

FROM THE PRESIDENT...

This is my first column as the new AERE president and the first order of business is to thank Tony Fisher for all the hard work he has put into AERE over the last three years. I am just beginning to realize just how much work!

It is a busy time for AERE with a new Fellows program, the launch of a new AERE journal, a new Institutional and University Membership program, and a full slate of meetings culminating in the Third World Congress of Environmental and Resource Economists next year in Kyoto, Japan. In addition, AERE has initiated a search for a new managing editor for its *Journal of Environmental Economics and Management*. My column here describes these and other activities of AERE starting with a happy note, the 2004 award for AERE's Publication of Enduring Quality, and concluding with a sad one on the death of Pierre Crosson of Resources for the Future, who played a significant role in AERE's history.

Publication of Enduring Quality. The 2004 award for the Publication of Enduring Quality was presented at the AERE luncheon to David Montgomery of Charles Rivers Associates for "Markets in Licenses and Efficient Pollution Control Programs" which appeared in the *Journal of Economic Theory* in 1972. David gave an interesting account of how this landmark paper came to be and how it helped launch one of the seminal contributions of environmental economics, emissions trading, by clearly setting out the theoretical foundations of how the mechanism works. My thanks to the selection committee that consisted of Ted McConnell (chair, University of Maryland, College Park), Andrew Plantinga (Oregon State), and Margaret Slade (Warwick). The announcement for nominations for the 2005 award is in this issue of the newsletter.

AERE Board Activities and Decisions. The Board met in January in Philadelphia and had a long and productive meeting. The new AERE journal and the AERE Fellows program were approved. A new Institutional and University Membership Program was also formally launched. How to improve the level of service AERE gets from the American Agricultural Economics Association (AAEA) business office, which now manages the membership services for AERE, was fruitfully discussed with Marilyn Voigt, AERE's

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Executive Director, and Yvonne Bennett, Executive Director of AAEA. The AERE Board approved Ann Wolverton of EPA-NCEE as the successor to David Austin who has long served as AERE Secretary. Ann will take over in January 2006. This Fall, AERE members will elect new officers and board members—see the announcement on page 5.

New AERE Journal. The AERE Board made the decision to go forward with a new policy oriented journal. Rob Stavins of Harvard has agreed to be the editor, with Carlo Carraro of the University of Venice and FEEM, and Charles Kostad of UC Santa Barbara agreeing to serve as co-editors. AERE is in the final stages of negotiating with a publisher. Details, including the name of the journal, should be available soon.

AERE Fellows. The AERE Board decided to go forward with the proposal to institute an AERE Fellows program and worked out the final details. Formal nominations for the initial class of AERE Fellows (see previous AERE newsletter) have now closed but it is still not too late to mention good candidates to AERE Board members.

Institutional and University Membership Program. The rate for institutional membership has been set at \$1,000 for non-profit/government institutions and corporate firms and \$350 for colleges and universities. Initial Institutional Members include Industrial Economics, Inc., Resources for the Future, and Stratus Consulting while initial University Members include the Giannini Foundation (UC Berkeley and UC Davis), Harvard University, the University of Alberta, the University of California, San Diego, the University of California, Santa Barbara and the University of Maryland, College Park. We are very grateful to these organizations for their support of AERE and its programs. If you think there is a possibility your organization or one you work with might be interested, please contact Marilyn Voigt or me with the information, so that an AERE Board Member or I can follow-up. There are details about the program and its benefits on page 4 of this newsletter.

AERE Committees. Much of the work of AERE is, of course, done by our standing committees and it is now time to start appointing members to a number of committees who have members rotating off. Anyone interested in serving on an AERE committee should contact me.

Editorship of *JEEM*. Joe Herriges is stepping down as Managing Editor of *JEEM* early next year. At that time Joe will have served for five years, as did Bob Deacon

before him, and giving notice now allows us sufficient time to find a successor and manage a smooth transition. AERE is currently soliciting formal proposals for a new managing editor. Joe and I are available to help develop proposals of interested parties.

2005 AERE Workshop. An excellent set of papers has been put together for the 2005 Summer Workshop on “Natural Resources at Risk” which will be held June 12-14, 2005 in Grand Teton National Park, Wyoming. Gardner Brown of the University of Washington chaired the program committee whose other members were John Charbonneau of the U.S. Fish and Wildlife Service, Don Fullerton of the University of Texas, Al McGartland of EPA, Norman Meade of NOAA, and David Zilberman of UC Berkeley.

Other Upcoming Events. I look forward to seeing many of you at the European Association of Environmental and Resource Economists meeting in Bremen, Germany on June 23-26. I will also be attending the AERE reception and paper sessions at the AAEA meeting in Providence, Rhode Island, July 24-27, 2005 for which J.R. DeShazo of UCLA served as program chair.

There are also five workshops this summer and fall organized by long time AERE members that are specifically designed to help young faculty members and graduate students get valuable feedback on their work. These are the Ulvön Conference on Environmental Economics on June 21-23 in Sweden organized by Bengt Kriström; Camp Resources on August 11-12 in North Carolina organized by V. Kerry Smith; the Heartland Environmental and Resource Economics Workshop on September 18-19 in Iowa organized by Cathy Kling; the University of Colorado Environmental and Resource Economics Workshop on September 23-24 organized by Nick Flores; and the Occasional California Workshop on Environmental and Resource Economics on September 30-October 1 organized by Charles Kolstad. Links to all of these workshops can be found on the AERE website www.aere.org under meetings. In addition AERE will have a number of sessions at the Southern Economic Association in Washington DC, November 18-20, 2005 for which John Whitehead of Appalachian State University serves as program chair.

AERE will have its usual sessions (and its annual luncheon) at the Allied Social Science Associations (ASSA) meeting in Boston on January 6-8, 2006. Alan Krupnick who is AERE’s representative to the ASSA, reports that AERE has the third largest median attendance at its sessions of any of the 54 associations that are members of the ASSA. Based on this, Alan is

requesting an additional session on behalf of the AERE Board. We are also requesting larger rooms as attendance at our Philadelphia sessions would likely have been even larger with more seating capacity as several sessions went well beyond standing room only.

Last of all, the Third World Congress of Environmental and Resource Economists will take place July 3-7, 2006 in Kyoto, Japan. Hossein Farzin of UC Davis is serving as AERE's co-chair of the program committee.

2006 Petry Prize. AERE will be awarding the 2006 Petry Research Prize for the Economics of Climate Change at the Third World Congress of Environmental and Resource Economists for the best paper published in the area of climate change during the last three years. Details on how to nominate a paper for this prize appear in this newsletter.

Finally, I am sorry to have to conclude with an announcement that Pierre Crosson, a long time AERE member who received the Distinguished Service Award from AERE in recognition of his many contributions to making our association a success, passed away last November. He received his Ph.D. from Columbia in 1964. After serving as associate director of economic research for Bank of America in San Francisco and chief economist for the National Planning Association Center for Development Planning in Washington, he joined Resources for the Future, rising to the rank of Senior Fellow. Pierre went on to write over a hundred books and journal articles. His work on the intersection of agricultural sustainability and environmental issues in the United States and around the world has played an important role in many policy debates. Pierre will be truly missed.

Richard Carson
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San Diego, CA 92093-0518
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INSTITUTIONAL AND UNIVERSITY MEMBERS OF AERE

On behalf of AERE, the AERE Officers and Board of Directors extend sincere appreciation to the following organizations who have become Institutional or University Members of AERE and whose support helps with developing programs and outreach to students and young professionals in both the U.S. and overseas and with maintaining membership services.

Institutional Members

Industrial Economics, Inc.
Resources for the Future (RFF)
Stratus Consulting, Inc.

University Members

**The Environmental Economics Program at
Harvard University (EPPHU)**
**Giannini Foundation of Agricultural Economics,
University of California**
University of Alberta
**Department of Agricultural and Resource
Economics, University of Maryland, College Park**
**Department of Economics, University of California,
San Diego**
**Donald Bren School of Environmental Science and
Management, University of California, Santa
Barbara**

AERE Newsletter

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AERE ANNOUNCEMENTS

AERE AT THE AAEA

Registration and information about the annual meeting of the American Agricultural Economics Association (AAEA) in Providence, Rhode Island on July 24-27, 2005 is available on the AAEA home page at: www.aaea.org. **June 15th** is the deadline for early registration and hotel reservations.

AERE members are invited to a reception on Monday evening, July 25th, 5:30-7:00 p.m. in the Convention Center, Ballroom E. The list of AERE papers can be found on 11 of this newsletter.

INSTITUTIONAL AND UNIVERSITY MEMBERS OF AERE

The AERE Officers and Board of Directors are very pleased to announce the creation of a new membership program that invites research institutions, nonprofit organizations, government agencies, and corporations to become *Institutional Members of AERE* and colleges, universities and university research centers to become *University Members of AERE*.

Intellectual entrepreneurship is a distinguishing characteristic of AERE. Equally important, AERE research activities also display a remarkable degree of involvement with other disciplines because the issues require it. But the dues of its individual members are not sufficient to support the growing needs of the organization. AERE needs the help of organizations involved in the same fields of interest to help with its programs and outreach to students and young professionals in both the U.S. and overseas. In addition, financial support will help with the increasing costs of managing membership services including the membership database, journal subscriptions, and workshop and annual meeting registrations among other association costs.

To become an *Institutional Member of AERE*, a contribution of \$1,000 is required. With this contribution, institutions may:

- designate one staff member to receive a 2005 individual membership in AERE (which includes a print and electronic subscription to *JEEM*, the bi-annual *AERE Newsletter* and a reduced fee for submitting articles to *JEEM*);
- be entitled to a sponsorship listing on the AERE Web Page (www.AERE.org), in the AERE Newsletter, and every issue of *JEEM*;
- receive one free advertisement this year on the AERE Web Page and in the AERE Newsletter (a savings of \$250);
- receive two nontransferable tickets for institution staff to the annual AERE luncheon and business meeting;
- receive one nontransferable registration for institution staff to the annual AERE Workshop;
- receive recognition at the annual AERE luncheon and business meeting.

To become a *University Member of AERE*, a contribution of \$350 is required. With this contribution, colleges and universities may:

- designate one faculty member to receive a 2005 individual membership in AERE (which includes a print and electronic subscription to *JEEM*, the bi-annual *AERE Newsletter*, and a reduced fee for submitting an article to *JEEM*);
- be entitled to a sponsorship listing on the AERE Web Page (www.AERE.org) and in the *AERE Newsletter* and *JEEM*;
- receive one free advertisement this year on the AERE Web Page and in the *AERE Newsletter* (a savings of \$250).

Please see the list of the organizations who have already joined this program in 2005 on page 2. If you think your institution would be interested in supporting AERE through this program, please contact Marilyn M. Voigt, AERE Executive Director (voigt@rff.org).

**JOURNAL OF ENVIRONMENTAL
ECONOMICS AND MANAGEMENT (JEEM)**

Managing Editorship of JEEM

After completing his five-year term as managing editor of *JEEM*, Joe Herriges is stepping down from this position. The AERE Board is beginning the search for a new managing editor. It is hoped that this new editor could begin taking over near the start of 2006, although Joe will stay through the transition phase.

This announcement seeks proposals from individuals interested in assuming the responsibility of managing editor. Although *JEEM* has been edited by a single managing editor with help from many co-editors, this search will not rule out, *a priori*, proposals from individuals who may wish to serve as an editorial team. In such cases, the coordinating arrangement must be spelled out carefully in the proposal. It is also possible that the AERE Board will require one individual on the team to be designated as lead editor.

Proposals should include:

- Curriculum vita(s) of proposed editor(s), including evidence of substantive participation in and contributions to the discipline of environmental and resource economics;
- Detailed information on how the editorial tasks will be organized and accomplished;
- Information on the other commitments of the individual(s) and the time that the individual(s) can commit to the editorial task;
- Evidence that the institution(s) of the proposed editor(s) will support, at the minimum, release time and space requirements needed for the editorship. Information on any additional resources that can be provided by the institution would be useful but not required;
- Any future plans that may bear on the usual five-year term that is currently expected.

Proposals should be sent **by September 15, 2005** to the AERE President:

Richard T. Carson
Department of Economics, 0508
University of California, San Diego
San Diego, CA 92093-0518
rcarson@weber.ucsd.edu

In the interim, we invite requests for further information about the position. Please direct those requests to Richard Carson, by e-mail. Information will be obtained from Joe Herriges that will be forwarded.

**NOMINATIONS FOR AERE OFFICERS AND
BOARD MEMBERS**

This year, AERE members will vote for a President (whose two-year term will begin in January 2007), a Vice President (whose two-year term will begin in January 2006), and two new members of the Board of Directors who will serve for three years beginning in January 2005. The nominations are being handled by a committee chaired by AERE Vice President John Horowitz (University of Maryland, College Park)—the other two members are John Loomis and Kathy Segerson. The elections will occur in the Fall of 2005.

If you have a candidate whom you would like to see nominated, contact John **by email only**:

horowitz@arec.umd.edu

Nominations may also be made by the membership through petitions, each of which contains signatures of 5% of the association's members. **Such petitions should be sent to arrive at the AERE Business Office in Washington, DC no later than July 1, 2005.**

AERE Business Office
Attention: Marilyn Voigt
1616 P Street NW, Box 6
Washington, DC 20036

**The 2006 PETRY RESEARCH PRIZE FOR
THE ECONOMICS OF CLIMATE CHANGE**

AERE announces the Petry Research Prize for the Economics of Climate Change. The purpose of the prize is to encourage and recognize international research on the economic consequences of increased atmospheric concentrations of greenhouse gases. This prize is made possible by the generous support of Dr. Glen Petry of Bend, Oregon.

Eligibility: A prize of \$7,500 will be awarded for a scholarly paper published within the previous three calendar years on the economics of climate change. Economic issues can include the costs imposed by higher global temperatures or related climate effects, benefits and costs of actions to reduce greenhouse gas emissions, direct and secondary economic consequences of adapting or failing to adapt to climate change, international aspects of climate policy and other related topics. The paper may be theoretical or empirical but should have clear policy implications

Criteria: The winning paper will be selected on the following criteria: (1) quality of the research; (2) originality of methodology; and (3) scope of the investigated effect. Research on a small segment of the economy would be less important to the award than research on a broader economic effect. Research focused on a specific sector is acceptable if the paper provides an especially rigorous or original application with broader implications. Papers should be published in a peer reviewed journal.

Nominations: A paper must be nominated to be considered. Nominations should be sent to Professor Charles Kolstad, Donald Bren School of Environmental Science & Management, University of California, Santa Barbara, CA 93106-5131 **by April 15, 2006**. Authors and nominators need not be members of AERE.

Award Committee: Charles Kolstad (University of California, Santa Barbara, Chair), Carlo Carraro (University of Venice and Fondazione ENI Enrico Mattei), and Richard Somerville (University of California, San Diego).

Award Announcement: The Petry Research Prize will be announced in July 2006 at the World Congress of Environmental and Resource Economists.

Dr. Glen Petry is Professor Emeritus of Finance at Washington State University. He received his PhD from the University of Colorado in 1974 and now lives in Bend, Oregon. He has had a life long interest in the outdoors and environmental causes, though his professional research has been in the areas of acquisition and mergers, valuation, and financial education and he has worked as a real estate developer. He is originally from Pennsylvania and came west in 1966, having lived in California, Oregon, Colorado, and Washington.

This paper establishes in an appropriately formal way that markets for pollution permits can be efficient. It also sets up a framework for generating permit prices that vary spatially. The paper set out the goal of providing a foundation for various proposals for establishing pollution permit markets in the early 1970's. It achieved this goal and is one of the core papers in the literature on markets for pollution control. It is widely cited (134 citations currently) and remains a standard.

<p style="text-align: center;">PUBLICATION OF ENDURING QUALITY AWARD 2005</p>

The AERE Board of Directors will present the annual award (to co-authors if appropriate) for a publication of enduring quality that appeared at least five years prior to the year of the award. The 2005 award will be announced at the annual AERE winter meeting luncheon in January 2006. Nominated works are to be evaluated on their seminal nature and enduring value. Place and type of publication are unrestricted, but posthumous awards will not be given. Nominees may include individuals who are not members of AERE. Evaluation of nominated works and final selection for the 2005 award will be undertaken by a committee chaired by Andrew Plantinga, Oregon State University.

Nomination packages should consist of four copies each of a cover letter, a document supporting the nomination, and the publication itself. The supporting document (not to exceed three pages) should include quantitative as well as qualitative information (e.g., number of citations or copies printed). Nominations should be sent to arrive **no later than September 1st**. This is an important award for AERE and for the recipients. Please give serious consideration to nominating a publication and to observing the submission requirements.

<p style="text-align: center;">PUBLICATION OF ENDURING QUALITY AWARD 2004</p>

The 2004 AERE Award for the *Publication of Enduring Quality* was presented to W. David Montgomery, Vice President, Charles River Associates, Inc. for his paper: "Markets in Licenses and Efficient Pollution Control Programs," *Journal of Economic Theory* 5, 1972, pp. 395-418.

This paper was selected for its lasting influence on the theory and practice of using markets for pollution control. In no area of policy has economics had such a central role as in using markets for pollution permits.

Prof. Andrew Plantinga
Telephone: 541-737-1423
E-mail: plantinga@oregonstate.edu

AERE WORKSHOP 2005

The next AERE Workshop will be held on June 12-14, 2005 at Jackson Lake Lodge in the Grand Teton National Park. The selected topic is "Natural Resources at Risk."

The list of papers and authors appears on page 12. The program and papers are posted at:

<http://www.aere.org/meetings/workshops.html>

AERE gratefully acknowledges the funding provided for this workshop by the National Oceanic and Atmospheric Administration, U.S. Department of Commerce; the Fish and Wildlife Service, U.S. Department of the Interior; and the U.S. Environmental Protection Agency.

2005 Workshop Committee:

Chair: Gardner Brown, University of Washington
John Charbonneau, U.S. Department of the Interior,
Fish and Wildlife Service
Don Fullerton, The University of Texas at Austin
Al McGartland, U.S. Environmental Protection
Agency
Norman Meade, U.S. Department of Commerce,
National Oceanic Atmospheric Administration
(NOAA)
David Zilberman, University of California, Berkeley

AERE HOME PAGE

AERE can be found on the world wide web at:
<http://www.aere.org>.

The AERE Home Page is a valuable resource. It provides information about membership, the *Journal of Environmental Economics and Management (JEEM)*, a list of AERE members with web pages, graduate programs in environmental and resource economics, meetings and workshops, job opportunities, on-line discussion lists, and WWW links of interest. There is also an archive of AERE newsletters (1998-present). Only highlights of the most recent issue will be posted, however, since only current AERE members receive copies of the latest issue (now sent electronically). Members may access the AERE Handbook and Directory using the membership code. (All members were sent a letter containing the code--please contact Marilyn M. Voigt (voigt@rff.org) if you have misplaced it.

Sincere thanks goes to the AERE webmaster, **Gernot Wagner**, who volunteers his time to keep the site current. Please direct conference and meeting listings, links, personal web pages, etc. to Gernot at: webmaster@aere.org. Contact Marilyn Voigt, AERE Executive Director, for information about the cost of placing announcements about jobs and graduate programs on the AERE Web.

AERE OFFICES

Questions or requests regarding your membership status, subscription to *JEEM*, AERE workshop registration, receipts, or related membership matters should be directed to the AERE Membership Office:

AERE Membership Office
415 S. Duff Avenue, Suite C
Ames, IA 50010-6600
Telephone: 515-598-5028
Fax: 515-233-3101
E-mail: info@aere.org

Please contact the AERE Executive Director with any inquiries regarding AERE policies, newsletter announcements or advertisements, mailing list rentals, special programs, etc.:

Marilyn M. Voigt
AERE Executive Director
Telephone: 202-328-5125
voigt@rff.org

AERE
1616 P Street NW, Box 6
Washington, DC 20036-1400
Telephone: 202-328-5125

CALLS FOR PAPERS

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 spaced 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 contact me.

John Loomis
AERE Newsletter Co-Editor
jlloomis@lamar.colostate.edu
Telephone: 970-491-2485

THIRD WORLD CONGRESS OF ENVIRONMENTAL AND RESOURCE ECONOMISTS

July 3-7, 2006
Kyoto International Conference Hall
Kyoto, Japan

The World Congress is an international conference with a focus on environmental and resource economics, which has been held twice since 1998. The third World Congress is organized by the Japanese Association of Environmental Economists (called the Society of Environmental Economics and Policy Studies (SEEPS)), the Association of Environmental and Resource Economists (AERE) and the European Association of Environmental and Resource Economists (EAERE), in cooperation with the Latin American and Caribbean Association of Environmental and Resource Economists (ALEAR). The Call for Papers is scheduled for **early July 2005**.

The conference web site is available at <http://www.worldcongress3.org/>; the email address for the organizer is wc3-info@congre.co.jp. We welcome your suggestions for special activities that could enrich the intellectual fare at the Congress. About 1000 people attended the second World Congress in Monterey,

California in 2002 and we are hoping for similar attendance at Kyoto.

The facility where the Congress will be held is famous as the site of the 3rd Session of the Conference of the Parties (COP3) United Nations Framework Convention on Climate Change that produced the Kyoto Protocol. Kyoto was the capital of Japan for over 1000 years and remains the center of Japanese culture and history, an amazing blend of modern convenience with ancient tradition. A myriad of temples, shrines, natural beauty, old architecture, and traditional arts and crafts can be found in Kyoto. UNESCO has recognized the historical monuments of ancient Kyoto as World Cultural Heritage sites. The Kyoto International Conference Hall is located in the north of Kyoto city. The journey from Kansai International Airport to Kyoto Station by the Kansai Airport Express train "Haruka" takes around 75 minutes. From Kyoto Station, Kyoto International Conference Hall is merely a 20-minute ride on the Subway Karasuma Line.

Takamitsu SAWA
Chair of Organizing Committee
Kyoto University
Institute of Economic Research

INSTITUTE FOR OPERATIONS RESEARCH AND THE MANAGEMENT SCIENCES (INFORMS)

The main theme of the 2005 Annual Conference of INFORMS is "Ecologies, Economies, and Operations Research." The meeting will be in November 2005, in New Orleans, USA. Abstracts related to theories and/or applications of environmental and resource economics are invited. There is no limitation on methods; optimization, simulation and statistical analyses are all welcome. If you are interested in submitting abstracts or organizing sessions please contact Hayri Onal at:

h-onal@uiuc.edu.

There is still time to contribute to the program; the abstract submission deadline was May 16th and abstracts received by that date will receive preference in scheduling. However, abstracts will be accepted after the deadline as long as space is available on the program. For the latest meeting updates, please go to:

www.informs.org/Conf/NO2005/

**THE MOROCCAN ASSOCIATION OF
AGRICULTURAL ECONOMICS (AMAECO)**

***Sustainable Development of Mountainous
Regions in Morocco***

**December 1 – 2, 2005
Morocco**

Mountainous regions in Morocco represent a tremendous potential; they are a water ‘reservoir’ whose equilibrium is compulsory for life and for a harmonious functioning of the other regions in Morocco. They constitute a natural, social and cultural patrimony whose richness and diversity represent a potential that has not been appropriately valorised by the development policies implemented so far. Furthermore, these regions have been marginalized in terms of schooling, health care, access to electricity, to potable water, etc. due to their isolation and the alarming degradation of their environment because of an anarchic exploitation of their natural resources.

Objectives and Field of Interest

The deficit in terms of appropriate policy and research is due to a lack of understanding the specificity of these regions and the difficult trade-off between the objectives of increasing production, alleviating poverty, and the preservation of natural resources. This trilogy (efficiency, equity and environment) is currently critical for all agricultural development policies and research designed for marginalized regions, of which mountainous regions of Morocco is an important component.

This seminar is aimed at reflecting on the issues related to these regions and finding out possible alternatives for developing them through examining ways to identify, develop and spread, within the mountainous communities, appropriate technical, institutional and political options that ensure a sustainable intensification along with a diversification of economic activities.

Theme of the seminar:

The seminar will focus on the following issues:

- Current state of natural resources in the mountainous regions (land, water, rangeland, forest) and their management;
- Economic policies and local development organizations in mountainous regions;

- Household economics in the mountainous regions: activities, sources of income, and consumption;
- Alternatives for a sustainable development of mountainous regions.

Those interested in presenting a paper in this seminar are invited to send the title and a summary to the address indicated above. The paper should focus on one of the issues defined above by the Association. The summary should not exceed a half page and should mention the main objectives, the methodology and conclusions. It should be sent to the selection committee before **September 15th 2005**, along with a notice that indicates: the title of the paper, the main author (first name and last name, profession, affiliation, address, phone, Fax, E-Mail) and the co-authors (first name, last name and affiliation).

Papers can be written in Arabic, French or English and should not exceed 15 pages. They’re to be sent to the selection committee in the form of a Word file before **November 1st 2005**. The selection committee is entitled to refuse any summary or paper that does not abide by the criteria or the deadlines defined above.

N.B: The submission of a paper automatically gives the right to the AMAECO to publish it before, during or after the seminar.

Contact :

**AMAECO, DPAE/MADRPM
Avenue Hassan II, Km4
Route de Casablanca (Station Debbagh)/Rabat.
Email: amaeco@dpae.madrpm.gov.ma/
elmorabet@dpae.madrpm.gov.ma
Tél: (212)37-69-84-07/08
Fax: (212)37-69-84-01**

**UNIVERSITY OF CALIFORNIA,
SANTA BARBARA**

September 30 – October 1, 2005

**The Occasional California Workshops on
Environmental and Resource Economics**

The University of California, Santa Barbara (UCSB) has been hosting the Occasional California Workshops on Environmental and Resource Economics for over a decade (the first was in May 1993). This year, the 8th

such Occasional Workshop will be held at the UCSB Cliff House, a University of California conference facility located on an ocean cliff in a natural wetland area with full ocean view just west of the main campus. This facility offers a panoramic view perfect for an informal meeting such as the Occasional Workshop.

The primary focus of the workshop is on graduate students, young faculty or researchers at universities or public or private institutes or government involved in research in environmental and natural resource economics. The workshop provides researchers the opportunity to share their work and/or ideas in a relaxed, workshop environment.

Although the workshop is open to all, the target geographical group is faculty, graduate students and other researchers in Western North America, including Canada and Mexico. Historically, the greatest representation has been from California universities. Everyone who wants to come is of course welcome.

There is no charge for attending the Occasional Workshop; in fact, local expenses for presenters are covered and some assistance with travel is available.

Submission Procedure

The workshop will feature short and long paper presentations. Short paper presentations will be about ten minutes in length and will not feature a discussant. Long paper presentations will be about 30 minutes length and feature a discussant. Those interested in making a short presentation should e-mail a one page abstract to envecon@bren.ucsb.edu **no later than August 1, 2005** in PDF or WORD format. The abstract should be no more than 2 pages, 1.5 line spacing. The abstract should include: (1) Name(s) of author(s), with the surname of the paper presenter in CAPITALS; (2) E-mail address of presenter; (3) Institutional affiliation and address (including email) of authors; (4) Abstract of paper containing no symbols, references or equations.

Those who wish to contribute a long presentation should send the entire paper to envecon@bren.ucsb.edu no later than August 1 2005 in PDF or WORD format. The cover page of the paper should include: 1) Name(s) of author(s), with the surname of the paper presenter in CAPITALS; (2) e-mail address of presenter; (3) Institutional affiliation and address (including email) of authors; (4) the abstract (half page); (5) keywords. Submitters will be notified no later than September 1st, 2005 regarding the final status of their submission.

For presentations, we will have an overhead projector for transparencies and an LCD projector and computer for powerpoint slides. Powerpoint presentations should be on a Flash Drive/Memory Stick.

Events

The workshop will be held Friday, September 30th, and Saturday, October 1st, at the UCSB Cliff House. The workshop will begin at 12.00 p.m. on September 30th and run through the evening. On Saturday, the workshop will begin at 8:00 a.m. and run until 5 p.m. A working dinner will be served on Friday at the Cliff House and lunch will be provided on Saturday. Dinner on Saturday will be on your own.

UNIVERSITY OF COLORADO

September 23 - 24, 2005

Environmental and Resource Economics Workshop Lion Square Lodge Vail, Colorado

The seventh annual CU Environmental and Resource Economics Workshop provides researchers the opportunity to share their research results and/or ideas in a relaxed, workshop environment. Ample time will be allocated for discussion, allowing researchers to get feedback from other workshop participants. Work presented can range from proposed research to highly polished and complete projects. Graduate students are especially encouraged to participate.

The workshop will be held Friday, September 23rd and Saturday, September 24th, in the [Lion Square Lodge](#) in Colorado's beautiful Vail Valley. For additional information, see the web page at:

<http://enviro.colorado.edu/ws/>

Please email abstracts or papers to [Nicholas Flores](#) **no later than July 15**. A presentation schedule will be established by August 15. Multiple submissions by a single participant are encouraged and will be permitted subject availability of time slots.

Email contact: Nicholas.Flores@colorado.edu

MEETINGS, CONFERENCES, AND WORKSHOPS

AMERICAN AGRICULTURAL ECONOMICS ASSOCIATION (AAEA)

[See page 4 for information about registration and the reception for AERE members.]

**July 24-27, 2005
Providence, Rhode Island**

Session 1 Evaluating Pollution Prevention Policies

Moderator: Donna Ramirez, University of Guelph

“The Effects of the CAFE Standard and Incentive Program on Alternative Fuel Vehicles and Greenhouse Gas Emissions,” Yimin Liu and Gloria E. Helfand, University of Michigan

“Motivations for Voluntary Pollution Prevention: The Role of Management Systems, Demand-Pull and Complementary Assets,” Madhu Khanna, University of Illinois at Urbana-Champaign (UIUC); George Deltas, UIUC; Donna Ramirez, University of Guelph

“Optimal Technology R & D in the Face of Uncertainty,” Erin Baker and Kwame Adu-Bonnah, University of Massachusetts, Amherst

“Vehicle Miles Traveled and Household Location: The Case of Distance to Work,” Hernan Gonzalez and John Horowitz, University of Maryland, College Park

Session 2 Valuing Natural Resources

Moderator: Timothy Haab, Ohio State University

“Hedonic Valuation of Urban Riparian Amenities Using Remote Sensing Data,” R.H. Bark-Hodgins, The University of Arizona; D.E. Osgood, Columbia University; B.G. Colby, U. of Arizona

“Behavioral Responses to Arsenic in Drinking Water,” Kathleen Bell, Kevin J. Boyle, Shan Huang, Michael Devanney, University of Maine

“Payments to the Rural Poor for the Sake of Conserving Tropical Watersheds-A Contingent Valuation Analysis in Ecuador,” Douglas Southgate, Fabian Rodriguez, Timothy Haab, Ohio State University

“A Spatial-Econometric Analysis of Agglomeration and Crowding-In of Private Conservation,” Heidi J. Albers, Oregon State University, Corvallis and Amy W. Ando, University of Illinois at Urbana-Champaign.

Session 3 Renewable and Non-Renewable Resource Management

Moderator: Daniel Osgood, Columbia University

“Fisheries Management Implications of Intrinsic Under Identification of Growth Equation Parameters,” Richard T. Carson and Jason Murray, University of California, San Diego

“Allocation of an Uncertain Renewable Natural Resource: Missing Markets, Quantity Options and Climate-Based Forecasts,” Daniel Osgood and Arthur A. Small III, Columbia University

“Is Doing Nothing a Better Coping Strategy to Climate Risk?” Valerie Mueller, University of Maryland and Daniel Osgood, Columbia University

“Invasive Species Management Through Tariffs: Are Prevention and Protection Synonymous?” Ram Ranjan, University of Florida

Session 4 Enforcement and Environmental Compliance: New Empirical Directions

Moderator: Jay Shimshack, Tufts University

“Enforcement and Over-Compliance,” Jay Shimshack, Tufts University; Michael Ward, UC Santa Barbara

“The Clean Air Act Regulation of Volatile Organic Compounds: Substitution Across Media and Across Chemicals?” Shanti Gampur-Rabindran, UNC-Chapel Hill

“Rational or Confused Polluters? Evidence from Hazardous Waste Compliance,” Sarah Stafford, College of William and Mary

“An Investigation of Self-Discovery and Disclosure of Environmental Violations Using Laboratory Experiments,” James J. Murphy and John K. Stranlund, University of Massachusetts, Amherst

Session 5

Roundtable on “Linking Supply and Demand for Environmental Economics Research”

Moderator: Matthew Clark
U.S. Environmental Protection Agency (EPA), National Center for Environmental Research

Panelists:

Dallas Burtraw, Resources for the Future
Trudy Cameron, University of Oregon
Maureen Cropper, University of Maryland, College Park
Brain Heninger, EPA
Cathy Kling, University of Iowa
Hilary Sigman, Rutgers University
William Wheeler, EPA
Ann Wolverton, EPA

AERE WORKSHOP

Natural Resources at Risk

June 12-14, 2005

**Jackson Lake Lodge
Grand Teton National Park, Wyoming**

Biodiversity Loss

Moderator: Norman Meade, NOAA

Where to Put Things? Spatial Land Management with Biological and Economic Objectives, Stephen Polasky, Erik Nelson, University of Minnesota; Jeff Camm, U. of Cincinnati; Blair Csuti, Oregon Zoo; Paul Fackler, North Carolina State U.; Eric Lonsdorf, U. of Minnesota and Lincoln Park Zoo; Denis White, EPA; Jeff Arthur, Oregon State University (OSU); Brian Garber-Yonts, Robert Haight, U.S. Forest Service; Jimmy Kagan, Claire Montgomery, OSU; Anthony Starfield, U. of Minnesota; and Claudine Tobalske, OSU and Oregon Natural Heritage Information Center

Discussant: Peter Berck, UC Berkeley

Managing Multi-Species Forests to Minimize the Risk of Biodiversity Loss, Matthew D. Potts and Jeffrey R. Vincent, University of California, San Diego

Discussant: Stephen Newbold, U.S. EPA

Introduced Species

Moderator: Mary Bohman, USDA/ERS

A Risk-Based Approach to Managing the Intentional Introduction of Non-Native Species, James J. Opaluch, James L. Anderson, and Kurt Schnier, University of Rhode Island

Discussant: Martin Smith, Duke University

International Trade and the Risk of Biological Invasions, Christopher J. Costello, Carol McAusland, University of California, Santa Barbara; Andy Solow, Woods Hole Oceanographic Institute; Michael Springborn, UC, Santa Barbara

Discussant: Catherine Kling, Iowa State University

Endangered Species Act; Soil and Water Conservation

Moderator: Katherine von Stackleberg
Menzie-Cura & Associates

Natural Resources at Risk: Water Quality and the Dead Zone in the Gulf of Mexico, Catherine L. Kling, Hongli Feng, Phillip W. Gassman, Manoj Jha, Lyubov Kurkalova, and Silvia Secchi, Iowa State University

Discussant: Holly Stallworth, U.S. EPA

The Effectiveness of Listing Under the U.S. Endangered Species Act: An Econometric Analysis Using Matching Methods, Paul J. Ferraro, Georgia State University (GSU), Craig McIntosh, University of California, San Diego, and Monica Ospina, GSU

Discussant: John Duffield, University of Montana

Habitat Management

Moderator: Paul Ferraro, Georgia State University

Market-Based Policies to Reduce Forest Fragmentation and Risks to Interior Forest Birds, Davis J. Lewis and Andrew J. Plantinga, Oregon State University

Discussant: Gregory Parkhurst, Mississippi State U.

Habitat and Open-space at Risk of Land-use Conversion: Targeting Strategies for Land Conservation, David Newburn, Peter Berck, and Adina Merenlender, University of California, Berkeley

Discussant: James Opaluch, Univ. of Rhode Island

Management with a Portfolio: Options

Moderator: Michael Springborn, UC, Santa Barbara

Ecosystem Portfolios: A Finance-Based Approach to Ecosystem Management, James N. Sanchirico, RFF; Martin D. Smith, Duke University; and Douglas W. Lipton, University of Maryland, College Park

Discussant: Carolyn Fischer, RFF

Contingent Resource Claims and Coordinating Ex-Ante Investment, Daniel E. Osgood, Alexander Pfaff, and Arthur A. Small, III, Columbia University

Discussant: Stephen Polasky, Univ. of Minnesota

Spatial Management

Moderator: Edward Stone, NOAA

Spatial Bioeconomics Under Uncertainty, Christopher J. Costello, University of California, Santa Barbara, and Stephen Polasky, University of Minnesota

Discussant: Arthur Small III, Columbia University

Cost-Effective Habitat Protection: The Case of Pacific Salmon, Steve Newbold, U.S. Environmental Protection Agency (EPA); Juha Siikamäki, Resources for the Future (RFF); and Matthew Clark, EPA

Discussant: Andrew Plantinga, Oregon State Univ.

Managing Private and Public Related Goods; Health Benefits From Risk Reduction

Moderator: Robert Paterson, Industrial Economics

Managing Partially Protected Resources Under Uncertainty: An Application to Antibiotic Resistance, Carolyn Fischer and Ramanan Laxminarayan, RFF

Discussant: Christopher Costello, UC, Santa Barbara

Use of Stated Preference Methods to Value the Benefits of Ecological Risk Reductions: A Case Study of Exposure to Polychlorinated Biphenyls, Katherine von Stackelberg and James Hammitt, Harvard School of Public Health

Discussant: Juha Siikamäki, RFF

**ASSOCIATION FOR PUBLIC POLICY
ANALYSIS AND MANAGEMENT (APPAM)**

Understanding and Informing Policy Design

**November 3-5, 2005
Washington, DC**

The theme of the 27th Annual APPAM Research Conference is “Understanding and Informing Policy Design.” Policy design lies at the nexus of public affairs scholarship and practice. Many policy researchers seek theories and evidence to inform the content of public policies; other policy researchers seek to understand the role actually played by such information in the process of policy design. Students and practitioners of public management address how program designs affect implementation and administration as well as the reciprocal effects of these processes on redesign. What advice can be given to policy designers, either generally or with respect to particular policy problems or opportunities, about how to do good (or how to do better in the case of policy redesign)? What advice can be given about how to do well within the complexity of representative government? What roles and responsibilities should experts of various sorts have in the design process?

For information, go to: <http://www.appam.org>

**BIOECON CONFERENCE
(BIOdiversity and Economics for CONservation)**

*Economics and the Analysis of
Ecology and Biodiversity*

**September 20-21, 2005
Kings College Cambridge**

Hosted by

*Department of Economics, Norwegian University of
Science and Technology (NTNU), Trondheim
Dept of Economics and CentER, Univ. of Tilburg
Dept. of Land Economy, University of Cambridge
Dept. of Economics, University College London*

In Association with

*UK –Dept. for Environment Food and Rural
Affairs*

The Norwegian University of Science and Technology, University of Tilburg, University of Cambridge and University College London announce the Seventh Annual BIOECON conference on the economic analysis of policies for biodiversity conservation. The conference will be held at Kings College Cambridge, September 20-21 2005. The conference will be of interest to both researchers interested in biological resources and biological processes and to policy makers interested in or working within the field of biodiversity conservation.

The conference will have sessions examining the management of biological resources and biological processes as well as sessions regarding the economic analysis of policies for biodiversity conservation. Key note speakers include Jon Conrad (Cornell U), Steinar Engen (NTNU) and Steve Polasky (U Minnesota).

Accommodation for all participants will be organised within Kings College, with a college reception on the evening of the September 19th and a conference banquet at the Kings College Great Hall on the evening of September 20th. Lunches and refreshments will also be provided. Conference sessions will commence on the morning of September 20th and conclude on the afternoon of the 21st. Registration details are posted on the BIOECON web site at www.bioecon.ucl.ac.uk. and are due by **June 30, 2005**.

CAMP RESOURCES XIII

August 11-12, 2005

**Hilton Wilmington Riverside
301 North Water Street
Wilmington, North Carolina**

The primary focus of *Camp Resources* is on graduate students, young faculty or researchers at universities or public or private institutes (i.e., RTI, TER, RFF, etc.) and government staff involved in environmental research. Abstracts are no longer being accepted but registration to attend is open to all.

The full schedule will be posted by June 15th. The deadline for discount rates at the Hilton is July 10th. We expect to have another focused methodology/learning session. More on that will come later. For information about registering to attend please send name, address, and e-mail to the person who assures it all works smoothly, CEnREP's administrative assistant:

Jack Crawley: Jack_Crawley@ncsu.edu

We do need to keep a count of those coming for meals (a light breakfast and lunch is provided both days) and other activities. Look forward to seeing you this summer!

**V. Kerry Smith
North Carolina State University**

ENVIRONMENTAL AND RESOURCE ECONOMISTS (EAERE)

Fourteenth Annual Conference

**June 23 – 26, 2004
Bremen, Germany**

With the introduction of the European CO2 certificate trading scheme, the year 2005 marks the beginning of a new era in environmental policy. In the same way, the transition to a higher share of renewable energy poses a lot of new problems. In the 2005 conference we will give adequate room to these new developments.

The conference will be held on the campus of the International University Bremen, a newly founded private institution. Its academic programs and cultural

environment prepare graduates for international leadership and global citizenship. The campus, with its redbrick buildings, green meadows and parks will be ours for a few days and is an ideal place to concentrate on the exchange of ideas.

See the EAERE web site (www.eaere.org) for further details about this year's conference.

GAME THEORY AND PRACTICE

**July 10-12, 2006
Zaragoza, Spain**

The 6th meeting on *Game Theory and Practice Dedicated to Development, Natural Resources and the Environment* will take place in Zaragoza, Spain in July 10-12, 2006. The meeting will be hosted by the Mediterranean Agronomic Institute of Zaragoza / CIHEAM (IAMZ-CIHEAM). A dedicated website has been developed and will be updated periodically <http://www.iamz.ciheam.org/GTP2006/>. Those interested in being added to the distribution list should send an email to Ariel Dinar at: adinar@worldbank.org. Reminders will be sent when the web webpage is updated.

Following the first four biannual meetings on Game Theory Practice in Genoa (Italy, 1998), Valencia (Spain, 2000), Hilvarenbeek (The Netherlands, 2002) and Elche, (Spain, 2004), that were general in nature, and another meeting focusing on Game Practice and the Environment, that was held in Alessandria (Italy, 2002), the sixth meeting on Game Theory Practice (GTP) will focus on development, natural resources and the environment.

The purpose of the meeting is to demonstrate the usefulness of GT in these fields, as externalities among users and conflicts over allocation of basic natural resources such as land, water, and other resources are more frequent. Applications of GT techniques and methods to issues in water resource management (including transboundary water), fisheries, forestry, land management, global warming, pollution, migration (domestic and cross border), and alike, are sought.

The meeting will last three days during June/July 2006 (Exact days will be announced in the first call for papers to be released in February 2006). It will include keynote presentations, presentations of contributed papers, round tables on joint research agenda, and several tutorials. A couple of scholarly reputable journals

have been considering special issues as well as a publisher considering an edited book.

Organizing Committee:

Fioravante Patrone,
Ariel Dinar,
Jose Albiac,
Joaquin Sanchez-Soriano
Rashid Sumaila

Scientific Committee:

Fioravante Patrone
Ariel Dinar
Joaquin Sanchez-Soriano
Serder Gunar, Carlo Carraro
Marc Kilgour
Michael Maschler
Rashid Sumaila
Stef Tijs
Ignacio Garcia-Jurado
H. Peyton Young
Henk Folmer
Gian Italo Bischi
Vito Fragnelli
Leon A Petrosjan
David W K Yeung.

**HEARTLAND ENVIRONMENTAL AND
RESOURCE ECONOMICS (HERE)**

September 18-19, 2005

**Reiman Gardens
Ames, Iowa**

The seventh annual Heartland Environmental and Resource Economics (HERE) Workshop will be held in Ames, Iowa, at Reiman Gardens on September 18 and 19, 2005. The workshop is a chance for academics and other professional economists to present current research, learn what their midwestern colleagues are doing, and have some fun in Ames.

<http://www.card.iastate.edu/here/>

Workshop Coordinator:

**Catherine Kling
Department of Economics and CARD
578 Heady Hall
Iowa State University
Ames, IA 50011-1070
ckling@iastate.edu
Telephone: 515-294-5767**

**SOUTHERN ECONOMIC ASSOCIATION
(SEA)**

Mark your calendar for the 2005 Annual Meeting of the SEA set for November 18-20, 2005 at the Grand Hyatt Washington, in Washington, DC.

**ULVÖN CONFERENCE ON
ENVIRONMENTAL ECONOMICS**

June 21-23, 2005

**12th Ulvön Conference on
Environmental Economics
Ulvön, Sweden**

The main purpose of the Ulvön Conference on Environmental Economics is to provide a forum for the dissemination of high quality research in environmental economics. Ulvön is a small, attractive fishing hamlet, located on the Swedish east-coast, approximately 500 km North of Stockholm. The number of conference participants is typically about 30. A key purpose of the Ulvön meetings is to provide an opportunity for PhD students to interact with leading researchers in their field of specialization.

The conference has enjoyed support from the Swedish Council for Agricultural and Forestry Research (www.sjfr.se), NLH, University of Umeå, USBE, SLU and the Nordic Council.

For more information, contact:

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or visit <http://www.sekon.slu.se/~bkr/ULVOgreet.htm>

ESSAYS

Valuation of Ecosystem Services Moves into the Forefront of Research and Policy

John Loomis, Colorado State University

The convergence of research and policy is an unusual event for environmental economists to witness. But 2005 appears to be such a year for valuation of ecosystem services. 2005 will witness the publishing of a long awaited National Research Council (NRC) report entitled *Valuing Ecosystem Services*. Surprisingly, the idea of valuing ecosystem services has already received support from the Chief and staff of the U.S. Forest Service (USFS).

On the research side, six AERE members have been working for the last several years with five ecologists to make the case for, synthesize, and lay out a research agenda in the area of valuing ecosystem services. The NRC committee was chaired by Geoffrey Heal and included Ed Barbier, Kevin Boyle, John Hoehn, Steve Polasky and Kathleen Segerson. This soon to be released NRC report is a comprehensive assessment of the challenges of valuation of services, what we need to know to meet those challenges, how to deal with the inherent uncertainty in economic and ecological systems, and selected case studies.

The NRC report is subtitled "Toward Better Decision Making" which is the goal of much of the work of AERE members. However, try as we might to interest policymakers and public officials in our research, it is often a hard sell. That is why it was particularly exciting to read the text of a speech given by the Chief of the USFS on January 6, 2005, summarizing the three general themes from their Centennial Congress, which celebrated 100 years of the agency. These themes came from several hundred USFS employees.

The first theme identified was ecological services and finding ways to "...attach market values for services from the land that were traditionally taken for granted and delivered for free, such as carbon sequestration, soil and water protection, biodiversity, and outdoor recreation." While economists might quibble with the

Chief's exact wording, the very fact that valuation of ecosystem services is one of three planes flying on the U.S. Forest Service's radar screen is remarkable. This holds great promise that our research will be used in actual decisionmaking of a major and leading public land management agency.

However, it gets better! Along with this recognition of the importance of valuation of ecosystem services was the recognition that, in the Chief's words, "Market incentives can be part of the answer. Worldwide, markets today have acquired a whole new meaning for conservation....They now include various forms of payments for carbon sequestration, water delivery, soil protection, and biodiversity conservation." Clearly, the USFS recognizes that putting economic values into practice requires the use of incentives. It appears yet another message of AERE economists may be embraced rather than resisted.

This convergence of the NRC report and the U.S. Forest Service recognition of the importance of ecosystem valuation is a window of opportunity that occurs only rarely in public arenas. I think it would be worthwhile to consider an AERE Workshop or session around this theme to keep the momentum building. This recommendation is consistent with the message of Amy Ando and Elena Irwin's essay in this issue on interdisciplinary research opportunities being funded by the National Science Foundation (NSF). Ecosystem valuation provides an opportunity to do good interdisciplinary research that is of high policy relevance now. This is an opportunity we should seize.

***New Interdisciplinary Research:
Opportunities and Challenges for Environmental and Resource Economists***

**Amy W. Ando, University of Illinois at Urbana-Champaign and
Elena G. Irwin, Ohio State University**

Introduction

The National Science Foundation (NSF) has increased its support of interdisciplinary research in recent years. Some elements of this support include new opportunities that are relevant for environmental and resource economists. NSF has developed new grant programs, such as Biocomplexity in the Environment (BE) and Human and Social Dynamics (HSD) to encourage interdisciplinary teams to study environmental systems. The funding devoted to these initiatives is substantial; the “Dynamics of Coupled Natural and Human Systems” (CNH) subcategory of BE has been funded since 2001, with 60 awards totaling nearly \$46 million. More recently NSF has initiated research funded by the HSD program with over \$18 million granted in the first year of full competition in 2004. NSF has also developed a program to encourage interdisciplinary graduate training; the Integrative Graduate Education and Research Traineeship (IGERT) program was launched in 1997 and now supports approximately 125 award sites across the country.

The exact emphasis of these grant competitions varies among programs and across time. However, general themes emerge from the language of the requests for proposals. NSF seeks to encourage research that promotes a better understanding of the complexity of human and natural systems: non-linear relationships, feedback effects, and system behavior with characteristics that one could not predict or understand by studying the individual components in isolation or at a single point in time. The calls for proposals frequently emphasize the importance of studying dynamics: causes and effects of changes in human behavior and natural systems over diverse temporal scales. Most consistently, these grant competitions stress truly interdisciplinary work. These programs are designed to fund scientific discoveries that could not be made by even state-of-the-art work in isolated disciplines.

Over the last few years, we have participated in the work of several interdisciplinary competitive grant review panels for the NSF. This experience provided us a valuable view of a broad spectrum of research plans involving economists and other social scientists working in teams with researchers from the natural and physical sciences. It is clear that environmental economists have

an important role to play in working jointly with biologists, ecologists, physical scientists and other social scientists to better model and understand the complex, dynamic interactions between humans and ecological systems. Many economists are already doing creative and important work in the interdisciplinary world, and are having some success in obtaining funding for that work.

However, it appears to us that environmental economists can expand the role played by economics in interdisciplinary research. To do so successfully may require us to pursue new ways of conducting research, and new ways of thinking about and modeling interactions between human and natural components of environmental systems.

Contributions of Economics to Understanding Human-environment Interactions

What are the most promising directions for future economic research in the context of interdisciplinary investigations of human-environment systems? We attempt to shed light on this by considering the kinds of research economists can do to contribute to such interdisciplinary work, and then reflecting upon the extent to which the efforts of economists have been focused on some types of activities to the detriment of others.

In many ways, the field of environmental and resource economics has always been concerned with human interactions with the environment. Indeed, one of the basic insights from the emerging field of environmental economics in the 1960s was that environmental pollution problems could not be considered in isolation from human interactions (Deacon et al., 1998). The current body of research in this field remains centered on this basic insight that human and environmental systems must be considered jointly. This research now spans a broad array of research topics such as the valuation of environmental goods and ecosystem services, optimal extraction and *in situ* resource use, optimal policy decisions e.g., reserve-site selection and optimal mechanism design), and human behavioral responses to policy. However, while environmental economics is multidisciplinary in spirit, much of the

actual research is disciplinary and proceeds in relative isolation to other fields. To a large extent, this is an efficient and reasonable way of making progress. Clearly the discipline has achieved substantial gains by focusing on a disciplinary audience while also enjoying some substantial successes in extending these advances to broader audiences (e.g., convincing policymakers to use tradable permit programs).

Based on the interests and skill sets that environmental economists possess, it is clear that they also have great potential for contributing to interdisciplinary research on human and environment interactions. Indeed, collaborations among economists and physical and biological scientists are not all that unusual. However, based on our own personal experiences and subjective knowledge of other multidisciplinary efforts, it seems that the contributions of economists are focused predominantly on a few aspects of the human-environment interaction puzzle.

Perhaps the most common multidisciplinary projects are those in which economists take environmental changes posed by other members of a team (e.g., biologists, ecologists, hydrologists) and then conduct a normative study to estimate the importance of those changes to humans, either in terms of economic impacts or more broadly, net benefits. Indeed, many of us have had the experience of being called upon at the last second to “extend” the physical or biological scientists’ findings in this way. When adequate time and resources are available, such work can lead to meaningful and very useful analysis, particularly from a policy perspective. Our ability to quantify marginal costs and benefits associated with physical changes in the environment has placed environmental economics at the center of environmental policymaking.

A second multidisciplinary effort in which environmental economists are often involved is to take information from the natural-science team and evaluate what the best policy would be under the circumstances (e.g., Polasky et al. 2000). Such analysis typically involves measurement of costs and benefits associated with various policy instruments and some assessment of the best policy, usually according to efficiency or cost-effectiveness criteria. Once again, economists have had substantial influence on policymaking and resource management through these efforts.

Third, there is multidisciplinary work in which economists develop positive models of human behavior, either in response to environmental change or as an agent of that change. Certain subfields of environmental economics, such as renewable resource economics, have developed very sophisticated dynamic models of human decisionmaking and environmental change. While this

work has substantially advanced our understanding of dynamic resource use and optimal management, the representation of the environmental system is often stylized and these efforts are usually not truly integrated with the natural science components of an interdisciplinary project. Many would argue that abstract representations of the environmental system are necessary, so as to generate analytically tractable results and fundamental insights regarding optimal resource use. However, as Deacon et al. (1998) point out, to go beyond basic generalities and to be useful to physical and biological modelers and policy makers requires a more realistic representation of the natural system.

Despite these multidisciplinary successes, or perhaps because of them, we assert that environmental economists have not yet fully realized their potential in contributing to interdisciplinary research on human-environment interactions. Our tendency to focus on certain pieces of the human-environment puzzle has prevented us from taking a broader perspective in thinking about coupled human-environment systems as a whole. The next frontier in the study of environmental systems is knowledge of the fundamental dynamics driving joint environmental and human change. Meaningful contributions to scientific understanding and informed policymaking will come from structural models of human behavior within modeling frameworks that are truly integrated with natural scientists’ models of the ecological system.

Thus, the boundaries of our most common current contributions and the language of the NSF’s calls for interdisciplinary research provide useful guidance for economists seeking direction for research agendas. In particular, the NSF funding initiatives in areas such as Biocomplexity and HSD can best, and sometimes only, be met by economic research with the following under-represented characteristics.

First, promising new research will explore the dynamic evolution of systems and the complex dynamics that are exhibited by these systems, rather than identifying long run steady state equilibria. Many systems relevant to environmental problems are better characterized as being far from equilibrium and exhibiting threshold effects, bifurcations and other nonlinear behaviors over time; the global climate system is a classic example (see http://www.ornl.gov/info/ornlreview/rev28_2/text/cli.htm for a nontechnical description).

Second, there are important problems that should be studied by modeling *simultaneous* interactions between human and natural factors in determining changes in environmental conditions, human behavior, and social welfare. This kind of research requires cross-disciplinary

collaboration throughout the project. We have begun to see hints of that deep disciplinary integration in some areas, such as marine policy analysis (e.g., Sanchirico 2005); much more remains to be done.

Third, even when the human and natural components of a system can reasonably be modeled separately for some purposes, large studies of coupled human/natural systems should find ways to model feedback effects between the human and natural components of a system, such that the outputs of each component provides input the other (see Settle, Crocker and Shogren, 2002, for a nice illustration of feedbacks and an overview of what little work has been done in this area). This challenge requires economists on a interdisciplinary team to model how human beings cause changes in the relevant ecological or environmental system, and how human behavior is affected by those changes. In some applications, a single economic model may not be able to accomplish those goals. For example, individual land-owner behavior may alter water quality or species viability, but the human response to those environmental changes may be through policy makers at the community, state, or federal level.

Fourth, multiple and often incongruent spatial and temporal scales are an important feature of complex human/natural systems. For example, ecological processes may exhibit meaningful variation over the course of a day, but the relevant economic processes may evolve much more slowly, e.g., on the order of months or years. Economists are making some headway in developing models that are better suited for integration across multiple scales. For example, in a shift from models of representative agents and one-dimensional space, economists have begun to model heterogeneity across the landscape (e.g., fields that vary in their potential to contribute to sediment loadings in streams (Khanna et al. 2003)) or among agents (e.g., differences in firms' abilities to solve difficult problems (Hong and Page, 2001)) or agents' heterogeneous preferences over residential locations (Page 1999). Such modeling can be critical to the success of the economic component of a interdisciplinary study of the environment.

Economic Theory and Methods in Interdisciplinary Research

What kinds of "new" theoretical or methodological approaches may be of use to economists engaging in this sort of interdisciplinary research? We are not attempting here to develop an exhaustive list of research tools, nor are we asserting that all these tools are necessary features of this kind of research—successful

interdisciplinary efforts may contain none of the approaches we enumerate below. This discussion is intended simply to provide some idea of the kinds of approaches that may help to advance research in this area.

When an explicit representation of dynamic human and ecological processes is critical, partial equilibrium models are inappropriate since that approach often assumes many of the dynamic features of interest to be fixed and exogenous to the system. Logically, general equilibrium approaches may have a role to play here to the extent that they allow us to trace out the endogenous interactions between human behavior and environmental change. A disciplinary example is the innovative work being done by economists in modeling household location and the endogenous formation of public environmental goods (Smith et al. 2004). An early interdisciplinary example is the work by Kneese and others at Resources for the Future on the Delaware River watershed. However, general equilibrium approaches are limited in other ways that may make them less amenable to interdisciplinary research. As the name implies, these models are appropriate for modeling processes that equilibrate over time. In contrast, much of the modeling of biological and physical systems posits dynamic processes that are continually changing and that are "far from equilibrium." Thus, a central modeling challenge is to reconcile the dynamic nature of the economic process with that of the biophysical processes and most importantly, what the interactions among these systems imply for the dynamic properties of the coupled system.

Principles from complexity theory may offer some guidance in this respect and indeed, a small but growing number of economists are doing work with a "complexity perspective." As reviewed by Arthur, Durlauf and Lane (1997) in their introduction to the edited volume entitled "The Economy as an Evolving Complex System II," there is no unified view of what complexity theory implies from an economics perspective, but there are common themes. They summarize most of the current work in economics as being based on either an "equilibrium" or "dynamical systems" approach. They argue that neither of these approaches is sufficient for explaining either the economy itself or any set of economic processes that are characterized by "emergent structures." Such systems are said to be characterized by nonlinear dynamics and the emergence of structure at higher levels of organization that is generated from interactions among many dispersed and heterogeneous agents. Page (2005) offers an interesting reconciliation of the equilibrium vs. complexity perspectives. He argues that complexity emerges when the number of interactions and types of agents are many, but not large (a setting that he calls

“the edge of chaos”). Equilibrium, on the other hand, is said to emerge when the degree of interaction or heterogeneity is either very low or very high. For example, a system in which agents are independent or one in which agents are linked through a set of global interactions may both be appropriately characterized as equilibrium systems (e.g., see Brock and Durlauf (2001) for a model of global interactions in which the system contains multiple equilibria and is characterized by its mean level of interaction). On the other hand, when there are local (vs. global) interactions, specific agent interactions matter and representations of processes using mean approximations break down.

Complex adaptive systems are further characterized as continually adapting to the emergence of new states and structures, a process that generates “perpetual novelty,” e.g., new technological innovations, new behaviors or new markets. Unlike systems that reach steady-state equilibria, it is argued that these systems exhibit out-of-equilibrium dynamics and transient phenomena (Holland 1988). Thus, rather than characterizing equilibrium states, this approach emphasizes the underlying dynamical processes, interactions across multiple temporal and spatial scales and the structures that emerge from these. Finally, heterogeneity is the norm in these systems—heterogeneous agents and spatial heterogeneity of the landscape.

Of course, describing such systems in words is far easier than developing more formal models of these processes and many of the tools required to do so are not commonly used by economists. While economists have had some success at developing analytical, equilibrium-based models of systems that have one of these complexity characteristics (e.g., equilibrium-based models of social interactions among agents), computational approaches are likely to play a central role in analyses of systems that exhibit multiple complexity traits. Simulation methods should not be viewed as a substitute for analytical models, but rather as a complement that can be used to extend modeling efforts when nonlinearities and other complications prevent analytical solutions (Judd, 1997).

A computer-based simulation tool that is gaining increasing popularity among many social scientists is agent-based modeling. Leigh Tesfatsion (2001) defines the subfield of agent-based computational economics as “the computational study of economies modeled as evolving systems of autonomous interacting agents.” A primary focus of this approach is to study emergent global behavior that persists in decentralized market economies as the result of “bottom-up” processes that are described by the repeated local interactions of

autonomous, interacting and heterogeneous agents. Such models are deemed particularly well-suited for representing the co-evolution of human and environmental systems because human decisions and biophysical processes can be linked through a common spatial identifier (Parker et al. 2003).

Challenges to Interdisciplinary Research

The type of interdisciplinary work we describe offers the potential for innovation and (in the language of the NSF review criteria) a higher likelihood of large positive broader impacts on society at large. Unfortunately, there are several features of academia and of the research itself that may be limiting the role environmental economists play in interdisciplinary work.

While there are many environmental economists who have had successful careers within environmental economics while conducting interdisciplinary research, some researchers may be discouraged from embarking on these projects by the manner in which truly interdisciplinary work can interface with the academic incentive system. Academic advancement depends on publication success, and if one defines success by the number of publications, research time invested in the kinds of projects we describe can have a relatively low rate of return. There is a large management burden for a given amount of research, and these are projects that may be more likely than most simply not to yield the publishable results for which one originally hopes. In addition, tenure and promotion processes sometimes favor disciplinary work in ways more subtle than publication counts. Publications developed from interdisciplinary projects may be difficult to place in disciplinary journals, and most multi-disciplinary journals do not lend the same easily recognized prestige to a promotion dossier. Some external letter writers may have difficulty evaluating the quality of a research record with many publications in such journals if they themselves have not been engaged in that kind of work. If department heads, deans, provosts or university presidents want to encourage work on environmental problems that breaks out of disciplinary molds, they need to be alert to the possibility that such pitfalls may exist, and work carefully through the promotion and tenure process to ensure that young faculty who heed the call for more interdisciplinary work are not penalized for having done so.

Even when environmental economists wish to engage in complex interdisciplinary studies of dynamic human/environment systems, it is simply quite difficult to construct a high-quality project of the sort we have described. Researchers in different fields lack a common

professional language, and can have world views with differences or conflicts that can stand in the way of useful collaboration. These problems may eventually be overcome by cultivating working relationships with researchers in other disciplines, but the nature of these mammoth projects still works against the best intentions of disciplinary integration. It is fundamentally complicated to manage the work of a multi-year, multi-investigator, multi-disciplinary research project. When those investigators are at different institutions, as is often the case, the management problem becomes even worse. The most straightforward solution is to divide the work, from proposal development onward, into autonomous pieces with disciplinary coherence for which individual researchers can be responsible. Project integration becomes a matter of stitching together the patches of a quilt rather than weaving multi-colored threads together into a single piece of fabric. We may find that research teams resort less often to this style of management over time as they gain experience working together on projects. It may also be that funding agencies such as the NSF should consider encouraging research that is deeply integrated across disciplines but smaller in scale and scope than the projects currently encouraged by competitions such as BE-CNH and HSD.

Like any research project, graduate students are an integral part of large interdisciplinary projects. However, graduate students seeking training in interdisciplinary areas can face a number of challenges. The standard training that a graduate student receives in economics does not include a number of the tools that may be helpful for doing this type of work, such as courses on agent-based computational economics, GIS, and complex systems dynamics, and thus students must seek out courses from other departments. The extensive requirements of most economics graduate programs make this a difficult proposition; it is not unusual, for example, for students to be required to spend their first two years on core coursework within economics. Once schedules allows for elective coursework, identifying accessible courses from other departments is a piecemeal process and often not even possible for students with little or no background in these other disciplinary fields (e.g., physics, biology or computer science). Even if students do have opportunities for such training, e.g., under the auspices of an IGERT, job opportunities for economists with such interdisciplinary training are uncertain. Nonetheless, a number of these barriers can be lessened through proactive measures at the departmental level. Departments could streamline course requirements for those interested in interdisciplinary work and cooperate with other departments to identify existing courses or develop and cross-list new courses that would provide training in this type of interdisciplinary research.

Along these lines, departments could encourage students interested in interdisciplinary work to get what NSF refers to as a “Ph.D. plus,” in which the student obtains a Ph.D. in a disciplinary program and then picks up a “plus” by getting a masters degree in another discipline.

A final challenge is support from institutions and funding agencies for this type of research, which is sometimes tenuous at best. Despite much lip service paid to the importance of interdisciplinary research by universities, bottom-line incentives often force departments, colleges and universities to compete with each other for resources rather than fostering collaborative work. Additionally, current funding for interdisciplinary research is scarce and future support of such research from the major funding agencies that are likely to support this type of interdisciplinary work is unclear. For example, only 5-7% of all BE proposals have been funded, and program officers at the NSF report that while many people at the NSF are working to continue the BE-CNH competition, final decisions about future funding for that program have not yet been made.¹ If current funding is slim and future funding is perceived as unreliable, then researchers have muted incentives to engage in the time-consuming and difficult task of building successful interdisciplinary collaborative relationships.

Concluding Thoughts

Despite these challenges, we believe that the potential benefits from engaging in interdisciplinary work on human-environment systems are large. This kind of work can provide a rich source of truly novel research ideas that advance the discipline more than incrementally. By focusing more explicitly on the temporal and spatial dynamics of human and environmental systems and their interactions, such work can contribute to theory and methods both within economics and across interdisciplinary areas of research on human-environment systems. By borrowing insights or modeling techniques from other fields, meaningful disciplinary contributions to economics are also possible by working at the interface of multiple disciplines. By increasing the realism with which environmental systems are represented and developing more integrated models of human-environment systems, such efforts can provide new and meaningful opportunities for environmental economists to contribute to the policymaking process.

¹ If there is a new CNH competition, NSF officials do not expect the new announcement to appear before the middle of the summer; the earliest proposal-submission deadline likely would be in November 2005.

To fully achieve such benefits, however, environmental and resource economists must be willing to go beyond traditional roles to developing sound structural models of human behavior within modeling frameworks that are truly integrated with natural scientists' models of the ecological system. Such innovation is likely to lead to the creation of new theories, methods and fields of study regarding human-environmental change. Environmental economists are well-positioned to contribute to these developments and in doing so, will expand the boundaries of environmental economics in meaningful ways.

While interdisciplinary research is not easy, we should not let the challenges discourage us. A metaphorical case for the importance of such work can be seen in the poem "The Blind Men and the Elephant" by John Godfrey Saxe, in which six blind men develop diverse incorrect opinions about the nature of the elephant (it is like a wall, spear, snake, tree, fan, or rope) depending on which small part of the elephant they happen to have studied (its side, tusk, trunk, knee, ear, or tail). Traditional academic disciplinary boundaries encourage scholars to study isolated facets of environmental systems from particular and narrow points of view. If we fail to conduct work that integrates these perspectives, we may mimic the failure highlighted in Saxe's poem: "And so these men of Indostan / Disputed loud and long, / Each in his own opinion / Exceeding stiff and strong, / Though each was partly in the right, / And all were in the wrong!"

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OREGON STATE UNIVERSITY

Research Frontiers in Resource and Rural Economics

The Department of Agricultural and Resource Economics at Oregon State University is planning a two-day symposium to celebrate **Emery N. Castle's** contributions to theoretical and applied developments in natural resource, environmental, and community economics. The symposium, tentatively titled *Research Frontiers in Resource and Rural Economics: Rural-Urban Interplay and Nature-Human Interactions* will bring together scholars from across the nation to evaluate and discuss the progress and prospects of research and policies in these important areas of intellectual inquiry and applied work. Nineteen nationally known economists, sociologists, and policy makers will address the past, present and futures of the major subject matter areas that Castle has pursued during his six decades as an active and internationally respected scholar.

The symposium, scheduled for October 5-7, 2005, will be held on the Oregon State University campus in Corvallis. A comprehensive program and details relating to the symposium can be found at the symposium web site:

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INSTITUTE FOR ENVIRONMENTAL STUDIES (IVM)

Professor of Environmental Economics/ Head of the Department of Economics and Technology

Instituut voor Milieuvraagstukken (IVM, Institute for Environmental Studies) has been part of the new Faculty of Earth and Life Sciences at the Vrije Universiteit since 2002. The institute seeks to strengthen multidisciplinary research and teaching in the field of environmental sciences. As part of the process of renewal, IVM has been assigned three new professorial-level faculty research and teaching positions.

Environmental Economics and the Department of Economics and Technology

The Institute for Environmental Studies (IVM) was set up in 1971 and has since been a multidisciplinary research institute combining natural and social sciences. The mission of the institute is **to contribute to sustainable development and care for the environment through scientific research and education**. We aim to do world-class research, which is problem-oriented and useful to a wide range of audiences in science, government, industry and civil society. Our objective is to reinforce our position as one of the top European academic environmental studies institutes measured in terms of scientific and policy impact.

The institute is organised into four departments:

- Chemistry and Biology (C&B)
- Environmental Policy Analysis (EPA)
- Economics and Technology (E&T)
- Spatial Analysis and Decision Support (SPACE)

The new professor will lead the Economics and Technology (E&T) department at IVM. The department is active in research and teaching in the fields of environmental economics and innovation studies. Research interests of the department include: economy-environment modelling, innovation and diffusion of clean technologies; the efficiency and effectiveness of environmental policy instruments; economic valuation of environmental change and cost-benefit analysis; environmental management and poverty reduction; climate change, trade and environment; and the economics of biodiversity and coastal zone management.

Currently, the E&T department comprises 20 researchers, most of them with an environmental economics background. Taken together with colleagues at the Faculty of Economics and Business Management

(FEWEB) at the Vrije Universiteit, this represents the largest community of environmental economists at a Dutch university. Most research activities of the E&T department are financed by external funds.

IVM as a whole provides teaching at Bachelors and Masters level. These include courses such as, Basic Course in Environmental Science, Management of River Basins and Coastal Zones, Remote Sensing and Geographical Information Systems (GIS) (at BSc and MSc level), Environmental and Resource Management (MSc), and the UNIGIS program (Postgraduate and MSc in spatial information. IVM also participates in the SENSE research school (Socio-Economic and Natural Sciences of the Environment; www.sense.nl).

Job description Professor / Head of Department

The professor will be the head of the E&T department at IVM, which is part of the FALW. He or she will have the following tasks:

1. To carry out high-quality environmental economics research, which encompasses the following activities:
 - To initiate, formulate and supervise the implementation of research projects and programs of the department, as part of a multi-annual research program of the institute and faculty;
 - to enhance and contribute to joint research projects and programs of the FALW and FEWEB ;
 - to acquire and coordinate research projects and programs;
 - to enhance research quality;
 - to enhance the multidisciplinary nature of research;
 - to develop and guide doctoral research;
 - to publish the results of own research in peer-reviewed journals.
2. To promote environmental economics education (both regular and non-regular education), also covering the following aspects:
 - to develop, issue recommendations for and contribute to education in the FALW studies.
3. To manage the E&T department:
 - to lead the department in a way that motivates staff to achieve optimum levels of performance;
 - external representation and profiling of the institute and FALW;
 - to lead discussions within the department;

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- to implement staff policies of the department, to carry out performance appraisal and to develop staff competencies.

4. To participate in the management team of the institute.

Profile of the professor / head of department

The appointed professor is likely to be a prominent researcher in environmental economics. This is reflected in an academic doctoral degree and in the quality and number of publications in international academic journals. The professor enjoys a good reputation in national and international networks, and is sensitive to the need for plural approaches to research questions. He or she has a track-record of effective acquisition of research projects and programs. He or she has the capacity to initiate research in the proximate fields, to guide and supervise researchers, and to manage the E&T department. He or she has a commitment to multidisciplinary research in the department, and across IVM and the VU. He or she has the ability to present the results of his/her research in an accessible way, for academic and non-academic audiences. The professor has some teaching experience at post-graduate level. Insofar as he or she does not have a command of the Dutch language, he or she is prepared to develop a working knowledge of the language within a reasonable period of time.

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