

CURRICULUM VITAE

Robert Costanza, Ph.D.

Gordon and Lulie Gund Professor of Ecological Economics and
Director, Gund Institute for Ecological Economics,
Rubenstein School of Environment and Natural Resources, The University of Vermont

I. PERSONAL

Citizenship: USA
Phone: (802) 656- 2974, Fax: (802) 656-2995
email: Robert.Costanza@uvm.edu

II. EDUCATION

1968-1970 Purdue University, West Lafayette, IN, Aerospace Engineering
1971-1973 BA (with honors) University of Florida, Gainesville, FL, Architecture
1973-1974 MA University of Florida, Gainesville, FL, Architecture/Urban and Regional Planning
1975-1979 Ph.D. University of Florida, Gainesville, FL, Systems Ecology, Environmental Engineering Sciences (minor in Economics)

III. PROFESSIONAL BACKGROUND

2002-Present: Gordon and Lulie Gund Professor of Ecological Economics and Director, Gund Institute of Ecological Economics, Rubenstein School of Environment and Natural Resources, The University of Vermont, Burlington, VT, 05405.
1991-2002: Professor, University of Maryland Center for Environmental Science (Chesapeake Biological Laboratory) Solomons, MD 20688.
1994-2002: Professor, Department of Biology, University of Maryland at College Park, College Park, MD 20742.
1991-2002: Founding Director, University of Maryland Institute for Ecological Economics, Center for Environmental Science and College of Life Sciences, University of Maryland, Solomons and College Park, MD.
1999-2002: Affiliate Professor, School of Public Affairs, University of Maryland at College Park, College Park, MD 20742.
1996 Visiting Scientist, Beijer International Institute of Ecological Economics, The Royal Swedish Academy of Sciences, Stockholm, Sweden.
1992-1994: Research Program Director, Complex Ecological Economic Systems Modeling Research Program, Beijer International Institute of Ecological Economics, The Royal Swedish Academy of Sciences, Stockholm, Sweden.
1988-1991: Associate Professor, Coastal and Environmental Policy Program, Chesapeake Biological Laboratory, University of Maryland, Center for Environmental and Estuarine Studies, Solomons, MD.
1983-1991: Affiliate Professional Scientist, Illinois Natural History Survey, University of Illinois, Urbana, IL 61801.
1984-1988 Associate Professor, Coastal Ecology Institute and Department of Marine Sciences, Center for Wetland Resources, Louisiana State University, Baton Rouge, LA 70803.
1982 Visiting Assistant Professor, Illinois Natural History Survey, University of Illinois, Urbana, IL 61801.
1981-1984 Assistant Professor, Coastal Ecology Laboratory and Dept. of Marine Sciences, Louisiana State University, Baton Rouge, LA 70803.
1980-1981 Postdoctoral Research Associate, Center for Wetland Resources, Louisiana State University, Baton Rouge, LA 70803.
1979 Energy Analyst, Florida Governor's Energy Office, Tallahassee, FL.

IV. RESEARCH

A. Areas of Professional Expertise:

Transdisciplinary integration, ecological economics, landscape ecology, ecological modeling, energy and material flow analysis, environmental policy, social traps, incentive structures and institutions.

B. Academic Publications (426 total, 361 refereed)

Summary:	Refereed Journal Articles	153
	Books	20
	Special Issues of Journals	13
	Monographs	7
	Refereed Book Chapters and Encyclopedia Entries	126
	Book Reviews and Letters	42
	Conference Proceedings	25
	Technical Reports	40
	Total	426

Total Institute for Scientific Information (ISI) citations > 4,000, ISI h-index = 31

Named as ISI Highly Cited Researcher (<http://isihighlycited.com/>), 2004-present

1. Refereed Journal Articles (153)

1980-84

1. **Costanza, R. 1980.** Embodied energy and economic valuation. *Science* 210:1219-1224. (Also reprinted as pp. 432-444 in: I. A. Sohn, (Ed.), 1986. Readings in Input-Output Analysis, Oxford University Press, and as pp. 103-115 in: Costanza, R., 1997. Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza, Edward Elgar, Cheltenham, 491 pp.).
2. **Wang, F.C., H.T. Odum, R. Costanza. 1980.** Energy criteria for water use. *J. Water Res. Plan. and Mgt.* 160:185-203.
3. **Scaife, W. W., R. E. Turner, and R. Costanza. 1983.** Coastal Louisiana recent land loss and canal impacts. *Environmental Management* 7:433-442.
4. **Costanza, R. and R. A. Herendeen. 1984.** Embodied energy and economic value in the United States economy: 1963, 1967, and 1972. *Resources and Energy* 6:129-164. (Also reprinted as pp. 116-150 in: Costanza, R., 1997. Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza, Edward Elgar, Cheltenham, 491 pp.).
5. **Cleveland, C. J., R. Costanza, C. A. S. Hall, and R. Kaufmann. 1984.** Energy and the United States economy: a biophysical perspective. *Science* 225:890-897. (Winner of 1985-86 National Wildlife Federation Outstanding Publication Award; also reprinted as pp. 295-302 in: Costanza, R., C. Cleveland, and C. Perrings (eds.), 1997. The Development of Ecological Economics, Edward Elgar, Cheltenham and as pp. 345-352 in: R. U. Ayres, K. Button and P. Nijkamp (eds.) 1999, Global Aspects of the Environment, Volume I, Edward Elgar, Cheltenham, 473 pp)
6. **Costanza, R. 1984.** The nuclear arms race and the theory of social traps. *Journal of Peace Research* 21:79-86.
7. **Costanza, R., and C. Neill. 1984.** Energy intensities, interdependence, and value in ecological systems: a linear programming approach. *Journal of Theoretical Biology* 106:41-57. (Also reprinted as pp. 151-167 in: Costanza, R., 1997. Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza, Edward Elgar, Cheltenham, 491 pp.).
8. **Cleveland, C. J., and R. Costanza. 1984.** Net energy analysis of geopressed gas resources in the U.S. Gulf coast region. *Energy* 9:35-51.

1985

9. **Costanza, R., and F. H. Sklar. 1985.** Articulation, accuracy, and effectiveness of mathematical models: a review of freshwater wetland applications. *Ecological Modeling* 27:45-68. (Also reprinted as pp. 225-248 in:

- Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
10. **Sklar, F. H., R. Costanza, and J. W. Day, Jr. 1985.** Dynamic spatial simulation modeling of coastal wetland habitat succession. *Ecological Modeling* 29:261-281.
 11. **Costanza, R. and S. C. Farber. 1985.** Theories and methods of valuation of natural systems: a comparison of willingness-to-pay and energy analysis based approaches. *Man, Environment, Space, and Time* 4:1-38.
 12. **Hannon, B. M. and R. Costanza. 1985.** Ecosystems with multiple products. *ISEM Journal* 7:27-49.

1986

13. **Hannon, B., R. Costanza, and R. A. Herendeen. 1986.** Measures of energy cost and value in ecosystems. *The Journal of Environmental Economics and Management* 13:391-401. (Also reprinted as pp. 1168-178 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).

1987

14. **Costanza, R. 1987.** Social traps and environmental policy. *BioScience* 37:407-412. (Also reprinted as pp. 375-380 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
15. **Costanza, R. and H. E. Daly. 1987.** Toward an ecological economics. *Ecological Modeling* 38:1-7. (Also reprinted as pp. 3-9 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
16. **Costanza, R. 1987.** Simulation modeling on the Macintosh using STELLA. *BioScience* 37:129-132.
17. **Farber, S. and R. Costanza. 1987.** The economic value of wetlands systems. *Journal of Environmental Management* 24:41-51.

1988

18. **Turner, M. G., R. Costanza, T. M. Springer, and E. P. Odum. 1988.** Market and nonmarket values of the Georgia landscape. *Environmental Management* 12:209-217.
19. **Costanza, R. and W. Shrum. 1988.** The effects of taxation on moderating the conflict escalation process: an experiment using the dollar auction game. *Social Science Quarterly* 69:416-432. (Also reprinted as pp. 381-397 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
20. **Tyner, G., R. Costanza, and R. G. Fowler. 1988.** The net-energy yield of nuclear power. *Energy* 13:73-81.

1989

21. **Costanza, R. 1989.** What is ecological economics? *Ecological Economics* 1:1-7 (Also reprinted as pp. 161-163 in: C. A. S. Hall (ed.), 1995. *Maximum Power: The Ideas and Applications of H. T. Odum*. University Press of Colorado, and as pp. 10-16 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
22. **Costanza, R. 1989.** Model goodness of fit: a multiple resolution procedure. *Ecological Modelling* 47:199-215. (Also reprinted as pp. 249-265 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
23. **Costanza, R., S. C. Farber, and J. Maxwell. 1989.** The valuation and management of wetland ecosystems. *Ecological Economics* 1:335-361. (Also reprinted as pp. 191-204 in: C. A. S. Hall (ed.), 1995. *Maximum Power: The Ideas and Applications of H. T. Odum*. University Press of Colorado; and as pp. 493-519 in: Costanza, R., C. Cleveland, and C. Perrings (eds.), 1997. *The Development of Ecological Economics*, Edward Elgar, Cheltenham; and as pp. 17-43 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp. and as pp. 198-224 in: R. K. Turner, K. Button, and P. Nijkamp (eds.) 1999. *Ecosystems and Nature: Economics, Science, and Policy*, Edward Elgar, Cheltenham).
24. **Turner, M. G., R. Costanza, and F. H. Sklar. 1989.** Methods to evaluate the performance of spatial simulation models. *Ecological Modelling* 48:1-18.

1990

25. **Costanza, R., F. H. Sklar, and M. L. White. 1990.** Modeling coastal landscape dynamics. *BioScience* 40:91-107. (Also reprinted as pp. 630-646 in: Costanza, R., C. Cleveland, and C. Perrings (eds.), 1997. *The*

Development of Ecological Economics, Edward Elgar, Cheltenham; and as pp. 17-43 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).

26. **Costanza, R. and C. Perrings. 1990.** A flexible assurance bonding system for improved environmental management. *Ecological Economics* 2:57-76. (Also reprinted as pp. 398-416 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).

1991

27. **Costanza, R. and L. Wainger. 1991.** Ecological economics. *Business Economics* 26:45-48.
28. **Costanza, R. 1991.** Energia, incertezza, ecologia ed economia. *Oikos (Italia)* 3:167-200.
29. **Hannon, B., R. Costanza, and R. Ulanowicz. 1991.** A general accounting framework for ecological systems: a functional taxonomy for connectivist ecology. *Theoretical Population Biology* 40:78-104. (Also reprinted as pp. 1195-224 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
30. **Costanza, R. and T. Maxwell. 1991.** Spatial ecosystem modeling using parallel processors. *Ecological Modeling* 58:159-183.
31. **Costanza, R. 1991.** Ecological economics: a research agenda. *Structural Change and Economic Dynamics* 2:335-357.

1992

32. **Costanza, R., S. O. Funtowicz, and J. R. Ravetz. 1992.** Assessing and communicating data quality in policy relevant research. *Environmental Management* 16:121-131. (Also reprinted as pp. 283-308 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
33. **Costanza, R. and H. E. Daly. 1992.** Natural capital and sustainable development. *Conservation Biology* 6:37-46. (Also reprinted as pp. 238-247 in: D. Ehrenfeld (ed.), 1995. *Readings from Conservation Biology*. Blackwell, Cambridge, MA; and as pp. 455-464 in: Costanza, R., C. Cleveland, and C. Perrings (eds.), 1997. *The Development of Ecological Economics*. Edward Elgar, Cheltenham; and as pp. 65-74 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham; and as pp. 532-541 in H. Hagemann, M. Landesmann, and R. Scazzieri (eds.) 2003. *The Economics of Structural Change, Vol III, Economic Developments: Patterns and Empirics*. Edward Elgar, Cheltenham).
34. **Gillett, J. W., J. B. Johnson, D. G. Arey, R. Costanza, I. J. Tinsley, J. S. Weis, and A. F. Yanders. 1992.** The need for an integrated urban environmental policy. *Journal of Urban Affairs*.14:377-398.
35. **Costanza, R. and L. Cornwell. 1992.** The 4P approach to dealing with scientific uncertainty. *Environment* 34:12-20,42. (Also reprinted in: Thomas Easton (ed.), 1994. *Taking Sides: Clashing Views on Controversial Issues In Science, Technology, And Society*, Dushkin Press, Guilford; and as pp.417-426 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
36. **Chmura, G. L., R. Costanza, and E. C. Kusters. 1992.** Modelling coastal marsh stability in response to sea level rise: a case study in coastal Louisiana, USA. *Ecological Modelling* 64:47-64.

1993

37. **Costanza, R., M. Kemp, and W. Boynton. 1993.** Predictability, scale, and biodiversity in coastal and estuarine ecosystems: implications for management. *Ambio* 22:88-96. (Also reprinted as pp. 309-329 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
38. **Costanza, R., L. Wainger, C. Folke, and K-G Mäler. 1993.** Modeling complex ecological economic systems: toward an evolutionary, dynamic understanding of people and nature. *BioScience* 43:545-555. (Also reprinted as pp. 148-163 in: Sampson, F. B. and F. L. Knopf (eds.), 1996. *Ecosystem Management*. Springer, New York; and as pp. 209-222 in: Costanza, R., C. Cleveland, and C. Perrings (eds.), 1997. *The Development of Ecological Economics*. Edward Elgar, Cheltenham; and as pp. 330-340 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).

39. **Maxwell, T. and R. Costanza. 1993.** An approach to modeling the dynamics of evolutionary self organization. *Ecological Modelling* 69:149-161.
40. **Costanza, R. 1993.** Developing ecological research that is relevant for achieving sustainability. *Ecological Applications* 3:579-581.
41. **Costanza, R. 1993.** Beyond the limits: dealing with an uncertain future. *Estuaries* 16:919-922.

1994

42. **Ekins, P., C. Folke, and R. Costanza. 1994.** Trade, environment and development: the issues in perspective. *Ecological Economics* 9:1-12.
43. **Costanza, R. and T. Maxwell. 1994.** Resolution and predictability: an approach to the scaling problem. *Landscape Ecology* 9:47-57 (Also reprinted as pp. 341-351 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
44. **Cornwell, L. and R. Costanza. 1994.** An experimental analysis of the effectiveness of an environmental assurance bonding system on player behavior in a simulated firm. *Ecological Economics* 11:213-226.
45. **Maxwell, T. and R. Costanza. 1994.** Scaling spatial predictability: an approach to multi-resolution modelling. *Environmental Toxicology & Chemistry* 13:1875-1880.

1995

46. **Arrow, K., B. Bolin, R. Costanza, P. Dasgupta, C. Folke, C. S. Holling, B-O. Jansson, S. Levin, K-G. Maler, C. Perrings, and D. Pimentel. 1995.** Economic growth, carrying capacity, and the environment. *Science* 268:520-521. (Also reprinted with a series of invited commentaries in: *Ecological Economics* 15:91-95, *Ecological Applications* 6:12-32 and *Environment and Development Economics* 1:104-110; also reprinted as pp. 489-490 in: Costanza, R., C. Cleveland, and C. Perrings (eds.), 1997. *The Development of Ecological Economics*. Edward Elgar, Cheltenham. and as pp. 43-44 in: R. K. Turner, K. Button, and P. Nijkamp (eds.) 1999. *Ecosystems and Nature: Economics, Science, and Policy*, Edward Elgar, Cheltenham)
47. **Costanza, R., J. Audley, R. Borden, P. Ekins, C. Folke, S. O. Funtowicz, and J. Harris. 1995.** Sustainable trade: a new paradigm for world welfare. *Environment* 37:16-20, 39-44. (Also reprinted as pp. 473-486 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).
48. **Bingham, G., R. Bishop, M. Brody, D. Bromley, E. Clark, W. Cooper, R. Costanza, T. Hale, G. Hayden, S. Kellert, R. Norgaard, B. Norton, J. Payne, C. Russell, and G. Suter. 1995.** Issues in ecosystem valuation: improving information for decision making *Ecological Economics* 14:73-90 (Also reprinted as pp. 570-590 in: Costanza, R., C. Cleveland, and C. Perrings (eds). 1997. *The Development Of Ecological Economics*. Edward Elgar, Cheltenham. . and as pp. 87-104 in: R. K. Turner, K. Button, and P. Nijkamp (eds.) 1999. *Ecosystems and Nature: Economics, Science, and Policy*, . Edward Elgar, Cheltenham)
49. **Maxwell, T. and R. Costanza. 1995.** Distributed modular spatial ecosystem modeling. *International Journal in Computer Simulation* 5:247-262.
50. **Costanza, R., J. Audley, R. Borden, P. Ekins, C. Folke, S. O. Funtowicz, and J. Harris. 1995.** Commentary: Sustainable trade. *Environment* 37 (10):5, 38.
51. **Bockstael, N., R. Costanza, I. Strand, W. Boynton, K. Bell, and L. Wainger. 1995.** Ecological economic modeling and valuation of ecosystems. *Ecological Economics*. 14:143-159. (Also reprinted as pp. 747-764 in: Costanza, R., C. Cleveland, and C. Perrings (eds.), 1997. *The Development Of Ecological Economics*. Edward Elgar, Cheltenham. . and as pp. 105-121 in: R. K. Turner, K. Button, and P. Nijkamp (eds.) 1999. *Ecosystems and Nature: Economics, Science, and Policy*, . Edward Elgar, Cheltenham)
52. **Mageau, M., R. Costanza, and R. E. Ulanowicz. 1995.** The development, testing, and application of a quantitative assessment of ecosystem health. *Ecosystem Health* 1:201-213.
53. **Costanza, R. 1995.** Forum: Economic growth, carrying capacity, and the environment. *Ecological Economics* 15:89-90.
54. **Ryan, P. G., R. M. Cowling, and R. Costanza. 1995.** Valuing ecosystems: is the fynbos worth conserving? *South African Journal of Science* 91:572-573.
55. **Costanza, R. and B. C. Patten. 1995.** Defining and predicting sustainability. *Ecological Economics* 15:193-196. (Also reprinted as pp. 96-102 in: Costanza, R., 1997. *Frontiers in Ecological Economics: Transdisciplinary Essays of Robert Costanza*, Edward Elgar, Cheltenham, 491 pp.).

1996

56. **Fitz, H. C., E. B. DeBellevue, R. Costanza, R. Boumans, T. Maxwell, L. Wainger, and F. H. Sklar. 1996.** Development of a general ecosystem model (GEM) for a range of scales and ecosystems. *Ecological Modelling* 88:263-297.
57. **Costanza, R. 1996.** The impact of ecological economics. *Ecological Economics* 19:1-2.
58. **Costanza, R. and R. V. O'Neill. 1996.** Introduction: ecological economics and sustainability. *Ecological Applications* 6:975-977.
59. **Costanza, R. 1996.** Ecological economics: reintegrating the study of humans and nature. *Ecological Applications* 6:978-990.

1997

60. **Voinov, A., C. Fitz, and R. Costanza. 1997.** Landscape model provides Everglades management tool. *GIS World* 10:48-50.
61. **Maxwell, T. and R. Costanza. 1997.** An open geographic modeling environment. *Simulation* 68: 175-185.
62. **Folke, C, A. Jansson, J. Larsson, and R. Costanza. 1997.** Ecosystem appropriation by cities. *Ambio* 26:167-172.
63. **Costanza, R. 1997.** Just rewards: Herman Daly, the Heineken Environmental Prize, and the Ecological Economics Best Article Award. *Ecological Economics* 22:1-4.
64. **Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, B. Hannon, S. Naeem, K. Limburg, J. Paruelo, R.V. O'Neill, R. Raskin, P. Sutton, and M. van den Belt. 1997.** The value of the world's ecosystem services and natural capital. *Nature* 387:253-260. (also reprinted as part of a Forum in *Ecological Economics* 1998, 25: 3-16, translated into Chinese in the *Chinese Journal of Ecology* 1999, 18:70-78, and reprinted as pp. 174-181 in: R. U. Ayres, K. Button and P. Nijkamp (eds.), 1999, *Global Aspects of the Environment, Volume I*, Edward Elgar, Cheltenham, 473 pp). The paper is currently ranked #2 in total citations in the field of Environment/Ecology by ISI Essential Science Indicators (ESI) with 923 cites as of July 2007.
65. **Cowling, R. and R. Costanza. 1997.** Introduction to the special section on valuation and management of fynbos ecosystems. *Ecological Economics* 22:103-104.
66. **Higgins, S. I., J. K. Turpie, R. Costanza, R. M. Cowling, D. C. le Maitre, C. Marais, and G. Midgley. 1997.** An ecological economic simulation model of mountain fynbos ecosystems: dynamics, valuation, and management. *Ecological Economics* 22:155-169.
67. **Costanza, R. 1997.** Answering Georgescu-Roegen. *Ecological Economics* 22:171.
68. **Maxwell, T. and R. Costanza. 1997.** A language for modular spatio-temporal simulation. *Ecological Modelling* 103:105-113.
69. **Patten, B. C. and R. Costanza. 1997.** Logical interrelations between four sustainability parameters: stability, continuation, longevity, and health. *Ecosystem Health* 3:136-142.

1998

70. **Costanza, R. and M. Ruth. 1998.** Using dynamic modeling to scope environmental problems and build consensus. *Environmental Management* 22:183-195.
71. **Bernow, S., R. Costanza, H. Daly, R. DeGennaro, D. Erlandson, D. Ferris, P. Hawken, J. A. Horner, J. Lancelot, T. Marx, D. Norland, I. Peters, D. Roodman, C. Schneider, P. Shyamsundar, and J. Woodwell. 1998.** Ecological tax reform. *BioScience* 48:193-196.
72. **Norton, B., R. Costanza, and R. Bishop. 1998.** The evolution of preferences: why "sovereign" preferences may not lead to sustainable policies and what to do about it. *Ecological Economics* 24:193-211. (also reprinted as pp. 249-276 in: B. G. Norton. *Searching for Sustainability: Interdisciplinary essays in the philosophy of conservation biology*. Cambridge University Press, Cambridge).
73. **Costanza, R. 1998.** Introduction: The value of ecosystem services. *Ecological Economics* 25:1-2
74. **Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, B. Hannon, S. Naeem, K. Limburg, J. Paruelo, R.V. O'Neill, R. Raskin, P. Sutton, and M. van den Belt. 1998.** The value of the world's ecosystem services: putting the issues in perspective. *Ecological Economics* 25:67-72
75. **Voinov, A., H. C. Fitz, and R. Costanza. 1998.** Surface water flow in landscape models: an Everglades case study. *Ecological Modelling* 108:131-144
76. **Costanza, R., D. Duplisea, and U. Kautsky. 1998.** Modeling ecological and economic systems with STELLA. *Ecological Modelling* 110:1-4

77. **Costanza, R. F. Andrade, P. Antunes, M. van den Belt, D. Boersma, D. F. Boesch, F. Catarino, S. Hanna, K. Limburg, B. Low, M. Molitor, G. Pereira, S. Rayner, R. Santos, J. Wilson, M. Young. 1998.** Principles for sustainable governance of the oceans. *Science* 281:198-199.
78. **Rapport, D. J., R. Costanza, and A. J. McMichael. 1998.** Assessing ecosystem health: challenges at the interface of social, natural and health sciences. *Trends in Ecology and Evolution* 13:397-402.
79. **Mageau, M., R. Costanza, and R. Ulanowicz. 1998.** Quantifying the trends expected in developing ecosystems. *Ecological Modelling* 112:1-22.
80. **Costanza, R., and S. Gottlieb. 1998.** Modeling ecological and economic systems with STELLA: Part II. *Ecological Modelling* 112:81-84.
81. **Costanza, R. 1998.** Ecological Economics Best Article Award for 1997. *Ecological Economics* 27:1-2
82. **Costanza, R. 1998.** Beyond the argument culture. *Ecological Economics* 27:113-114

1999

83. **Costanza, R. 1999.** Four visions of the century ahead: will it be Star Trek, Ecotopia, Big Government, or Mad Max?. *The Futurist* 33:23-28.
84. **Costanza, R. and J. King. 1999.** The first decade of ecological economics. *Ecological Economics* 28:1-9.
85. **McMichael, A.J., B. Bolin, R. Costanza, G. Daily, C. Folke, K. Lindahl-Kiessling, E. Lindgren, and B. Niklasson. 1999.** Globalization and the sustainability of human health: an ecological perspective. *BioScience* 49:205-210
86. **Voinov, A, R. Costanza, L. Wainger, R. Boumans, F. Villa, T. Maxwell and H. Voinov. 1999.** The Patuxent landscape model: Integrated ecological economic modeling of a watershed. *Environmental Modelling and Software* 14:473-491
87. **Costanza, R. and M. Mageau. 1999.** What is ecosystem health? *Aquatic Ecology* 33:105-115.
88. **Voinov, A, H. Voinov and R. Costanza. 1999.** Surface water flow in landscape models: 2. Patuxent watershed case. *Ecological Modeling* 119:211-221
89. **Voinov, A. and R. Costanza. 1999.** Watershed management and the web. *Journal of Environmental Management*. 56:21-245.
90. **Rapport, D.J., G. Böhm, D. Buckingham, J. Cairns Jr., R. Costanza, J.R. Karr, H.A.M. de Kruijf, R. Levins, A.J. McMichael, N.O. Nielsen, W.G. Whitford. 1999.** Ecosystem health: the idea, the international society (1992-99), and the important tasks ahead. *Ecosystem Health* 5:82-90
91. **Costanza, R. F. Andrade, P. Antunes, M. van den Belt, D. Boersma, D. F. Boesch, F. Catarino, S. Hanna, K. Limburg, B. Low, M. Molitor, G. Pereira, S. Rayner, R. Santos, J. Wilson, M. Young. 1999.** Ecological economics and sustainable governance of the oceans. *Ecological Economics* 31:171-188.
92. **Costanza, R. 1999.** The ecological, economic, and social importance of the oceans. *Ecological Economics* 31:199-214.
93. **Low, B., R. Costanza, E. Ostrom, and J. Wilson. 1999** Human-ecosystem interactions: a dynamic integrated model. *Ecological Economics* 31:227-242
94. **Wilson, J. B. Low, R. Costanza, and E. Ostrom. 1999.** Scale misperceptions and the spatial dynamics of a social-ecological system *Ecological Economics* 31:243-258

2000

95. **Costanza, R., H. Daly, C. Folke, P. Hawken, C. S. Holling, A. J. McMichael, D. Pimentel, and D. Rapport. 2000.** Managing our environmental portfolio. *BioScience* 50:149-155
96. **Costanza, R. 2000.** Visions of alternative (unpredictable) futures and their use in policy analysis. *Conservation Ecology* 4(1):5. [online] URL: <http://www.consecol.org/vol4/iss1/art5>
97. **Costanza, R. 2000.** The Dynamics of the Ecological Footprint Concept *Ecological Economics* 32:341-345.
98. **Costanza, R. 2000.** Social goals and the valuation of ecosystem services. *Ecosystems* 3: 4-10
99. **Campbell, B. M., R. Costanza, and M. van den Belt. 2000.** Land use options in dry tropical woodland ecosystems in Zimbabwe: Introduction, overview and synthesis. *Ecological Economics*, 33:341-351
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33. **Fitz, H.C., A. Voinov, and R. Costanza. 1995.** The Everglades Landscape Model: Multiscale Sensitivity Analysis. Report to the Everglades Systems Research Division, South Florida Water Management District, 3301 Gun Club Road, West Palm Beach, FL 33416. 88 pages.
34. **Costanza, R., H. C. Fitz, T. Maxwell, A. Voinov, H. Voinov, and L. A. Wainger. 1995.** Patuxent Landscape Model: Sensitivity Analysis and Nutrient Management Scenarios. Interim Report for U.S. EPA Cooperative Agreement #CR 821925010. University of Maryland Institute for Ecological Economics, Center for Environmental and Estuarine Studies, University of Maryland, Box 38, Solomons, MD 20688-0038.
35. **Wainger, L., T. Maxwell and R. Costanza. 1996.** Development of a Landscape Model to Evaluate the Effects of Land Conversion on Hydrology in Sawmill Creek Watershed, Anne Arundel County, Maryland. Final Report to Maryland Department of Natural Resources.
36. **Cornwell, L.L. and R. Costanza. 1997.** A Futures Outlook of the Banff-Bow Valley: A Modelling Approach to Ecological, Economic and Social Issues. Chapter 10 in: Green, J., C. Pacas, S. Bayley and L. Cornwell (eds.), Ecological Outlooks Project. A Cumulative Effects Assessment and Futures Outlook of the Banff-Bow Valley. Prepared for the Banff-Bow Valley Study. Department of Canadian Heritage, Ottawa, ON.
37. **Costanza, R. N. Bockstael, C. Binder, R. Boumans, T. Maxwell, F. Villa, A. Voinov, H. Voinov, L. Wainger, and S. Walters. 1997.** Integrated Ecological Economic Modeling and Valuation of Watersheds: Year 2 Progress Report to EPA. USEPA, Washington, DC.
38. **Costanza, R., A. Voinov, R. Boumans, T. Maxwell, F. Villa, L. Wainger, and H. Voinov. 1999.** Integrated ecological economic modeling of the Patuxent River watershed, Maryland. Final report to EPA. University of Maryland Institute for Ecological Economics, Center for Environmental and Estuarine Studies, University of Maryland, Box 38, Solomons, MD 20688-0038.
39. **Costanza, R. 2000.** The valuation of ecosystem services from an ecological economics perspective. Report to the "F4" Panel of Commissioners United Nations Compensation Commission Geneva, Switzerland. 31 pp.
40. **Costanza, R. Wilson, M. Troy, A., Voinov, A., Liu, S., and D'Agostino, J. 2006.** The Value of New Jersey's Ecosystem Services and Natural Capital. Report to New Jersey Department of Environmental Protection, Division of Science, Research, and Technology, Trenton, NJ. <http://www.nj.gov/dep/dsr/naturalcap/>

C. Contracts and Grants

Active: 5 projects as principal or co-principal investigator:	\$ 2,363,000
Completed: 39 projects as principal or co-principal investigator:	<u>\$20,660,000</u>
Total	\$23,024,284

1. Awarded

a. Active (5)

- Human Settlements as Ecosystems: Metropolitan Baltimore from 1797-2100. 1997-2008. NSF Long Term Ecological Research (LTER) project. Co-Principal Investigator (with Steward Pickett and 11 others) funding for our component (subcontract with the Institute for Ecosystem Studies): \$850,000 over 10 years. 5% time.
- Ecological Economics: Integrative Graduate Education and Research Project. USAID/Mexico TIES program. Principal Investigator, 9/1/05- 9/1/08. \$490,692, 8.3% time.
- Ecosystem Services: Dynamics, Modeling and Valuation to Facilitate Conservation. Gordon and Betty Moore Foundation. Principal Investigator, 7/06 – 3/08, \$813,005. 16.6% time
- Transforming the University of Vermont: Leading by design for a sustainable and desirable future. Lewis Foundation. Co-Principle Investigator (with Don DeHayes). 1/1/07 – 12/31/07. \$100,000 0% time
- Payment for Ecosystem Services (PES): An International Atelier Workshop. Blue Moon Fund. Principal Investigator, 6/06 - 12/07. \$108,874, 8% time

b. Completed (39)

- 2004-2006. Valuing New Jersey's Natural Capital and Ecosystem Services. New Jersey Department of Environmental Protection. Principal Investigator (with Matt Wilson and Austin Troy) 6/1/04-8/31/06. \$190,000, 8.3% time
- 2002-2005. Assessing the Social and Economic Value of Ecosystem Services in the Northern Forest: A Geographic Information System (GIS) Approach to Landscape Valuation, Northeastern States Research Cooperative.. \$135,000, 2% time.
- 2002-2005. Designing a New Model for Sustainable Ecological Tourism in the Northern Forest Region: an Atelier Course, Northeastern States Research Cooperative.. \$57,000, 0% time.
- 2001-2005. A web-accessible knowledge base for the integrated analysis and valuation of ecosystem services.. NSF. Co-Principal Investigator (with Ferdinando Villa) \$750,000. 10% time.
- 2003-2004. Earth Shareholder's Report. Gund Foundation, \$30,000, 0% time.
- 1999-2002. Whole watershed health and restoration: Applying the Patuxent and Gwynns Falls landscape models to designing a sustainable balance between humans and the rest of nature. EPA. Principal Investigator. \$699,916. 15% time.
- 1998-2002. An Open Spatial Modeling Environment. NSF (subcontract with the University of Illinois). \$425,000 over 5 years. Co-Principal Investigator (with Tom Maxwell).
- 1992-2000. Multiscale Experimental Ecosystem Research Center, EPA, \$10,000,000, Co-Principal Investigator (with 18 others. (An additional grant of \$58,900 worth of computer equipment from Apple Computer Inc. was made to support this project.)
- 1993-2002. Developing Ecological Economics at the Maryland International Institute for Ecological Economics. Ford Foundation. \$1,100,000. Principal Investigator.
- 1995-1999. Integrated Ecological Economic Modeling and Valuation of Watersheds. NSF/EPA. \$1,000,000. Principal Investigator (with 10 additional participants). 15% time.
- 1998-1999. Integration of Process-Based & Agent Based Modeling Paradigms.. US Army. Principle Investigator (with Tom Maxwell). \$25,508
- 1993-1999. Fellowships and Ecological Economics Certificate Program. MacArthur Foundation. \$600,000. Principal Investigator.
- 1992-1997. Ecological Economic Modelling and Valuation of Ecosystems. Cooperative Agreement with EPA No. 07-5-25196-3734, \$345,624. Nancy Bockstael (AREC) and Robert Costanza, Project managers.
- 1994-1997. Multiscale Modeling of Coastal Landscape Dynamics., NOAA, Estuarine Habitat Program, \$315,782. J. C. Stevenson and R. Costanza, Co-Principal Investigators.
- 1996-1997. Distributed Modular Spatial Ecosystem Modeling. NSF, \$219,000. Co-Principal Investigator (with Tom Maxwell).
- 1993-1996. Pew Scholarship in Conservation and the Environment. Pew Charitable Trusts. \$150,000. Recipient
- 1991-1996. Ecosystem Valuation and Restoration and Their Impacts on Environmental Accounting and Concepts of Sustainable Development. Cooperative Agreement with EPA, \$583,452. Robert Costanza and Dennis King, Project managers.
- 1991-1996. Modeling Landscape Dynamics in the Everglades Basin. Cooperative Agreement with the South Florida Water Management District, \$455,501. Principal Investigator.
- 1988-1994. Responses of a Major Land Margin Ecosystem to Changes in Terrestrial Nutrient Input, Internal Nutrient Cycling, Production and Export. NSF, \$2,500,000. Co-Principal Investigator (with M. Kemp, and 12 others).
- 1992-1994. Ecological Landscape Models for Evaluating the Interactive Dynamics of the Patuxent River Watershed and Estuary. Maryland DNR, \$80,000, Principal Investigator.
- 1992-1993. A Land Use-Based Spatial Hydrologic Modeling System for Use in Small Watersheds: With an Application for the Sawmill Creek Watershed, Maryland. Maryland DNR, \$20,000. Principal Investigator.
- 1989-1992. Landscape Modeling: the Synthesis of Ecological Processes over Large Geographic Regions and Long Time Scales, NSF, \$536,364, co-Principal Investigator (with F. Sklar, SFWMD), 4.15% time.
- 1990-91. Workshop on Ecosystem Health and Environmental Management. 1990. MD Sea Grant (\$7,000) and US EPA (\$10,000). Co-Principal Investigator (with M. Sagoff, UMD). 0% time.
- 1989-1991. An International Workshop on The Ecological Economics of Sustainability: Making Local, Short-Term and Global, Long-Term Goals Consistent. 1989-91. The Pew Charitable Trusts, \$70,000, The Jessie Smith Noyes Foundation, \$15,000, US AID, \$10,000. Principal Investigator. 8.3% time.
- 1988-1990. A Flexible Environmental Cost Charging and Assurance Bonding System for Improved Economic Efficiency . EPA, \$80,472. Co-Principal Investigator (with S. Farber, LSU).

1988. A Solomon's Forum on Sediment Control in the Chesapeake Bay Watershed. \$10,050. Principal Investigator. 4.15% time.
- 1984-1988. Development and Application of Community/Succession Models for the Wetland Complex of the Lower Atchafalaya River Drainage. U. S. Fish and Wildlife Service, \$225,000. Co-Principal Investigator (with J. W. Day and F. H. Sklar, LSU).
- 1985-1987. Spatial Simulation Modeling: A Synthesis of Atchafalaya Delta and Terrebonne Marsh Projects. NOAA, Sea Grant, \$67,655. Co-Principal Investigator (with F. H. Sklar, LSU).
- 1985-1986. Factors Affecting the Cost/Effectiveness of Impoundments in the Louisiana Coastal Zone. Louisiana Department of Natural Resources, \$57,677. Co-Principal Investigator (with J. W. Day, LSU).
- 1984-1985. The Value of Terrebonne Parish Wetlands. Louisiana Universities Marine Consortium, \$20,000. Co-Principal Investigator (with S. Farber, LSU Economics Dept.).
- 1983-1985. Benefits and Costs of Environmental Enhancement Projects in Louisiana. Louisiana Dept. of Natural Resources, \$73,808, Co-Principal Investigator (with S. Farber, LSU Economics Dept.).
- 1983-1984. A Low Level Aerial Imagery System for Analyzing the Effects of Backfilling Canals on Water Movement and Plant Productivity. Louisiana Dept. of Natural Resources, \$21,199. Principal Investigator.
- 1983-1984. Measurement of Ground and Surface Water Movement in Marshes. Louisiana Dept. of Natural Resources, \$15,733. Co-Principal Investigator (with E. Swenson, LSU).
- 1983-1984. Estimation of Total Recovery of Hydrocarbons in Louisiana Through the Use of Net Energy Techniques. LSU Center for Energy Studies, \$16,829, Principal Investigator.
- 1981-1982. Improved Energy Analysis Methodology and Applications to Louisiana Energy Resources. LSU Mining and Mineral Resources Research Institute, \$9,000. Principal Investigator.
- 1980-1982. Mississippi Deltaic Plain Region Ecosystem Models and Narrative Report. US Fish & Wildlife Service #14-16-009-80-073, \$172,603. Co-Principal Investigator (with L. M. Bahr, LSU).
- 1980-1982. Energy Analysis Tools for Incorporating Environmental Analysis Findings in Federal Decision Making. Co-Principal Investigator (with M. J. Lavine, Cornell).
1982. Modeling of Economic and Ecological Systems. Illinois Dept. of Energy and Natural Resources, ENR-80.260, \$55,092. Co-Principal Investigator (with R. Gorden, U. of Illinois).
1981. Environmental Impacts and Costs of OCS Related Gas Activities in Louisiana. Subcontract with Gulf South Research Institute, \$30,000. Principal Investigator.

D. Invited Seminars and Presentations (417)

1978-1984

1. American Institute of Biological Sciences Annual Meeting. "Predictability of Energy Sources as an Index of Ecosystem Production Potential." University of Georgia, Athens, GA 10/78.
2. Special seminar on dynamic optimization models in ecology and economics. Savannah River Ecology Lab, Aiken, SC 9/79.
3. AAAS Annual Conference: Symposium on Energetic and Ecological Economics. invited speaker: "Embodied Energy, Energy Analysis, and Economics." San Francisco, CA 1/80.
4. Illinois Natural History Survey Special Seminar. "Valuing Natural Resources: A Comprehensive Approach." University of Illinois, Champaign, Illinois 6/17/80.
5. Fish & Wildlife Service Workshop on Environmental Impact Assessment. "The Use of a Systems Approach for Quantifying Environmental Impacts. North Carolina State University, Raleigh, NC 10/80.
6. International Society for Ecological Modeling Annual Meeting. "The Energy Embodied in the Products of Ecological Systems: A Linear Programming Approach". University of Louisville, Louisville, KY 4/20-23/81.
7. International Society for Ecological Modeling Annual Meeting. "The Energy Embodied in the Products of the Biosphere". University of Louisville, Louisville, KY. 4/20-23/81.
8. Economics Department Fall Seminar. "Energy, Ecology, and Economic Modeling." Louisiana State University, Baton Rouge, LA 11/20/81.
9. Students for Safe Energy Panel Discussion. "Current Major Issues in the Struggle Against Nuclear Power." Louisiana State University, Baton Rouge, LA 10/28/81.
10. Wallenberg Symposium. "Natural Resource Valuation and Management: Toward an Ecological Economics." Stockholm, Sweden 9/1/82.

11. International Society for Ecological Modeling Annual Meeting. "The Mississippi Deltaic Plain Region (MDPR) Study: An Application of Ecological Models to the Analysis and Management of a Complex Coastal Region." Colorado State University, Fort Collins, CO 8/82.
12. International Society for Ecological Modeling Annual Meeting. "Factors Contributing to Marsh Land Loss in Louisiana's Coastal Zone." Colorado State University, Fort Collins, CO 8/82.
13. Center for Energy Studies Energy Forum. "Ultimate Recoverable Hydrocarbons: A Net Energy Approach." Louisiana State University, Baton Rouge, LA 10/7/83.
14. SCOPE-UNEP Conference on Freshwater Wetlands. "Mathematical Models of Freshwater Wetlands and Shallow Water Ecosystems: An Articulated Review." Tallinn, USSR, 8/3/83. (Talk was not given at Tallinn because visa problems prevented attendance. Paper presented at the International Institute for Applied Systems Analysis in Laxenburg, Austria instead).

1985

15. Estuarine Research Federation Annual Meeting. "Modeling Spatial and Temporal Succession in the Atachafalya/Terrebonne Marsh/Estuarine Complex in South Louisiana." University of New Hampshire, Durham, NH 7/31/85.
16. The 20th Intersociety Energy Conversion Engineering Conference. "Energy Economics." Panel discussion in plenary session on the National Energy Plan. Fontainebleau Hilton Hotel, Miami Beach, FL 8/21/85.
17. International Society for Ecological Modeling Annual Meeting. "Ecological Modeling and Public Policy: Seeing, Avoiding, and Escaping from Traps." University of Florida, Gainesville, FL 8/13/85.
18. International Society for Ecological Modeling Annual Meeting. "Articulation, Accuracy, and Effectiveness of Mathematical Models: What is the Optimal Modeling Effort Under Time and Cost Constraints?" University of Florida, Gainesville, FL 8/13/85.
19. Estuarine Management Practices Symposium. "Economic Valuation of Wetlands." Prince Murat Hotel, Baton Rouge, LA 11/11/85.

1986

20. First International Conference on Conflict Resolution and Peace Studies. "Understanding and Controlling the Conflict Escalation Process and the Nuclear Arms Race: Experiments with the Dollar Auction Game." University of the South Pacific, Suva, Fiji, 1/1/86.
21. Society for Computer Simulation Eastern Simulation Conferences. "A Dynamic Spatial Model of Long-term Changes in a Coastal Wetlands System in South Louisiana." Omni International Hotel, Norfolk, VA 3/10/86.
22. International Congress of Ecology. "Dynamic Spatial Modeling of Coastal Wetland Succession in Coastal Louisiana." Syracuse University, Syracuse, NY 8/10/86-8/16/86.
23. NSF Workshop on Array and Parallel Computation in Landscape Dynamics. "Applications in Coastal Wetland Systems." Colorado State University, Fort Collins, CO 9/14/86-9/19/86
24. National Wetland Symposium. "Valuation of Wetlands." International Hotel, New Orleans, LA 10/8/86-10/10/86.
25. The Coastal Society Tenth National Conference: Estuarine and Coastal Management: Tools of the Trade. "A Dynamic Spatial Simulation Model of Coastal Ecosystem Succession in the Mississippi Deltaic Plain as a Tool for Management." International Hotel, New Orleans, LA 10/12/86-10/15/86.
26. Meadowcreek Project on the Linkages Between Environmental Studies and Peace Studies. "Social Traps, Ecological Destruction, and the Arms Race: Some Examples of Optimization Gone Awry." Meadowcreek Conference Center, Fox, AK 10/16/86-10/19/86.
27. SCOPE Workshop on Network Analysis in Oceanography. "Commodity by Process Network Analysis." University of California at Santa Cruz, Santa Cruz, CA 12/1/86-12/5/86.

1987

28. Coastal Zone 87: Fifth Symposium on Coastal and Ocean Management. "Using the Coastal Ecological Landscape Spatial Simulation Model for Wetland Management." Westin Hotel, Seattle, WA 5/26/87 - 5/29/87.
29. International Society for Ecological Modeling 6th International Conference on The State of the Art of Ecological Modeling. "Modeling Landscape Dynamics." Venice, Italy 6/22/87-6/26/87.
30. European Centre for Research and Documentation in Social Sciences symposium on Ecological Economics. "Wetland Ecosystems Valuation and Management." Barcelona, Spain 9/23/87-9/28/87.
31. Ninth Biennial International Estuarine Research Conference. "Model Goodness-of-Fit: a Multiple Scale Procedure." New Orleans, LA October 25-29, 1987.

1988

32. Third Annual Landscape Ecology Symposium: "Multiple resolution procedures for determining the predictability of landscape patterns." University of New Mexico, Albuquerque, NM 3/16/88-3/19/88.
33. European Centre for Research and Documentation in Social Sciences workshop on Environmental Training of Economists. "Ecosystem Valuation and Management." La Valletta, Malta, 4/10/88-4/15/88.
34. NSF Workshop on Predicting Across Scales, workshop participant, Oak Ridge, TN 11/8/88-11/12/88.

1989

35. Arbeitsgruppe Theoretische Oekologie, PROSPERO workshop on ecological accounting systems. "Dealing with the 'mixed units' problem in ecosystem network analysis." Juelich, Federal Republic of Germany 1/9/89-1/13/89.
36. Global Tomorrow Coalition. Global Issues Forum on the Economics of Sustainability. Washington, DC 3/8/89.
37. Fourth Annual Landscape Ecology Symposium. "The Predictability of Landscapes." Fort Collins, CO 3/15/89-3/18/89.
38. Arbeitsgruppe Theoretische Oekologie, PROSPERO workshop on human aspects of fisheries management. "Uncertainty and data quality in environmental management." Juelich, Federal Republic of Germany 5/16/89-5/19/89.
39. Rethinking the Curriculum: a Conference on Integrated Interdisciplinary Education. "The Overspecialization Trap" (plenary talk). San Diego, CA 6/19/89-6/23/89.
40. 40th AIBS Annual Meeting, "Modeling Landscape Dynamics" Toronto, Canada 8/6/89-8/10/89.
41. Improving the Environment Through Forest Products Research; Forest Products Research Conference. "The Ecological Economics of World Forest Resources" (plenary talk). Forest Products Laboratory, Madison, WI 10/3/89-10/5/89.
42. Metropolitan Washington Chapter, Ecological Society of America. "Ecological Economics." Washington, DC 10/16/89.
43. University of Virginia, Department of Environmental Sciences invited seminar: "Modeling coastal landscape dynamics." Charlottesville, VA 11/10/89.
44. EcoBermuda. Invited special seminar: "Ecological Economics." Hamilton, Bermuda 12/8/89.

1990

45. Policy seminar: Towards an ecologically sustainable economy. Keynote presentation: "The Interface Between Ecology and Economy." Swedish Council for Planning and Coordination of Research and the Swedish Ministry of Environment and Energy. Stockholm, Sweden 1/3/90-1/4/90.
46. Canadian Environmental Assessment Research Council (CEARC) workshop on Natural Capital. Keynote presentation: "Natural capital and sustainable development." Vancouver, Canada 3/15/90-3/16/90.
47. U.S. Forest Service workshop: Ecological Economics: Its Implications for Forest Management and Research. Plenary presentation: "Natural capital and sustainable forest management." St. Paul, MN 4/2/90-4/5/90.
48. NSF Workshop: Mathematics and Biology: The Interface, Challenges, and Opportunities. Washington, DC 4/29/90-5/1/90.
49. The Ecological Economics of Sustainability: Making Local, Short-Term and Global, Long-Term Goals Consistent. Plenary presentation "Assuring sustainability of ecological economic systems." The World Bank, Washington, DC May 21-23, 1990.
50. Southwestern University Global Issues Forum: The Biodiversity Crisis. One of 6 invited lectures for 1990, "Pricing Diversity: Economic and Philosophical Perspectives." Southwestern University, Georgetown, TX Oct. 11, 1990.
51. US EPA International Symposium on Ecological Indicators. Invited Plenary presentation, "Ecological economic issues and considerations of indicator development." Ft. Lauderdale, FL Oct. 16-19, 1990.
52. National Advisory Council for Environmental Policy and Technology. Invited presentation to the full council, "Accounting for the Environment: reaching a common framework." Oct 24, 1990.
53. University of Siena. Workshop on Ecological Physical Chemistry. Invited Plenary presentation: "Energy, Uncertainty, and Ecological Economics." Siena, Italy, November 8-12, 1990.
54. University of Florida. Special Seminar in Zoology and Ecology "From populations to landscapes: scaling issues in ecology." Gainesville, FL Nov. 27, 1990.
55. Maryland House of Delegates Seminar for New Legislators. Invited presentation, "Status of the Chesapeake Bay and Related Issues." Dec. 10, 1990.

1991

56. CATIE International Workshop on Ecology and Economics. Invited plenary presentation: "Economic Evaluation and Management of Wetlands." Turrialba, Costa Rica, Jan. 29-30, 1991.
57. AAAS 1991 Annual Meeting. Three invited talks in three different sessions: "Toward an Operational Definition of Ecosystem Health," "Ecological Economics: Creating a New Transdisciplinary Science," and "Policies for Sustainable Development of Coastal Regions." Washington DC Feb. 14-19, 1991.
58. Johns Hopkins University, Applied Physics Lab, Invited Seminar: "Ecological Economics." Rockville, MD 3/22/91.
59. Stockholm Environment Institute conference on the Principles of Clean Production. Invited plenary speaker: "Developing sustainable, non-polluting ecological economic systems." Stockholm, Sweden, 4/23-24/91.
60. WIDER workshop: The Economics of the Transnational Commons. Invited discussant. University of Siena, Siena, Italy, 4/25/91-4/27/91.
61. CATIE Workshop on the Methodology of Economic Evaluation of Tropical Wetlands. Invited participant. Turrialba, Costa Rica, 5/29/91-6/4/91.
62. International Conference on Human Ecology. Invited plenary speaker: "Goals, agenda, and policy recommendations for Ecological Economics," University of Göteborg, Göteborg, Sweden, 6/9/91-6/14/91.
63. International Council of Scientific Unions. International Conference on an Agenda of Science for Environment and Development into the 21st Century (ASCEND 21). Invited participant and author, "Primary factors affecting population and natural resource use." Vienna, Austria 7/1/91-7/5/91 and 11/25/91-11/29/91.
64. Ecological Society of America. 1991 Annual Meeting. Invited speaker, session: "Ecological economics," paper titled: "Ecological economics: creating a new transdisciplinary science." Invited speaker, session: "New Horizons in Ecological Simulation," paper titled: "Spatial ecosystem simulation modeling and parallel processing." San Antonio, TX 8/4/91-8/8/91.
65. Aspen Global Change Institute, workshop on biodiversity. Invited participant. Aspen CO 8/11/91-8/16/91.
66. International Network of Resource Information Centers. 10th Annual Balaton Group Meeting. Invited plenary speaker, "Economic Diversity." Csopak, Hungary 9/3/91-9/8/91.
67. Beijer International Institute of Ecological Economics. Workshop on Biodiversity. Invited participant. Stockholm, Sweden 9/16/91-9/20/91.
68. University of Illinois, Allerton Park Conference Center. Workshop on Ecosystem Health, invited participant. 10/20/91-10/23/91. National Center for Supercomputer Applications. Invited seminar. "Spatial Ecosystem Modeling using Parallel Processors." 10/25/91
69. University of Washington, School of Marine Affairs. Invited seminar: "What is ecological economics?" Seattle, WA 10/28/91.
70. NOAA workshop on the Barataria/Terrebonne Estuary Program. Invited plenary speaker: "Modeling applications and the importance of scale." Thibodeaux, LA 10/29/91.

1992

71. Scientific Committee On Problems of the Environment (SCOPE) VIIIth General Assembly. Invited plenary speaker: "Ecological economics: the science and management of sustainability." Seville, Spain 1/19/92-1/26/92.
72. NOAA workshop on Ecosystem Health. Invited speaker: "Toward and operational definition of ecosystem health." Narragansett, RI 4/24/92.
73. Council on Foundations Annual Meeting. Invited speaker: "Ecological Economics." Miami, FL 4/27/92.
74. College of the Atlantic, Invited seminar: "Ecological Economics." Bar Harbor, ME 5/11/92.
75. Second International Workshop on Ecological Physical Chemistry. Invited Plenary presentation: "The limits of ecological economics." Milan, Italy 5/25/92-5/29/92.
76. UNESCO/Government of Brazil Scientific Programme on Environment and Development, Invited plenary speaker: "Ecological Economics." Rio de Janeiro, Brazil 6/1/92-6/6/92.
77. EcoTech: International symposium and exhibition of environmental technologies. Invited speaker: "Natural resources accounting." Rio de Janeiro, Brazil 5/29/92-6/6/92.
78. EcoWorld: American Society of Mechanical Engineers, Invited speaker: "Ecological Economics." Washington DC 6/14/92-6/19/92.
79. National Carrying Capacity Issues Conference, Carrying Capacity Network, Invited speaker: "Towards a new eco-nomics." Washington DC 6/19/92-6/21/92.

80. International Society for Ecological Economics, Second International Conference: Investing in Natural Capital, Invited plenary speaker: "Three things we can do to achieve sustainability," Stockholm, Sweden, August 3-6, 1992.
81. Estuarine Coastal Sciences Association/Estuarine Research Federation Joint Conference. Changes in Fluxes in Estuaries, Plenary Speaker: "Ecological economics and managing the coastal zone for sustainability." Plymouth, England, September 13-19, 1992.

1993

82. IICA invited seminar: "Ecological economics in a developing country context." San José, Costa Rica Feb. 1, 1993.
83. AAAS 1993 Annual Meeting. Invited speaker in session titled: "Ecosystem Valuation: assigning economic values to ecosystem damage." Paper titled: "Ecological economic approaches to valuation." Boston, MA Feb. 11-16, 1993.
84. Biodiversity Support Program Seminar Series: "Ecological economics: striking a sustainable balance of humans in nature." World Wildlife Fund, Washington, DC February 17, 1993.
85. NSF Workshop on National Needs for Controlled Environments in Ecology and Environmental Sciences. Invited Plenary Speaker: "The future for controlled environment facilities in aquatic ecology and ecological toxicology." Incline Village, Nevada February 21-25, 1993.
86. University of Missouri at St. Louis: Conference titled: Linking Economics and the Environment. Plenary Keynote speaker: "What is Ecological Economics?" March 26, 1993.
87. University of Maryland Geography Department seminar series: "Ecological economic modeling at multiple scales." May 3, 1993.
88. Resource Policy Consortium Symposium: Integrating economic and ecological indicators. Invited Plenary Speaker: "Modeling ecological economic systems." The World Bank, Washington, DC May 17-18, 1993.
89. US National Committee for SCOPE workshop: Ecological Engineering: an approach to restoration, biodiversity, and sustainability. Invited plenary panel participant, "The feasibility of ecological engineering and ecosystem restoration as an international SCOPE project." National Academy of Sciences, Washington, DC May 17, 1993.
90. National Center for Supercomputer Applications 1993 Conference on Computing for the Social Sciences. Invited Plenary Keynote Speaker: "Modeling complex ecological economic systems: toward an evolutionary, dynamic, understanding of humans and nature." University of Illinois, Champaign, IL May 18-21, 1993.
91. Environmental Technology and Sustainability in Business. Invited Plenary Speaker: "Valuation of Ecosystem Services: Methods and Training Needs." Miami University of Ohio, Oxford, OH May 20-22, 1993.
92. Social Costing: towards a new decision-making framework. Invited Plenary Keynote Speaker: "Maintaining natural capital to ensure sustainability." Whistler Center for Business and the Arts, Whistler, BC, Canada June 20-22, 1993.
93. Bauman Foundation workshop on New England's Economy, Environment, and Democracy. Invited plenary panel participant. Westford MA June 24-25, 1993.
94. Course on Ecosystem Theory, Invited Plenary Lecture. Royal Danish School of Pharmacy, Copenhagen, Denmark August 16-20, 1993.
95. 12th Annual meeting of the Balaton Group. Invited plenary speaker: "Sustainable trade." Csopak, Hungary August 27-Sept 1, 1993.
96. Beijer International Institute of Ecological Economics. Workshop on Property Rights and the Environment. Invited participant. Stockholm, Sweden, September 2-4, 1993.
97. LTER all-scientists meeting. Invited plenary speaker: "New directions for LTER: ecological economics." Estes Park, Colorado, Sept 19-23, 1993.
98. The 10th Annual Hazardous Waste Law and Management Conference: Economic Considerations in Managing Hazardous Waste. Invited plenary speaker: "Environmental/Ecological Economics in Practice and in Theory." Northwestern School of Law of Lewis and Clark College, Portland, OR October 7-8, 1993.
99. NATO Advanced Research Workshop: Evaluating and Monitoring the Health of Large-Scale Ecosystems. Invited plenary speaker: "Using indices and quantification of ecosystem health in social decision making." Montebello, Quebec, Canada October 10-15, 1993.
100. The Harrison Program on the Future Global Agenda: Footsteps to Sustainability. Invited plenary speaker: "Ecological economics and protection of the environment." University of Maryland College Park, October 28-30, 1993.

101. Workshop on Integrated Quantitative Analysis and Coastal Zone Management. Invited plenary speaker: "Integrated ecological economic modeling of coastal systems." Universidad de Costa Rica, San José, Costa Rica November 22-28, 1993.

1994

102. National Institute of Public Health and Environmental Protection (RIVM). Invited special seminar, "Ecological Economics." Bilthoven, Netherlands January 25, 1994.
103. Free University of Amsterdam, Invited special seminar, Institute for Environmental Studies. "Modeling complex ecological economic systems.", Amsterdam, Netherlands January 26, 1994.
104. Gothenberg University. Invited special seminar, Department of Economics, Environmental Economics program. "Modeling complex ecological economic systems." Gothenberg, Sweden Feb. 4, 1994.
105. University of Minnesota. Invited special seminar, Department of Ecology and Conservation Biology Program. "Ecological Economics." St. Paul, MN March 4, 1994.
106. Eastern Economics Association Meeting. Invited speaker: "Modeling complex ecological economic systems." Boston, MA March 18-20, 1994.
107. Heinz Endowment colloquium on Industrial Ecology, invited plenary speaker: "Ecological economics." Pittsburgh, PA March 23, 1994.
108. University of Pittsburgh, Environmental Policy Studies Group invited seminar: "Ecological economics: the science and management of sustainability." Pittsburgh, PA March 24, 1994.
109. Society for International Development 21st World Conference: People's rights and security: sustainable development strategies for the 21st century; Invited plenary speaker: "Employment, livelihoods and environmental balance." Mexico City, Mexico April 6-9, 1994.
110. National Academy of Engineering, Workshop on Engineering within ecological constraints. Invited participant and speaker: "Ecological approaches to engineering and economics." National Research Council, Washington, DC April 19-21, 1994.
111. Massachusetts Institute of Technology, Department of Civil and Environmental Engineering, Invited seminar: "Integrated ecological economic modeling of regional landscapes." Cambridge, MA May 2, 1994.
112. 1st International Symposium on Ecosystem Health and Medicine: Integrating science, policy, and management." Invited plenary speaker and panel participant, Ottawa Congress Center, Ottawa, Canada June 19-23, 1994.
113. USDA Forest Service National Research Assessment Workshop: Fish and Wildlife Valuation. Invited plenary keynote speaker, Aspen Lodge, Estes Park, CO June 27-30, 1994.
114. International Experts Meeting on Operationalizing the Economics of Sustainable Development. Invited plenary speaker: "Ecological economics and sustainable development." Manila, Philippines, July 28-30, 1994.
115. Canterbury University, Department of Chemical and Process Engineering, 2 Invited seminars: "Ecological Tax Reform" and "Ecological Economics and Sustainable Development." Christchurch, New Zealand August 2-3, 1994.
116. Lincoln University, Department of Agricultural Engineering, Invited seminar: "Integrated ecological economic modeling for watershed management." Christchurch, New Zealand August 4, 1994.
117. Massey University, Department of Ecology, Invited seminar: "Ecological economics and sustainable development." Palmerston North, New Zealand August 8, 1994.
118. 45th Annual American Institute of Biological Sciences/Ecological Society of America meeting. Invited symposium speaker: "Ecological Economics: integrating the study of humans and nature." Knoxville, TN August 7-11, 1994.
119. Third International Conference of the International Society for Ecological Economics. "Down to Earth: Practical Applications of Ecological Economics." Invited plenary opening and closing remarks. San José, Costa Rica October 24-28, 1994.
120. New University of Lisbon. Invited seminars on integrated ecological economic modeling. Lisbon, Portugal November 28-29, 1994.
121. Fundação Luso-Americana. Roundtable on Sustainable Development Principles and Actions Needed. Invited Plenary Speaker: "What is Sustainable Development?" Lisbon, Portugal November 30, 1994.
122. International Conference on Biodiversity, Ecosystem Health, and Sustainable Development, Organized by Tulane University, Smithsonian Institution, and Conservation International. Invited Plenary Speaker, Opening Plenary Session. New Orleans, LA December 11-14, 1994.

1995

123. University of Michigan, School of Natural Resources. Invited Seminar: "New Perspectives Provided by Ecological Economics." January 17, 1995.
124. University of the West Indies, Center for Environmental Studies. Invited Seminar: "Environmental degradation: the costs to society." Port of Spain, Trinidad and Tobago, February 15, 1995.
125. AAAS 1995 Annual Meeting. Invited speaker in session titled: "Interface disciplines: the mismatch between traditional disciplines and global problems." Paper titled: "The economics-ecology interface." Atlanta, GA Feb. 16-21, 1995.
126. AAAS 1995 Annual Meeting. Invited topical lecture, "Integrated ecological economic modeling and adaptive management of complex systems." Atlanta, GA Feb. 16-21, 1995.
127. University of Georgia, Institute of Ecology, invited seminar: "Ecological economics." Athens, GA Feb. 21, 1995.
128. Georgia Institute of Technology, School of Social Sciences, invited seminar: "Integrated ecological economic modeling and adaptive management of complex systems." Atlanta, GA Feb 22, 1995.
129. Emory University, Human and Natural Ecology Program, invited seminar. Atlanta, GA Feb 22, 1995.
130. SCOPE workshop on Estuarine Synthesis. Invited plenary speaker, "Integrated Modeling of Coastal Landscapes." Beckman Center, Irvine, CA Feb 23-25, 1995.
131. Universidad de Chile, Sustainable Development Program and Department of Economics, 2 invited seminars: "Ecological Economics." Santiago, Chile March 22-23, 1995.
132. Universidad Austral, Invited Seminar: "Ecological Economics." Valdivia, Chile March 28, 1995
133. International Association for the Study of Common Property, 5th International Conference: Reinventing the Commons. Invited speaker in session titled: "Ecological and Institutional Languages." Paper titled: "Integrated ecological economic modeling and adaptive management of complex systems." Bodø, Norway May 24-28, 1995.
134. Ecological Outlook Workshop: Cumulative Effects Assessment and Futures Modeling Workshop. Invited Speaker: "Integrated Ecological Economic Modeling." Banff, Canada June 6-8, 1995.
135. University of Cape Town. Invited seminar: "Ecological Economics and Sustainability." Cape Town, South Africa July 27, 1995.
136. Natal Parks Board. Invited seminar: "Ecological Economics and Sustainability." Pietermaritzburg, South Africa July 31, 1995.
137. NOAA/NMFS/EPA Symposium on The Gulf of Mexico: a Large Marine Ecosystem. Invited plenary speaker, "Ecological and economic system health and social decision making for large marine ecosystems." St. Petersburg Beach, FL August 23-25, 1995.
138. Swedish Collegium for Advanced Study in the Social Sciences (SCASSS) workshop on economics, ethics, and the environment. Invited plenary speaker, "The evolution of preferences." Friibergh, Sweden August 25-27, 1995.
139. Maryland Sierra Club seminar series. Invited speaker: "Ecological economics and sustainable development in a regional context." Prince Frederick, MD October 25, 1995.
140. Universidade Católica Dom Bosco. Ecological Economics Seminar. Plenary opening address: "Ecological economics and integrated assessment." Campo Grande, Brazil November 9-10, 1995.
141. Inaugural Ecological Economics Conference of the Australia & New Zealand Society for Ecological Economics. Invited plenary speaker: "Ecological economics: the policy dimensions." Coffs Harbor, Australia November 19-23, 1995.
142. Economics for the Global Good Conference. Invited plenary speaker. "Alternative Futures." Sydney, Australia November 25, 1995.
143. CSIRO invited special seminar, Division of Wildlife and Ecology: "Integrated ecological economic modeling." Canberra, Australia November 28, 1995.
144. Australian Parliamentary Library Vital Issues Seminar, invited speaker: "Paths to a Sustainable Economy." Parliament House, Canberra, Australia November 29, 1995.
145. Victoria Department of Conservation and Natural Resources, Flora, Fauna, and Fisheries Division and Environmental Policy Branch, invited special seminar: Ecological Economics: The Policy Dimensions. Melbourne, Australia November 30, 1995.
146. University of Melbourne invited special seminar: "Ecological economics: transdisciplinary education and research." Melbourne, Australia November 30, 1995
147. The Other Economic Summit, University of Adelaide, invited plenary speaker: "Envisioning a sustainable and desirable society." Adelaide, Australia December 1, 1995.

148. Great Barrier Reef Marine Park Authority, Invited seminar: "Ecological Economics." Townsville, Australia December 7, 1995.
149. Australian Institute of Marine Sciences, Invited seminar: "Ecological Economics." Townsville, Australia December 7, 1995.
150. Beijer International Institute of Ecological Economics, Invited seminar: "Integrated ecological economic modeling." Stockholm, Sweden December 13, 1995.
151. University of York, Department of Environmental Economics and Environmental Management, Invited seminar: "Integrated ecological economic modeling at the regional level." York, England December 14, 1995.

1996

152. National Center for Geographic Information and Analysis (NCGIA) conference on Linking GIS and Environmental Modeling. Invited speaker: "The future of spatial modeling for understanding and predicting landscape transformations." Santa Fe, NM January 21-25, 1996.
153. Swedish University of Agricultural Sciences, Department of Economics invited seminar: "Integrated Ecological Economic Modeling." Uppsala, Sweden February 8, 1996.
154. Swedish Collegium for Advanced Study in the Social Sciences (SCASSS). Invited seminar: "Envisioning a sustainable and desirable society." Uppsala, Sweden February 8, 1996.
155. Lund University, invited seminar: "Integrated Ecological Economic Modeling," Lund, Sweden February 15, 1996.
156. Mt. Holyoke College, invited seminar: "International Trade and the Environment." Mt. Holyoke, MA March 4, 1996.
157. Banff Bow Valley Study, Ecological Outlook Workshop #2, invited plenary speaker: "Re-integrating ecology and economics for sustainability." Banff, Canada March 7, 1996.
158. Fundacion Patagonia Natural, workshop on Coastal Zone Management in Patagonia, invited speaker: "Ecological economics." Puerto Madryn, Argentina March 28, 1996.
159. Facultad de Agronomia, University of Buenos Aires, invited seminar: "The ecological economics perspective." Buenos Aires, Argentina April 8, 1996.
160. Ecology, Society, Economy: In Pursuit of Sustainable Development, inaugural conference of the European Chapter of the International Society for Ecological Economics. Invited plenary speaker: "Co-Evolving Preferences and the Valuation of Ecosystem Services." Université de Versailles, Paris, France May 23-25, 1996.
161. Ecology, Society, Economy: In Pursuit of Sustainable Development, inaugural conference of the European Chapter of the International Society for Ecological Economics. Invited parallel session speaker: "Dynamic Modeling for Scoping and Consensus Building." Université de Versailles, Paris, France May 23-25, 1996.
162. Global Changes and Human Health: Possible Causes, Effects, and Preventive Measures. Seminar at the Royal Swedish Academy of Sciences. Invited Plenary Speaker: "An eco-economic perspective on global changes and their consequences." Stockholm, Sweden May 29, 1996.
163. Colloquium: New Dimensions in Environmental Policy. Department of Economics, Sveriges Lantbruksuniversitet. Invited speaker: "Dynamic systems modeling for scoping and consensus building." Uppsala, Sweden June 7, 1996
164. Fourth International Conference of the International Society for Ecological Economics. "Designing Sustainability: Building Partnerships Among Society, Business, and the Environment." Plenary Opening Address, Boston, MA August 4-7, 1996.
165. Fourth International Conference of the International Society for Ecological Economics. "Designing Sustainability: Building Partnerships Among Society, Business, and the Environment." Invited panel presentation: "Integrated, Adaptive, Ecological Economic Modeling and Assessment." Boston, MA, August 4-7, 1996.
166. Fourth International Conference of the International Society for Ecological Economics. "Designing Sustainability: Building Partnerships Among Society, Business, and the Environment." Invited panel presentation: "Ecological Tax Reform." Boston, MA August 4-7, 1996
167. Fourth International Conference of the International Society for Ecological Economics. "Designing Sustainability: Building Partnerships Among Society, Business, and the Environment." Invited panel presentation: "Ecosystem Valuation." Boston, MA August 4-7, 1996.
168. Fourth International Conference of the International Society for Ecological Economics. "Designing Sustainability: Building Partnerships Among Society, Business, and the Environment." Invited panel presentation: "Valuation Methods for National Accounting." Boston, MA August 4-7, 1996.

169. Fourth International Conference of the International Society for Ecological Economics. "Designing Sustainability: Building Partnerships Among Society, Business, and the Environment." Invited panel presentation: "Assessing the Role of Human Capital and Natural Capital in Economic Production." Boston, MA August 4-7, 1996.
170. Fourth International Conference of the International Society for Ecological Economics. "Designing Sustainability: Building Partnerships Among Society, Business, and the Environment." Invited panel presentation: "Beyond the First Stage: Programs and Course Concentrations in Ecological Economics." Boston, MA August 4-7, 1996.
171. 1996 Annual Meeting of the Ecological Society of America (jointly with the Society for Conservation Biology). symposium on: "Ecological Economics: Valuation of species, ecosystems, and natural resources." Invited keynote speaker: "Overview of Ecological Economics." Providence, RI August 10-14, 1996.
172. Ecological Summit 96. Joint meeting of the International Societies of Ecological Economics, Ecological Modelling, Ecological Engineering and Ecosystem Health. Invited plenary speaker: "The Ecology of Systems Including Humans." Copenhagen, Denmark August 19-23, 1996.
173. Ecological Summit 96. Joint meeting of the International Societies of Ecological Economics, Ecological Modelling, Ecological Engineering and Ecosystem Health. Invited speaker in the session on Recent Developments in Ecological Modeling: "Discrete Modeling in a Continuous World: Surprises and Algorithms." Copenhagen, Denmark August 19-23, 1996.
174. South Florida Water Management District, invited seminar: "Ecological economics and adaptive regional management." West Palm Beach, FL October 28, 1996.
175. Sustainable Agriculture in Palm Beach County and South Florida Conference. Invited Plenary speaker: "The value of a sustainable agriculture in dollars and sense." West Palm Beach, FL October 30, 1996.
176. NSF/EPA Water and Watersheds symposium. Invited plenary speaker: "Integrated ecological economic modeling and valuation of watersheds: progress in the Patuxent watershed, Maryland." Arlington, VA November 14-15, 1996.
177. Synthesis in Ecology: Applications, Opportunities, and Challenges. Invited Plenary speaker: "The value of the world's ecosystem services and natural capital." National Center for Ecological Analysis and Synthesis. Santa Barbara, CA November 18-20, 1996.
178. U.S. Global Change Research Program. Invited Seminar. "The economics of climate change impacts and mitigation: the importance of values and assumptions." Rayburn House Office Building, Washington, DC December 9, 1996.

1997

179. American Economics Association Annual Meeting. Invited parallel session speaker: "What is ecological economics and why do we need it?" New Orleans, LA Jan. 4-6, 1997.
180. Louisiana State University, Department of Oceanography and Coastal Sciences and Coastal Ecology Institute. Invited Seminar: "Landscape modeling and management: the Patuxent watershed, MD." Baton Rouge, LA January 6, 1997.
181. NATO/CCMS Workshop on Environment and Security in an International Context. Invited speaker: "Methodology for Integrating Ecological Sciences with Economics and Policy." Washington, DC January 22, 1997.
182. International Joint Commission of the United States and Canada. Invited seminar: "Ecological Economics." Windsor, Ontario Canada Feb. 12, 1997.
183. Patuxent Wildlife Research Center. Invited Seminar: "Ecological economics, landscape ecology, and watershed management." Laurel, MD Feb. 13, 1997.
184. Independent World Commission on the Oceans, Working group on Economic Uses of the Oceans. Invited participant, Lisbon, Portugal Feb. 17-19, 1997.
185. De Lange - Woodlands Conference on Sustainable Development: Managing the Transition. Invited Plenary Speaker: "Designing a Sustainable and Desirable World in the Presence of Irreducible Uncertainty." Rice University, Houston, TX March 3-5, 1997.
186. Michigan State University, Institute of Environmental Toxicology, Invited Seminar: "Ecological economics." East Lansing, MI March 17, 1997.
187. University of Arizona, Institute for the Study of Planet Earth, Global Change in the Americas Seminar Series. Invited Seminar: "Ecological economics and adaptive regional management." Tucson, AZ March 24, 1997.
188. Biosphere 2 Center. Invited Seminar: "Ecological economics." Oracle, AZ March 25, 1997.

189. US EPA, Science Advisory Board, Valuation Subcommittee of the Integrated Risk Project. Invited presenter, "Additional valuation approaches" and "The decision context of valuation." Baltimore, MD April 2-4, 1997.
190. Johns Hopkins University, Department of Geography and Environmental Engineering, invited seminar: "Ecological economics and adaptive regional and global management." Baltimore, MD April 15, 1997.
191. Appalachian Environmental Laboratory, invited seminar: "Ecological economics and adaptive regional management." Frostburg, MD April 17, 1997.
192. Corporate Symposium on Sustainable Development, University of Guelph and Sustainable Systems Associates, invited plenary speaker: "Applying Ecological Economics to Business." Toronto, Canada June 5, 1997.
193. RIKZ, NIOO, & RIZA Workshop on Coastal Eutrophication, invited plenary speaker: "What is a healthy ecosystem?" Renesse, The Netherlands June 15-19, 1997.
194. Luso-American Development Foundation and Independent World Commission on the Oceans workshop on The Ecological Economics and Sustainable Governance of the Oceans, workshop organizer and plenary speaker: "The ecological, economic and social importance of the oceans." Lisbon, Portugal July 7-9, 1997.
195. Economic Policy Institute, Sustainable Economics Seminar Series, invited speaker: "The value of the world's ecosystems services and natural capital." Washington, DC July 24, 1997.
196. 7th Stockholm Water Symposium/ 3rd. EMECS conference, invited speaker: "The ecological, economic, and social importance of coastal and marine systems." Stockholm, Sweden August 10-14, 1997,.
197. UNDP/Costa Rican Ministry of Planning, Conference on: "Sustainable human development: beyond globalization." Invited plenary speaker: "Looking to the future: globalization and the sustainable development challenge." San Jose, Costa Rica August 28-29, 1997,.
198. Congressional Hearing on "the value of plant, animal, and microbial species to human health." Plenary speaker. US Senate Rm SC-5. Sept. 8, 1997.
199. 8th National Urban Forest Conference: "Cities by Nature's Design," invited keynote speaker: "Pricing the world's natural capital," Atlanta, GA September 17-20, 1997.
200. Edwin Way Teal Lecture Series, University of Connecticut. Invited speaker: "Economics and Ecology: the Value of Ecosystem Services." Storrs, CT Sept. 24, 1997.
201. USDA Fund for Rural America, Environment Panel/Workshop. Invited Keynote presentation: "The environment-economy interface." Snowbird, UT October 6-8, 1997.
202. Society for Environmental Toxicology and Chemistry (SETAC) 18th annual meeting: Bridging the global environment: technology, communication, and education. Invited Plenary speaker: "Sustaining the Global Environment: Bridging Production and Development with Environmental Quality." San Francisco, CA Nov. 16-20, 1997.

1998

203. Wingspread workshop on implementing the precautionary principle. Invited participant and speaker: "Assurance bonds." Racine, WI Jan 23-25, 1998.
204. Wartburg College invited convocation speaker: "Using Envisioning to Design a Sustainable and Desirable World in the Presence of Irreducible Uncertainty." Waverly, IA Jan 27, 1998.
205. Tulane Environmental Law Society Conference on: Louisiana Environment 98: Law, Science, and the Public Interest. Invited panel presentation: "The economics of coastal wetland loss." New Orleans, LA March 6-8, 1998.
206. Tulane Environmental Law Society Conference on: Louisiana Environment 98: Law, Science, and the Public Interest. Invited keynote speaker: "Ecological economics." New Orleans, LA March 6-8, 1998.
207. Arizona State University. Department of Biology. Invited seminar: "Modeling, valuing, and managing regional ecological economic systems." Tempe, AZ March 24, 1998.
208. Cornell University. Dept. of Ecology and Systematics. Invited seminar: "Modeling Ecological and Economic Systems." Ithaca NY April 15, 1998.
209. Western Kentucky University, Dept of Biology. Invited seminar: "Ecological Economics." Bowling Green Kentucky April 24, 1998.
210. University of Massachusetts at Boston. Biology Dept. Invited seminar: "Ecological Economics and Sustainable Development." Boston MA April 29, 1998.
211. Inaugural meeting of the Massachusetts Chapter of the Society for Conservation Biology. Boston University. Invited Plenary speaker: "Ecological Economics." Boston MA April 29, 1998.
212. International Association for Great Lakes Research (IAGLR) 41st Annual Conference. Invited Plenary Speaker: "Integrated Ecological Economic Modeling and Valuation of Watersheds" McMaster University, Hamilton, Ontario, Canada, May 19-22, 1998 (~600 attendees)

213. York Distinguished Lecture, University of Florida. "Ecological Economics and the Valuation of Ecosystem Services." Gainesville, FL June 8, 1998.
214. Natural Resources Forum '98: Linkages in Ecosystem Science, Management & Restoration. University of Florida Center for Natural Resources. Invited Plenary Speaker: "A Transdisciplinary Approach to Ecosystem Management." Gainesville, FL, June 9-10, 1998
215. Year of the Ocean National Ocean Conference, National Aquarium in Baltimore. Invited Panelist. Baltimore, MD June 12, 1998.
216. Ocean Ecology, Governance, and Global Change. Invited Plenary Speaker: "Ocean Ecology in the Balance" Luso-American Development Foundation (FLAD), Lisbon, Portugal, June 25-26, 1998.
217. Fifth Biennial Conference of the International Society for Ecological Economics: "Beyond Growth: Policies and Institutions for Sustainability". Invited opening address: "Beyond the Argument Culture". Santiago, Chile, November 15-19, 1998.
218. Fifth Biennial Conference of the International Society for Ecological Economics: "Beyond Growth: Policies and Institutions for Sustainability". Invited panelist: "Measuring sustainability and well-being: ethical and political implications". Santiago, Chile, November 15-19, 1998.
219. Fifth Biennial Conference of the International Society for Ecological Economics: "Beyond Growth: Policies and Institutions for Sustainability". Invited panelist: "Ecosystem Health and Sustainable Development: Are They Compatible?". Santiago, Chile, November 15-19, 1998.
220. "The Economic Value of the Natural Environment" Seminar sponsored by the Brazilian Business Council on Sustainable Development (BNDES) and the Brazilian National Bank for Economic and Social Development (BNDES). Invited Keynote speaker. Rio de Janeiro, Brazil, November 20, 1998.
221. USEPA Mid-Atlantic Integrated Assessment (MAIA) Working Conference. Invited panel speaker: "Integrated Ecological Economic Modeling and Valuation of Watersheds" Baltimore, MD. November 30 – December 2, 1998.

1999

222. James Madison University. Invited seminar: "What is Ecological Economics" Harrisonburg, VA, February 15, 1999.
223. University of Vermont, School of Natural Resources. Invited seminar: "Ecological Economics" Burlington, VT February 25, 1999
224. Royal Swedish Academy of Sciences. Problems of Scale: a Conference in Honor of Professor Emeritus Bengt-Owe Jansson. Invited plenary speaker: "Spatial modeling of coastal systems" Stockholm, Sweden, March 22-23, 1999 (talk given from Maryland via Interactive Video)
225. Universitat Autònoma de Barcelona. Invited Seminar: "Frontiers of Ecological Economics". Barcelona, Spain, April 12, 1999.
226. Fundació Bancaixa. Invited Seminar: "Frontiers of Ecological Economics". Valencia, Spain, April 13, 1999.
227. Swedish University of Agricultural Sciences. Keynotes in Natural Resources Lecture: "Using envisioning to design a sustainable and desirable world in the presence of irreducible uncertainty". Uppsala, Sweden, April 20, 1999
228. Stockholm University. Invited Seminar: "Envisioning the future environment" Stockholm, Sweden, April 21, 1999
229. Intergovernmental Panel on Climate Change (IPCC) Expert Meeting on "Development, Equity, and Sustainability." Invited plenary speaker: "Ecological Sustainability, Indicators, and Climate Change." Colombo, Sri Lanka, April 27-29, 1999.
230. Maastricht University, ICSC. Invited seminar: "Ecological Economics" Maastricht, The Netherlands, April 26, 1999.
231. Council of Scientific Society Presidents Annual Meeting. Invited plenary speaker: "Four Visions of the 21st Century" Washington, DC, May 1, 1999.
232. University of Chicago. Environmental Studies Panel Discussion: "Economic Sustainability vs. Environmental Sustainability: Can environmental and neo-classical paradigms be reconciled?" Invited speaker., Chicago, IL May 11, 1999.
233. Ecological Society of America 84th Annual Meeting. Invited symposium speaker in the symposium titled: "Scientific objectivity, values and policies". Talk titled: "Visions, values, valuation and the need for an ecological economics." Spokane, WA, August 8-12, 1999.
234. Asia Pacific Environmental Exchange. Invited seminar speaker: "Ecological Economics and Ecosystem Health" Seattle, WA, August 13, 1999.

235. International Congress on Ecosystem Health: Managing for Ecosystem Health. Invited symposium speaker: “Whole watershed health and restoration: Applying the Patuxent and Gwynns Falls landscape models to designing a sustainable balance between humans and the rest of nature”. Sacramento CA, August 15-20, 1999.
236. Town Hall Meeting on “Environmental Health on the Ag/Urban Frontier.” Invited plenary speaker: “Ecological economics and sustainable agriculture” and panelist (with K. Olden, Director, NIEHS and R. Rominger, Deputy Director, USDA). Sacramento, CA August 17, 1999.
237. Natural Resources Policy and Issues Seminar. Invited Plenary Speaker: “Natural Capital and Ecosystem Services”. Eastern Management Development Center, Shepherdstown, WV, August 23, 1999.
238. Canadian International Development Agency (CIDA) Millennium Lecture Series – Issues for the 21st Century. Invited Speaker: “The Economy of Nature: What Should Development Agencies Be Doing to Help Integrate Ecology and Economics?” Ottawa, Canada, August 27, 1999.
239. Canadian Society for Ecological Economics (CANSEE) Conference: Nature, Wealth and the Human Economy in the Next Millennium. Invited Keynote Speaker: “Four visions of the century ahead: will it be Star Trek, Ecotopia, Big Government, or Mad Max?” University of Regina, Regina, Saskatchewan, Canada, August 28-29, 1999.
240. UIC Great Cities/Illinois-Indiana Sea Grant Urban Water Resources Conference: Improved Decision-Making for Water Resources: the Key to Sustainable Development for Metropolitan Regions. Invited plenary speaker: “Integrated Ecological Economic Modeling of Water Resources” University of Illinois at Chicago, Chicago, IL, September 16-17, 1999. (talk given from Maryland via Interactive Video)
241. Estuarine Research Federation (ERF) 15th Biennial International Conference: Where the River Meets the Sea. Invited parallel session speaker in session titled “Ecological Economics.” Talk titled: “Valuation of Ecosystem Services in Coastal and Estuarine Ecosystems” New Orleans, LA Sept. 27-30, 1999.
242. Greening the Campus III: Theory and Reality. Ball State University. Invited plenary speaker: “Integrating Ecology and Economics to Design a Sustainable World and a Sustainable Campus” Ball State University, Muncie, IN, Sept. 30 – Oct. 1, 1999.
243. Association of Ecosystem Research Centers (AERC) Symposium: Biocomplexity and Ecosystem Research: Necessities for the 21st Century. Invited Plenary Speaker: “Human systems, Ecosystems, and Biocomplexity. Washington, DC, Nov. 4, 1999.
244. Society for Environmental Toxicology and Chemistry (SETAC) 20th Annual Meeting. Invited Platform speaker in the session titled: “Global Sustainability: Linking Environmental Science, Economic Realities and Cultural Priorities”. Talk titled: “Using envisioning to design a sustainable and desirable world in the presence of irreducible uncertainty. Philadelphia, PA, Nov. 14-18, 1999.
245. Society for Environmental Toxicology and Chemistry (SETAC) 20th Annual Meeting. Invited Panel discussant in the session titled: “Risk assessment vs. the precautionary principle”. Philadelphia, PA, Nov. 14-18, 1999.
246. ELOISE 3rd Open Science Meeting. Invited Keynote speaker: “Bridging the gap between research and management” Noordwijkerhout, the Netherlands, Dec. 1-4, 1999.
247. University of Aalborg invited seminar: “Using envisioning to design a sustainable and desirable world in the presence of irreducible uncertainty. Aalborg, Denmark, Dec. 6, 1999.

2000

248. University of the West Indies. Conference on the Economics of Natural Resources, the Environment, and Sustainable Development. Invited Featured Address: Reintegrating the Study of the Human Household (Economics) with Nature’s Household (Ecology). Port of Spain, Trinidad and Tobago, Jan. 14-15, 2000
249. First Lancaster Environmental Symposium: “Human Impact on Natural Resources: a Regional Perspective”. Invited keynote speaker: “Dynamics and Economic Value of Ecosystem Services.” Millersville University, Millersville, PA, Feb. 12, 2000.
250. Sustainable Design Forum. Invited plenary speaker: “Are we spending our natural capital?” University of Maryland School of Architecture. College Park, MD, Feb. 16, 2000.
251. University of Alberta, Invited campus-wide seminar: “Ecological economics: reintegrating the study of humans and the rest of nature.” University of Alberta, Edmonton, Alberta, Canada, March 16, 2000
252. 15th Annual Symposium of the US Regional Association of the International Association for Landscape Ecology: Integration of Societal and Landscape Heterogeneity: Problems and Solutions. Invited plenary speaker: “Landscape models as tools in integrated, adaptive management of regional ecological economic systems.” Ft. Lauderdale, FL, April 15-19, 2000.
253. 15th Annual Symposium of the US Regional Association of the International Association for Landscape Ecology: Integration of Societal and Landscape Heterogeneity: Problems and Solutions. Invited special session

- speaker: “Integrated ecological economic modeling of the Patuxent river watershed, Maryland.” Ft. Lauderdale, FL, April 15-19, 2000.
254. University of Vermont Aiken Lectures 2000: Vermont watersheds: sustaining ecological and economic vitality. Invited plenary speaker: “Integrated ecological and economic modeling of watersheds” Burlington, VT, May 1, 2000.
 255. Consorzio Venezia Nuova. Invited seminar: “Integrated ecological and economic modeling of watersheds”, Venice, Italy, May 2, 2000.
 256. University of Venice. Invited seminar: “Ecological economics”, Venice, Italy, May 3, 2000.
 257. 4th International Conference of Science and Management of Protected Areas (SAMPA IV). Invited opening plenary: “Globalization and the prospects for a sustainable human presence in the biosphere” University of Waterloo, Waterloo, Ontario, Canada, May 14-19, 2000.
 258. Ecosummit 2000: Integrating the Sciences. Invited opening plenary address. “Understanding and solving environmental problems in the 21st century”. Halifax, Canada, June 19-22, 2000
 259. Ecosummit 2000: Integrating the Sciences. Invited plenary address. “Quality of life and the distribution of wealth and resources.” Halifax, Canada, June 19-22, 2000
 260. EPA STAR Graduate Fellowship Conference 2000. Invited opening keynote speaker: “Developing a shared vision of the future”. Washington, DC, July 10, 2000.
 261. US Forest Service and Wilderness Society National Wilderness Values Workshop. Invited opening speaker: “The role and value of ecosystems and natural capital.” Washington, DC, July 11-12, 2000
 262. Environment Canada, Policy Research Seminar Series, Invited speaker: “Natural Capital and Sustainable Development” Hull, Ontario, Canada, July 14, 2000
 263. Defying Nature’s End. Workshop sponsored by Conservation International. Invited session chair and plenary speaker: “Biodiversity, Ecosystem Services, and Human Health” Pasadena, CA Aug. 22-26, 2000.
 264. 4th International Conference on Integrating Geographic Information Systems (GIS) and Environmental Modeling. Invited panel speaker: “Using the Spatial Modeling Environment (SME) for Integrated Ecological Economic Modeling”. Banff, Alberta, Canada, Sept. 2-8, 2000.
 265. 4th International Conference on Integrating Geographic Information Systems (GIS) and Environmental Modeling. Invited Opening Plenary speaker: “Humans as subjects and participants in landscape modeling”. Banff, Alberta, Canada, Sept. 2-8, 2000.
 266. The Stockholm Seminar: Frontiers in Sustainability Science. Sponsored by the Beijer Institute for Ecological Economics, Stockholm University Center for Natural Resources Management , the IGBP, the Stockholm Environment Institute and the Stockholm International Water Institute. “The Future of Science: the Reintegration of the Study of Humans and the Rest of Nature”. Swedish Academy of Sciences, Stockholm, Sweden, Sept. 27, 2000.
 267. Symposium on Systems-oriented Ecotoxicological Research. Invited opening plenary speaker: “Ecosystem health, ecosystem services, and sustainability: the influence of non-point source pollution at the watershed scale.” Wageningen, The Netherlands, October 12, 2000.
 268. Lowell Lecture series on Ecological Economics. Invited speaker: “The ecology-economy interface” New England Aquarium, Boston, MA, November 9, 2000
 269. Society of American Foresters. 2000 National Convention, Science Colloquium on “What is good science? What is its role?” Invited speaker: “Visions, values, valuation, and the need for an ecological economics” Washington, DC, Nov. 16-20, 2000
 270. Virginia Institute of Marine Sciences, Invited seminar: “Reintegrating the study of humans and the rest of nature” Gloucester Point, VA, Dec. 1, 2000

2001

271. Linacre Lectures 2001. Invited lecture at Linacre College, Oxford University, titled: “Valuing the Earth: Reintegrating the Study of Humans and the Rest of Nature” Oxford, England, Feb. 26, 2001.
272. Champions of Sustainability 2001 Lecture Series, sponsored by Sustainable Pittsburgh. Invited lecture titled: “Designing a Sustainable and Desirable America” Pittsburgh, PA, March 14, 2001.
273. Columbia University. Invited seminar. “Ecological Economics: Reintegrating the study of humans and the rest of nature” New York, NY, March 20, 2001
274. University of North Carolina at Greensboro. Symposium on: Open Spaces in an Urban Setting. Invited plenary speaker: “ Ecological economic modeling and valuation of urban ecosystems: the Baltimore ecosystem study”. Greensboro, NC April 12, 2001

275. University of Southern California, Sustainable Cities Program. Invited speaker: “Reintegrating the study of humans and the rest of nature.” Los Angeles, CA April 16, 2001.
276. NOAA Coastal Services Center, Human Dimensions Initiative. Invited seminar: “Ecological Economics and the Human Dimension of Coastal Zone Management” Charleston, SC, May 16, 2001
277. Estuaries: Where Catchments meet Coast – an Envirolinx Features Forum. Invited plenary speaker: “What are catchments, waterways and estuaries worth?” Bairnsdale, Australia (and 15 other locations in Australia and New Zealand via interactive video link with over 600 participants) May 22, 2001
278. Chesapeake Bay Foundation. Invited panel speaker: “How can we save the Chesapeake Bay?”. Annapolis, MD, June 15, 2001.
279. IGBP Global Change Open Science Conference: Challenges of a Changing Earth. Invited Symposium speaker in session Titled: Human Interactions in the Coastal Zone. Presentation titled: “The coastal zone – earth’s most important boundary” Amsterdam, The Netherlands, July 10-13, 2001
280. Congressional briefing on the National Forest Protection and Restoration Act (NFPPRA) organized by the Forest Conservation Council. Invited speaker: “Ecosystem services from forests”. Longworth House Office Building, Washington, DC. July 25, 2001.
281. Bates College. Invited seminar: “Ecological Economics: Reintegrating the Study of Humans and the Rest of Nature” Lewiston, ME, Oct. 10, 2001
282. Visionary Vermont. Invited plenary speaker: “Envisioning a sustainable and desirable future”. Burlington, VT, Oct. 12, 2001

2002

283. US DOE and Oak Ridge National Lab Conference on Estimating the Benefits of Government-Sponsored Energy R&D. Invited panel speaker: “Environmental benefits of energy R&D” Washington, DC, March 5, 2002.
284. Workshop on Sustainability and Industry: Energy, material consumption, and human behavior. Sponsored by USEPA and duPont. Invited plenary speaker: “Sustainability and Human Behavior: Integrating the Study of Humans and the Rest of Nature” Cincinnati, OH March 26-27, 2002
285. Commencement address. School of Natural Resources, University of Vermont, “The Biggest Challenge: Envisioning a Sustainable and Desirable America (SDA)” Burlington, VT. May 19, 2002.
286. LOICZ Synthesis and Futures Meeting: Coastal Change and the Anthropocene. Invited plenary speaker: “Socio-economic aspects of coastal change” Miami, FL May 29-June 1, 2002.
287. Healthy Ecosystems, Healthy People: Linkages between biodiversity, ecosystem health, and human health. Invited session speaker: “Ecosystem health and ecosystem services: quantifying, modeling and valuing an essential relationship” Washington, DC, June 6-11, 2002.
288. 3rd International Canopy Conference. Invited plenary speaker: “Canopy ecosystem functions, health, and services: quantifying, modeling and valuing essential interrelationships” Cairns, Queensland, Australia (via Interactive Video), June 23-28, 2002
289. After Oil: a symposium on the future of personal transportation. University of Vermont George Aiken Lectures. Invited plenary panel speaker. “Social costs of fossil fuel use in transportation” Burlington, VT, September 28, 2002.
290. Society for American Military Engineers Conference: Engineering a Better Infrastructure and Environment for Our Communities. Invited Technical Session speaker: “Ecosystem modeling and ecological economics”. St. Paul, MN, October 2-4, 2002.
291. University of Vermont, Department of Economics. Invited Seminar: “Ecological Economics.” Burlington, VT, November 6, 2002
292. IndoPacific Ecosystem Health Conference. Invited Keynote Speaker: “Ecosystem Health and Ecosystem Services.” Perth, Australia, November 24 - 27 2002 (via interactive video)
293. University of Vermont, Department of Environmental Pathology. Invited Seminar: “Ecological Economics and Ecosystem Health.”, Burlington, VT, Dec. 2, 2002.
294. University of Michigan, Program in the Environment, Distinguished Speaker Series invited seminar: “Human Dominated Ecosystems: Understanding the Anthroposphere in the Anthropocene.” Ann Arbor, MI, December 3, 2002.
295. Putney Mountain Association. Invited seminar: “Ecological Economics” Brattleboro, VT, December 8, 2002.

2003

296. University of Vermont, School of Natural Resources Seminar: "Ecological Economics: Reintegrating the Study of Humans and the Rest of Nature" Burlington, VT. Jan. 23, 2003
297. University of Texas, Center for Sustainable Development. Invited seminar: "Ecological Economics: Reintegrating the Study of Humans and the Rest of Nature" Austin, TX, Feb. 6, 2003 (via interactive video).
298. University of Washington. Walker Ames Lecture: "Human Dominated Ecosystems: Understanding the Anthroposphere in the Anthropocene." Seattle, WA, Feb. 12, 2003
299. Cornell University. Department of Natural Resources. Invited seminar: "Human Dominated Ecosystems: Understanding the Anthroposphere in the Anthropocene." Ithaca, NY, Feb. 25, 2003.
300. College of Environmental Science and Forestry, State University of New York, Invited seminar: "Human Dominated Ecosystems: Understanding the Anthroposphere in the Anthropocene." Syracuse, NY, Feb. 26, 2003.
301. Rhode Island Natural History Survey. 8th Annual Conference. Invited Keynote speaker: "Ecological economics: reintegrating the study of humans and the rest of nature." Cranston, RI March 7, 2003.
302. United States Society for Ecological Economics (USSEE) 2nd Biannual Conference. Invited Plenary Speaker "Ecosystem health and ecosystem services: quantifying, modeling, and valuing an essential interrelationship" Saratoga Springs, NY, May 22-24, 2003
303. The Stockholm Seminars: Frontiers in Sustainability Science and Policy. "Integrated History and future of the Planet Earth (IHOPE): a proposed research activity of the Earth System Science Partnership (ESSP). Stockholm, Sweden, August 13, 2003.
304. Inaugural Zuckerman Lecture. Zuckerman Institute for Connective Environmental Research. University of East Anglia. "Ecological Economics: a transdisciplinary approach to reintegrating the study of humans and nature." Norwich, UK Sept. 8, 2003.
305. Green Mountain Summit on Investor Responsibility. Invited Luncheon speaker: "Ecological Economics: Accounting for Human-Made and Natural Capital". Stowe, Vermont, Sept. 14-17 2003.
306. Vermont Sierra Club annual meeting. Invited Luncheon Speaker: "The importance of envisioning a sustainable and desirable future" Fairlee, Vermont, October 4, 2003.
307. Renewable Energy Vermont's 2nd Annual Conference: Power for a new economy. Invited Opening Keynote Speaker: "Energy and Ecological Economics" Burlington, Vermont, October 8, 2003
308. Andres Marcelo Sada Chair in Conservation and Sustainable Development. Invited Keynote Lecture: "Ecological economics, ecosystem services, and natural capital" Tec de Monterrey, Monterrey, Mexico. October 13, 2003
309. Alterra – Wageningen University and Research Centre. Invited seminar: "Ecological Economics and Climate Change" Wageningen, Netherlands, October 24, 2003.
310. University of New Hampshire, Natural Resources and Earth System Science Departments invited seminar: "Ecological economics: reintegrating the study of humans and the rest of nature." Durham, NH November 10, 2003.
311. Chaire Tractebel-Environment . Inaugural Plenary Speaker . "The Ecological Economics of Sustainability" Université Catholique de Louvain. Louvain-la-Neuve, Belgium, December 16, 2003.

2004

312. Rensseler Polytechnic Institute. Invited seminar speaker: "Visions, values, valuation, and the need for an ecological economics." Troy, NY. February 3, 2004.
313. 5th Annual Ecological Integration Symposium: Demonstrating Ecological Value: Promoting Conservation & Sustainability. Invited plenary speaker: "Visions, values, valuation, and the need for an ecological economics." Texas A&M University, College Station TX, February 20, 2004.
314. The Center for Research on Vermont. Research in Progress Seminar #177. "Measuring quality of life in Vermont" (with Jon Erickson). University of Vermont, Burlington, VT, March 8, 2004
315. Rubenstein School of Environment and Natural Resources Spring Seminar Series: Ecosystem Health. "Ecosystem health and ecosystem services," University of Vermont, Burlington, VT, March 11, 2004.
316. Environmental Science and Engineering Institute 2004 Environmental Lecture Series. Invited Seminar: "Ecological economics: reintegrating the study of humans and the rest of nature." .Purdue University, West Lafayette, IN, March 26, 2004.
317. Middlebury College Environmental Science Colloquium series: "Ecological Economics: Reintegrating the study of humans and the rest of nature to create a sustainable and desirable future". Middlebury College, Middlebury, VT, April 1, 2004

318. Vermont Businesses for Social Responsibility Conference: Common Business Challenges, Socially Responsible Solutions. Invited speaker: "Burlington Bread: Improving local sustainable economic welfare". Burlington, VT May 18, 2004.
319. 11th Annual Conference on the Adirondacks. Invited Keynote speaker: "Ecological Economics: Reintegrating the study of humans and the rest of nature to create a sustainable and desirable future". Saranac Lake NY, May 26, 2004
320. Ecology in a Cost-Benefit Society. Invited Keynote speaker: "Thinking Broadly About Costs and Benefits." Roskilde University, Roskilde, Denmark, June 17-18, 2004.
321. Eighth Biennial Conference of the International Society for Ecological Economics: "Challenging Boundaries: Economics, Ecology, and Governance." Invited opening plenary speaker: "Ecosystem Health, Ecosystem Services, and Sustainable Human Well-Being" Montreal, Canada, July 11-14, 2004.
322. Sustainable Communities 2004. Invited focus area coordinator: New measures of community well-being. Burlington, VT July 14-18, 2004
323. Sustainable Communities 2004. Invited speaker: Introducing local currency. Burlington, VT July 14-18, 2004
324. Sustainable Communities 2004. Invited plenary speaker: Conference synthesis. Burlington, VT July 14-18, 2004
325. 21st Pan-American Congress of Appraisal. Invited Plenary speaker "Valuing the Environment" Cartagena, Columbia, Sept. 20-23, 2004 (via interactive video).
326. Vermont Biodiesel Workshop: Nurturing a Sustainable Biodiesel Industry in Vermont. Invited panel speaker: "Environmental Issues Roundtable" Montpelier, VT Sept. 22, 2004.
327. Renewable Energy Vermont Conference: "Renewable Energy Here and Now" Invited panel speaker "Renewable Energy and the Vermont Economy" South Burlington, VT, Oct 14, 2004.
328. Land Conservancy of West Michigan, Fifth Annual Korth Conservation Speaker: "Valuing nature: integrating ecology and economics for a sustainable future". Grand Rapids, MI, October 20, 2004.
329. Vermont Law School. Invited lecture: "Ecological economics, sustainability, and the law" South Royalton, VT, Oct 21, 2004

2005

330. 26th Annual Darwin Festival. Salem State College. Invited plenary speaker: "Ecological Economics: Reintegrating the study of humans and the rest of nature to create a sustainable and desirable future". Salem, MA, Feb. 15, 2005
331. 3rd Annual Northeastern Climate Conference. Invited plenary speaker: "Perspectives from Academia Land" University of Vermont, Burlington, VT Feb 18, 2005
332. AAAS Annual Meeting. Invited speaker in symposium "New Developments in Human and Social Dynamics: Social Science for Public Policy." Talk titled: "Modeling Integrated Human and Natural Systems Dynamics" Washington, DC, Feb. 19, 2005
333. Seattle Department of Planning and Development, 2005 Urban Sustainability Forum, Invited Speaker, talk titled: "The local politics of global sustainability" Seattle, WA April 4, 2005. (http://www.seattle.gov/dpd/Sustainable_Building/COS_004334.asp)
334. USEPA Region 2. Invited speaker: Ecological economics and EPA. New York, NY, April 14, 2005
335. New York Academy of Sciences. Invited speaker: Ecological Economics: Reintegrating the study of humans and the rest of nature." New York, NY, April 14, 2005.
336. Ohio Agricultural Research and Development Center Annual Conference on : "Adding value to the ecological paradigm" Invited plenary speaker, talk titled: "Ecological economics" Ohio State University, Columbus, OH April 21, 2005.
337. University of Nebraska, College of Agriculture and Natural Resources, Invited lecture: "Ecological Economics: Reintegrating the study of humans and the rest of nature". Lincoln, NB April 25, 2005
338. New Jersey Department of Environmental Protection, Division of Science, Research and Technology Seminar Series: "Valuing New Jersey's Natural Capital and Ecosystem Services" Trenton, NJ, June 7, 2005
339. SEATAC North Atlantic Chapter. 2005 Annual Meeting. Invited plenary speaker, session on Emerging Issues, talk titled: "Ecological Economics: Assessing the True Costs of Alternatives. Burlington, VT, June 9, 2005
340. World Conference on Ecological Restoration. Invited inaugural plenary speaker: "The value of a restored earth and its contribution to a sustainable and desirable future" Zaragoza, Spain, Sept. 12-18, 2005
341. Joint Sino-US symposium on Ecological Complexity and Ecosystem Services. Invited plenary speaker: "Ecosystem Services and Natural Capital". Burlington, VT Oct. 21, 2005

342. Ethics, Spirituality and the Environment: an Interdisciplinary Symposium. Invited speaker: “Transdisciplinary systems science: toward a science of connection, integration, and synthesis. St. Michael’s College, Colchester, VT. Oct 25-27, 2005
343. Henry A. Wallace/CATIE Inter-American Scientific Conference: Integrated Management of Environmental Services in Human-Dominated Tropical Landscapes. Invited Plenary speaker: “Ecosystem Services: if they’re so important, why do we continue to abuse them?” CATIE, Turrialba, Costa Rica, November 1-3, 2005
344. Catholic Social Teaching and Ecology. Invited Keynote speaker: “Transdisciplinary Systems Science: Toward a Science of Connection, Integration and Synthesis”. Villanova University, Villanova, PA, Nov. 10-11, 2005.

2006

345. Institute of Water and Environment, Cranfield University, Invited Seminar.: “Ecological economics: designing a sustainable and desirable future” Silsoe, UK, Jan 4, 2006.
346. Cogito (think tank connected with the Swedish Parliament), Invited Seminar: “Ecological economics: designing a sustainable and desirable future” Stockholm, Sweden, Jan. 9, 2006
347. KTH/Royal Institute of Technology, Invited Seminar: “Ecological economics: designing a sustainable and desirable future” Stockholm, Sweden, Jan. 9, 2006
348. Lund University Centre for Sustainability Studies (LUCSUS), Invited Seminar: “Ecological economics: designing a sustainable and desirable future” Lund, Sweden, Jan. 10, 2006
349. Stockholm Seminars, Royal Swedish Academy of Sciences. Seminar title: “Developing an Integrated History and future Of People on Earth (IHOPE)”. Stockholm, Sweden, Jan. 11, 2006
350. Rubenstein School of Environment and Natural Resources Spring Seminar Series. Invited speaker: “Envisioning a sustainable and desirable future” University of Vermont, Burlington, VT Jan 19, 2006
351. Elder Education Enrichment program, Invited speaker: “Creating a sustainable and desirable future” South Burlington, VT, Feb 10, 2006
352. Dempsey Lecture. Willamette University. “Ecological economics: creating a sustainable and desirable future” Salem, Oregon, February 16, 2006.
353. Rotorua Lakes 2006 Symposium. Invited keynote speaker: “The Value of Ecosystem Services in the Rotorua Lakes Region” Rotorua, New Zealand (via interactive video) March 6, 2006.
354. Carolina Environmental Program, Environmental Seminar Series. Invited speaker: “Ecological Economics: Creating a Sustainable and Desirable Future” University of North Carolina, Chapel Hill, NC, April 11, 2006
355. St. Michael’s College Earth Week Seminar Series. Invited speaker: “Ecological Economics: Creating a Sustainable and Desirable Future” . St. Michael’s College, Colchester, VT, April 18, 2006
356. Architectural League of New York. Invited Talk: “Integrating Ecology, Economics and Design to Create a Sustainable and Desirable Future” New York Public Library Auditorium, NYC, April 26th, 2006
357. Sustainable Energy Fourm 2006: Peak Oil and the Environment. Invited Plenary speaker: “A Framework for Understanding Future Energy Options and Opportunities” Marvin Center, Washington, DC, May 7-9, 2006
358. Food Systems Leadership Institute: Building a Sustainable System in a Global Economy. Invited plenary speaker: “Ecological Economics” Shelburne Farms, Shelburne, VT June 4-9 2006.
359. Ecosystems, infrastructure and the environment: reconciling law, policy and nature. 34th National ABA spring conference on the environment. Invited plenary speaker in panel on: “Thinking outside the box: Strengthening our infrastructure by enhancing and using ecosystem services. University of Maryland School of Law, Baltimore, MD. June 9 2006.
360. 3rd Biennial meeting of the International Environmental Modeling and Software Society. Invited Plenary speaker; “Integrated modeling of humans in natural systems over multiple time and space scales: understanding history to create a better future.” Burlington, VT, July 9-13, 2006.
361. Ecological Society of America 91st Annual Meeting. Invited speaker, symposium on Integrating Ecosystem Services into the Policy Realm. Talk titled: “Linking ecology and economics for ecosystem management”. Memphis TN Aug. 6-11, 2006
362. Independent First Nations Alliance Conference. Invited plenary speaker: “Ecological economics: creating a sustainable and desirable future” Sioux Lookout, Ontario, Canada, Aug22-23, 2006.
363. World Wildlife Fund. Invited Seminar: “Linking ecology and economics for ecosystem management” Washington, DC, Sept. 7, 2006.
364. Burlington’s Energy Future: Beyond the Oil Crisis. Invited panel speaker., Burlington, VT Oct. 5, 2006
365. Instituto de Ecología, A.C. (INECOL) at Xalapa, Veracruz, Mexico. Invited seminar: “Ecosystem Services: Dynamics, Modeling and Valuation to Facilitate Conservation” Xalapa, Mexico, Oct 18, 2006 (via interactive video)

366. Renewable Energy Vermont, 5th Annual Conference. Renewable Energy: Beyond Peak Oil. Invited Symposium Speaker: “The Path from Vermont to Kyoto in a Full World” Burlington, VT, Oct. 19, 2006.
367. Society for Environmental Journalists 16th Annual Conference. Invited Panelist: Money Talks: But what price sustainability? Burlington VT. Oct. 25-29, 2006.
368. Society for Environmental Journalists 16th Annual Conference. Invited Panelist: Invasives: Global Trade Brings Local Costs. Burlington VT. Oct. 25-29, 2006.
369. SUNY Plattsburg, Invited Seminar. “Ecological Economics” Plattsburg, NY Nov. 2, 2006
370. Chinese Society for Sustainable Development Conference. Invited plenary speaker: “Ecosystem Services Valuation and Sustainability” Beijing, China, Nov. 9, 2006.
371. Chinese Academy of Sciences, Institute of Geographic Sciences and Natural Resources Research. Invited seminar: “Integrated Modeling and Valuation of Ecosystem Services” Beijing, China, Nov. 13, 2006.
372. International Conference on Sustainability Measurement and Modeling. Invited keynote speaker: “Defining, Measuring, and Modeling Sustainability” Terrassa, Spain, Nov. 16-17, 2006.
373. Universitat Politècnica de Catalunya. Invited seminar: “Coastal Ecosystem Services: Valuation and Sustainability”, Barcelona, Spain, Nov. 17, 2006
374. Partners in Environmental Technology Technical Symposium and Workshop: Meeting DoD’s Environmental Challenges. Invited keynote speaker: “Ecosystem services: dynamics, modeling, and valuation” Washington, DC, Nov 28-30, 2006
375. Ninth Biennial Conference of the International Society for Ecological Economics. “Ecological Sustainability and Human Well-Being” Invited opening session speaker. Delhi, India, December 15-18, 2006
376. Ninth Biennial Conference of the International Society for Ecological Economics. “Ecological Sustainability and Human Well-Being” Invited symposium speaker: “The Value of Coastal Wetlands for Storm Protection” Delhi, India, December 15-18, 2006
377. Ninth Biennial Conference of the International Society for Ecological Economics. “Ecological Sustainability and Human Well-Being” Invited symposium speaker: “Integrated History and future of People on Earth (IHOPE)” Delhi, India, December 15-18, 2006

2007

378. Invited Seminar, Lehigh University Environmental Initiative: “Ecological Economics: Creating a Sustainable and Desirable Future.” Bethlehem PA, January 26, 2007.
379. Invited Symposium speaker, AAAS Annual Meeting: Science and Technology for Sustainable Well-Being. Symposium on: “Advances in Modeling Coupled Human-Natural Systems for Sustainability” Talk titled: “Modeling ecosystem services and sustainability across scales.” San Francisco, CA, Feb. 15-19, 2007
380. Sustainable Business Conference: Money Talks. Invited plenary speaker.. “Ecological Economics” Concordia University, Montreal, Canada. March 2, 2007
381. Payments for Ecosystem Services: from local to global. Invited plenary speaker. “What are ecosystem services” Heredia, Costa Rica, March 8-9, 2007
382. Greater Burlington Industrial Corporation (GBIC) and Lake Champlain Chamber of Commerce, Government Affairs Committee. Invited speaker: “Ecological Economics” Burlington, VT. April 4, 2007
383. International Forum on Innovation for Sustainable Development. Invited speaker: “Toward an ecological economy” Tongji University, Shanghai, China, May 18-20, 2007
384. EcoSummit 2007: Ecological Complexity and Sustainability. Invited Keynote plenary speaker: “Toward an Integrated, Transdisciplinary Science of Humans-in-Nature” Beijing, China, May 22-26, 2007.
385. EcoSummit 2007: Ecological Complexity and Sustainability. Invited Symposium speaker: “Ecosystem Services and Biodiversity in Agricultural Landscapes” Beijing, China, May 22-26, 2007.
386. EcoSummit 2007: Ecological Complexity and Sustainability. Invited Symposium speaker: “Ecosystem Services: Dynamics, Modeling, and Valuation at Multiple Scales” Beijing, China, May 22-26, 2007.
387. Peking University, College of Environmental Sciences. Invited seminar: “Toward an Integrated, Transdisciplinary Science of Humans-in-Nature” Beijing, China, May 26, 2007
388. North American Benthological Society (NABS) 2007 Annual Meeting. Invited plenary speaker: “Toward an Integrated, Transdisciplinary Science of Humans-in-Nature” Columbia, SC, June 3-6, 2007.
389. United States Society for Ecological Economics. 2007 Biannual Conference: Creating Sustainability Within our Midst. Invited Plenary speaker: “Modeling integrated human and natural systems dynamics over multiple time and space scales” Pace University, New York, NY. June 23-27, 2007.

390. United States Society for Ecological Economics. 2007 Biannual Conference: Creating Sustainability Within our Midst. Invited Workshop speaker: "Use of ecosystem service valuations to inform local and regional land use decisions" Pace University, New York, NY. June 23-27, 2007.
391. United States Society for Ecological Economics. 2007 Biannual Conference: Creating Sustainability Within our Midst. Invited Plenary panel speaker: "The future of ecological economics" Pace University, New York, NY. June 23-27, 2007.
392. Puget Sound's Ecosystem Services: Dynamics, Modeling, and Valuation at Multiple Scales. Invited seminar Seattle BioTech Legacy Foundation. Seattle, WA, July 26, 2007
393. Ecosystem Services: Dynamics, Modeling, and Valuation at Multiple Scales. Invited seminar. Washington State Department of Ecology. Olympia, WA, July 27, 2007
394. Italian Society of Ecology, Annual Meeting, Invited plenary speaker: "Toward an Integrated, Transdisciplinary Science of Humans-in-Nature". Ancona, Italy, Sept. 17-20, 2007
395. BONUS Seminar: Integrating Ecosystems and Society: Experiences from Across the Ocean. Invited plenary speaker: "Modeling and valuation of ecosystem services as a key link between ecological and social systems". Helsinki, Finland, Sept 21, 2007.
396. Ecological Economics and Sustainable Forest Management in the Ukrainian Carpathians: Invited plenary speaker: "The paradigm of ecological economics", Ukrainian National Forestry University (UNFU), Lviv, Ukraine, Sept 22 – Oct 1, 2007
397. Community Matters 07: Growth and Character: Having it All. Invited speaker in Symposium: "Measure for measure: taking stock of intangible assets"; talk titled: "Sustainable Quality of Life". Burlington, VT Oct 23-25, 2007
398. Fifth International Media Forum on the Protection of Nature: Capitalizing on the Environment. Invited plenary speaker: "Investing in natural and social capital for a sustainable and desirable future" Rome, Italy, Nov. 7-10, 2007.
399. University of Lecce, Dept. of Biological and Environmental Sciences and Technologies, Invited Seminar: "Toward an Integrated, Transdisciplinary Science of Humans-in-Nature", Lecce, Italy, Nov. 12, 2007
400. Oxford University Centre for the Environment, Environmental Change Institute. Invited Seminar: "What is the economy and what is it for?" Oxford, UK, Nov13, 2007
401. University of East Anglia, CSERGE Invited Seminar: "What is the economy and what is it for?" Norwich, UK, Nov15, 2007.
402. Royal Geographical Society and Institute of British Geographers. UK Human Dimensions of Environmental Change Launch event. Invited Plenary speaker: "Toward an Integrated, Transdisciplinary Science of Humans-in-Nature" London, England Nov. 16, 2007.
403. Eight Annual Edward and Nancy Dodge Lecture: "Protecting the commons". Center for a Livable Future. Johns Hopkins Bloomberg School of Public Health. Baltimore, Maryland, Nov 29, 2007.
404. The Ontario Business Cluster Policy Secretariat & the Ministry of Natural Resources invited seminar: "Valuation of Natural Capital: understanding and solving environmental problems in the 21st century. Toronto, Canada, Dec. 10, 2007.

2008

405. National Conference on Science, Policy and the Environment: Climate change: Science and solutions. Invited speaker in the session on Forests and Markets for Ecosystem Services. Talk titled: "Payment for Ecosystem Services". Washington, DC. Jan. 16-18, 2008.
406. 2008 Environmental Health Lecture Series: Seeking Solutions: Connecting Economics with Health and Environment. Seattle Biotech Legacy Foundation. Invited speaker: "Principles of Ecological Economics: Guidance for a Sustainable Society". Seattle Town Hall, Seattle WA, Jan. 23, 2008. <http://www.seattlechannel.org:80/videos/video.asp?ID=5010803>
407. Invited seminar. IBM Deep Computing Systems/Big Green Innovations group. "Multiscale Integrated Modeling of Ecosystem Services" IBM T.J. Watson Research Center. Yorktown Heights, NY. Jan. 28, 2008.
408. Global Climate Change and Sea-level Rise in Florida: a conversation between scientists and the media. Invited speaker: "Economic Impacts". University of South Florida, St. Petersburg, FL, Feb 6, 2008.
409. University of Arkansas, Applied Sustainability Center. Sustainability Speaker Series Invited speaker: "Toward an Ecological Economy: Creating a Sustainable and Desirable Future" Fayetteville, AK. Feb 7, 2008.
410. 18th Annual National Association of Environmental Law Societies (NAELS) Conference: Picking up the pieces: reclaiming global environmental leadership. Invited speaker: Post-Kyoto Era: Global Opportunities.. University of Vermont/Vermont Law School. Burlington VT. March 20-22, 2008.

411. Antioch College of New England, invited seminar: "Ecological Economics: Creating a Sustainable and Desirable Future" Keene, NH, March 28, 2008.
412. Université du Québec à Rimouski, invited seminar: "Ecological Economics : Creating a Sustainable and Desirable Future". Rimouski, Quebec, Canada, April 7, 2008.
413. The Funder's Workgroup for Sustainable Production and Consumption. 2008 Annual Meeting. Invited plenary speaker: "Toward an Ecological Economy: creating a sustainable and desirable future". Washington, DC. April 30-May 1, 2008
414. Sustainability Institute, Soil Soul and Society Seminar Series. Invited speaker: "Toward an Ecological Economy: creating a sustainable and desirable future". Stellenbosch, South Africa, May 8, 2008
415. University of Cape Town. Invited seminar: "An Integrated History and future of People on Earth" Cape Town, South Africa, May 9, 2008.
416. Ecosystem Services: Solution for a problem or a problem that needs solutions? Invited keynote plenary speaker: "Understanding, modeling, and valuing ecosystem services" Salzau Castle, Germany, May 13-15, 2008.
417. Society of Wetland Scientists 2008 Annual Meeting. Invited plenary speaker: "New directions for valuing wetlands" Washington, DC, May 27-29, 2008

E. Symposia, Workshops, and Conferences Organized/Chaired (31)

1. "Energy Economics," session at: International Conference on Energy and Ecological Modeling. Louisville, KY 4/20-4/23, 1981.
2. "Spatial Modeling," session at: American Institute of Biological Sciences/ International Society for Ecological Modeling Joint Meeting. Ft. Collins, CO 8/6-8/10, 1984.
3. "Emerging Modeling Techniques for Ecosystems," session at: Ninth Biennial International Estuarine Research Conference. New Orleans, LA October 25-29, 1987.
4. "Natural Capital and Sustainable Development," session at: The Other Economic Summit. Houston, TX July 6-8, 1990.
5. "The Ecological Economics of Sustainability: Making Local, Short-Term and Global, Long-Term Goals Consistent." 1st meeting of the International Society for Ecological Economics. Main conference organizer. The World Bank, Washington, DC May 21-23, 1990.
6. "Modeling with Large Scale Computers," session at: 40th AIBS Annual Meeting. Toronto, Canada August 6-10, 1989.
7. "Ecosystem Health and Environmental Management," workshop sponsored by Maryland Sea Grant and US EPA. Aspen Wye Conference Center, MD Oct. 28-30, 1990.
8. "State of the Art of Estuarine Modeling," session at: the Estuarine Coastal Sciences Association/Estuarine Research Federation Joint Conference. Plymouth, England September 13-19, 1992.
9. "Complex Ecological Economic Systems Modeling," workshop sponsored by the Beijer International Institute for Ecological Economics, Royal Swedish Academy of Sciences, Stockholm, Sweden July 27-29, 1992.
10. "Ecological Economics: a New Approach," session at EcoWorld: American Society of Mechanical Engineers, Washington DC June 14-19, 1992.
11. "Ecological Economics and Management Decisions," session at the International Conference: Environmental Management of Enclosed Coastal Seas: EMECS '93. Baltimore, MD November 10-13, 1993.
12. "1st. International Symposium on Ecosystem Health and Medicine: Integrating science, policy, and management," conference Co-Chair (with David Rapport). Ottawa Congress Center, Ottawa, Canada June 19-23, 1994.
13. "Ecological Economics: Building a new paradigm for sustainability." Symposium at the 45th Annual American Institute of Biological Sciences/Ecological Society of America meeting (co-organized with Robert O'Neill). Knoxville, TN August 7-11, 1994. .
14. "Down to Earth: Practical Applications of Ecological Economics," Third International Conference of the International Society for Ecological Economics. International organizing committee with Olman Segura and 7 others. San José, Costa Rica. October 24-28, 1994.
15. "Approaches to the Health of the Ecosystem," session at the NOAA/NMFS/EPA Symposium on The Gulf of Mexico: a Large Marine Ecosystem. Session organizer and co-chair (with David Rapport). St. Petersburg Beach, FL August 23-25, 1995.
16. SCOPE/UNEP workshop on "Integrated Adaptive Ecological Economic Modeling and Assessment." Workshop chair. Faxenda Rio Negro, Pantanal, Brazil November 4-7, 1995.

17. "Ecological Tax Reform," ISEE/MacArthur Foundation Workshop. Workshop chair. College Park, MD March 18-19, 1996.
18. "A Practical Guide to Valuation in Green National Accounting," ISEE/World Bank/MacArthur Foundation Workshop. Workshop co-chair (with J. Dixon). World Bank, Washington, DC March 20-23, 1996.
19. National Center for Ecological Analysis and Synthesis (NCEAS) Workshop on "The Total Value of the World's Ecosystem Services and Natural Capital." Workshop organizer and chair. University of California, Santa Barbara CA June 17-21, 1996.
20. "Designing Sustainability: Building Partnerships Between Business, Society, and the Environment," Fourth International Conference of the International Society for Ecological Economics. Conference co-organizer (with Cutler Cleveland). Boston, MA August 4-7, 1996
21. "Ecological Summit 96," Joint meeting of the International Societies of Ecological Economics, Ecological Modelling, Ecological Engineering and Ecosystem Health. International Organizing Committee. Copenhagen, Denmark August 19-23, 1996.
22. "Ecological Economics: what have we learned?" Symposium at the American Economics Association Annual Meeting. New Orleans, LA Jan. 4-6, 1997.
23. "The Ecological Economics and Sustainable Governance of the Oceans," Workshop sponsored by the Luso-American Foundation and the Independent World Commission on the Oceans. Lisbon, Portugal July 7-9, 1997.
24. Working group on "The Value of the World's Ecosystem Services: Toward a Dynamic, Integrated Approach". National Center for Ecological Analysis and Synthesis (NCEAS), University of California at Santa Barbara, June 1-5, 1998.
25. Fifth Biennial Conference of the International Society for Ecological Economics: "Beyond Growth: Policies and Institutions for Sustainability". Conference Organizing Committee. Santiago, Chile, November 15-19, 1998.
26. Working group on "The Value of the World's Ecosystem Services: Toward a Dynamic, Integrated Approach". National Center for Ecological Analysis and Synthesis (NCEAS), University of California at Santa Barbara, June 1-5, 1999.
27. Working group on "The Value of the World's Ecosystem Services: Toward a Dynamic, Integrated Approach". National Center for Ecological Analysis and Synthesis (NCEAS), University of California at Santa Barbara, June 11-15, 2000.
28. Ecosummit 2000: Integrating the Sciences. Organizing committee chair. Halifax, Canada, June 19-22, 2000
29. Healthy Ecosystems, Healthy People: Linkages between biodiversity, ecosystem health, and human health. Organizing committee chair. Sponsored by the International Society for Ecosystem Health and the Center for Applied Biodiversity Science at Conservation International. Washington, DC, June 6-11, 2002.
30. Working group on "Understanding, valuing, and managing dynamic ecosystem services under stress: Synthesizing across the LTER Network" (with Steve Farber). National Center for Ecological Analysis and Synthesis (NCEAS), University of California at Santa Barbara, June 25-July 4, 2004; June 20-25, 2005
31. Payment for Ecosystem Services: from local to global. An international conference and atelier workshop. Conference and workshop co-organizer and chair. Universidad Nacional Costa Rica, Heredia, Costa Rica, March 8-16, 2007.

F. Memberships in Professional Societies

International Society for Ecological Economics (co-founder, Chairman of the Board 1/88-11/98, and President, 1/88-1/98)

Ecological Society of America (Vice-Chair Washington Area chapter, 1989; Chair, Washington Area chapter, 1990, Certified Senior Ecologist, 1/01-1/06)

International Society for Ecological Modeling (Vice President, North American Chapter, 1987-1992)

International Society for Ecosystem Health (co-founder and Vice-President, 6/94-3/00; President 7/00-12/01)

American Association for the Advancement of Science

American Institute of Biological Sciences

Estuarine Research Federation

Society for Conservation Biology

American Water Resources Association

Union of Concerned Scientists

Society for Human Ecology

G. Other Professional Recognition

1. Editorships

Active

Ecological Economics Founding Chief Editor, 1/89-9/02, Editorial Board, 9/02 - present
Ecological Modelling Editorial Board. 6/86-present
Ecological Engineering Editorial Board. 3/91-present
Environmental Management. Editorial Board. 1/2000 – present
EcoHealth, Editorial Board. 1/2004 – present
Journal of Industrial Ecology, Editorial Board. 9/96-present
Regional Environmental Change. Editorial Board 1/99-present
Ecological Informatics, Editorial Board 1/05-present
Living Reviews in Landscape Research, Editors-in-Chief, 2/06-present

Previous

Global Environmental Change, Editorial Board 1/04-12/06
Environment and Development Economics Advisory Board. 1/95-1/01
Ecosystem Health Editorial Board. 6/94-1/01; Associate Editor 1/01-1/03
Journal of Environmental Conservation. Editorial Board 1/99-1/01
Ecosystems Editorial Board. 12/96-12/98
Ecological Applications, Editorial Board. 4/93-4/96
Trends in Ecology and Evolution, Editorial Advisory Board. 1/92-1/97
Book Series Editor: *Advances in Ecological Economics*, Edward Elgar Publishers, 6/96-9/02
Associate Editor. *Encyclopedia of Energy*, Elsevier, Amsterdam, 1/02-4/04

2. Awards and Other Recognition

Thomson ISI Highly Cited Researcher, Oct. 2004-present
University of Vermont Outstanding Service Learning Faculty Award for 2004 (\$500)
Certified Senior Ecologist, Ecological Society of America, 1/01-present
Doctor of Philosophy *honoris causa*, Stockholm University, Faculty of Mathematics and Natural Science, Awarded Sept. 29, 2000.
Kenneth Boulding Memorial Award for Outstanding Contributions in Ecological Economics, 1998. Awarded by the International Society for Ecological Economics.
Pew Scholar in Conservation and the Environment, 1993-1996 (\$150,000). Awarded by the Pew Foundation.
Society for Conservation Biology, 1992 Distinguished Achievement Award
Kellogg National Fellowship 1982-85 (\$30,000). Awarded by the Kellogg Foundation
National Wildlife Federation Outstanding Publication Award for 1985-86 (with C. Cleveland, C. A. S. Hall, and R. Kaufmann, \$2,000)
German Marshall Fund travel award 1988 (\$1,000)
American Men and Women of Science
Who's Who in America, Who's Who in the World

3. Peer Review Activities

a. Proposals Reviewed

American Society of Testing and Materials (1), Austrian NSF (1), NASA (1), National Science Foundation (17), NOAA Sea Grant (5), U.S. Environmental Protection Agency (26), U.S. Fish and Wildlife Service (2), US Man and the Biosphere Program (3), University of British Columbia (1), Wisconsin Sea Grant (1)

b. Articles Reviewed

Agriculture and Human Values (1), *Ambio* (6), *American Economic Review* (1), *American Naturalist* (2), *Aquaculture Economics and Management* (1), *American Journal of Agricultural Economics* (1); *Behavioral Science* (1), *Biological Conservation* (1), *BioScience* (10), *Coastal Management* (2), *Conservation Biology* (3), *Ecology* (4), *Ecological Applications* (16), *Ecological Economics* (5), *Ecological Engineering* (6), *Ecological Modelling* (57), *Ecological Monographs* (1), *Ecosystems* (3), *Ecosystem Health* (4), *Energy Systems and Policy* (2), *Environmental Conservation* (4), *Environment and Planning B* (1), *Environmental Management* (12), *Environmental Science and Technology* (1), *Frontiers in Ecology and the Environment* (1), *Global Environmental Change* (1); *Human Ecology* (1), *Industrial Ecology* (2), *Journal of*

Environmental Management (2), Journal of Planning, Education, and Research (1); Journal of Theoretical Biology (3), Marine Ecology Progress Series (1), Nature (5), Regional Environmental Change (1), Restoration Ecology (1), Science (9), Structural Change and Economic Dynamics (1), Theoretical Population Biology (1), Trends in Ecology and Evolution (2), U.S. Fish and Wildlife Service (2), Wetlands Ecology and Management (1)

c. Books Reviewed

Blackwell (1), Cambridge University Press (1), Columbia University Press (2), Edward Elgar (5), Elsevier (1), Island Press (4), Sierra Books (1), Simon and Schuster (1), Sinauer (1) Wiley (1), Yale University Press (1),

4. Scientific Boards, Committees and Panels:

Analysis and Integrated Modeling of the Earth System (AIMES) Task Force (AIMES is a core project of IGBP). 11/05 – 11/08.
EPA Science Advisory Board (SAB), Committee on Valuing the Protection of Ecological Systems and Services. 10/03 - present
Global Analysis, Integration and Modeling (GAIM) Task Force (GIAM is a core project of IGBP). 1/03 – 12/05.
Committee for the Assessment of Knowledge Projects under ICES/KIS, Netherlands Academy of Sciences, 2003.
National Academy of Sciences, Committee on Materials Flow Accounting of Natural Resources, Products, and Residuals. 7/02 – 7/03
National Center for Ecological Analysis and Synthesis (NCEAS) Scientific Advisory Board. 3/01 – 3/04.
Scientific Steering Committee and Focus 4 leader, Land-Ocean Interactions in the Coastal Zone (LOICZ) core project of the International Geosphere-Biosphere Programme (IGBP). 1/00 – 12/05
Scientific Committee on Oceanic Research (SCOR) Ocean Futures Planning Committee, 4/00-4/02
NOAA, National Marine Fisheries Service (NMFS) Ecosystem Principles Advisory Panel. 5/97-5/99
Review Committee for the Environmental Assessment Division, Argonne National Lab. 5/99.
National Research Council, Board on Sustainable Development, Committee on Global Change Research. 5/30/95-5/30/98
EPA Science to Achieve Results (STAR) Fellowships for Graduate Environmental Study. Member of review panel in Ecology and Ecosystems. 2/10/98 - 2/13/98
NSF-funded Center for the Study of Institutions, Population and Environmental Change (CIPEC) at Indiana University. Member of External Advisory Committee. 2/96-2/99
US EPA National Advisory Council for Environmental Policy and Technology (NACEPT). 9/94-9/95
National Research Council, Board on Global Change. 1/1/93-12/31/95
US National Committee for the Man and the Biosphere Program. 5/93-12/96
National Research Council, National Academy of Sciences. Panel on Economics of Biodiversity. 3/89
EPA Biotechnology Science Advisory Committee, Subcommittee on Ecoregions. 7/24/90
Chesapeake Research Consortium, Economics Scientific and Technical Advisory Subcommittee, Remote Sensing Workgroup, GIS Workgroup. 8/88-8/93
University of Maryland ad hoc committee on land use, agriculture and natural resources. 11/89-6/90
Maryland Power Plant Topical Research Program's Science Advisory Board. 11/89-11/95
NSF Workshop on Biological Computation. Washington DC 12/13/89-12/15/89
Sierra Club National Economics Committee 3/91-3/5
Coastal Seas Governance Executive Committee. 1/86-1/88
National Association of State Universities and Land Grant Colleges, America's People: an Imperiled Resource, National Urban Policy Issues for a New Federal Administration. 1/87-12/88

5. Governing and Advisory Boards:

Earth Inc. Co-founder and President, 7/06-present
Burlington Environmental and Energy Coordinating Committee, 7/07 - present
Conservation International, Advisory Council, 1/03 - present
Trucost, LLC, Chairman of Advisory Panel, 12/01 – present
Burlington Legacy Project Steering Committee, 1/02 - present
University of Texas, Center for Sustainable Development, Advisory Board, 1/03 – present
BioERA, Inc., Board of Advisors, 1/03 – present

EcoStructure, Inc., Board of Advisors, 6/02 - present
Burlington Currency Project, Board of Directors, 3/04 – 4/07 (Chair, 3/04-12/05)
Earth Council, Policy Advisory Board, Economic Incentives for Sustainable Development, 5/96-5/00
International Society for Ecological Economics, Chair, Board of Directors, 1/89-11/98
Ecological Economics Research and Applications, Chair, Board of Directors, 2/94-2/00
Carrying Capacity Network, National Board of Advisors, 8/90-8/98
Oikos Foundation for Ecological Economics, Siena, Italy, Scientific Advisory Board, 8/90-8/94
Coastal Society, Board of Directors, 4/89 - 4/93

H. Consulting and Expert Witness Activities

The United Nations Environment Program, Chapter for UNEP Global Environmental Outlook 3
The United Nations Compensation Commission, Geneva, Switzerland, 2000. Report on the value of ecosystem services in relation to claims for environmental damages resulting from the Gulf war.
The Gray Law Firm, Lake Charles, LA, 2000. Expert testimony on the value of ecosystem services of coastal wetlands in Louisiana.
U.S. Office of Technology Assessment, 1993-94
U.S. Fish and Wildlife Service 10/89-10/91.
Optima Corporation, Arlington, VA, 1990, Environmental evaluation of Interamerican Development Bank loan to Columbia for waste treatment, irrigation and conservation projects.
Expert Witness, Environmental Economics, Louisiana Environmental Control Commission, 4/83.
U.S. Environmental Protection Agency, Office of Strategic Assessment. 6/80-6/82.
Urban Systems Research Institute, Washington, D.C. 3/80-5/80.
Sverdrup and Parcel and Associates, Inc., Engineers, Gainesville, FL. 1/74-3/74.

V. TEACHING AND TRAINING

A. University of Vermont Courses Taught:

Ecosystem Services and Biodiversity (NR 285) 3 credits, Fall 2002
Introduction to Ecological Economics (NR285, 378) 3 credits, Spring 2003
Ecological Economics Seminar (NR199, 185) 1 credit, Spring 2003
Integrating Engineering, Ecology, Economics and Regional Planning (jointly with Georgia Tech over interactive video) (NR285) 3 credits, Spring 2003
Seminar in Ecovillage Design (NR285/CDAE295/PSS297) variable credits, Fall 2003
Alternate Currencies and Community Development (NR285/CDAE295/EC195) 3 credits, Fall 2003
Relaunching Burlington Bread (NR285/CDAE295) 1 credit, Spring 2004
Ecological restoration and entrepreneurship (NR285) 4 credits, January 3-16, 2005, Guanacaste, Costa Rica
Sustainable Tourism in the Northern Forest (NR285C) 3 credits, Spring 2005
Guest Lecture in HCOL96: Making ethical choices, personal, public, professional . Lecture titled; “The evolution of ethics: from social traps to social capital”. Spring 2005
Greening Aiken: redesigning the Aiken building into a high-performance green building (NR285). 3 credits, Spring 2005
Ecological Economics (NR 385) 3 credits, Fall 2005.
Energy Return On Investment (EROI) Analysis of Alternative Energy Sources (NR 385) 3 credits, Spring 2006.
RSENR Honors Seminar (NR199, 185) 1 credit, Spring 2006
Ecological Economics: Earth Inc. 3 credits, Summer 2006
Ecological Economics : Coastal Disasters (NR 385) 3 credits, Fall 2006
Ecological Economics of Watershed Management (NR 385) 3 credits, Spring 2007
Ecological Economics: Payment for Ecosystem Services (NR385/CDAE 295, 395/PA395), 3 credits, Spring 2007
Ecological Economics: Overcoming Institutional Roadblocks to Sustainability ((NR385/CDAE 395), 3 credits, Spring 2008

B. University of Maryland Courses Taught:

Dynamic Modeling of Ecological and Economic Systems (MEES 698S/ZOOL 708U) 3 credits, Fall 1996-2001
Ecosystem Ecology (ZOOL 708T/MEES 698S) 3 credits, Spring 1995, Fall 1997-2000

Fundamentals of Ecological Economics (PUAF 743) 3 credits, Fall 1997 (course faculty participant with 6 others, responsible for 3 of 15 course lectures plus participation in other lectures)

Valuation and Management of Fynbos Ecosystems of the Cape Floristic Region, South Africa. (MEES 698Q. 3 credits, 2 week intensive "atelier" short course held at the University of Cape Town, South Africa, July 17-28, 1995)

Ecosystem Modeling using STELLA (MEES 608G 1-2 credits, principal lecturer, Spring 1989, 1990, Fall 1991)

GEOG 618S: Guest lecture, Fall 1991

Ecological Economics "Atelier" Short Courses (MEES 698V, 1-2 credits: Valuation of Tropical Coastal Ecosystems, and MEES 698W, 1-2 credits: Trade and the Environment, focusing on the US-Mexico free trade agreement, Spring 1992, course organizer and faculty participant)

C. Other Courses Taught

1st International course on Ecosystem Health: Expanding the horizons of health: a primer on ecosystem health. University of Western Ontario. Session lecture, session 3 (out of 6) on "economics and ecosystem health". London, Ontario, Canada, June 5-8, 2001.

Guest lectures: "Ecological Modeling" Stockholm University (Monica Hammer, course leader), Stockholm, Sweden, April 20, 22, 1999

Guest lecture: "Ecological Economics" University of Edinburgh (Wendy Kenyon, course leader), Edinburgh Scotland, (via Interactive Video), March 2, 1999.

Guest lectures: "Global Environmental Issues" Luso-American Development Foundation. Lisbon, Portugal, June 29-July 10, 1998.

"Resolving resource conflicts using ecological-economic models: a research and training workshop," sponsored by the University of Zimbabwe and the University of Alberta. Course leader. 30 participants. Gwaii River Hotel, Huange, Zimbabwe, May 19-29, 1997.

Guest lecture: "Frontiers and Strategies in Environmental Research," Department of Environmental Technology and Work Science, Kungl Tekniska Högskolan. Stockholm, Sweden, April 18, 1996.

Guest lecture: Systems Ecology honors course. Department of Systems Ecology, Stockholm University, Feb. 12, 1996.

"Dynamic Systems Modeling with STELLA." Course leader. Department of Systems Ecology, Stockholm University. graduate course, 5 points, Fall semester, 1995.

Guest lecture (full day): "Environmental Impact Assessment," AID Staff Strengthening through Environmental Training (ASSET, 11/19/91.

"Ecological Economics of the Baltic Sea Basin," Stockholm, Sweden, Sept. 9-14, 1991.

Guest lecture and field trip (full day): "Environmentally Sound Development Planning," AID Staff Strengthening through Environmental Training (ASSET), 6/6/91.

Guest lecture: "Sustainability: Technology and Public Policy Dimensions," Penn State, Fall 1991.

Guest lecture (full day): "Environmental Policy: Development and Implementation," Environmental Law Institute training program for environmental professionals from developing countries. 10/31/91.

"Ecosystem Modeling and Analysis" MRSC 4410, Senior/Graduate level mathematical modeling. LSU, 1981-87.

"Theoretical Concepts of Ecology: Seminar" MRSC 7370, team taught, variable content. LSU, 1984, 1986.

"Landscape Ecology." LSU, 1985.

"Ecological Modeling and Management." LSU, 1983.

C. Graduate Students Supervised

1. Degrees Conferred:

Chairman:

1. Cutler J. Cleveland, M.S., 1982, Louisiana State University, "An energy based approach to natural resource analysis: theory and application to geopressed gas resources in the U.S. gulf coast region."
2. Scott G. Leibowitz, Ph.D., 1988, Louisiana State University, "The pattern and process of land loss in coastal, Louisiana: a landscape ecological analysis."
3. Tony Lowrey, Ph.D. 1996, University of Maryland, MEES Program, "Contributions to estuarine eutrophication modeling: watershed population estimation methodology, estuarine flushing model, and eutrophication model."

4. Beatriz Castaneda, M.S. 1997, University of Maryland, MEES Program, "An index of sustainable economic welfare (ISEW) for Chile."
5. Ben Haskell, M.S. 1997. University of Maryland, MEES Program. "Seasonal habitat partitioning by recreational and commercial users of the Florida Keys National Marine Sanctuary."
6. Laura L. Cornwell, Ph.D. 1997, University of Maryland, MEES Program, "Policy tools for environmentally sustainable development: environmental bonds and participatory modeling."
7. Lisa Wainger, Ph.D. 1997, University of Maryland, MEES Program, "The effects of land use patterns on ecosystems: development of hydrologic simulation and empirical habitat models for multi-criteria policy analysis."
8. Michael Mageau, Ph.D. 1998. University of Maryland, MEES Program. "Developing and testing a quantitative index of ecosystem health."
9. Monica Grasso, Ph.D. 2001. University of Maryland, MEES Program. "Understanding, modeling and valuing the linkages between local communities and the mangroves of the Caeté River Bay (PA – Brazil)."
10. Pamela Behm. MS. 2002. University of Maryland, MEES Program. "Spatial Modeling of Eelgrass Distribution in Great Bay, New Hampshire."
11. John C. Woodwell, Ph.D. 2002. University of Maryland, MEES Program. "The Role of Natural Capital in Ecological Economic Systems."
12. John Brawley, Ph.D. 2002. University of Maryland, MEES Program. "Dynamic Modeling of Nutrient Inputs and Ecosystem Responses in the Waquoit Bay Estuarine System."
13. R. Taber Hand. Ph.D. 2003. University of Maryland MEES Program. "System structure, natural history, dynamic modeling and adaptive management of the Mekong Watershed's Tonle Sap-Great Lake, Cambodia".
14. Amanda Vermuri, Ph.D. 2004. University of Maryland, MEES Program. "The Contribution of Natural Capital to Quality of Life: A Multi-scale Analysis at the County, Region, and Global Scales."
15. Roismery Portella, Ph.D. 2004. University of Maryland, MEES Program. "Integrated ecological economic modeling of ecosystem services from the Brazilian Amazon rainforest."
16. Trista Maj Patterson. Ph.D. 2005. University of Maryland, MEES Program. "Local vs. global ecological footprints of tourism: a case study from Val di Merse, Italy".
17. Brendan Fisher, Ph.D. 2006, University of Vermont, Rubenstein School of Environment and Natural Resources. "Distribution and development: analyses of global poverty, policy, and sustainability"
18. Daniel Baker, Ph.D. 2007. University of Vermont, Rubenstein School of Environment and Natural Resources. "Transdisciplinary action research and ecological development: a general model with case studies in Honduras and the United States"
19. Shuang Liu, Ph.D. 2007. University of Vermont, Rubenstein School of Environment and Natural Resources. "Valuing ecosystem services: an ecological economic approach."

Committee Member:

Pichan Sawangwong Ph.D. 1991, UMD, MEES
 Terri Paluszkiwicz Ph.D. 1992, UMD, MEES
 Doran Mason, Ph.D. 1993, UMD, MEES
 Edward Jaenicke, Ph.D. 1997, UMD, AREC
 Philip Lawn, Ph.D. 1998, Griffith University, Queensland, Australia
 Olman Segura Bonnilla, Ph.D. 1999, University of Aalborg, Denmark
 Benoit Bosquet (Ph.D. 2001, UMD, PUAf)
 Steve Walters (Ph.D., UMD, MEES, 2002)
 Jon Anderson (Ph.D., UMD, MEES, 2002),
 Caroline Hermans (Ph.D. – UVM, RSENR, 2006)
 Ken Mulder (Ph.D. – UVM, RSENR, 2006)

2. Students Currently Supervised:

Daniel Dias (Ph.D. UVM/RSENR), Eric Garza (Ph.D. UVM/RSENR), Nathan Hagens (Ph.D. UVM/RSENR),
 Ida Kubiszewski (Ph.D. UVM/RSENR), Luz Aida Martinez ((Ph.D. UVM/RSENR), Steve Posner
 (MS. UVM/RSENR), Michel Masozera (Ph.D. UVM/RSENR)

3. Current Graduate Student Committee Membership:

Jimena Haza (MS. UVM/RSENR), Luz Martinez (MS. UVM/RSENR), Jaime Roman (MS. UVM/RSENR)

VI. SERVICE

A. Popular Articles and Opinion Pieces (26)

1. Costanza, R. 1984. Software Reviews: CONDUIT's Ecological Modeling and Ordinary Differential Equations Packages for the Apple II+ and IIe. *ISEM Newsletter*, 2:6-8.
2. Costanza, R. 1986. Software Review: STELLA for the Macintosh. *ISEM Newsletter*, 4:10-15.
3. Costanza, R. et al. 1989. Solomon's Forum White Paper on Sediment and Erosion Control in the Chesapeake Bay Drainage Basin. CEPP-SF 89-01. Coastal and Environmental Policy Program, Chesapeake Biological Lab, University of Maryland, Solomons, MD 20688.
4. Costanza, R. and L. Wainger. 1990. No accounting for nature: how conventional economics distorts the real value of things. *Washington Post*, Sunday, September 2, 1990.
5. Costanza, R. 1991. Balancing humans in the biosphere: escaping the overpopulation trap. *Calypso Log*, February 1991.
6. Costanza, R. and L. Wainger. 1992. Developing a "green" GNP to chart the path to sustainability. *Conservation Digest*, Vol 4, Number 5.
7. Costanza, R. and C. Perrings. 1994. Using market incentives to deal with environmental uncertainty. *Integrated environmental management*, 29:13-14.
8. Costanza, R., H. Daly, P. Hawken, and J. Woodwell. 1995. Non-partisan ecological tax reform: a win-win proposal that is economically efficient, socially equitable, and ecologically sustainable. *ISEE Newsletter*, 6:3, 8.
9. Wainger, L. P. Ryan, R. Cowling, and R. Costanza. 1996. Ecological economics in South Africa: valuation and management of fynbos ecosystems. *Ecological Economics Bulletin*, 1 (1):12-13, 18, 20.
10. Costanza, R. 1996. The importance of envisioning in motivating change toward sustainability. *Ecological Economics Bulletin*, 1 (2): 11-13.
11. Costanza, R. 2001. Insurance for the Arctic. *Washington Post*, Monday, December 24, 2001
12. Costanza, R. 2002. Time for an update: when it comes time for the GDP, what counts?. *Chicago Tribune*. August 25, 2002.
13. Costanza, R., R. Boumans, and D. Sahagian. 2003. A new approach to global, dynamic modeling of integrated human in natural systems. *Global Change Newsletter*. Issue 54, June 2003, pp. 9-12
14. Costanza, R. 2004. Does wind energy make economic sense? *Rutland (VT) Herald*, April 3, 2004.
15. Costanza, R. 2004. The facts on wind power. *Burlington Free Press*, April 18, 2004
16. Costanza, R. 2005. A paradigm shift in economics: the tipping point is fast approaching. *Adbusters*, Vol. 13, #1, Jan/Feb 2005
17. Costanza, R. 2005. The real economy in review. *Rutland (VT) Herald*, Jan. 5th 2005.
18. Costanza, R. and R. Huggett. 2005. The sensible solution to the Asian oyster question. *Baltimore Sun*, April 28th, 2005.
20. Costanza, R. W. Steffen, L. Graumlich, K. Hibbard, and D. Schimel. 2005. Sustainability or collapse? – Society in the 21st Century. *Global Change Newsletter*. Issue 64, Dec, 2005, pp. 19-22.
19. Costanza, R. 2006. The real economy. *Vermont Commons*, No. 10, Feb. 2006, pp. 6-7. (<http://vtcommons.org/node/356>)
21. Costanza, R. 2006. Vermont must break its addiction to fuel. *Burlington Free Press*. Sunday, July 23. (<http://www.burlingtonfreepress.com/apps/pbcs.dll/article?AID=/20060723/OPINION/607230323/1006>)
22. Costanza, R. 2007. Protecting our common asset: the Earth. *Rutland Herald*, Sunday, January 14, 2007. (<http://www.rutlandherald.com/apps/pbcs.dll/article?AID=/20070114/NEWS/701140311>)
23. Hibbard, K. and R. Costanza. 2007. Integrated History and future Of People on Earth (IHOPE). *PAGES News*, Vol 15, No. 1. April 2007
<http://www.pages.unibe.ch/cgi-bin/WebObjects/products.woa/wa/product?id=281>
24. Costanza, R., S. J. Hassol, T. Kasser, and J. G. Speth. 2007. Some Convenient Truths: Scaling back our energy-hungry lifestyles means more of what matters, not less. *Grist* posted Dec. 9, 2007. <http://gristmill.grist.org/story/2007/12/7/171425/969>
25. Barnes, P. R. Costanza, P. Hawken, D. Orr, E. Ostrom, A. Umana, and O. Young. 2008. Creating an earth atmospheric trust: a system to control climate and reduce poverty. *Grist* posted Jan. 2, 2008. <http://gristmill.grist.org/story/2008/1/2/114337/5638>

26. Costanza, R. 2008. Our three-decade recession: the American quality of life has been going downhill since 1975. *Los Angeles Times*. March 10, 2008. <http://www.latimes.com/news/printedition/opinion/la-oe-costanza10mar10,0,5591623.story>

B. Interviews (159)

1. "Long-ignored interdisciplinary teachers seek support for changes in curriculum," by Carolyn J. Mooney. *The Chronicle of Higher Education*, July 5, 1989.
2. "Rebel economists add ecological cost to price of progress," by Peter Passell. *New York Times*, Tuesday, Nov. 27, 1990.
3. Live TV interview on CNBC TV program "Business Wheel" ≈ 10 min on the topic of Ecological Economics. Washington, DC, 12/11/90.
4. "Multidisciplinary look at a finite world," by Constance Holden. *Science*, July 6, 1990.
5. "The price of progress: ecological economists assign values to nature's capital," by Patrice Adcroft. *Newsweek (International)*, June 17, 1991.
6. "Growth vs. Environment," by Emily Smith. *Business Week*, May 11, 1992.
7. "Ecological economics," by Nicolas Michaux. UNESCO Sources, No. 37, May 1992.
8. "Ecological Economics at UNCED," taped interview with Van Williamson. WSCL radio, Salisbury, MD, 6/15/92.
9. "Apply the 'precautionary principle,'" by Mitzi Perdue. *Salisbury Daily Times*, Salisbury, MD, 7/2/92.
10. "Combining ecology and economics," by David Ropiski. *Calvert Recorder*, pp. A3, 11/6/92.
11. "Putting a price on nature: ecological economists value cost of growth on environment," by Patty Reinert. *Warfield's Business Record*, Volume 7, No. 45, November 13-19, 1992.
12. "Interview: Robert Costanza." *Focus*, 1993 3:58-64.
13. "Protecting the environment with the power of the market," by Joe Alper. *Science* 6/25/93, vol 260, pgs 1884-1885.
14. "How an oil spill can come out looking good," by Patricia Lush. *Vancouver Globe and Mail*, 6/8/93.
15. "The new breed links ecological, economic health," by William Allen. *St. Louis Post-Dispatch*, 3/31/93.
16. "What's the economic value of nature? Ask Robert Costanza," by Arthur Hirsch. *Baltimore Sun*, 3/29/93.
17. Live TV interview on channel CHRO noon talk show hosted by Dan Mooney, ≈ 10 min on the topic of Ecosystem Health, Ottawa, Canada, 6/21/94.
18. "More people, more pollution: the rich Chesapeake Bay offers a study in how the population explosion is fouling man's own nest," by Betsy Carpenter and Traci Watson. *U.S. News and World Report*, pp. 63-65, 9/12/94.
19. Taped radio interview, Radio Trinidad, AM 730, ≈ 10 min on the topic of ecological economics, aired 2/16/95.
20. Maryland Public Television. Maryland State of Mind Program, 15 min segment titled: "What price a tree" aired 9/25/95.
21. Taped TV interview on PBS "Econews" program, with about 1,000 airings on cable channels and PBS stations in 1995. ≈ 30 min on the topic of ecological economics.
22. Live radio interview, "Late Night Live with Phillip Adams" ABC radio Australia. ≈ 30 min (together with David Suzuki) on sustainability and ecological economics. Coffs Harbor, Australia, 11/21/95.
23. Live radio interview, "Andrew Olle Program" ABC radio Australia. ≈ 15 min on ecological economics. Sydney, Australia, 11/24/95.
24. Taped radio interview, "Network Asia Program," ABC radio Australia. ≈ 30 min on sustainability and ecological economics. Sydney, Australia, 11/26/95.
25. Taped TV interview, "Talking Heads" program. SBS TV, Australia. ≈ 30 min on climate change, sustainability and ecological economics. Taped 12/4/95, Sydney, Australia, aired 1/7/96.
26. Taped radio interview, National Public Radio, All Things Considered, part of a story by David Baron on win-win environmental and economic consensus building. Aired 10/25/96.
27. "One answer to chemical conundrum," by Cameron Smith. *Toronto Star*, Dec. 21, 1996.
28. Interview on "Environmental Assurance Bonds," by Russell Mokhiber. *Corporate Crime Reporter*, 1/8/97.
29. "Our recent 'progress' an illusion," by Cameron Smith. *Toronto Star*, Jan. 18, 1997.
30. Taped radio interview, National Public Radio, All Things Considered, part of a story by David Baron on the value of the world's ecosystem services. Aired 5/15/97.
31. Taped radio interview, BBC World News, with Graham Easton on the value of the world's ecosystem services. Aired 5/15/97.
32. "The value of the world's ecosystem services," by Ashlyn Urban. *London Daily Telegraph*, 5/15/97.
33. "The value of the world's ecosystem services," by Malcomb Ritter. Associated Press, 5/15/97.

34. "Mother nature doesn't come cheap, scientists say," by Steven Strauss. *Toronto Globe and Mail*, 5/15/97.
35. "The value of the world's ecosystem services," by Charles Petit. *San Francisco Chronicle*, 5/15/97.
36. Taped radio interview, Discovery Channel Canada, with Alex McDonald on the value of the world's ecosystem services. Aired 5/15/97.
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