Salon 13

Papers:

Roberton Williams III (University of Texas) “Should Emissions Permit Programs Allow Trading and Banking?”

Charles Mason (University of Wyoming) “On the Economics of Eco-labeling”

Juan-Pablo Montero (Pontificia Universidad Catolica de Chile and MIT) “Prices v. Quantities with Incomplete Information”

Na Li Dawson and Kathleen Segerson (University of Connecticut) “VAs with Industry-wide Target: The Role of Firm Heterogeneity”

Discussants:

Tom Tietenberg (Colby College)
Karen Palmer (Resources for the Future)
Billy Pizer (Resources for the Future)
Ian Parry (Resources for the Future)

New Environmental Threats and Conservation

Presiding: Ramanan Laxminarayan
Resources for the Future

Date/Time: Sunday, January 7th, 8:00 a.m.
Place: Hilton, Grand Salon 13

Papers:

Timo Goeschl (University of Cambridge) and Tim Swanson (University College, London) “Lost Horizons: The Interaction of IPR Systems and Resistance Management”

Ramanan Laxminarayan and David Simpson (Resources for the Future) “Refuge Strategies for Managing Pest Resistance in Transgenic Agriculture”

David Abler, James Shortle and Jeffrey Carmichael (The Pennsylvania State University) “Climate Change, Agriculture, and Water Quality in the Chesapeake Bay Region”

Stephen Polasky (University of Minnesota) “Integrating Economic and Biological Information into Large-Scale Conservation Planning”

Discussants:

James Sanchirico (Resources for the Future)
Timo Goeschl (University of Cambridge)
John Horowitz (University of Maryland)
Kathleen Bell (University of Washington)

Land Use and Global Climate Change

Presiding: Dale Jorgenson
Harvard University
Date/Time: Saturday, January 6th, 10:15 a.m.
Place: Hilton, Grand Salon 13

Papers:

Robert Mendelsohn (Yale University), Roger Sedjo (Resources for the Future) and Brent Sohngen (Ohio State University) "The Effect of Alternative Policies on Carbon Sequestration Costs in Forests"

Ruben Lubowski (Harvard University), Andrew Plantinga (University of Maine) and Robert Stavins (Harvard University) "Land Use Change and Carbon Sinks: Econometric Estimation of the Carbon Sequestration Supply Function"

Suzi Kerr (Motu Economic Research), Alex Pfaff (Columbia University) and Arturo Sanchez (University of Alberta) "The Dynamics of Deforestation and the Supply of Carbon Sequestration in Costa Rica"

Hogli Feng, Catherine Kling and Jinhua Zhao (Iowa State University) "Sinks v. Permanent Emissions Reductions: An Application to Greenhouse Gases"

Discussants:

Darius Adams (University of Oregon)
Nancy Bockstael (University of Maryland)
Bruce McCarl (Texas A&M)
Robert N. Stavins (Harvard University)

JOINT SESSION WITH THE AMERICAN ECONOMIC ASSOCIATION (AEA)

Distributional Issues in Environmental Valuation

Presiding: Clifford S. Russell
Vanderbilt University
Date/Time: Saturday, January 6th, 2:30 p.m.
Place: Hilton, Grand Salon 13

Papers:

V. Kerry Smith (North Carolina State University) "Do Revealed Preference Methods Predetermine the Estimate for Income in Benefit Measurement?"

Nicholas Flores (University of Colorado) "Non-Paternalistic Altruism and Welfare Economics"

Brian Garber Yonts and Rebecca Johnson (Oregon State University) "Differences in Coastal, Urban and Rural Residents Values for Ecosystem Restoration in Oregon: A Stated Choice Analysis"

John Loomis, Lucas Bair (Colorado State University) and Armando Gonzalez-Caban (U.S. Forest Service) "Are There Racial and Language Differences in Household Benefits of Wildfire Prevention Programs? Results From a Contingent Valuation Survey of Florida Residents"

ESSAY

Conservation Easements

Andrew J. Plantinga
Department of Resource Economics and Policy
University of Maine

Land in Conservation Easements, by State, 1998

State	Acres	State	Acres	State	Acres
New England		Plains		Rocky Mountains	
CT	12946	IA	3445	CO	79783
MA	35811	KS	219	ID	8315
ME	59141	MO	12	MT	258416
NH	65579	ND	0	UT	3000
RI	3519	NE	1700	WY	7585
VT	138769	SD	7760	Total	357099
Total	315765	Total	13136		
Mid-Atlantic		South		Southwest	
DE	1527	AL	0	AZ	857
MD	79342	AR	85	NM	28113
NJ	4800	FL	17071	OK	NA
NY	190924	GA	6189	TX	3823
PA	59774	KY	12	Total	32793
Total	336367	LA	14604		
Great Lakes				West	
IL	3498	MS	1875	AK	917
IN	209	NC	26564	CA	78099
MI	10648	SC	22071	HI	5
MN	4855	TN	1797	NV	118
OH	2885	VA	118402	OR	2654
WI	5141	WV	75	WA	11949
Total	27236	Total	208745	Total	93742
				U.S. total	1384883

Source: Land Trust Alliance.

Easements have become an increasingly popular tool for land conservation in the United States. A conservation easement is a contractual agreement between a landowner and a government agency or private conservation group that gives the conservator a partial interest in a tract of land. Under the typical arrangement, the conservator purchases the rights to future development. The landowner relinquishes the right to develop the land, but normally retains the right to continue current land-use and land-management practices. By acquiring the development rights, the conservator thus ensures the continued provision of external benefits from the land. In the case of forest and agricultural land, these benefits may include open space, wildlife habitat, and impediments to urban sprawl.

According to the Land Trust Alliance¹, there were 1,385,000 acres of land in the U.S. under conservation easements in 1998 (Table 1), up almost 400% from 1988. Most of the easement acreage is in four regions: the Rocky Mountains (26%), the Mid-Atlantic (24%), New England (23%), and the South (15%). As of 1998, Montana had the most land in easements of any state (258,000 acres), followed by New York (191,000 acres), Vermont (139,000 acres), and Virginia (118,000 acres).² The most common land types under easements are forests (71% of all easements in 1998 were forested to some extent), wetlands (69%), scenic lands (69%), and habitat for rare and/or endangered species (41%).

There are several possible explanations for the growing use of conservation easements (Boyd *et al.*, 1999). One is that landowners enter into the contractual agreement on a voluntary basis, an arrangement that is often more politically palatable than regulatory approaches such as mandatory use restrictions. Furthermore, easements are often established between private parties—for example, between a landowner and a local land trust—, eliminating the need for consensus on legislative action. Finally, from the conservator's perspective, conservation easements are less expensive than outright land purchases because the landowner need not be compensated for the full value of the land.

The remainder of this essay is devoted to a discussion of the valuation of easement acquisitions. While conceptually straightforward, the cost of an easement is more difficult to determine in practice. I describe problems encountered with the use of standard land appraisal methods for easement valuation and an alternative approach that uses the hedonic price model. Beyond addressing specific issues related to easement valuation, I describe how results from urban growth theory can be incorporated into hedonic land price models in order to account for the dynamic structure of land prices and yield tractable estimation problems.

The Cost of a Conservation Easement—Theory

If landowners have perfect foresight and the land market is competitive, then the price of land equals the present discounted value of the stream of land rents. For simplicity, suppose there are two alternative land uses—development and an undeveloped use (e.g., forestry, agriculture)—and that development is irreversible. If a parcel is currently undeveloped, then its price in time 0 is,

$$(1) \quad P_0 = \int_0^{t^*} U(s)e^{-rs} ds + \int_{t^*}^{\infty} D(s)e^{-rs} ds - Ce^{-rt^*},$$

where $U(s)$ and $D(s)$ are the instantaneous rents from the undeveloped and developed uses, respectively, t^* is the time of development, r is the interest rate, and C is the cost of development. In order to be indifferent between developing in t^* and keeping the land in its undeveloped state indefinitely, the landowner must be compensated for the foregone gains from development,

$$(2) \quad EC_0 = \int_{t^*}^{\infty} [D(s) - U(s)]e^{-rs} ds - Ce^{-rt^*}.$$

EC_0 is, thus, the cost to the conservator of acquiring an easement on the parcel in time 0. Note that the easement cost is less than the land price by the amount $\int_0^{\infty} U(s)e^{-rs} ds$ because the landowner continues to derive rents from the current use of the land.

The Cost of a Conservation Easement—Estimation

There are two standard methods of land appraisal—the income approach, which involves the direct computation of a parcel's value, and the comparable sales approach, which uses market data on parcels with similar characteristics (Wiebe *et al.*, 1996). Neither method is easily applied to the valuation of easement acquisitions. Direct computation of EC_0 (Equation 2) is

¹ The Land Trust Alliance conducted a nationwide survey of land trust associations during 1997 and 1998. More details of the study are available at www.lta.org/censum.html.

² Maine may soon be the state with the most acres under conservation easements. In late 1998, the Nature Conservancy purchased easements on 185,000 acres of forest land in northern Maine and the New England Forestry Foundation currently has a two-year option to purchase a 750,000 acre easement.

difficult because neither the development time t^* nor the future rents from development $D(s)$ are observed. As a result, the valuation is sensitive to the appraiser's judgment of the timing of development, the type of development, and the associated development rents. The comparable sales approach considers prices paid for easements on parcels with similar characteristics. These data, however, are often unavailable due to a lack of existing easements near the parcel of interest. Furthermore, in order to use easement prices from another location, one has to be confident that the parcels have similar characteristics. In particular, the parcels should be alike in terms of prospects for development, a condition that may be difficult to satisfy and confirm.

Boyd *et al.* (1999) note that these valuation problems limit the appeal of easements relative to alternative mechanisms for land conservation. Plantinga and Miller (2000), however, propose an alternative approach that overcomes the problems encountered with standard appraisal methods. The first step is to recognize that the cost of the easement can be written,

$$(3) \quad EC_0 = P_0 - \int_0^{\infty} U(s)e^{-rs} ds.$$

The second term on the right-hand side of (3) is the private value of the land in its current use. This value can be estimated with observed data on current returns to the land. For instance, if the parcel is currently used for forestry, the private value might be computed as the present value of an infinite series of timber rotations.

The first term on the right-hand side of (3) is the current market price of the land. The price might be estimated with comparable sales data. However, if price data are unavailable for parcels with similar characteristics, an alternative approach is to estimate a hedonic model of land prices and use the fitted model to estimate the current price. Equation (1) provides the basis for the hedonic price equation. According to (1), the current price depends on the development time, rents from the current use and development, the interest rate, and conversion costs. The unobservability of the development time and development rents poses a challenge for the use of the hedonic price model, just as it does for the income approach to land appraisal. Hedonic methods, however, offer the alternative of modeling unobserved variables in terms of observed variables. For the matter at hand, we turn to the theory of land price formation to identify the determinants of development timing and rents.

Land Prices on the Urban Fringe—Theory and Estimation

For decades, urban economists have been concerned with the dynamics of urban growth and decline, and have often analyzed these phenomenon with spatial models of monocentric cities (e.g., Arnott, 1980; Wheaton, 1982; Capozza and Li, 1994). These models have the same basic structure as the well-known von Thunen model, however, modern versions include such factors as endogenous land prices, commuting costs, and population growth. For instance, Capozza and Helsley (1989) develop a model in which people live in the area surrounding a city center and commute into the central business district for work. Rents for developed land decline in distance to the city center to offset rising commuting costs. Over time, exogenous increases in the city's population drive up development rents and the city expands into the surrounding agricultural region.

Results from urban growth theory identify the key determinants of development timing and rents. Profit-maximizing owners of undeveloped land will choose the development time t^* to maximize the value of land, as expressed in (1). Assuming an interior solution, the first-order condition $U(t^*)=D(t^*)-rC$ implicitly defines t^* in terms of rents and other parameters. Thus, the current land price P_0 can be written as a reduced-form function of rents from the current use and development, the interest rate, and conversion costs. Insights into the determinants of development rents can be gained from the solution for a dynamic land market equilibrium. For instance, in Capozza and Helsley (1989), equilibrium rents from developed land are shown to be a function of undeveloped land rents, the interest rate, conversion costs, and an accessibility rent. The latter is determined by distance to the central business district, unit commuting costs, and the city's population.

Incorporation of results from urban growth models allows the land price equation to be specified in terms of variables whose current values can, in principle, be observed.^{3 4} The form of the function relating price to the set of explanatory variables is unknown, and, given

³ Since development timing and rents may depend on variables expected to change over time, such as population, it may be necessary to model future values of these variables. To account for growth in population, Plantinga and Miller (2000) include measures of recent rates of change in metropolitan area populations.

⁴ An alternative approach involves direct estimation of the structural demand and supply equations that determine the dynamic market equilibrium. See DiPasquale and Wheaton (1994) and Riddel (2000).

the form of (1), likely to be nonlinear. One approach is to specify a general nonlinear function, such as a higher-order polynomial, and let the data determine the functional form. The fitted model can then be used to estimate the market price for a land parcel of interest. Of particular importance in this regard are measures of the distance or travel time to cities, as these variables are needed to generate location-specific estimates. The final step is to estimate the easement cost by subtracting the value of the land in its current use from the estimated market price (Equation 3).

Plantinga and Miller (2000) use this approach to model agricultural land values in New York State. The estimation results indicate a highly nonlinear relationship between price and agricultural rents, metropolitan area population change, and travel times to metropolitan areas. According to urban growth theory, these nonlinearities arise from the dynamic structure of land prices. The model is used to estimate the cost of conservation easements in Orange County, located to the northwest of New York City. The southeastern edge of the county is within a one hour drive of Manhattan and, here, conservation easements acquisitions are valued as high as \$3,400 per acre (1992 dollars). At the northern end of the county—a two-hour drive from Manhattan—easements values fall below \$1,000 acre. In Orange County, development rents dwarf average agricultural rents, which are estimated to be only \$138 per acre.

Concluding Remarks

In the U.S., the area of land under conservation easements has grown dramatically in the past decade and, by all indications, easements will continue to be widely used by government agencies and private conservation groups.⁵ The popularity of easements stems, in part, from the voluntary nature of the contractual agreement as well as the ease with which contracts can be established through a decentralized process. These factors that favor the use of easements, however, may also reduce the likelihood that easements result in efficient environmental protection. Recent analyses by Segerson and Miceli (1998) and Wu and Babcock (1999) find that efficiency is not necessarily achieved with voluntary environmental agreements, though, under certain conditions, voluntary measures may be more efficient than mandatory regulation. Moreover, decentralized agreements are subject to the usual free-rider problems that attend the private provision of public goods.

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⁵ For example, the 1996 Farm Bill expands the federal role in land conservation by authorizing the purchase of farmland conservation easements.

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Diane D. Jackson
Ecology and Economics Research Department
The Wilderness Society
900 Seventeenth St., NW
Washington, DC 20006-2596
Telephone: (202) 429-3944
E-mail: diane_jackson@twc.org
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POSITION ANNOUNCEMENTS

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To apply: Submit a completed application form, curriculum vitae, a transcript showing highest degree earned (from an accredited educational institution), a letter of application that addresses the applicant's teaching philosophy within a multicultural environment, and a minimum of three recent (within the past two years) letters of reference and two additional names, addresses, and telephone numbers of references. **Completed applications must be received by December 1, 2000.** A screening will take place at the American Economic Association meetings in New Orleans January 5-7, 2001 to select candidates for on-campus interviews. Materials submitted by the candidate will be available for examination by all tenured and probationary faculty of the department. *California State Polytechnic University, Pomona is an Equal Opportunity, Affirmative Action Employer.*

Please request an application form from:

Patricia A. Schmelzle, Administrative Assistant
for Academic Personnel
Economics Search Committee
College of Letters, Arts, and Social Sciences
California State Polytechnic University, Pomona
3801 West Temple Avenue
Pomona, CA 91768
Telephone: 909-869-3941
FAX: 909-869-4858
E-Mail: paschmelzle@CSUPomona.edu

For questions regarding the department contact:
Dr. Lynda M. Rush; Chair, Search Committee;
Economics Department; Telephone: 909-869-3857; Fax:
909-869-6987; E-Mail: LMRush@CSUPomona.edu;
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Send cover letter and resume to:

DVRPC
Attention: Human Resources
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Philadelphia, PA 19106

E-mail: probinson@dvrpc.org
Fax: 215-592-9125

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Hiring is proposed at the Assistant Professor level, but exceptional candidates will be considered at a higher rank commensurate with qualifications and experience. A Ph.D. degree and a commitment to high-quality research and teaching are required. Preference will be given to applicants with expertise in understanding carbon source-sink relations (e.g., land use/land cover change and remote sensing, ocean carbon cycle, land surface processes, oxygen and isotopic studies, atmos-

pheric inversions), deliberate carbon sequestration/emissions reduction strategies (e.g., deep geological or oceanic storage, terrestrial storage, efficiency in fuel combustion, energy forecasting related to carbon emissions), or some combination. The successful applicant will be appointed in one of the following departments: Energy and Geo-environmental Engineering; Energy, Environmental and Mineral Economics; Geography; Geosciences; or Meteorology. Strong ties to the College's Energy and Environment Institutes are also encouraged.

Applicants should submit a letter of interest, curriculum vitae, and the names of four references to: Dr. William E. Easterling, c/o Ms. Deb Detwiler, EMS Environment Institute, Pennsylvania State University, 2217 EES Bldg., University Park, PA 16802. Applications received by December 1st will be given full consideration. The position will remain open until filled. *The Pennsylvania State University is an equal opportunity/affirmative action employer. Women and minorities are encouraged to apply.*

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Qualifications: a Ph.D. in Economics or Agricultural and Resource Economics will be required. The candidate must demonstrate a commitment to teaching and research in the area of environmental and/or health economics and policy. Knowledge of and experience in one or more of the following fields is required: environmental economics, health economics, statistical methods and modeling, risk analysis.

Research: The candidate will be expected to conduct theoretical, conceptual and quantitative research that addresses environmental issues with a focus on the link between environment and health.

Teaching: One semester undergraduate course and one semester graduate course, in environmental economics, health economics, or some combination of these.

To apply: Send a c.v. statement of research and teaching interests, and names and addresses of three references to: Professor Michael Hanemann, Dept. of Agricultural & Resource Economics, Univ. of California, Berkeley, CA 94720-3310. **Closing date: December 21, 2000.** *The University of California at Berkeley is an Equal Opportunity, Affirmative Action Employer.*

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Research responsibilities include the formulation and analysis of environmental policy and institutions in land, air, and water resource systems. Candidates will have the opportunity to work with other social and natural scientists to further integrated environmental management at the local, regional, and global scales.

Candidates must have a Ph.D. in an applicable social or policy science discipline. Graduate-level training in environmental economics, policy formation, and institutions is required. The candidate must also exhibit strong quantitative and analytical skills. Training and background in the structure and function of environmental systems is desirable. Further information about the department and programs may be obtained at <http://envisci.ucr.edu>. Salary commensurate with education and experience.

Candidates should submit a curriculum vitae, transcripts, research paper, and statement of teaching and research interests to Dr. Marylynn V. Yates, Chair, Department of Environmental Sciences, University of California, Riverside, CA 92521. Applicants must also request that three letters of recommendation be sent to the same address. **Closing date for applications is December 15, 2000.**

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The department has focused its research/outreach and degree program in three thrust areas: agribusiness, natural resources/environment and community/regional development. It has received university mission enhancement funds in recognition of the visibility already achieved in these specialties. All are critically

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Each position has an expectation for high quality teaching (40%) and research (60%). Candidates should have a demonstrated capacity for teaching/advising a diverse group of graduate and under-graduate students as well as for developing a program of scholarship which will produce products valued by peers and clients and attract support from external sources.

A Ph.D. is required in Agricultural Economics, Economics, Business, Regional Economics or other related disciplines. Applicants must have completed all Ph.D. degree requirements prior to appointment to faculty position.

More information about each position and the SSU and its programs can be found at: <http://www.ssu.missouri.edu>. Applications from women and minorities are particularly encouraged. The University of Missouri is an EEO/AA/ADA institution.

Screening of applicants will begin on November 15, 2000 and continue until the positions are filled. Those interested in applying should send: a letter of application indicating which position(s) is of interest; current resume; copy of transcripts; samples of scholarly works; and names with contact information for at least three references. Applicants who are short listed will likely be asked to send evidence of teaching experience. Send application materials or questions to:

Faculty Search Committee
200 Mumford Hall
University of Missouri
Columbia, MO 65211
Tel: 573-882-0150
Email: BullockJ@missouri.edu
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The successful applicant must hold a graduate degree in the social sciences or public policy and is someone who combines: substantive knowledge of human services policies and/or programs (such as cash assistance, welfare to work, work supports, child support, earned income tax credits, food stamps, housing, child welfare, child care, and/or teen pregnancy prevention programs); and strong analytical and research skills, including quantitative skills. Knowledge of sophisticated analytical techniques or quantitative methods is less important than an aptitude for using data to analyze policy questions. Some experience with large data sets (survey or administrative data) preferred but not required.

This position may be filled through assignment from a university or nonprofit organization under an Intergovernmental Personnel Agreement (IPA) detail. In most instances, the individual's salary and benefits at their home university or organization will remain in place and will be reimbursed by the Federal government according to the Intergovernmental Personnel Act (IPA) Mobility Program. For further information, please contact Julia Isaacs, Director of the Division of Data and Technical Analysis, at 202-690-6805, e-mail jisaacs@osaspe.dhhs.gov.

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